

School of Management

**Impact of Organisational Culture on Implementation Success of
Accounting Information Systems (AISs) in Canada and Lebanon**

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Declaration

To the best of my knowledge and belief, this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007– updated March 2014). The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number #: HRE2018-0609

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Dedication

To my loving family

Wife: Hanan Ayoub

Children: Rami, Moreal, Abed, Arz, Alex

Mom: Mounifa Baalbaki

In loving memories

My Best Father: Yehia Ayoub

Sisters and Brothers

With Love and Respect

Thank You for your Infinite Help and Inspiration

Abstract

Organizations invest significant resources to implement effective accounting information systems (AISs). However, successful implementation of such information systems is not facile. Implementation of AIS has witnessed considerable failures that accentuated the attention of both academics and practitioners. The reasons behind such failures are not well investigated yet. While technical causes are essential, other factors can be as noteworthy. This study focuses on the impact of organizational culture on the implementation success of AISs in Lebanon and Canada. It presents a comprehensive understanding of the impact of the most commonly adopted organizational cultural manifestations on AIS implementation success, founded on a combination of multiple theories. Thus, building on the Denison model, competing values framework, cultural audit profile, social exchange theory, fit viability theory, TAM model, Schein's model, and organizational culture profile, 17 dimensions of organizational culture are considered for this study. To assess AIS implementation success, DeLone and McLean's IS model is adopted. Further, mediating and moderating variables are considered in the studied model. Countries selected for this study are of varying economic and societal cultural values. A mixed qualitative and quantitative approach has been applied to conduct this study. A total of 750 questionnaires were distributed to companies across dozens of industries in both selected countries. Moreover, to enrich the research findings, seven key employees and managers were interviewed. The quantitative data analysis was conducted using variance-based partial least square (PLS) structural equation modeling (SEM). A hierarchical component, reflective-reflective PLS model is constructed to diagrammatically present the interplay among a multitude of theories, latent constructs and observed variables. Analysis indicate that organizational cultural dimensions have a significant impact of different variance levels on the implementation success of AIS with moderating and mediating effects. Yet, when comparing the results from the two countries as separate groups, PLS Multi-Group Analysis (MGA) indicated significant differences in the path coefficients. The study provides significant practical, theoretical, and methodological contributions. It provides a theoretical combination of multiple theories and a new AIS implementation success model besides extending a new theoretical framework into the accounting industry. It expands organizational culture and AIS data and applies advanced second generation statistical technique. Besides,

improving policymakers' decisions to combat financial scandals, the study provides a groundbreaking and a reference model for AIS adopting and developing companies and offers further insights into IS and corruption and the national, organizational and international culture interrelationships. The thesis findings provide better insights into the conceptualization of organization culture. Overall, the study has major implications, and recommendations for AIS adopting, developing organizations and stakeholders.

Keywords: *Organizational culture, National culture, Accounting information systems, AIS, AIS implementation, AIS success, AIS failure, AIS transparency and accountability, Corruption, Nepotism, Corporate governance.*

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Glossary of Key Abbreviations

| | |
|--------|---|
| AG | Agreement |
| AIS | Accounting Information Systems |
| AISQ | AIS system quality |
| AISS | AIS success |
| AVE | Average variance extracted |
| C&I | Coordination and integration |
| CC | Creating change |
| CD | Capability development |
| CF | Communication flow |
| CF | Customer focus |
| CMV | Common method variance |
| CORR | Corruption |
| CR | Composite reliability |
| CSR | Corporate social responsibility |
| CV | Core values |
| D&M | DeLone and McLean |
| DNA | Deoxyribonucleic acid |
| EDM | Engineering and design management |
| EM | Empowerment |
| ERP | Enterprise resource planning |
| FBI | Federal Bureau of Investigation |
| G&I | Goals and intent |
| GAAP | Generally Accepted Accounting Principles |
| GOF | Goodness of Fit |
| HCM | Higher component model |
| HOC | Higher order constructs |
| HTMT | Heterotrait-monotrait |
| IASB | International Accounting Standards Board |
| IASC | International Accounting Standards Committee |
| ICT | Information and communication technology |
| II | Individual impact |
| IQ | Information quality |
| IS | Information systems |
| IT | Information technology |
| LCM | Lower component model |
| LOC | Lower order constructs |
| MNE | Multinational enterprises |
| MoGAHA | Ministry of government administration and home affairs (MoGAHA) Korea |
| MP | A member of the parliament |
| MRP | Materials requirement planning |
| MTM | Mark-to-Market |
| NGO | Non-governmental organization |
| NP | Nepotism |
| OC | Organizational culture |
| OCP | Organizational culture profile |
| OECD | Organization for economic cooperation and development |
| OI | Organization impact |

| | |
|-----------|--|
| OLD | organizational leadership |
| OLE | Organizational learning |
| PC | Path coefficients |
| PDM | Participative decision making |
| R&I | Rewards and incentives |
| RMS_Theta | Root Mean Square Error |
| SD&I | Strategic direction & intent |
| SDM | System development methodologies |
| SEC | Securities and exchange commission |
| SEC | Security exchange commission |
| SEM | Structural equation model |
| SPV | Special purpose vehicle |
| SQ | Service quality |
| SRMR | Standardized Root Mean Square Residual |
| TAM | Technology acceptance model |
| TM | Top management commitment |
| TRA | Theory of reasoned action |
| TTF | Task technology fit |
| TW | Teamwork orientation |
| US | User satisfaction |
| USE | Use |
| V | Vision |
| VIF | Variance inflation factor |
| Wasta | An Arabic term meaning nepotism |
| WI | Workgroup impact |

Chapter One: Introduction

“If a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts he shall end in certainties”. - Sir Francis Bacon

“The greatest challenge to any thinker is stating the problem in a way that will allow a solution.” - Bertrand Russell

“Each problem that I solved became a rule which served afterwards to solve other problems”. - Rene Descartes

“The significant problems we have cannot be solved at the same level of thinking with which we created them.” - Albert Einstein

Successful use of accounting information systems promotes healthy and competitive organizational performance, resulting in more reliable and trustworthy financial and non-financial reports that our nations can count on (Sajady et al., 2008). Instinctively, every organization should target this healthy organizational performance. Yet, waves often propagate against sailboats, resulting in unexpected financial catastrophes.

1.1 FINANCIAL CATASTROPHES RESULTING FROM AIS FAILURES

Following financial scandals, politicians and policy makers rush in new laws and regulations (Aobdla, 2018). Yet, financial scandals flourish. Lay individuals in our societies may not understand their financial and economic surroundings. Politicians and policy makers may not be well trained in organizational issues to understand the actual causes of the never ending financial scandals. New laws and regulations may help but such laws cannot change organizational cultures and behaviors that have become an ingredient of human heart rhythms in their organizations (Aobdla, 2018). Accounting and Accounting Information Systems (AISs) nurture and adapt within their social and cultural surroundings. A culture of corruption may be curbed by new laws and regulations but will that be possibly eradicated? Doubtful! Other corrective routes and options may need to be followed to change a specific way of behavior and feed in new organizational blood, new organizational values, norms, and behaviors. Due to human fabrications of accounting records, Enron in the USA, declared an unexpected bankruptcy causing financial losses in billions of US dollars, thousands of employees to lose their jobs and thousands others to lose their retirement accounts (Li, 2010). As a result, investors and stakeholders suffered excruciating and unbearable consequences (Li, 2010). X-Ray Australia, in another case, had to abandon an accounting information system that impacted operations of tens of firms. This reluctant abandonment impacted the operations of tens of firm units and branches (Akkeren, 2012). In

another example, billions of dollars disappeared overnight from the Lebanese Bank Al-Madina (Gambill & Abdelnour, 2004). Another instance appears when WorldCom fabricated its accounting records by as much as US\$ 12.8 billion, a scandal that led to 30,000 job losses, and investors losing more than US\$ 180 billion in investments. Satyam, the fourth largest IT company in India, fell into similar financial consequences (Chanchal, 2014). The CEO of the company had made a scam of US\$ 2 billion impacting corporate bodies in India, interests of stakeholders and the general economy (Chanchal, 2014). Using its accounting information system (AIS), the company inflated the amount of cash it said was on its books by US\$ 1 billion and overstated quarterly revenues for the period ending 30 September 2008 by 28% and earnings by US\$ 125 million, that is US\$ 150 million in 2019 (Howlett, 2009).

Financial disasters, such as those cited above, have had social, environmental, demographic, regulatory, and economic impacts in our modern societies (Sadka, 2006). Yet, politicians and policy makers ignored or misinterpreted the root causes and stipulated new laws (Sadka, 2006). Unfortunately, such scandals continue to occur. So, the world has witnessed catastrophic financial scandals that have impacted our societies and economies significantly, in terms of financial, job, environmental, societal, income, ethical and other catastrophes (Sadka, 2006). Besides, organizations have faced major operational, financial and economic problems due to similar reasons. The analysis behind such major financial failures revealed numerous reasons. While some analysts referred to ethical and legal reasons, others referred to operational, technical and managerial reasons. Further, different examinations referred to corruption as a significant cause behind such failures. Policymakers and politicians resorted to stipulating new laws and regulations. However, it is worth noting that all such financial catastrophes started with an accounting information system failure. These named scandals are just a few of many that have invaded our financial and economic systems in the last few decades (Thanos, 2015). Many questions can be raised here.

- What is the role of AISs in such failures?
- Are not such scandals resulting from an accounting system failure?
- What caused such fundamental information systems to fail?
- Is it behaviour or culture within organizations that may cause such failures?

The reasons behind these information systems failures are yet ambiguous. Empirical research may say something in this regards, let us explore further. Literature pinpointed various cases of AISs failures, viz., Tyco, WordCom, university of Massachusetts, Stanford and Indiana universities, HealthSouth, X-ray Australia, Bank Al-Madina, Enron, Arthur Anderson, Enron India, etc (Gambill & Abdelnour, 2004; Chanchal, 2014; Hosseini, 2016; Thomas, 2002; ENSSCPA, 2017; Kuhn & Sutton, 2006; Thanos, 2011; Dwivedi et al., 2015). In parallel, as a chartered accountant, I have practised accounting in three different cities, Sydney, Australia, Halifax, Canada and Beirut, Lebanon. Across these three cities, companies which I worked for used different types of AISs. Each accounting information system was mostly tailored to the country in which those companies operated. No one company used a system that is implemented in a different country but rather a system focused on the specifications of the local rules and practices. Back in the year of 2010, I worked for an accounting firm in Halifax, Canada. This accounting firm used an accounting software called “*Simply Accounting*”, one of the most commonly adopted accounting software in the city. This system was working reasonably well, fulfilling its roles successfully. In 2016, for various reasons, I had to relocate to the city of Beirut, Lebanon. Further, as a chartered accountant with accounting experience in both Canada and Australia, I got hired by a local firm in Beirut. This firm adopted a local accounting information system that was customized for its operations. Unfortunately, the system was failing to meet its expectations. For more efficient operations, I suggested that the firm adopts the “*Simply Accounting*” software, a commonly adopted accounting information system in the city of Halifax, Nova Scotia, Canada. The management approved my suggestion. Thus, the firm purchased “*Simply Accounting*”, and conducted some custom adjustments in the system functions to be successfully implemented in the local Lebanese markets, expecting that the system will operate as successfully as it did in Halifax, Canada. However, after a few months of operations, the results were surprising. This accounting information system failed, and the firm had to abandon it completely after a major investment in cost and training. The abandonment resulted in discrepancies in the operations of the firm for a period of time. I was perplexed by the results. While the system was extremely successful in Halifax, it turned out to be a complete fiasco in Beirut. Technical reasons were not considered of much influence in this problem. The system was used successfully on other occasions with no reported issues. *So, what caused such accounting*

information system failure? Such failures are costly on an organizational and national level. Technical causes can be troubleshot and solved. However, the reasons behind such influential and prominent financial failures may be more complex and perplexing. Let us explore what prior research suggests in this regards.

Literature has referred to numerous cases of AISs failures, namely but not limited to X-ray Australia, Bank Al-Madina, Enron, Arthur Anderson, Enron India, etc (Gambill & Abdelnour, 2004; Hosseini, 2016; Thomas, 2002; ENSSCPA, 2017; Kuhn & Sutton, 2006; Thanos, 2011). In Lebanon, which has one of the largest banking industries in the world, and where tens of billions of dollars are deposited in more than 70 private banks, billions of dollars disappeared without trace. This had a devastating impact on the lives of hundreds of stakeholders, families, elderlies and children (Gambill & Abdelnour, 2004). The accounting information system in one bank was tampered with to reflect unreal financial figures and information. That is the well-known and surprising collapse of Al-Madina Bank (Gambill & Abdelnour, 2004). Over the last three decades, AISs have gained momentum due to their importance in organizational management and decision-making (Alobaid, 2016). It has been shown that AIS has been central to the success of many organizations in different sectors due to its ability to automate accounting processes in an organization, thus, reflecting on organizational financial and non-financial performance for internal and external decision-making (Altawalbeh et al., 2017). Accounting and AIS have intermingled with human societies and cultures and developed in parallel, to satisfy their needs and interests. Moreover, when AIS is successful, it has the ability to generate accurate accounting reports that the management can use to make decisions. However, it has been shown that AIS fails recurrently, and its failure, whether due to technical issues, human fabrications, or lewd acts, can be shattering. Research shows that AIS can be abused and its reports can be fabricated and constellations may be formed to lobby AIS performance (Altawalbeh et al., 2017). The results of AIS failures have been catastrophic around the globe.

Billions of dollars have been lost. The income of thousands of families vanished. Thousands of employees lost their jobs, and several individuals went to jail. Societies, economies, and environments have been under serious discrepancies as a result of global and organizational financial and non-financial crises (Gambill & Abdelnour, 2004; Hosseini, 2016; Thomas, 2002; ENSSCPA, 2017; Kuhn & Sutton, 2006; Thanos, 2011). Many organizations lost their competitive

edge. Yet, these are some of the resulting issues from AISs failures. However, the more bewildering issue is that solutions are not yet in place. Policymakers run after new laws and regulations disregarding other reasons that may be of potent importance. Do such resorts make up the specific solutions needed? This may not be the case. The following discussions explore further in this context (Gambill & Abdelnour, 2004; Hosseini, 2016; Thomas, 2002; ENSSCPA, 2017; Kuhn & Sutton, 2006; Thanos, 2011).

Enron was an American company founded in 1985 as a result of the merger of two small regional firms (Hosseini, 2016). It was operating brilliantly as trusted by its accounting reports. However, all of a sudden, the mountain collapsed into shattered pieces hitting everything around. It was a gigantic accounting scandal that resulted in billions of dollars in losses and US\$ 628 million in debts to the public in 2001 which is close to US\$ 912.55 million in today's money. In the aftermath of this scandal, thousands of employees lost their jobs, tens, if not hundreds of families got deprived of their livelihood (Thomas, 2002). In the wake of this scandal, the shareholders filed a US\$ 40 million lawsuit against Enron and the CEO, with the former CEO and succeeding CEO getting 24 years in prison. The shareholders were reported to have lost US\$ 107 billion in today's money, and investors losing millions of their benefits (Thomas, 2002). This is a case of an accounting system being made to fail intentionally by those in charge. Consequently, the catastrophic effects were impactful on the US financial system, society as well as the general economy and trust of global and local investors (Thomas, 2002). Ironically, Enron had been named the most innovative company by the '*Fortune Magazine*' in 1996 and remained in that position until 2001. Due to the much-publicized success, the stock price of Enron had reached US\$ 90.7 per share in 2000, which would later fall after its fraudulent activities were revealed (Hosseini, 2016). The company engaged in Market to Market (MTM) accounting, for which it received the approval from the relevant authorities. This accounting system allowed the company to value its financial situation based on the 'fair value' of the firm's assets, which can change as the market condition changes. Enron would later use this system to overinflate its profits and as a result, mislead investors using its AISs. Enron used Special Purpose Vehicles (SPV's) to borrow money and transfer its debts to offshore SPV companies. This facilitated hiding its liabilities from its investors. This caused Dynegy corporation to back-off from a planned merger with Enron

(Hosseini, 2016). Users of Enron's AISs fabricated its financial records to reflect a positive standing before its collapse.

Fabrication of accounting records at Enron was not a unique case. Such disasters seem apparent. Arthur Andersen fell astonishingly. The company acknowledged the misreporting of its earnings by US\$ 1.7 billion, which is worth US\$ 2.4 billion today (ENSSCPA, 2017). The company had to pay US\$ 26.8 million to settle a lawsuit placed upon it by the Security Exchange Commission (SEC) authority. It also had to settle a shareholders' class-action suit for US\$ 457 million, that is US\$ 664 million today, and Arthur Andersen was fined US\$ 10.7 million. It was reported that the founder of the company, Buntrock, and five senior members manipulated the accounting systems of the company and misreported its financial position, fabricating financial reports (ENSSCPA, 2017). This was done to ensure they met the targets they have set by the beginning of that financial year. It was reported that the senior officers started perpetrating the fraud activities by manipulating the loopholes in the company's accounting systems. Upon inspection of the company's end-year statements, the internal auditors realized the extent of the fraud and tried to press the executives to correct the errors but without success. When the company hired a new CEO in 1997, the case came to the limelight as he forced the company to restate its financial statements for the previous five years. In this case, it has been shown how accounting systems can be manipulated, resulting in serious problems. Although no automated AIS is being cited, it is clear that once an accounting system fails or is manipulated, it can be disastrous (ENSSCPA, 2017).

In the same context of AIS failure as a result of fabricating financial information, WorldCom inflated its assets by as much as US\$ 12.8 billion, a scandal that led to 30,000 job losses, and investors losing more than US\$ 180 billion in investments. CEO, Mr Bernie underreported line costs by not expensing them and also inflating revenues by doing fake account entries. Following an internal audit, it was discovered that there was a US\$ 3.8 billion in fraud (Kuhn & Sutton, 2006). The results of this scandal were devastating, with the CEO being fired and the controller resigning while the company filed for bankruptcy. Further, the CEO was sentenced to 25 years in jail, and the scandal jolted the US Congress to pass the *Sarbanes-Oxley Act*, which represented the strictest business regulations since 1930. In June 2002, the company stated that it was involved in fraudulent reporting of its transactions that revealed an US\$ 8 billion

profit instead of half a billion in losses. The company announced that it was restating its 2001 and 2002 financial statements to reflect the true position of the company in those years. In this case, the accounting system was manipulated by the top echelons of the company, which was facilitated by the CEO's tolerance to the organizational culture of corruption (Kuhn & Sutton, 2006). Fabrication of AIS records did not stop here.

In parallel, Tyco company was involved in financial thievery involving top management of the company. The leading players of the scandal were the CEO and the CFO, who together stole more than US\$ 150 million and further inflated the company's income by US\$ 500 million, that is US\$ 715 million today. The results of this fraud were devastating (Thanos, 2015). The CFO and the CEO received a sentence of 8-25 years in prison, and the company had to pay US\$ 2.92 billion to investors due to a class-action lawsuit. Furthermore, more than 200,000 employees were forced to undergo a business ethics course to prove they were fit to work for the company. This scandal was discovered in 2002, and the central players were the CEO and CFO (Thanos, 2015). It turned out to be a long-drawn-out court battle and the CEO, and the CFO denied any wrongdoing. The trial ended in a mistrial, and a retrial occurred in 2005, where the two architects of the scandal were found guilty. Interestingly, amidst the trial, the CEO threw a US\$ 2 million birthday party for his wife on an island. This scandal was engineered by the people in charge of the company's financials, and the accounting systems were made to fail intentionally. The CEO and the CFO bred and allowed the culture of organizational corruption to thrive (Thanos, 2015).

Moreover, when HealthSouth posted huge profits for 40 consecutive quarters, no one had suspicions. It was not until 1997 when there were radical changes, and the company was affected, when its shady deals were uncovered. Reports later revealed that the company's earnings were inflated to US\$ 1.4 billion so as to meet stockholders' expectations. The numbers were allegedly made up from 1996-2003. The CEO, Richard Scrushy, sold US\$ 75 million in stocks a day just before the company posted huge losses, which triggered further suspicions. However, from 1999 to 2001, HealthSouth's income magically grew by over 500% due to the ongoing fraud, and by 2002, the company's assets were overstated by more than US\$ 800 million, that is US\$ 1.144 billion today. The scandal had devastating effects, with the company being raided by the Federal Bureau of Investigation (FBI) and Securities and Exchange Commission (SEC) in 2003. Civil actions were taken against the CEO and the firm. The company would later be delisted from the

stock exchange, and its shares, which sold for US\$ 30 in 1998, dropped to only 14 cents over the counter as the facts were revealed. Although the CEO was acquitted of all fraud charges in 2005, he was convicted of bribing Alabama governor by donating US\$ 500,000 for campaigns (McCann, 2017). This was in order to bribe his way to the state hospital board (McCann, 2017). The shocking and devastating effects of this scandal were dire; thousands of employees were laid-off work as the company restructured. Further, millions of families had their health care disrupted due to the culture of corruption in the company and the subsequent downsizing. The culture of corruption had penetrated the company, and the CEO tolerated or supported it to thrive, which led to massive losses, affecting millions of dependants (McCann, 2017).

Under the same umbrella, and shockingly, an insurance giant fails. The American International Group collapses. At the centre of the scandal was the CEO of AIG, Mr Hank, and the CEO of Gen Re, Mr Ron. The company was hit by an accounting fraud amounting to about US\$ 3.9 billion, along with stock manipulations and bid-rigging. The insurance industry was on its knees and staring at a cloud of uncertainty (McDonald, 2015). The aftermath of the scandal was painful and devastating. The company settled for US\$ 10 million with the SEC in 2003, and US\$ 1.64 billion in 2006, US\$ 115 million with Louisiana Pension Fund, and US\$ 725 million with 3 Ohio Pension Funds (McDonald, 2015). Further, the company fired the CEO, but did not place any criminal charges upon him. The company, later on, reported the largest loss in corporate history, totalling to US\$ 61.7 billion which makes close to US\$ 80 billion today, yet received a bailout from the federal government. Interestingly, the AIG executives awarded themselves bonuses amounting to US\$ 165 million following the federal government bailout (McDonald, 2015). The failure and manipulation of the accounting information system records witnessed the company lose billions in scandalous transactions. This would have been averted had the organizational management not supervised the culture of corruption as it unfolded (Hamilton, n.d.).

In another market context, and after three years of trying to make an accounting system work in a major Australian company, management had to give up and abandon it. X-Ray Australia introduced an AIS to its operations, which faced much resistance from users including professional doctors, nurses, employees, accountants, etc. In one instance, it was reported that "*The doctors got cranky; the clerical staff cried...left...walked out*" (Akkeren, 2012, p.64). The company suffered massive losses in the wake of the failed AIS. The company received external complaints from

affiliates like general practitioners, patients, and Medicare Australia. There were considerable negative reactions from patients about long waiting time. These problems were not fixable, and they caused much pressure on the company due to the failure of the AIS (Akkeren, 2012).

Such failures and catastrophes must have certain causes. What are the causes of such immense failures? These catastrophic failures impact society, environment and shape economic and social life of future generations. However, still, is it the people in the organization? Is it the culture? Is it due to both? Is it due to technicalities? The reasons behind such AISs failures are not yet well deciphered. While technical issues cannot be ignored, other causes of such failures are of greater importance.

Literature may blame the organizational culture for such failures. In every organization, there is always a particular culture that is practised to ensure that the objectives of the firm become attainable (Marquis et al., 2013). Accessibility of individual goals and interests has considerable value to the goals and activities of the operating institution (Marquis et al., 2013). Managers and employees' behaviours and values aim to maximize the psychological and social environment of an operating institution (Marquis et al., 2013). In this regards, organizational culture has a direct impact on the implementation of AISs (Molla & Loukis, 2005). The organizational culture can be described as the environment in which AISs are integrated (Molla & Loukis, 2005). It is the society in which AIS nurtures and develops (Molla & Loukis, 2005). Successful integration and implementation of AISs will improve the competitiveness of the organization and the efficiency of the decision-making process (Molla & Loukis, 2005). The organizational culture has a direct influence on the procedures and ways of processing actions inside an organization and, thus, a direct influence on the success of the implementation of AISs (Molla & Loukis, 2005). Hofstede's model of culture provides a side of clarification on the coordination of activities inside an organization (Hofstede, 1983). This model consists of six dimensions, which are power distance, individualism, masculinity, uncertainty avoidance, indulgence, and long term orientation (Hofstede, 1983). Hofstede (1983) provides a broader cultural perspective, mostly relevant to the national culture that is claimed to have an impact on the organizational norms and behaviours. Organizational cultural trends such as the need for improved capacity, better employee performance, smoother departmental communication, and commitment level influence the success

of the implementation of AISs (Bradford & Florin, 2003). Organizational culture has a direct impact on the processes of communication between management and employees (Ke & Wei, 2008). AISs constitute an integral part of the efficient communication of information for better decision making and top-down and bottom-up real-time communication (Nazarian et al., 2013).

AIS survives in an adaptable organizational culture (Vadivelu & Klein, 2011). The relationship between the beliefs and the values of an organization and the dimensions of organizational culture determine the suitability of the accounting information system (Vadivelu & Klein, 2011). The implementation success of AISs is facilitated by the organizational culture and human factors (Vadivelu & Klein, 2011). The cultural norms in an organization are determined by the communication process and the shared trust among management and employee levels. Thus, the implementation of AISs success is highly influenced by the organizational environment in which it nurtures (Vadivelu & Klein, 2011). Each organization could have a different culture, and individuals work and perform differently in different organizational environments. Thus, it is essential to consider the dominant organizational culture when evaluating the nature of AISs to be implemented (Tsakumis et al., 2007).

Further diving through the literature has identified a relationship between organizational culture and information systems, specifically, enterprise resource planning systems. The literature addressing a relationship between organizational culture and AISs success seems inadequate to rare. Since AISs are one form of information systems with their own unique differences, roles, impact and objectives, and no technical interpretation was found for the failure of *Simply Accounting* software in the company I was employed in, speculations are made in regards to the role of organizational culture in this respect. The literature has identified a relationship between some dimensions of organizational culture and information systems. These characteristics include, namely, but not limited to information quality (Nusa, 2015; Nusa, 2016; Wisna, 2015; Susanto, 2015; Al-Hiyari et al., 2013; Tarigan, 2016; Sherif et al., 2016; Choe, 2014; Ismail, 2014; Chung & Cheng, 2016), service quality (Wahyudi, 2016; Sari et al., 2015; Pornpandejwittay, 2012; Mulyai & Rachmawati, 2016; Wongsim, 2011; Ramli & Iskandar, 2014), data quality (Boban & Susak, 2015; Carolina, 2015), system quality (Mustafa et al., 2010; Napitupulu & Dalimunthe, 2016; Dwivedi et al., 2014; Choe, 1998), improved leadership (Ali, 2016; Chloe, 2004; Salehi,

2010), organisational commitment (Indahawati, 2015; Indeje et al., 2010; Suzanto, 2017), management commitment (Shetat, 2015; Khalifa, 2012; Iskandar, 2015; Skoumpopoulou & Teresa, 2017; Suratman & Mohammed, 2017; Tartaraj & Hoxha, 2014), leadership and commitment (Kekale et al., 2011; Ke & Wei, 2008; Bustinza et al., 2013; Boersma & Kingma, 2005; Bourrie et al., 2012), innovative climate (Roni, 2015; Lopez, 2009; Sari et al., 2015), communication patterns (Dezdar & Ainin, 2012; Jewels, 2011; Alhirz & Sajeev, 2015; Choi, 2013; Gupta et al., 2014; Rouhani et al., 2013; Venkatraman & Fahd, 2016), mind-shift issue (Tang & Cheung, 2010; Bai & Cheng, 2010), and learning culture (Guo et al., 2014; Lapiedra et al., 2011).

However, the literature fails to, yet, conceptualize organizational culture clearly, and dimensions of the organizational culture studied, are limited to few, and most often, general in nature and geography, or focused in a specific city or country. Many organizational culture dimensions are not yet addressed in the literature in relation to AISs success, namely, the 12 dimensions identified by the Denison model (Denison, 2012). Corruption, as well, is one dimension that has not been studied in relation to the accounting information system or general IS. Moreover, literature is unable to distinguish among information systems as each can have different operational contexts, namely AISs that impact the organizational performance and beyond, extending to national and international borders, reporting financial, economic and environmental statements that are relied upon for significant and prominent organizational and national decisions.

This study seeks to identify the impact of organizational culture on AISs implementation success in Canada and Lebanon. The study focuses on these two specific countries because they are different from an economic, cultural, ethical, legal, environmental and geographical perspectives. Besides, in these two countries, the author had years of experience across several industries. As summarized in literature, most research has been done on related topics. Particularly, the impact of partial dimensions of organizational culture on ERP systems implementation success in a general context and no geographical differentiation has been explored. The impact of organizational culture on AISs success in Canada and Lebanon, remained largely unanswered prior to this study. While the following passage presents some background research on the study, other sections in this chapter mainly address the problem statement, research issues, research questions,

research objectives, research design and method, major findings, contributions, ending with a summary of the thesis structure.

1.2 BACKGROUND OF THE STUDY

Accounting and its information systems are a part of our society and they have developed with and adapted to its needs (Yasmine, 2009). Through constellations, manipulations, fabrications, corruption, etc., humans manipulate AISs to serve specific goals and interests. Such practices cultivate in a supporting environment that is the organizational culture. Conceptualizations of organizational culture are yet unclear. The concept has been described as "a riddle wrapped in a mystery wrapped in an enigma" (Pettigrew, 1990 as cited in Jung et al., 2009). In the literature, well above 100 dimensions linked to organizational culture have been identified (Jung et al., 2009).

Communication, for instance, is one facet of organizational culture (McLean & Moman, 2015). Research has shown that in the Canadian context, communication is a critical factor in almost all organizations (McLean & Moman, 2015). The Canadian business community value communication and understand that without proper communication, objectives might not be met. As such, leaders of Canadian businesses have realized that the era of one-way-communication is over and that they have to embrace internal, integrated communication (McLean & Moman, 2015). It has been shown that in most Canadian businesses today, the use of web-based communication tools to pass information to employees has been embraced. The current advancements in technology and social media platforms have been greatly embraced in the Canadian business environment as a way of easier communication (McLean & Moman, 2015). On the other hand, Lebanese organizations value communication, too, but it is often hierarchical in most cases. It has been shown that Lebanese businesses are well structured where communication must use hierarchies. Employees report to their immediate bosses who then report to the top management. Once the top management receives the message, it will communicate back through the middle-level managers. As such, communication in Lebanese organizations is more paternalistic (Yahchouchi, 2009) considering the communication nature in Canadian organizations.

Further, many Canadian organizations have embraced innovation and creativity which is another facet of organizational culture (Jung et al., 2009). Research has shown that creativity and

innovation is the way to go if an organization wants to be successful. Creativity and innovation have become an integral part of the Canadian business culture. Although this has not been encouraged in many parts of the world, the era of technological advancement has compelled many firms to embrace innovation (Panigrahy & Pradhan, 2015). In many Canadian organizations, employees are encouraged to be creative and innovative so as to make the organization competitive (Panigrahy & Pradhan, 2015). With the ever-changing customer needs, Canadian organizational leadership has realized the need to be innovative so as to cater to dynamic and developing markets (Panigrahy & Pradhan, 2015). As such, employees are given room to be creative and innovative as long as they act along with the organizational objectives (Panigrahy & Pradhan, 2015). On the other hand, Lebanese organizations are more rigid and allow little room for creativity. With their hierarchical structures, these organizations are still adopting traditional ways of management that allow for little flexibility. However, with the current wave of technological developments, Lebanese organizations are starting to embrace innovations, and it is believed that with time, they will be more innovative and creative (Hejase et al., 2013).

Within the organizational culture perspective, as well, the culture of effective and improved leadership also sets the organizations in Lebanon and Canada apart. The national culture profoundly influences organizational culture. Canada is a more progressive country that has seen women at the helm of the country's leadership (Devillard et al., 2017). On the other hand, Lebanon has seen very few women at the helm of the country's political leadership. This fact has been reflected in the organizational cultures of these two countries, with women taking leadership of many Canadian organizations as compared to Lebanon (Hejase et al., 2013). This fact points to the many differences in cultural aspects of organizations in these two countries, with Canadian culture embracing women leadership in organizations while Lebanon has been struggling with this fact, for instance. Surveys of the study were conducted in the cities of Halifax, Canada and Beirut, Lebanon. In the following passages, light is shed on a few aspects of cultural characteristics of both countries.

The city of Halifax is the hub of a vibrant culture that embraces different organizational norms, traditions, and various behaviours (Al-alawi, 2016). Halifax is characterised by an individualistic culture where emphasis is placed on the individual achievements (Al-alawi, 2016).

In Beirut, local culture is a result of national as well as foreign traditions as the country has been inhabited and controlled by different national groups and civilizations throughout history (Ruiz, et al., 2017). The city embraces a liberal and free economy, supporting the views of the individuals – both foreign and domestic (Ruiz et al., 2017).

Canadians in Halifax are well-mannered and mainly reserved and these values are reflected in the workplace (Yeganeh, 2016). They are interested in values that focus on peace, respect, and equitable governance, and this ensures that people treat those in authority with respect and courtesy (Yeganeh, 2016). The customs and protocols are strictly followed with the etiquette in addressing higher authority employees, considered to be important (Yeganeh, 2016). Halifax is characterized by a low level of corruption in which the employment and promotions in the commercial, political, and government offices rely on academic qualifications or merits or both (Yeganeh, 2016). Organizations in Halifax place importance on the qualifications of individuals to positions rather than promoting or employing family members or friends to higher offices (Yeganeh, 2016). On the other hand, Beirut is characterized by a high level of corruption when it comes to employment to the higher offices. Unlike Halifax, where transparency and democratic measures are undertaken when providing employment opportunities in the sector, Beirut is primarily based on the concept of '*whom do you know*' in the employment of the individuals in higher positions (Ruiz et al., 2017). Furthermore, organizations in Beirut consider a high level of hospitality when treating individuals. Behaviour of organizations may be based on values and customs that are integrated into achieving respect amongst individuals (Ruiz et al., 2017). The employees are assured of being accorded high respect by both subordinate staff and the top management, and this has meant that the organizations have remained competitive in the dynamic industry (Ruiz et al., 2017).

Canadian culture has impacted the organizational norms in Halifax. Canada is an egalitarian society in which all people are treated equally, and each individual within the organization deserves equal opportunities and rights (Heldt & Miranda, 2017). Also, Canadians have changed the formal nature of the dress code in the organizations into a more relaxed one (Heldt & Miranda, 2017). Canadians are also focused on punctuality, and everyone is required to arrive to the workplace or meetings at least 5 to 10 minutes earlier (Heldt & Miranda, 2017). Employees consider deadlines seriously, and it is an indication of a high level of integrity in the

organization (Heldt & Miranda, 2017). In the western culture, the respect is accorded to the top management, and it is the duty of subordinate staff to accord respect to their supervisors, and this is often articulated in the policy implementation framework (Yeganeh, 2016). The interaction between the top management and subordinate staff has been affected by the foreign culture, and this has impacted the norms and values of employees in Halifax organizations. Views of subordinate staff are integrated in the implementation of the strategic goals (Yeganeh, 2016). Overall, the national culture has an implication on the culture of the organization, namely but not limited to, the respect and integrity directed to superiors (Yeganeh, 2016). The country's culture has an impact on the values and norms prevailing in the cities. Canadian culture has influenced the values and norms at Halifax in numerous ways, including the dressing code, egalitarianism, integrity, solidarity, teamwork, punctuality, etc. With this in place, national culture is influential in shaping the way activities are conducted in the organizations, and the respect accorded to the top management (Yeganeh, 2016). As such, there are differences in the organizational culture of firms in Canada and Lebanon, as there are similarities (Yeganeh, 2016). Although Canada is more progressive, Lebanon has been seen to embrace a more progressive culture only in the recent past. As such, it is believed that organizational culture changes as the national culture changes (Yeganeh, 2016). However, the study focus is on the characteristics of the organizational culture. Yet, organizational culture can be shaped or at least influenced by the national culture (Yeganeh, 2016).

In the study context, Accounting Information Systems (AISs) are of significant importance in the improvement of financial reporting efficiency in business organizations (Rom & Rohde, 2007). Considerable research has been done on AIS, showing that a business can improve the quality of its financial reports by integrating AIS into their systems successfully. AIS refers to the information system structure that a business uses to collect, store, process, manage, and retrieve its financial and non-financial data (Rom & Rohde, 2007). This information system enables businesses to improve efficiency by automating the financial data management process, thus increasing the chances of accuracy in the bookkeeping and financial reporting process. In spite of the established benefits of AIS within an organization, a significant number of organizations have been unable to incorporate it into their systems successfully (Rom & Rohde, 2007). One of the reasons for this phenomenon is the challenges faced in the implementation process of AIS. Many

factors hinder organizations from successfully incorporating AISs into their Enterprise Resource Planning (ERP) model (Rom & Rohde, 2007). The challenges in implementing AIS are sometimes unclearly attributed to the type of culture the organization has. The literature, yet, is unable to explain the impact of organizational culture on AIS implementation success. AIS is of fundamental significance to organizational and national governance and of a tremendous impact on our economy, national income, financial structure, and environmental considerations (Gaffoori, 2016).

Yet, there is a lack of clarity in the literature as to whether the success factors for ERP systems and AISs are the same. AISs integrate the various transaction processing activities within a firm and benefits from an Enterprise Resource Planning (ERP) environment. The combination of these systems facilitates more in-depth transaction processing, and as such, the data quality becomes richer, potentially allowing for easier, and more effective decision making (Daoud & Triki, 2013). Numerous studies have used accounting literature to assess the contributions of (AIS) to business performance (Boulianne, 2007; Karruddin et al., 2010; Grande et al., 2011). Additionally, these studies do not consider AISs in the context of an existing ERP system (Daoud & Triki, 2013). Limited studies differentiate between ERP systems and AIS, which should be looked at as two separate and distinct systems with unique operational contexts and impacts (Daoud & Triki, 2013). With the widespread adoption of ERP systems, AIS research must factor in the different dynamics that AIS in an ERP based environment will have compared to a standalone system (Daoud & Triki, 2013). Another consideration is that, as information technology systems become more capable, the role of accountants within the firm is expected to change (Sharma & Mishra, 2014; Goretzki et al., 2013). Technology adoption and employee attitudes and behaviours are intimately linked (Sharma & Mishra, 2014; Goretzki et al., 2013). Change may be one of the most challenging tasks that an organization will face, yet within the modern environment, the ability to change as needed is a requirement to remain competitive (Sharma & Mishra, 2014; Goretzki et al., 2013).

In the last decade, there has been a growing realization of the interconnectedness between organizational culture and implementation success of information technology systems (Iivari & Huisman, 2007; Kappos & Rivard, 2008). Specifically, organizational culture has been linked to several aspects that potentially mediate the success of AISs, including change (Rashid et al., 2004).

Schneider, Brief and Guzzo (1996) articulate the importance of organizational culture in the face of change by saying "organizations as we know them are the people in them; if the people do not change, there is no organizational change" (p.15). Initiating changes in hardware, software, and hierarchy among others, will only be effective to the extent that the employees themselves assimilate these new ways of operations (Schneider et al., 1996). Studies show that organizational culture has an impact on accounting lag such that key traits such as management commitment, strong leadership, and educational programs have a negative relationship with accounting lag, while fear of change has a positive relationship with accounting lag (Smith et al., 2002). Thus, the implementation of an AIS should be a change that needs to be coped with by the organization. Success should be associated with a resilient organization with an adaptable nature. However, research is needed to ascertain the veracity of this hypothesis, and the scope of the study is limited to the analysis of the direct impact of organizational culture on the implementation success of AIS in Canada and Lebanon.

Yet, organizational culture is a complex phenomenon yielding conceptually rich constructions that attempt to capture its key aspects (Leidner & Kayworth, 2006). As such, there have been several efforts and theories that have been applied to provide the definition and/or framework for use in research and practical interventions (Kroeber & Kluckhohn, 1952; Sackmann, 1992; Hofstede, 1983). Leidner and Kayworth (2006) argue that the study of organizational values is particularly useful for explaining how the internal organizational dynamics affect technology implementation. Therefore, such a study favours a model like Hofstede's that defines such variables. However, while it would appear logical that organizational culture would naturally draw from the national culture, studies have found that the connection is not always straightforward (Smith & Dugan, 1996). Therefore, the value models, like the one presented by Hofstede, should be seen as a continuum (Smith & Dugan, 1996). This point remains relevant, as companies increasingly engage in cross border ventures. There are questions as to the possibility and benefits of transplanting organizational cultures to differing national environments and how this will affect technology system implementation (Daoud & Triki, 2013).

A sample of prior research indicates that one of the primary weaknesses of studies of cultural impacts on information technology implementation is that defining organizational culture

is imprecise (Leidner & Kayworth, 2006). There are many conceptualizations associated with the definition of organizational culture (Leidner & Kayworth, 2006). In addition, studies of culture, for the most part, focus on one of its levels, such as organizational, national, ethnic, etc. This reflects inaccuracy as individuals are affected simultaneously to varying degrees by culture. Therefore, a more realistic view would consider the multiple levels of culture that influence the behaviour of individuals and, ultimately, implementation success of information systems (Leidner & Kayworth, 2006). Thus, more research is needed to tackle this complexity.

Another problem is the limited scope that many studies take, which impedes validity. For example, Busco and Scapens (2011) offer a qualitative interpretation of their experiences as consultants with respect to cultural change and its impact on a management accounting system within a specific company. While the researchers do offer some insight, the limited scope of their research, as well as the minimal reliance on input beyond the researcher's experience, pose a challenge to validity (Busco & Scapens, 2011). Nusa (2015), which studied the impact of organizational culture and structure on the effectiveness of AISs, found that there was a statistically significant association between these factors. However, the validity of the questionnaire applied is uncertain. While studies that have a narrow focus can be reliable, there is a need for reliability to offer support to the validity of the findings. Besides, organizational culture is a complex phenomenon with a multitude of dimensions, as previously suggested. A comprehensive study is needed. Such a study shall address as many facets of organizational culture as possible and thus, have a better understanding of organizational culture impact on AISs implementation success.

Thus, studies may have failed to provide consistent and specific conceptualizations of organizational culture. Limited studies in the literature differentiate between AIS and ERP, or general IS systems. Prior research may have not addressed geography as one moderating factor that impacts the relationship between organizational culture and AIS success. The current study aims to address some of these literature gaps within its scope and provide important future research orientations. Therefore, after narrating a relevant personal experience, as a chartered accountant and presenting an overview of the literature and a background of the study, the study problem statement is derived as below.

1.3 PROBLEM STATEMENT

AIS failures have been associated with technical causes. Nonetheless, further diagnosis associated few organizational culture dimensions laying behind information systems failures. Financial, managerial, operational, economic, societal, ethical, legal, and environmental impacts have been significant, yet detrimental, as a result of AIS failures in the last few decades. Literature fails to conceptualize and clearly understand organizational culture. Researchers, thus far, have not shaped an unblemished relationship between organizational culture and AIS failures. Perplexing, confusing, and puzzling explanations of AIS failure are common, and such catastrophic failures are unending. Thus, it may be of noteworthy significance that more be known about the organizational culture dimensions laying behind the failure of AISs and whether the impact of these dimensions differs across nations of different societal, financial, and economic contexts. This study will investigate the impact of organizational culture dimensions on the implementation success of AISs, specifically in Canada, and Lebanon, considering few moderating and mediating effects in the relationship.

1.4 RESEARCH ISSUES AND OBJECTIVES

The research problem identified in the preceding section establishes the foundation of the research issues and objectives formulated for this study. Addressing these issues and providing appropriate solutions is the path that this study will follow hereafter. Outlined below are the study research issues.

1.4.1 Conceptualization of Organizational Culture

Literature sees organizational culture as an enigmatic phenomenon (Jung et al., 2009). It is an abstract concept (Jung et al., 2009). The dimensions that fall within the shade of organizational culture exceed 100 (Jung et al., 2009). Studies that addressed the relationship between organizational culture and information systems are limited as they involve only a handful dimensions of organizational culture; majority of them involved only 8 dimensions or less (Hossain et al., 2011; Panizzon, 2016; Abduljalil & Zainuddin, 2015; Rabaai, 2009; Ahmady et al., 2016; Kouki et al., 2008; Shatat, 2015; Al-Hiyari et al., 2013). Further, organizational culture has been studied, most often, as a general concept without referring to a specific geography. Few studies have addressed specific countries (Hossain et al., 2011; Panizzon, 2016; Abduljalil &

Zainuddin, 2015; Rabaai, 2009; Ahmady et al., 2016; Kouki et al., 2008; Shatat, 2015; Al-Hiyari et al., 2013). In the following sub-section, another research issue is highlighted.

1.4.2 Definition and Distinction of AIS

Most often, literature addressed AISs as ERP or IS systems. Hence, these studies were too general to address specific information systems under one system. However, each information system is designed to serve a different purpose and has different functions and sub-systems of its own. Specifically, the AIS that encompasses auditing systems, managerial, financial and cost sub-systems differ in roles, objectives, reporting, stakeholders and impact. As follows, a third research issue is pinpointed.

1.4.3 Studying the Impact of Organizational Culture Dimensions on AIS Success

A complex set of variables are involved in studying this relationship. Literature may have failed to provide any clarifications and solutions in this regards. Therefore, many questions pertaining to this relationship are still unanswered. Some sides of this relationship are not even, yet, questioned. Thus, based on the above-mentioned research issues, the following sums up this study's research questions.

- What is the impact of organizational culture dimensions on the implementation success of AIS in Canada and Lebanon?
- Does this impact differ between these two countries?
- Is there a variance among the impact of each organizational culture dimension on AIS success?
- What is the moderating role of location, market level, firm size, and industry in this relationship?
- What are the mediating effects of use (AIS use) and user satisfaction in the relationship between organizational culture dimensions and AIS success?
- How different is an AIS compared with an ERP system?

After identifying the main research questions and the three research issues presented above in subsections 1.4.1-1.4.3, the study aims to investigate the impact of 17 organizational culture dimensions, viz., vision, customer focus, top management support, communication flow, mission,

rewards and incentives, corruption (nepotism in specific), empowerment, strategic vision and goals, goals and intent, teamwork orientation, capability development, agreement, core values, creating change, coordination and integration, organizational learning, on the success of AISs in Canada and Lebanon. In the following figure 1.1, this study's conceptual model is presented. It is a three-layered model depicting the impact of organizational culture that is manifested by 17 dimensions on AIS success. Size, Industry, Location and Market level are considered as moderating variables impacting the relationship between organizational culture and AIS success while AIS Use and User Satisfaction are considered to have a mediating effect in the studied relationships.

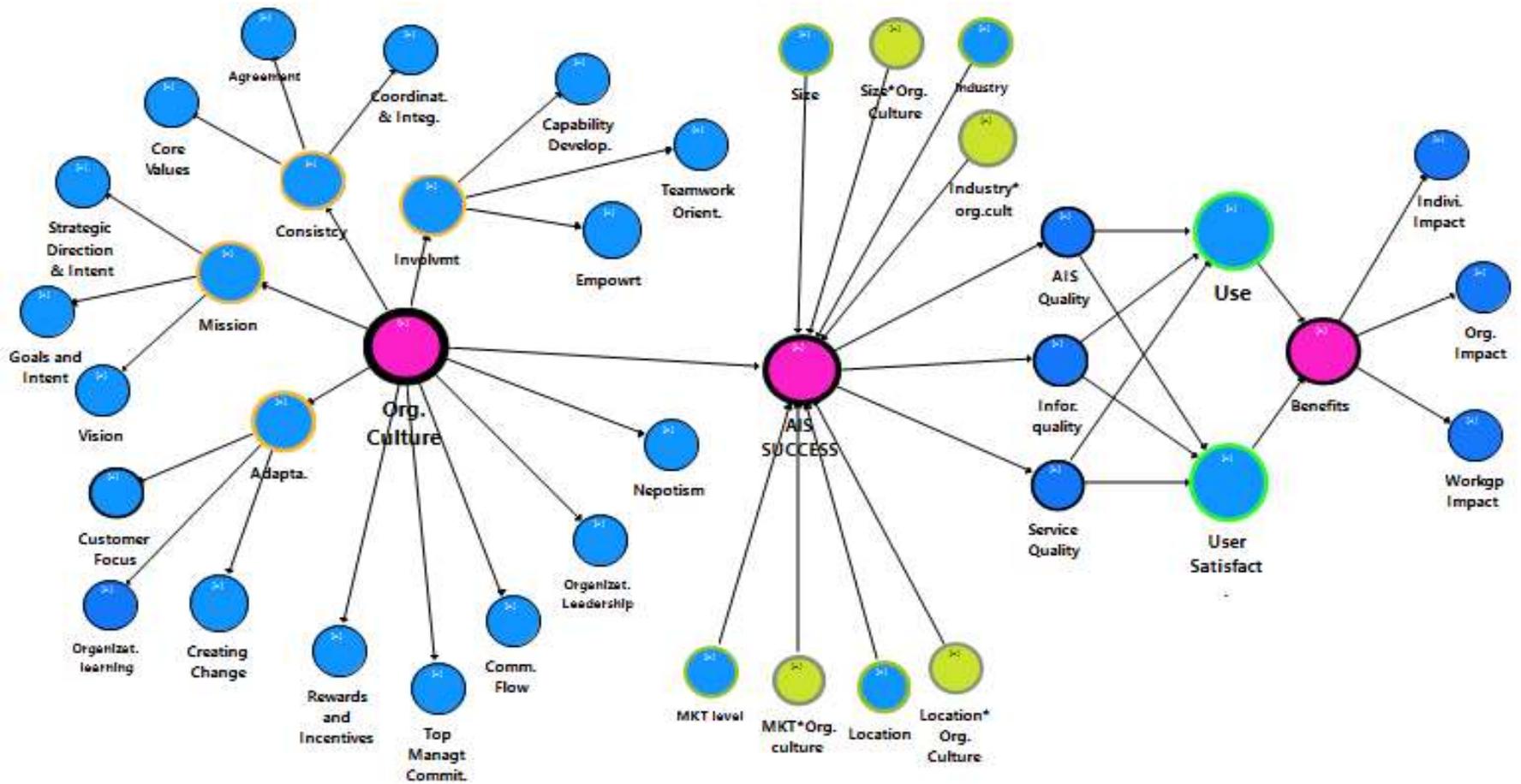


Figure 1.1 The conceptual model of this research study

Therefore, analysing the impact of 17 organizational culture dimensions on the success of the implementation of AIS in the two chosen countries will be the scope of the study. The study will focus on the organizational culture dimensions away from those dimensions attributed to the national culture. The most commonly identified organizational culture dimensions in the literature will be adopted to assess the impact of the organizational culture on the implementation success of AIS. Therefore, the study will investigate the relationship between 17 organizational culture dimensions and AIS success, including a moderating effect of 4 variables that are location, market level, industry, and firm size. Two mediating variables that are AIS Use and User satisfaction are considered in this relationship.

1.5 RESEARCH DESIGN AND METHOD

The study is founded on a combination of multiple theories and the positivist paradigm is adopted for this study. Positivism is a truth-seeking paradigm which emphasizes that reality, genuineness, and factual happenings can be studied empirically and observed scientifically. Reality can be investigated rationally (Aliyu et al., 2014). A review of available literature on the direct impact of organizational culture on the implementation success of AIS is conducted. In addition, a survey is created taking into account the reviewed literature. The surveyed companies are chosen across dozens of industries in both Canada and Lebanon.

To collect the data, 750 survey questionnaires were distributed in varying ways, namely but not limited to, direct emails, social media tools, Qualtrics distribution links, direct calls, personal meetings, to stakeholders in direct contact with and responsible for AIS. Such stakeholders included IT managers, human resource managers, information systems managers, system developers, ERP managers, management accountants, bookkeepers, and end-users. The partial least squares (PLS) based structural equation modeling (SEM) is applied. The constructed third-order factor SEM model presents a schematic interplay among a multitude of latent constructs, observed variables, and indicator items. Further, seven interviews were conducted across both countries to collect considerable qualitative data to support research findings. Thus, applying the positivist paradigm, the study uses a mixed qualitative-quantitative approach to

establish prediction, generalizability, and causality among a multitude of constructs and observed variables (MQHRG, 2019). Collected quantitative data is analysed using variance based partial least square (PLS) structural equation model (SEM). Relevant themes, patterns and relationships are identified in the analysis and coding of qualitative data collected. The findings of this thesis were pioneering as explained in the following section.

1.6 MAJOR FINDINGS

The results of the study showed that the 17 dimensions of organizational culture influence AIS implementation success in both chosen countries, Canada and Lebanon. Furthermore, the results of the study indicated that each dimension has a distinct impact on AIS success in surveyed organizations. For instance, the impact of consistency as a dimension of organizational culture, differs in comparison with the construct of mission on AIS implementation success. Moreover, the research showed that location has a moderating effect on the relationship between the studied 17 organisational culture dimensions and AIS success. Firm level, industry and firm size proved to have no moderating impact on the relationship in the context of this study. They may have an impact in other study contexts and this merits further research investigations. The empirical results showed that AIS use and user satisfaction have a mediating role between organizational culture and AIS implementation success in surveyed organizations. Moreover, the study has provided important insights into the impact of corruption, specifically, the nepotism dimension on the implementation success of AIS. These findings are significant as corruption in multiple forms contaminates the organizational culture and thus, impacts the overall performance and purpose of contemporary organizations. This entails further research to identify dimensions of corruption, viz., nepotism, embezzlements, fraud, etc., and study their impact on organizational culture and AIS implementation success. The study has contributed to the relevant body of knowledge through providing a theoretical combination of multiple theories besides providing a new AIS implementation success model, expanding organizational culture and AIS data, applying advanced second generation statistical techniques and offering an evaluation on the applicability of DeLone and McLean (D&M) success model and Denison (2012) organizational culture dimensions to measure AIS success. A successful implementation of AIS reinforces organizational corporate

governance. These findings support efficient contracting, managerial power and agency theories that elaborate on the importance of information symmetry in creating better corporate governance in firms. In this context, the thesis showed that building the right culture in organizations will improve AIS success that leads to better IT and corporate governance. Moreover, the study provides a framework or a model for software adopting and developing companies' management. It improves the decisions of national policymakers as it provides a better assessment of the reasons behind major financial scandals. These findings are ground-breaking as they may mitigate the occurrences of financial scandals that have had terrific economic, financial, ethical, and social impacts. Further insights have been provided in regards to the impact of organizational culture on AIS within the national and international culture context, the conceptualization of organizational culture, the developing nature of organizational culture and the differentiation between AIS and ERP systems as possible research orientations. The findings of this thesis are explained by a combination of accounting, IS and other relevant interdisciplinary theories. The efficient contracting theory explains the importance of information symmetry across management levels for effective organizational performance. The role of top management support is partially explained by the managerial power theory that elaborates on the power of managers to make influential decisions that impact the overall organizational performance (Van Essen et al., 2015). This management role is elaborated as well by the agency theory. The behaviour of organizational members is well explained by the organizational theory that views organizations as place for social interactions cooperating for the achievement of a common goal. The organizational theory explains the norms and behaviours of organizational departments that impact technology adoption and overall performance as shown in the findings of this thesis (Glinkowska & Kaczmarek, 2015). The study showed that several dimensions of organizational culture impact AIS implementation success and this is explained by the foundational theories of this study. Namely, the effective communication impact on AIS success is explained by the diffusion of innovation theory that emphasizes the role of communication in knowledge creation among social groups (Dearing & Cox, 2018). The Technology Acceptance Model (TAM) social cognitive theory, social exchange theory and task-technology fit theory elaborate on system use and usefulness as important success

factors (Ma & Liu, 2005; Overby, 2010; Sharma & Mishra, 2014; Cropanzano et al., 2017). The agreement and organizational learning impacts on AIS success are explained by the fit viability model and dynamic capability theory (Arifin & Frmanzah, 2015; IRMA, 2017). Findings on the impact of organizational culture on AIS implementation success are explained by the contingency theory, Schein's model and organizational culture profile theory that elaborate on the impact of the organizational environment on technology adoption success (Omoluabi, 2016; Hogan & Coote, 2014; O'Reilly et al., 1991). Further, the top management support impact on AIS implementation success can be explained by the cultural audit and competing values framework theories (Testa & Sipe, 2013; Brits, 2011). The incentive theory of motivation and trait leadership theory explain the impact of rewards and incentives and effective organizational leadership, respectively, on AIS implementation success in Lebanon and Canada. Adopting D&M model (2003) to study AIS success and Denison model (2012) to study organizational culture impact on AIS and founded on multiple accounting, IS and interdisciplinary theories, this thesis provides a new AIS implementation success model to the relevant body of knowledge. Findings of this thesis are pioneering as they underscore the role of organizational culture in AIS failures and thus the occurrence of financial scandals across the globe. The following section highlights the theoretical, methodological and practical contributions of this study.

1.7 CONTRIBUTIONS

The study contributes significantly to theory, methodology and relevant body of knowledge that will be of use by policy makers, practitioners, academicians and researchers. Organizational culture is a complex phenomenon to measure. However, it is of considerable significance to the success of modern organizations. This study identified several prominent organizational culture facets or dimensions that impact the implementation success of AIS.

Therefore, from a *theoretical perspective*, the great significance of this study is reflected in a new AIS implementation success model incorporating 17 dimensions of organizational culture, grounded on multiple theories and thus, bringing in a new theoretical framework into the accounting industry. Furthermore, the study provides important insights into the impact of

corruption, namely, nepotism as a dimension of organizational culture with further insights into the international-national-organizational culture interrelationship and, thus, a conceptual foundation for future empirical research. The study describes the organizational culture as an evolving phenomenon and provides a model with high substantial explanatory power and pinpoints a new classification of organizational culture dimensions besides addressing cultural differences across different locations. A new theoretical framework and thus, a conceptual model depicting an interplay of 17 organizational culture dimensions with AIS success under the effect of mediating and moderating variables has been brought into the accounting industry. In addition, accounting is studied as a part of our modern societies adapting to and developing with their developments. AIS is subject to constellations, fabrications, falsifications and unethical human behaviours where it turns out to become a tool to serve certain interests or groups at the expense of others, taking advantage of stakeholders' economic, environmental, societal and financial interests.

From a *methodological perspective*, the study expands organizational culture and AIS data and applies an advanced second-generation statistical technique. This empirical study has included 17 organizational culture dimensions and multiple IS implementation success variables, four moderating, and two mediating variables in one higher-order SEM model. It is argued as a result, that the study has addressed the gap in the literature and paved the way for related further research orientations. Organizational culture is a complex phenomenon with more than 100 dimensions identified (Jung et al., 2017). This study pinpoints the impact of the most prominent organizational culture dimensions. Future studies shall incorporate a broader range of dimensions of organizational culture that are developing and could be changing with time. To the best of knowledge, no studies have employed component-based SEM known as PLS in addressing organizational culture and AIS in Canada and Lebanon. Component-based structural equation modeling, specifically, higher component, is an advanced statistical, 2nd generation SEM modeling technique (Hair et al., 2018). Most of the studies addressing IS and organizational culture in generation with no specific reference or with reference to specific nations applied regular statistical regression techniques. The study advanced SEM model is a unique contribution to the accounting

industry. Therefore, this study has provided a generic and important methodological contribution to the relevant field of study.

From a *practical perspective*, this study sheds a clear light on the influence of accounting in our societies. Across history and in our modern societies, accounting reports constitute the cornerstone, based on which major economic, political, academic, societal, environmental, policy, and other information are communicated, and thus, relevant decisions are made. Accounting is the language of communication across those arenas (Atrill & McLaney, 2004). In simpler terms, an accounting report that pinpoints the inefficiency of a governmental project may lead to its end, impacting jobs, taxes, prices, pension benefits, etc. Accounting reports, in Canada, for instance, are used to determine the federal social payments made across the nation. Any discrepancies in the accounting information reported by AIS will undoubtedly have an influence on the amounts received by stakeholders. Moreover, this study will be of benefit to organizations planning to or implementing an accounting information system, specifically, if the developing firm of the accounting information system has a different organizational culture in comparison with the adopting firm or there is a large gap between the organizational cultures of both firms. It will provide developers with a better understanding of the organizational culture impact and, thus, improve their efforts to develop more efficient, adaptable, and successful AISs. The research will tighten the gap in the lack of knowledge on the impact of organizational culture on the implementation of AIS and, thus, increase the likelihood of success and improve satisfaction with such software. Developers can have a better understanding of the organizational culture impact and, thus, better ability to develop more culturally fit and customized AISs to enable faster adaptability to technological change, and more efficient, competitive, and successful organizational performance. Identifying the organizational culture dimensions that impact the successful implementation of AIS facilitates determining the needed actions to implement AIS successfully. Further, it can help in strategic planning to ensure that the progression of information technology goes in parallel with corporate organizational strategy (Boynton & Zmud, 1984). Moreover, the study established a model for companies' management to adopt and develop AIS systems more successfully. It is a model, with applicability, that goes beyond its context.

Moreover, the study sheds light on the risks involved when purchasing out of box systems for implementation within culturally different or inadaptable environments.

1.8 THESIS STRUCTURE

The remaining chapters are structured as follows.

Chapter two reviews the literature surrounding organizational culture and AISs' relevant foundational and adopted theories and the culture-IS interplay. The chapter starts with an AIS overview focusing on AIS environment, differentiating AIS and ERP systems and discussing the devastating consequences that may result from abuses of AIS. Thus, the chapter differentiates between AIS and other ERP systems pinpointing the importance of AIS as a unique system that reports to taxation authorities, governments, medical institutions, etc. As a result, the reports of AIS constitute the foundation based on which major social, economic, environmental, financial and welfare decisions are made. This chapter continues with a synthesis of the interplay between organizational culture and national culture. Then, it elaborates on relevant accounting, information systems and few other interdisciplinary theories. It identifies the relevancy of the chosen theories to the study focus and justifies their adoption. The accounting background is presented with specific emphasis on the human manipulation of accounting systems and records leading to fabrications, falsifications, fraud and thus, catastrophic failures of AIS. It discusses the interplay between organizational culture and information systems. Further, the chapter proceeds to review the literature on the impact of organizational culture on AIS implementation success and identify AIS success factors. A discussion of the findings and a summary wrap up the chapter.

Chapter three presents the theoretical framework and hypotheses development for this study. Organizational culture dimensions, as well as AISs success indicators, are integrated to investigate their significance and potential to improve preceding frameworks relevant to the impact of organizational culture on AISs implementation success. This chapter presents the adopted theories addressing the IS-organizational culture interplay. The theoretical framework derived and followed establishes the foundation for collecting research data and developing the proposed AIS implementation success model. The chapter proceeds to derive the dependent variable and

independent variables dimensions by adopting well-known and accepted models in the literature, namely, the D&M (2003) IS model and Denison model for organizational culture. The chapter continues to identify the moderating and mediating variables and thus, derive the overall study theoretical and conceptual models. As the variables of the study and the theoretical and conceptual models are derived, the study 19 hypotheses are postulated and a summary ends the chapter.

Chapter four starts by identifying the research paradigm chosen for the study after providing a classification of main research paradigms. Then, it proceeds to illustrate the research design and methodology in which a partial least squares (PLS) based structural equation modeling (SEM) is employed. The research process is explained before proceeding to elaborate on the research design and the sample selection. This chapter explains the study research design, survey instrument, and the procedures followed to collect the necessary data for analysis before ending with an overall summary.

Chapter five presents the quantitative findings from the surveys distributed. The results are analysed through the measurement and structural models assessments. The moderating and mediating effects are assessed in this chapter. It provides illustrations for the model-fit analysis, construct validity, convergent and discriminant validities, reliability testing, correlation analysis, factor loading analysis, beta and path-coefficient analysis. Then the chapter proceeds to analyse the themes of the qualitative data collected from the conducted interviews. The hypotheses formulated are verified in this chapter that ends with an overall wrap-up.

Chapter six presents the discussion of the findings, the outcomes of the study, and how they are related to the available literature. In this chapter, each hypothesis is verified in relation with the prior studies in the literature. It discusses the relevance of the adopted theories with results revealed from the study sample. Chapter six identifies results that are unique and original with limited abundance in the relevant literature. The chapter proceeds with the research outcome model and ends with a wrap-up of the findings followed by an overall summary.

Chapter seven concludes the thesis by stating the main findings and the relevance of various theories to the results of this empirical study. The chapter proceeds with the research

contributions, implications and recommendations of the study besides presenting limitations and thus, establishing grounds for future research orientations.

Chapter Two: Literature Review

“What we become depends on what we read after all of the professors have finished with us. The greatest university of all is a collection of books.” - Thomas Carlyle

“There is a great deal of difference between an eager man who wants to read a book and the tired man who wants a book to read.” - GK Chesterton

2.1 CHAPTER OVERVIEW

This chapter reviews the relevant literature focusing on relationship between culture and information systems, specifically, the interplay between organizational culture and AISs. This chapter starts with an overview about AIS with focus on its environment, a differentiation between AIS and ERP systems and the devastating consequences resulting from AIS failures. Second, the chapter elaborates on the interaction between national and organizational cultures showing that the latter is influenced by the former. Third, the chapter addresses consulted accounting, information systems and interdisciplinary theories. Fourth, it elaborates on the social and political context of accounting and how accounting information systems become an integral component in this context. Here, the chapter clarifies on how humans can manipulate accounting records through fabrications, and falsifications elaborating on constellations and how accounting became an integral part of our societies adapting to and impacted by their developments. Fifth, the chapter addresses the relationship between organizational culture and information systems. Sixth, the chapter studies the AIS success determinants. Seventh, the chapter identifies the impact of organizational culture dimensions on AIS success. Finally, the chapter provides a general discussion of the findings from the literature before an overall summary.

2.2 AIS OVERVIEW

AIS is a key information system that provides external as well as internal users with vital information for strategic decision making. Unlike other information systems inside the organization, AIS reports to governments, taxation offices, environmental institutions, social agencies, policy makers, etc. (Ghaffoori, 2016). It constructs the cornerstone on which budgetary, financial, economic, environmental and social decisions are made. This section tackles AIS

environment and differentiates between AIS and ERP systems before shedding light on the devastating consequences of AIS abuse and failures.

2.2.1 AIS in Its Environment

AIS operates in a complex organizational environment. The world of information systems has experienced numerous examples of IS implementation success. This has offered organisations and employees working in them a variety of benefits such as improved profitability, competitiveness, productivity, and better organisational performance (Dwivedi et al., 2015). However, many other cases of IS failures have been reported (Dwivedi et al., 2015). Such failures usually lead to financial losses, risks, and other operational and financial discrepancies (Dwivedi et al., 2015). In the private sector, “High-profile examples of IS implementation failures are Hewlett-Packard’s (HP) failure in 2004 that had a financial impact of US\$ 160 million (Dwivedi et al., 2015), Nike’s failure in 2000 that cost US\$ 100 million in sales and resulted in a 20 % drop in stock price (Dwivedi et al., 2015) and Hershey Foods failure that caused the stock to decrease by 8 %” (Dwivedi et al., 2015, p. 2). In the public sector, there are also several cases of IS failures; for instance, more than 27,000 students at the University of Massachusetts (as well as Stanford and Indiana University) faced cases of portal failures, and as a result, they were unable to locate their classes and manage their financial matters (Dwivedi et al., 2015). In this regard, information systems failure can be defined as “either the implemented system not meeting the user expectations or the inability of creating a working or a functioning system” (Dwivedi et al., 2015, p. 3). Susanto (2008:72), as cited in (Napitupulu, 2015), states,

“AIS is a collection of sub-systems of both physical and non-physical components that are interconnected and in cooperation with each other to process the transaction and financial data into financial information (Napitupulu, 2015).”

Furthermore, a definition of an information system is provided by Laudon & Laudon (2012:15), i.e.

“An information system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making

and control in an organisation. In addition to supporting decision making, coordination, and control, information systems may also help managers and workers analyse problems, visualize complex subjects, and create new products” (Napitupulu, 2015, p. 75).

From a more specific perspective, which is the focus of this study, accounting is an information system (Napitupulu, 2015). Kimmel et al. (2011:5), as cited in (Napitupulu, 2015, p. 74), states that "Accounting is the information system that identifies, records, and communicates the economic events of an organisation to interested users". From these statements, it can be concluded that accounting is an information system that measures, processes, and communicates financial information about an economic entity of an organisation. In the same context, Albrecht et al (2011), as cited in Napitupulu (2015, p. 74) states that accounting is more complex,

“..... formally defined as a system for providing quantitative information, primarily financial in nature, about economic entities that are intended to be useful in making economic decisions. Accounting provides the means of recording and communicating business activities and the results of those activities” (p.74).

Therefore, AIS is a managerial tool used to undertake decision making in a particular organisation related to corporate transactions (Napitupulu, 2015). Similarly, Wilkinson (2007) has defined AIS as an integrated structure developed in an organisation comprising of human resources and facilities that can be used to transfer data accrued from organisational processes so that vital information can be deduced to make informed proper organisational decisions. In this regard, AIS is a composition of several hardware, procedures, databases and communication networks (Susanto, 2008). This implies that the quality of AIS is very important for the performance of an organisation. As such, the measures of quality of AIS should be accurate, complete, irreplaceable, relevant, comprehensive, precise and informative (Webber, 1999). In this regard, it is important to have an accurate AIS because it has a direct effect on the decisions that are undertaken in organizations (Webber, 1999). For example, in the event, an AIS is inaccurate and does not provide an accurate set of data, an organisation will likely suffer from implementing any decision that relies on its implications. Thus, it is important to have a unified information system in an

organisation involving humans and other resources (Azhar, 2013; Susanto, 2008). In this context, the behaviour of organisational members has a great impact on the level of accuracy, correctness completeness, and relevance of information systems (Cabrera et al., 2001). Therefore, it is worth to note the interaction between humans and AIS and how they can impact AIS performance. Schein (2011) found out that organisational culture makes it easy to identify the required information system that is needed in an organisation. Its importance relates to its use in external and internal communications of organisations (Schein, 2011). AIS operates in an environment. ERP systems can be an important element of this environment.

The use of Enterprise Resource Planning (ERP) has been established to be one of the most important strategies that can be taken by business organisations to improve business efficiency (Knapp, 2006). ERP software enables businesses to improve efficiency by automating important business processes and thus, making it easier for management processes to be performed (Knapp, 2006). On the same note, AIS is also another type of information system that could accrue similar benefits to those of ERP systems to an organization. In this context, AIS is one type of information systems that is unique by its functions, roles and implications that help to make the financial reporting process in business much easier (Knapp, 2006). The AIS software automates the process of collecting, storing, processing, and retrieving financial data; hence, making accounting processes much easier and more accurate (Knapp, 2006). Although AIS software has been established to have an advantage over the manual methods of bookkeeping, many organisations have not been able to implement the system successfully (Knapp, 2006). Many challenges prevent the successful implementation of AIS in business organisations. One of the major hindrances to AIS implementation is the organisational culture (Lapiedra et al., 2012). A large number of scholars and researchers have investigated the impact of organisational culture on the implementation of AIS. The organizational culture is one major element of the environment by which AIS is influenced. Despite the numerous benefits of AIS, companies failed very often to incorporate it inside their business operations.

Literature has shown that AISs improve financial reporting efficiency in business organisations (Rom & Rohde, 2007). Considerable research on AIS shows that a firm can improve

the quality of its financial reporting by integrating AIS into its management systems. AIS refers to a software structure that a business uses to collect, store, process, manage, and retrieve its financial data (Rom & Rohde, 2007). This system enables businesses to improve efficiency by automating the financial data management process, thus increasing the chances of accuracy in the bookkeeping process as well as financial reporting. It is one of the most influential decision-making tools to deal with various levels of uncertainty and complexity (Djuwita et al., 2018). It is one essential system inside organizations, and its failure leads to catastrophic results on organizational as well as national levels (Ghaffoori, 2016). Despite the traditional benefits of AISs within an organisation, a large number of organisations have been unable to incorporate them successfully into their organizational structures (Rom & Rohde, 2007). One of the reasons for this phenomenon is the existing challenges in the implementation process of AIS. Many factors hinder organisations from successfully incorporating AISs into their Enterprise Resource Planning (ERP) model (Rom & Rohde, 2007). Organisational culture is one such factors that introduces significant challenges in implementing AIS (Rom & Rohde, 2007).

In this regards, the accounting contingency theory posits that organisations are open systems (Burkert et al., 2014), which points to the importance of internal and external factors in determining an organisational structure's optimal design (Burkert et al., 2014). In line with the contingency theory, culture can be considered as an internal factor that can be transformed by organisations or as an external factor that organisational members import into an organisation and is not easily transformed (Otley, 2016). National culture reflects an external factor, while organisational culture reflects an internal factor (Otley, 2016). Birnberg (2004) defined organisational culture as the aggregated values and norms of organisations. The dimensions and components of organisational culture determine the organisational structure implemented, the behaviour of individuals, and the cognitive functioning of employees to ultimately influence their decision or judgment process in relation to accounting issues (Riahi-Belkaoui, 2004). The concept of organisational culture has received much attention, as indicated by vast publications. However, literature fails to address the impact of organizational culture on AISs implementation success.

The contingency theory pinpoints the environment in which AIS operates and is influenced by. Therefore, AIS success and failure is influenced by the environment in which it operates.

Thus, the software implementation process is directly influenced by the national culture, and the norms and values of the organisational culture (Wong & Hasan, 2008). The failure and success of the implementation of information systems has been associated with the national and organisational cultures within which companies operate (Wong & Hasan, 2008). Hofstede defines cultures as "*the collective programming of the mind which distinguishes the members of one human group from another*" (Hofstede, 1980, p. 260). In the same context, celebrated anthropologist Clifford Geertz defines culture as,

"an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which [individuals] communicate, perpetuate, and develop their knowledge about and attitudes toward life" (Geertz, 1973, p. 89).

In support, Webster and White (2010) defined organisational culture as the underlying shared values that provide employees with behavioural norms in the firm. Therefore, organisational culture becomes the composition of the widely shared and held values of the employees inside an organisation (Webster & White, 2010). As such, understanding the organizational culture impact on AIS implementation is an area of research that underlies great significance. However, is the organizational culture a standalone phenomenon? Is there any role of national culture in this context? Are AIS and ERP systems the same? Do they differ? Before investigating the interplay between national and organizational cultures, the following section will set both AIS and ERP systems apart. Thus, a comparison is drawn between ERP systems and AIS pinpointing the strategic role and benefits of AIS which should be looked at as a totally separate and different information system.

2.2.2 AIS and ERP Systems: A Differentiation

Before addressing the impact of organizational culture on the implementation success of AIS, it is important to differentiate between ERP systems and AIS. AISs are limited to the

preparation of financial statements for legal purposes and producing financial accounting reports and information for decision-makers. Therefore, an AIS is a software that is dedicated only to the accounting department within an organisation. It provides historical and forecasting accounting information related to management control, financial accounting, as well as budgeting and financial analysis. ERP systems, yet, are a full-fledged set of computer applications that are integrated together to manage processes and functions throughout the organisation at different departmental levels (Daoud, 2013). ERP systems have a broader scope of analysing the impact of organisational culture on the implementation success of AIS. Besides, the literature addressing the impact of organizational culture on AIS is limited. AIS works as a standalone system in many organizations, and it is the basis on which the management of the organization takes all financial and non-financial decisions. Besides, the AISs' reports and financial statements are used by external users, such as investors, policymakers and governments to take major economic, political, social, financial, environmental and other nation-level decisions. Therefore, the context in which AISs operate is broader and more complex than those in which ERP systems operate. In the following sections, we shed further light on the uniqueness and benefits of AISs in comparison with other information systems inside the organization. Figure 2.1 below outlines the two main topics that will be discussed in this section.

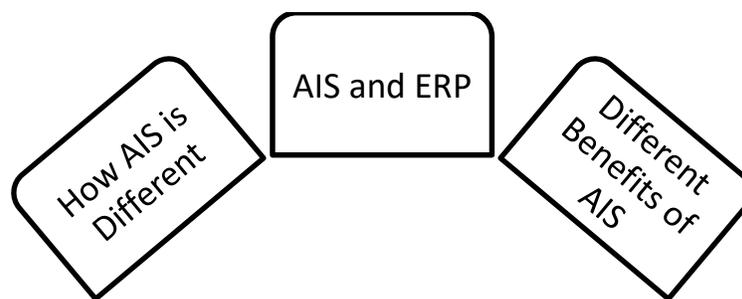


Figure 2.1 AIS versus ERP systems

2.2.1.1 How AIS Is Different?

Accounting is an information system that provides the internal as well as the external users with critical financial statements and reports that can be used to make important decisions. The

information provided by AISs is crucial for economic and financial survival of organizations as well as the nations in which these organizations operate as such information, that is audited by the auditing system component of the accounting information system, construct the cornerstone on which budgetary, financial, economic, environmental and social decisions are made (Ghaffoori, 2016). The auditing function works as a monitoring mechanism to check the accuracy of the information reported by AIS. The accounting and the auditing systems work unanimously as an integrated system to produce accurate, relevant, timely and transparent information for financial, social, environmental and economic decision making. AIS is one unique system inside organizations, and this system operates in different contexts to those in which other information systems operate. AISs report financial, non-financial, environmental and economic information to internal as well as external users. External users can be policymakers, governmental departments, politicians, economists, etc. Therefore, the accounting information system reports can impact strategic and operational decisions pertaining to national income, general resources, social values, fairness, social and environmental considerations (Ghaffoori, 2016). ERP systems, from another perspective, operate in the internal context of the organization and their reports are mainly used internally to run the organizations. Therefore, the cultural variables and factors that impact AIS systems may be different and more diverse than those impacting ERP systems (Ghaffoori, 2016). The introduction of AISs to be a component of ERP systems has resulted in the introduction of sophisticated accounting techniques including budgeting, financial ratio analysis, ABC method, profitability analysis and profit centres (Daoud & Triki, 2013). AISs work as foundational data feeders for ERP systems (Daoud & Triki, 2013).

Information quality is one of the main differences between AIS and ERP systems with the AIS focusing on the detailed accounting information such as accurateness, completeness, timeliness and scope of the information provided while ERP systems focus on the traditional orientation of information (Hanifi & Taleei, 2015). Managers are interested in accounting information that reduces uncertainty in the decision-making process, and in the recent years, AIS has evolved to be a system with broad financial or accounting information and data for the easier and more efficient decision-making process (Hanifi & Taleei, 2015). According to Hanifi & Taleei

(2015), AIS is aligned only with accounting information, and this is supported by Attayah & Sweiti (2014) findings that ERP systems excluding AIS component, provide only information on the general economic environment of the organization. Such findings are significant due to shedding clear light on the role and uses of AIS that are different from those of ERP systems.

Unlike AIS, ERP systems have order processing and sales management platforms, and they are essential in improving the performance level of the organization (Attayah & Sweiti, 2014). As provided by Hanifi and Taleei (2015), AIS is not involved in order processing and sales management portfolio, but rather in improving the internal controls towards enhancing the quality of the financial transactions and financial reports provided in the organization. Accounting remains a necessary process that identifies, measures, and presents vital economic information for enabling decision making within an organization. This is done through a financial transaction-based AIS that deals with economic issues occurring within an organization (Al-Hiyari et al., 2013). It is important to document all day-to-day operations of a business so that performance can be evaluated. Traditionally, AIS was focused mainly as a part of reporting to various statutory bodies like tax regulators and investors. This implies that limited information was generated to satisfy the information needs that are requisite in decision making at the management level. This has changed progressively with time, as AIS has evolved to focus on generating information as the basis of all managerial decisions within an organization and beyond, touching its environmental, societal, economic, political and financial surroundings.

AIS is a system that is set to collect, document, store and evaluate data on daily accounting activities within an organization to yield information that can be used in decision making (Romney & Steinbart, 2006). Jogiyanto (2005) argues that AIS can change how business transactions appear so that they can create useful financial information for managers. In this regard, the success of an accounting system can be evaluated based on its quality level as this is the important characteristic that promotes the level of customers' satisfaction. Further, the quality of an AIS should be effective through its user satisfaction level (Romney & Steinbart, 2006). As such, high-quality AIS should be able to meet its user needs (Srimindarti & Puspitasari, 2012). The accounting information system serves the purpose of satisfying the information needs of external and internal users

(Romney & Steinbart, 2006). The external users of an AIS system include customers, investors, statutory organization, and shareholders (Srimindarti & Puspitasari, 2012). On the other hand, the internal users of AIS information are organizational managers that use it for planning and control. Therefore, the nature of AIS requires that it is prepared with the standard definition of accounting terms to enhance consistency (Al-Hiyari et al., 2013). Another characteristic of AIS is that it should be well-structured and straightforward. In this regard, the principles and procedures applied in AISs are determined by professional bodies so as to provide a uniform approach in developing this system (Romney & Steinbart, 2006). The statutory bodies are involved in developing the procedures so as to offer protection to customers' and investors' interests. Also, the information provided by AIS is legal and can be used in a court of law (Romney and Steinbart, 2006).

Furthermore, the basic role of AIS is to improve the recording of financial transactions to create vital information for financial reporting reflecting on the financial position of an organization. In addition, AIS is involved in providing support for management to access important information that can be used in decision-making processes (Laksana, et al., 2017). Technically, AIS is a network-based system that is designed to provide a centralized location for all financial data storage to enable managers to have quicker access to requisite information and thus review the financial position of their organization. On the other hand, ERP is a technology system that is implemented within an organization to streamline its business operations and workflow of activities (Urbach & Müller, 2012). Unlike AIS that deals with financial and economic information, an ERP system is comprised of all functional departments dealing with operations so that they are integrated as a single unit. Further, whereas AIS aims to provide vital financial information, the ERP system is in charge of providing accurate inventory so that supplies, inventory and other organizational information are monitored (Laksana, et al., 2017).

AIS is one of the primary control tools that aid in the operation and establishment of an organisation. It is commonly used by the management team of an organisation to conduct the analysis in decision making on issues related to corporate transactions. The system involves a variety of components like hardware, software, databases, brain ware, communication networks and procedures (Laksana et al., 2017). The utilization, effectiveness and efficiency of AIS rely

significantly on the culture of an organisation. The most critical factors related to an organisational culture that influences its AIS entail the provision of adequate management support, proper communication with all the stakeholders, re-engineering of business processes, the use of business analysts in project development as well as an understanding of corporate cultural change (Laksana et al., 2017). Several scholars have made significant efforts in investigating the extent of influence that various organisational cultures have on the implementation success of AIS. These findings are significant as they elaborate on the interplay between organizational culture and the implementation success of AIS. In the following Table 2.1, a comparison between AIS and IS is presented.

Table 2.1 Similarities and differences between ERP Systems and AIS

| Similarities | Differences |
|--|---|
| Both systems are sets of humans, software, hardware and procedures and thus, they are influenced by these components | AIS is the financial and non-financial information feeder of ERP systems. |
| Each of the systems is composed of sub-systems that are responsible of different operations and the cooperation between both systems is necessary for sharing information. | AIS encompasses other accounting subsystems including but not limited to management, financial and cost accounting systems. These sub-systems use and report financial and non-financial information. |
| Both systems have the goal of providing meaningful information for improving the decision making process inside organizations. | AIS operating in a wider cultural context in comparison with ERP systems. AIS reports are used by external users and the stakeholders on a national level. |
| ERP reports are used on organizational levels only | One important goal for AIS is ensuring concepts of transparency and accountability on an organizational as well as national levels. |
| | AIS works on verifying and validating financial and non-financial information through the accompanying auditing systems/functions. |
| | AIS has a role in the socio-economic development of nations (information about national income, resources, social values, fairness and environmental considerations) |

Source: (Alikhani et al., 2013; Ghaffoori, 2016)

2.2.2.2 Different Benefits of AISs

Another difference between AIS and ERP systems is reflected in the different benefits provided by AIS. Sajady, Dastgir, and Nejad (2008) evaluated the effectiveness of AISs in business

organisations by studying companies listed on Tehran Stock Exchange. The study evaluated the impact of AISs on business decision making, internal control systems, quality of financial reporting, and improved performance measures. The results of the study demonstrated that AIS has a positive impact on each of the examined variables, i.e. business decision making, internal control systems, quality of financial reporting, and improved performance measures. For business decision-making, managers in companies that use accounting software were found to have better decision-making capabilities than those who did not. AIS gave them access to accurate and reliable data that could be used to make informed and logical decisions. The study also found that the use of accounting information technology improved the quality of financial reporting. These systems reduced the possibility of errors that could compromise the quality of the accounting results. Internal control and performance measures were also likely to be of better quality in companies that use AISs. Similarly, Grande, Estébanez, and Colomina (2011) studied various Spanish SMEs and found that the implementation of AISs can have a positive impact on various performance measures. Management and control had a positive influence when organisational systems incorporate AISs. With the culture of corruption being inherent in many organizations all over the world, the role of AIS cannot be underestimated. Literature has indicated that the corrupt cultures in many organizations may lead to the failure of AIS implementation (Spathis & Ananiadis, 2005). Various reports have shown that many organizations have been manipulating their accounting information to hide the malpractices that have been prevalent in such organizations (Spathis & Ananiadis, 2005). In one case, Freddie Mac, a US federally backed corporation misstated more than US\$ 5 billion of earnings, which led to the COO, CEO and former CFO being fired and the company being fined US\$ 125 million (Isidore, 2012). Corrupt cultures influence negatively the implementation success of AIS across organizations and ruin its benefits. This calls attention to the importance of addressing the nature of organizational cultures before adopting a specific AIS. AISs play a crucial role in the success of organizations. However, it is essential that AIS records are not fabricated, manipulated and tempered with. Corruption across organizations lead to the failure of AIS and thus, results in major social and economic repercussions.

Similarly, Belfo and Trigo (2013) analysed how AIS can solve the challenges faced by accounting professionals. One of the challenges mentioned in Belfo and Trigo (2013) is the diversity of accounting practices that make it hard for the accounting professionals to integrate accounting with management practices; hence, increasing the chances of errors and inaccuracies. There are many activities performed by accountants, such as reporting, financial management, and risk management among various others. Most of these activities can be complicated, especially, when done using traditional accounting techniques. However, technology offers a solution for managing this challenge by computerising all such activities. AIS offers a solution to most of the challenges faced by accounting professionals using traditional methods of accounting by storing, synchronising, and managing accounting data (Belfo & Trigo, 2013). However, it must be noted that, many organizations have been involved in accounting manipulations and thus, adoption and implementation of AIS by such organizations would be challenging. In one case, Global Crossing filed for bankruptcy amid an accounting scandal in which it was alleged to have inflated its earnings. Interestingly, this scandal happened around the same time with Enron scandal (Gordasco, 2003). The Global Crossing bankruptcy scandal was the fourth largest in the history of the US and it was determined that the company did not comply with the accounting laws (Gordasco, 2003). With the successful use of AIS, such scandals would have been avoided or detected early enough (Spathis & Ananiadis, 2005). However, in firms where management is hell-bent on manipulating financial statements and misreporting of revenues, adoption and implementation of AIS is shelved (Lambert et al., 2007).

Lambert, Leuz, and Verrecchia (2007), stated that accounting information disclosures could have a positive impact on an organisation. Quality accounting practices can have a positive impact on the cost of capital of an organisation either directly or indirectly. Quality accounting practices help to ameliorate the confidence of the investors in the company hence, making it easier for them to acquire capital (Lambert et al., 2007). The use of AIS helps to improve the quality of accounting practices. Therefore, it can contribute to access to capital by an organisation. Similarly, Spathis and Ananiadis (2005) found that AIS reduced the risks of errors in accounting while studying a records of a public university in Northern Greece. It has been posited that most of

accounting scandals are not the result of errors, but intentional manipulation by people working in those organizations. Therefore, in such organizations where the people trusted with finances are hell-bent on manipulating financial statements, adoption of AIS is shelved due to fear of being detected (Romney & Steinbart, 2015). In contrast, organizations that make their financial information open, transparent and compliant with accounting procedures, will most likely adopt and implement AIS successfully (Romney & Steinbart, 2015).

In a relevant context, Rikhardsson and Kræmmergaard (2006), studied six large Danish organisations that implemented AISs to determine the benefits of this technology to the success of an organisation. The study found that AISs have a significant positive impact on the success of an organisation. To a great extent, the implementation of information systems in accounting helps to influence the culture, values, processes, and procedures of an organisation positively. This technology helps to make processes and procedures more efficient and also promotes positive values and behavioural standards in accounting (Rikhardsson & Kræmmergaard, 2006). This calls attention to the importance of having a successful implementation of AIS in organization. In a similar context, Salehi, Rostami, and Mogadam (2010) studied how AISs are helpful for emerging economies using Iran as the centre of the study. The study argues that in the past decade, the performance of Iranian corporations improved as a result of incorporating AISs into their operations. These systems have eased the process of data synchronisation for multi-users (Salehi et al., 2010). Therefore, most corporations that use these systems have an easier time managing their financial information and investments. The collective improvement of corporations that use AIS has led to the improved performance of emerging economies.

Therefore, AIS and ERP systems can be described as totally different, distinguished and separate systems. The role, benefits, and characteristics of AIS are different from those of ERP systems (Romney & Steinbart, 2015). The benefits of AIS are fundamental for the success and continuity of organizations as AIS establishes the source of financial reports and information that internal and external stakeholders rely upon. After differentiating AIS and ERP systems and shedding light on the benefits of AIS in the organizational context, the following section 2.2.3 continues to pinpoint the devastating consequences that may result from AIS failures.

2.2.3 AIS Abuse Resulting in Devastating Consequences

Manipulation of AIS records and thus, its failures, lead to major financial and economic catastrophes. The advent of the 21st century has seen more and more organizations adopt and implement information systems in their functions. Literature has underlined the importance of information systems and, in particular, AIS in the business decision-making process (Dwivedi et al., 2015). According to Napitupulu (2015), AIS has been used to steer many organizations to success. However, adoption and implementation of AIS has succeeded and failed in equal measures. Although the adoption of AIS has been seen to impact accounting processes positively, its failure, whether due to technical issues or manipulation, has devastating consequences. In the era where many scandals have been reported in many organizations across the world, successful adoption, and implementation of AIS, cannot continue to be ignored (Dwivedi et al., 2015). The failure of AIS and other information systems can be traced back to various factors, and organizational culture is one of them (Djuwita et al., 2018). Literature has shown that corruption and specifically, nepotism are facets of organizational cultures that are practiced across developing and advanced nations. In an organization where corrupt cultures are rooted, the adoption of an information system becomes difficult (Djuwita et al., 2018). In the Enron scandal, US\$ 74 billion were lost, thousands of employees lost their jobs, thousands of others lost their retirement accounts, and thousands of families were affected due to the failure of AIS. The shocking revelations were that AIS was made to intentionally fail by those in charge. Human manipulation of AISs has led to their failures, resulting in major financial and economic catastrophes.

In another case, Waste Management Inc. misstated its financial earnings by close to US\$ 1.7 billion. The consequences of this fraud were dire, and the company had to pay US\$ 26.8 million to settle a lawsuit placed upon by authorities as well as settle a shareholder class-action suit of US\$ 456 million. Such a scandal reflects rooted corruption in the organizational culture. Literature has shown that in organizations that have promoted the culture of corruption, implementation of AIS is likely to fail because of the fear of transparency the system brings in. At Enron Corporation, in another occasion, AIS has been manipulated to fabricate accounting information to inflate the financial position of the firm and reflect healthy financial reports to attract investors. Other human

fabrications of AIS records have been reported across the globe. The adoption and implementation of an AIS and any other information system must be supported by management for it to be successful (Dwivedi et al., 2015). A corrupt management increases the chances of AIS failure (Dwivedi et al., 2015). It is in view of this background that this chapter seeks to examine the impact of organizational culture on the implementation success of AIS. The following section continues to review the literature on the interplay between national and organizational culture.

2.3 INTERPLAY BETWEEN NATIONAL AND ORGANIZATIONAL CULTURE

Organizational culture operates in a national culture context and is influenced by it. The fact that organisational culture has an impact on the quality of AISs (Nusa, 2015) implies that it also influences the implementation of AIS (Nusa, 2015). It has been shown that organisational culture is determined by the locality in which the organization operates. Available literature has examined the influence of national culture on organisational culture. This section reviews the literature on the association between national and organisational culture and as a result, studies the influence of both national and organisational culture on the successful implementation of AIS. Figure 2.2 below provides an overview on the topics of discussions for this section.

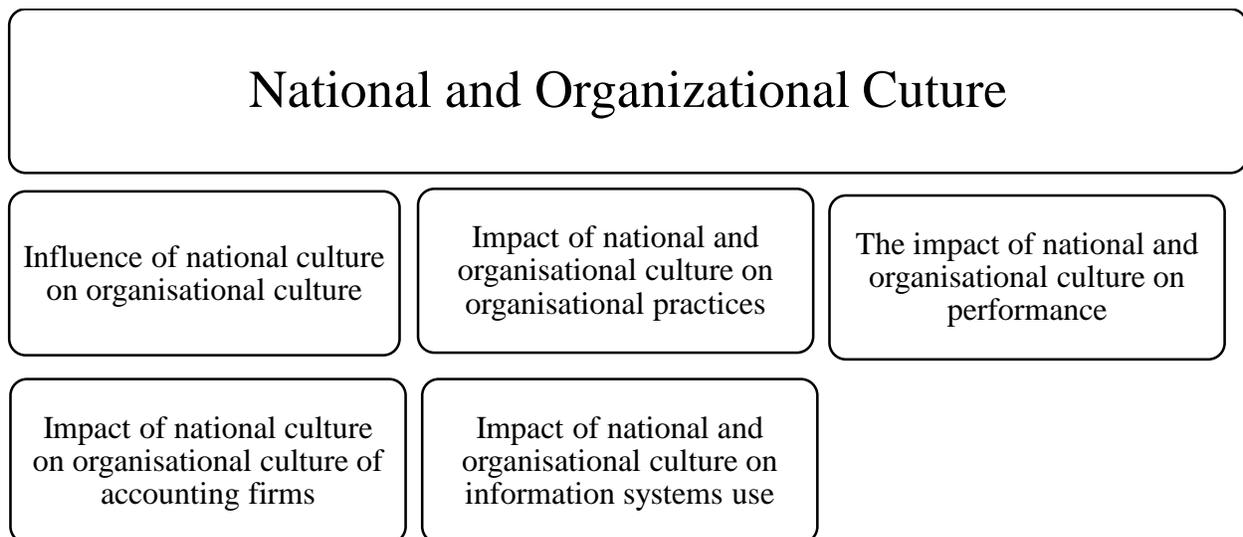


Figure 2.2 The interplay between national and organizational culture

2.3.1 Influence of national culture on organisational culture

Success in the implementation of AISs is determined by organisational culture, which in turn is influenced by national culture (Nusa, 2015). The impact of national culture on organisational culture is shown in various studies. This section tackles the impact of national culture on organizational culture without direct exposure to the impact on ERP systems or AISs. It is worth noting that such systems are influenced by their cultural environments. As a result, since national culture impacts organizational cultural practices, it can have a direct influence on the success of implementing AIS. In particular, Akdeniz and Seymen (2012) conducted a survey involving 142 employees from multinational hotels in Istanbul to establish whether an isomorphic pattern existed between organisational and national culture. Using the Hofstede model of national culture that includes uncertainty avoidance, masculinity-femininity, individualism-collectivism, power distance, indulgence, and a long-term orientation, the researchers found that indeed an isomorphic pattern existed between the national and organisational culture. In particular, the organisational culture in terms of human resource practices, marketing, and management of multinational hotels was aligned with the national culture of Turkey. The authors concluded that organisations should diagnose their culture to ensure there is alignment with national culture in which they operate. While Akdeniz and Seymen (2012) used a sample from hotels, Korsakiene and Gurina (2012a) utilized an online survey of 55 participants from SMEs in Russia and Lithuania, and employed the Hofstede model of national culture and the Denison model of organisational culture to examine the impact of national culture on organisational culture (Kokina et al., 2013). It was revealed that there is a significant variation in power distance in Russian as well as Lithuanian SMEs. The results also revealed significant differences between the Russian and Lithuanian SMEs in monumentalism, restraint versus indulgence, long-term orientation, uncertainty avoidance, masculinity, and individualism, as dimensions of national culture. Organisational culture elements including mission, adaptability, consistency, and involvement were higher in Lithuanian SMEs than Russian SMEs, which indicated that the organisational culture in the former was stronger than in the latter in terms of the dimensions considered in the comparative study. Therefore, this calls attention to the impact of national culture on

organizational culture and thus, bring in a new research orientation, namely, to the interaction between national culture and some dimensions of organizational culture such as adaptability, consistency, mission, etc.

In the same context, innumerable research has been carried out on the influence of national culture on organisational culture (Causin & Ngwenya, 2015; Webster & White, 2010; Nelson & Golapan, 2003). In particular, Causin and Ngwenya (2015) examined the impact of national culture on the performance of expatriate managers using a survey of 66 respondents using the Hofstede model. It was revealed that management skills of expatriate managers varied according to national cultures with managers from different countries displaying different levels of skills in terms of the ability to work in international teams, international understanding of marketing and how the constituent components of an organisation fit, and viewing an organisation holistically. Similarly, a study by Webster and White (2010) showed that management skills, including grasping how all the organisational parts fit together, understanding the organisational workings, understanding international finance and negotiation skills varied according to the corporate culture of the parent company. In particular, the researchers found considerable differences between the United States, Thailand, Switzerland, Middle Eastern, Indian, Chinese, and Australian parent companies' location and management skills. In regard to this, it was concluded that executives need to focus on having an awareness of the impact of cultural differences on strategy formulation. This is worth noting as differences in organizational cultures across different national cultures call the attention of developing and adapting companies of AISs. On the other hand, Nelson and Gopalan (2003) used a survey administered to 288 managers from the USA (100 managers), India (100 managers), and Brazil (88 respondents) to investigate the relationship between organisational and national culture in the USA, Brazil, and India. The results indicated the presence of clusters in the three countries that systematically rejected and replicated national cultural values. In particular, Brazilian managers scored high on the control dimension, but had low scores on the relations. Similar results were found for managers from the US and India. Conversely, managers from the three countries scored highly on leadership, sociability, empathy, and affect, but varied considerably on flexibility and loyalty. These results suggested that organisational cultures

replicated national values as shown by uniformity in certain values across the countries. However, at the same time, organisational cultures reject national culture by having local variations in their values, which differ from national cultural values. This finding is worth further investigation.

A similar study by Webster and White (2010) explored the interaction between national and organisational culture. Webster and White (2010) surveyed respondents from Japanese and U.S. retail service firms and discovered that the association between the significance placed on detail orientation, people-orientation and stability was significantly larger for Japanese service retailers than for US firms, which is a reflection of the influence of Japanese national culture. On the contrary, the associations between outcome orientation, innovation, and aggressiveness were larger for retailers in the US, and this mirrors an influence of values of the country's national culture. In addition to surveys, case studies (Figiel, 2011; Paijo & Vonheim, 2017) and qualitative interviews (Sweeney & Hardaker, 1994) have also been used to investigate the influence of national culture on organisational culture and harmonious results have been shown. Figiel (2011) utilized a case study to examine occupational, and organizational culture at Honda of America Manufacturing, Inc. Using the Hofstede model of national culture, Figiel (2011) demonstrated that at Honda, only the power dimension and achievement-orientation dimensions were similar in relation to the Japanese and American national cultures. Further, it was revealed that Honda had successfully blended the American and Japanese national cultures into an organisational culture that contributed to the firm's success. For instance, leadership at the firm was based on the identification with and socialisation in Japanese culture. Other elements of organisational culture, including symbols, style, systems, structure, and management practices reflected the leadership philosophy at the firm. Thus, this case study showed that organisational culture at Honda was influenced by the blend of two national cultures; Japanese and American.

In another case study, Paijo and Vonheim (2017) investigated the impact of national culture on organisational culture of Handelsbanken, UK and Sweden by interviewing 3 participants and retrieving secondary data from annual reports and corporate website of the firm. The findings showed a translation of organisational culture, where the local UK national culture influenced the Handelsbanken's organisational culture in the UK. Similarly, in Sweden, the firm's organisational

culture was influenced by the Swedish national culture. It was further revealed that while the local and national culture influenced the organisational culture, not all aspects of the national culture were adopted. Instead, the firm adopted best practices from both the English and Swedish national culture to operate successfully in the local UK market. In a similar context, Sweeney and Hardaker (1994) conducted qualitative interviews with 24 managers from East and West German, which laid bare the differences in various aspects of organisational culture between managers from the two regions, including core managerial skills, attitude toward change, career prospects, training and education, awareness of objectives of organisations, performance appraisal, managerial delegation, concerns about the future, and organisational problems. The findings suggest that the national cultural values in East and West Germany prior to unification had an influence on organisational culture of German firms. On a similar note, Lee, (2010) and Iorgulescu and Marcu (2015) have provided a general discussion of the influence of national culture on organisational culture without performing empirical studies. In particular, Lee (2010) discussed the aspects involved in managing and leading the integration of different national cultures into a single robust organisation for organisational effectiveness. Iorgulescu and Marcu (2015) argued that organisational culture is a constituent part of the national culture, where the elements of organisations found in a particular parent culture reflect the values of the national culture.

Research indicates that findings from surveys, case studies, qualitative interviews as well as general discussions are all in agreement that that national culture influences the organisational culture of firms. The implication is that for the implementation of AIS, the influence of organisational culture needs to consider the influence of the national culture where the firm operates. Regarding this, it is important to acknowledge the studies that used the Hofstede model to examine measures of national culture. However, other models can be used for understanding the national culture, such as the GLOBE model (Miremadi et al., 2015), which has been criticized by Hofstede as a replication of the Hofstede national culture dimensions. Conversely, Javidan, House, Dorfman, Hanges, and de Luque (2006) re-analysed Hofstede's criticism against the GLOBE measures of national culture and concluded that the nine dimensions of national culture in the GLOBE model are not a replication of Hofstede's dimensions. Thus, researchers can use the

GLOBE measures of national culture rather than rely solely on the Hofstede model. Another model that can be used is the one proposed by Maleki and de Jong (2014) that contains a new clustering of the components of national culture, including collectivism versus individualism, power distance, uncertainty avoidance, and harmony versus mastery, secularism versus traditionalism, restraint versus indulgence, tenderness versus assertiveness, collaborativeness, and gender egalitarianism. These studies show that organizational culture and national culture are interlinked and thus, the influence of national culture on the implementation success of AISs merits further research.

Proposition: National culture, through its influence on organizational culture, impacts the implementation success of AISs.

2.3.2 Impact of national and organisational culture on organisational practices

National and organisational cultures have an impact on organisational practices (Omar & Urteaga, 2010; Marima, 2013; Šapić et al., 2009; and Pauleen et al., 2007). In particular, Omar and Urteaga (2010) surveyed 429 participants in 16 companies from Argentina and concluded that, on average, organisational practices reflected the culture of the country of origin. National firms had organisational practices that were linked to high uncertainty avoidance, high power distance, and collectivism, which reflected the Argentinean national culture. On the other hand, privatized firms had practices associated with low fatalism and paternalism, low uncertainty avoidance, low power distance, and individualism, which highlighted the culture in their countries of origin. In support of this, Marima (2013) surveyed 25 respondents and found that national culture influenced various organisational practices in petroleum firms in Kenya, including public relations, advertisement, financial acquisition decisions, social network creation, staff development and training, organisation learning and employee recruitment. On his part, Šapić et al. (2009) focused on organisational change by studying 20 corporations from Serbia, focusing on the influence of organisational and national culture on the organisational change process. The results showed that the dominant directive style of leadership and an organisational culture characterised by bureaucracy are associated with significant resistance to change. The authors argued that

organisational and national cultures determine the initiation and implementation of organisational change by influencing values that stimulate predisposition towards change. Pauleen et al. (2007) developed a model explaining the relationship between organisational culture, national culture, and knowledge sharing behaviour. The model proposed that national culture directly affects knowledge sharing through its influence on individuals' attitudes and values. Further, the model suggested that the impact of national culture on knowledge sharing is mediated by organisational culture through its impact on individuals' attitudes and values. Thus, these studies support the fact that both organisational and national cultures have an impact on organisational practices, and this has an implication on the implementation of AIS.

Proposition: National culture, through its influence on organizational culture, impacts organizational practices and thus the implementation success of AISs.

2.3.3 Impact of national culture on organisational culture: Accounting firms

The organisational culture of accounting firms influences AIS implementation, and thus, it is vital to establish whether national culture has any role in this relationship. Research findings suggest that the organisational culture of accounting firms is influenced by national culture. Soeters and Schreuder (1988) administered a survey to 643 participants to investigate the interaction between organisational and national cultures in three international and three Dutch firms. Using the Hofstede model, it was found that the US national culture had significant effects on the organisational cultures of the international firms, particularly on the dimensions of masculinity and uncertainty avoidance. However, it was shown that the effect of the US national culture on the three international firms was not due to socialisation, but instead because of self-selection. In this regard, self-selection was characterised by the international firms being attractive to Dutch accountants who conform to particular elements of US culture and firms recruiting individuals with value systems that were similar to the organisations. Consistently, Pratt, Mohrweis, and Bealieu (1993) also surveyed 712 accountants working in the U.S., Britain, and Australia using a questionnaire based on the Hofstede model. It was found that the organisational cultural values of British accountants in US firms in Britain reflected those of accountants from

the US due to self-selection. This showed a strong impact of national culture on organisational culture in accounting firms. Finally, Chow and Hwang (1995) surveyed 201 Chinese employees working in independent local accounting firms and US-affiliated firms in Taiwan. The findings indicated that US affiliates had organisational cultures that differed from those of domestic Taiwanese firms that reflected the culture of parent firms in the US. Thus, accounting firms are transplanting their organisational cultures in foreign markets that are different from the local, national culture. In conclusion, these studies reveal that organisational culture is influenced by the national culture where an accounting firm has established its operations, and in turn, the organisational culture affects the operations of accounting firms.

However, it has also been shown that the national cultural environment can directly impact the accounting practices of organizations within a country (Jaggi & Low, 2000). Jaggi and Low (2000), analysed the national culture in terms of the legal characteristics and the market forces in the country, and revealed that companies that operate in countries with a standard law system are more likely to be open with their financial disclosures. As such, it was revealed that although many companies have been marred by the culture of corruption and nepotism, such companies can be compelled to make correct accounting disclosures by the legal systems of the countries they operate in. Interestingly, the same study found that the cultural values of a country do not affect the accounting practices of individual companies. Cultural dimensions such as uncertainty avoidance, power distance, and individualism/collectivism were studied. The research found that there is no significant impact of these values on the accounting operations of a company. Multinationals that were included in the study were shown to have similar accounting practices regardless of the cultural values of the country within which they were operating (Jaggi et al., 2000). In contrast, Finch (2010) found that international cultures have an impact on individual behaviours in accounting. Through a field study, they examined the characteristics of the social systems of various countries and the impacts they have on the individual behaviours of people in the examined places using the Hofstede-Gray cultural framework as a basis of studying the social system. It was revealed that the social characteristics of people in a particular environment affected their practices on accounting disclosure owing to the fact that secretiveness is highly typical among

cultures with an individualistic culture. Therefore, organizations in such cultures were likely to implement an AIS technology that would force them to disclose their financial information (Jaggi et al., 2000). Further, a close relationship between uncertainty avoidance and professionalism in an organization has been shown to exist (Finch, 2010). Organizations with low levels of uncertainty avoidance are more likely to be professional in the manner in which they handle their accounting practices. Therefore, it is clear that national cultural characteristics can affect the accounting decisions made within an individual organization (Finch, 2010).

In a related context, it was revealed that individualism and uncertainty avoidance are two dimensions of national culture that have a significant impact on accounting risk-taking among organizations in various countries (Kanagaretnam et al., 2013). Uncertainty avoidance is described as the rate at which people in a particular culture work to avoid the unknown outcomes of their actions. In this regard, companies with a high rate of uncertainty avoidance tend to avoid taking risks in various business aspects, including accounting. Therefore, businesses in such a culture are less likely to implement AISs. On the other hand, individualism is defined as the habit of being independent and self-reliant (Kanagaretnam et al., 2013). Individualistic cultures are characterized by people working individually with minimal collaboration. Such a culture may influence accounting technology implementation negatively because of the limited communication and knowledge sharing between the members of an organization (Kanagaretnam et al., 2013). As such, organizations operating in such a culture intentionally disclose select accounting information to avoid public outcry. Therefore, it becomes difficult for such organizations to adopt and implement AISs successfully for fear of disclosing unintended accounting information (Kanagaretnam et al., 2013).

2.3.4 Impact of national and organisational culture on information systems use

Literature has shown that the use of information systems in organisations is affected by organisational and national culture. Zixiu and D'Ambra (2009) surveyed 121 employees of a multinational corporation in Australia with subsidiaries in Thailand, Malaysia, and Korea to determine the impact of organisational and national culture on media choices behaviour. The

results showed a similar preference for email communication between the subsidiaries and headquarters. Therefore, the national culture of Australia explained the similarity in the preference for email communication between the subsidiaries and the headquarters. Similarly, Burn and Jordan (1997) used the Hofstede model to show the differences in the perception and use of internet technologies in the US and Japan. The authors concluded that the national culture had an impact on organisational culture in relation to information technology utilization in organisational contexts. This context can be explained by Yeganeh (2007) who conceptualized organisational culture as consisting of cognitive and behavioural characteristics that consist of three levels. These include the outer level consisting of organisational objectives, missions, and strategies. The middle level is made of beliefs about organisational issues that employees converse about. The inner level consists of elements of life in the organisation that individuals cannot easily explain and recall. Using this understanding of organisational culture, Yeganeh (2007) explained the relationships among organisational culture, information technology, and information systems. As such, an organization that operates in a country whose national culture promotes negative aspects like nepotism and corruption is less likely adopt AIS successfully due to fear of transparent accounting information disclosure (Zixiu & D'Ambra, 2009).

Furthermore, Brits (2011) used the competing values framework, one of the foundational theories of this thesis, that categorizes organisational culture into hierarchical, market/rational, adhocracy/developmental, and clan/group cultures, and the Hofstede model of national culture to examine the association between national and organisational culture and the effectiveness and use of System Development Methodologies (SDM). A survey of 125 participants was done to demonstrate the impact of organisational culture on the utilization of SDM. In particular, SDM had been used for long in organisations with a hierarchical culture than in developmental, group, and rational organisational cultures. It was also demonstrated that national culture affected the utilization of SDM, where low individualism was associated with more horizontal usage of SDM knowledge. The study also demonstrated associations between organisational culture and the success of the SDM. In this context, the findings demonstrated that a developmental culture was associated with more success of the SDM, while a rational culture was correlated with higher

perceptions of success of the SDM. Overall, these studies indicate that national culture affects organisational culture, which in turn influences the use and effectiveness of information systems and technology in firms.

Further, as shown in the above discussions in references to multiple studies, information system implementation can be affected not only by the cultures of individual organisations, but also the national cultures of the countries within which an organisation operates (Talet & Al-Waishi, 2011). Every country may have a unique culture, which can be defined by a set of dimensions (Talet & Al-Waishi, 2011). Talet and Al-Waishi argued that two main cultural dimensions that influence the implementation of information systems in an organisation include uncertainty avoidance and power distance. Uncertainty avoidance is the degree to which people tolerate the ambiguity of a situation. A culture with a high rate of uncertainty avoidance does not engage in activities whose outcomes are unknown (Talet & Al-Waishi, 2011). In the case of AIS software implementation, a culture with a high level of uncertainty avoidance will be unable to take risks of implementing a new technology because the success of the implemented software on improving the business efficiency is unknown (Talet & Al-Waishi, 2011). On the other hand, power distance refers to the degree to which the people with less power in the society accept that power is unequally distributed. In a society with a high rate of power distance, the inequalities in the distribution of power are high (Stuart, 2013). In an organisation with a high power distance, it is highly likely that the management and the lower-ranking employees are treated differently. One of the main characteristics of an organisation with high power distance is poor communications between different levels of an organisation (Stuart, 2013). The management in such an organisation is usually treated as being special, and they rarely interact with the junior employees (Sonia & Serge, 2012). Stuart (2013) also analysed the concept of the logic of opposition that is created by the existence of power struggles within an organisation. When there is a high level of power distance, people tend to struggle to enhance their power status since the people in power get special treatment and benefits. The status of opposition is created when people in power struggle to have their ideas as the best hence constantly opposing the ideas of others (Stuart, 2013). Such a situation makes it hard for AIS or other information systems to be successfully implemented. This is due to

the fact that a successful implementation of AIS requires coordination in all levels of the organisation. In such an organisation, the implementation of new information systems is likely to be unsuccessful (Stuart, 2013). Further, communication as an organizational facet, is one of the most important components of successful information systems implementation (Chtorurou et al., 2008). Chtorurou et al. (2008) found that the strategic alignment of new information systems is highly affected by national cultural dimensions. Chtorurou et al. (2008) argued that the national culture is translated into organisational culture, and this, in turn, affects the behavioural norms of employees within an organisation. Brainin (2008) also developed the same argument with the assertion that the national and the societal cultures have an impact on the implementation of ERP systems. Therefore, the environment where a business is located can also affect the implementation of ERP systems or any other information systems. This is significant as, national culture can have an indispensable existence in the impact of organizational culture on AIS.

Proposition: National culture and organizational culture impact organizational use and thus, influence the implementation success of AISs.

2.3.5 The impact of national and organisational culture on performance

The implementation of AIS is likely to affect organisational performance, and the literature indicates that national and organisational cultures influence organizational performance. In their survey, Webster and White (2010) found that the organisational culture interacts with national culture to influence organisational outcomes in terms of growth rate, market share, size, profitability, and customer satisfaction. Additionally, firms with organisational cultures matching those of their country of origin demonstrated lower outcome levels when they set up operations in other countries with different cultural values. In support of Webster and White (2010), Marima (2013) found that organisational culture influenced the performance and management of petroleum firms. Further, Basu and Miroshnik (2003) showed that organisational culture is affected by national culture and that corporate performance is influenced by national culture through changing organisational culture in multinational firms in Japan. Basu and Miroshnik (2003) then used their findings to develop a structural equation model that linked organisational, national culture, and

firm performance. Conversely, in a survey of 202 executives from joint ventures between Indian firms and partners from 21 countries, Pothukuchi, Damanpour, Choie, Chen, and Park (2002) discovered that the assumed negative influence of cultural distance on the performance of joint ventures is attributed to organisational culture differences rather than national culture differences. As such, in regard to joint ventures, organisational culture is more significant than national culture in influencing performance. Nonetheless, because organisational culture is influenced by national culture, then by extension, national culture has influence on the organizational performance. These findings are significant because the arguments of these studies show that national culture has impact on organizational culture and by extension on organizational performance. AISs constitute a part of the organizational performance, and thus, they are influenced by national and organizational cultures.

Proposition: National culture and organizational culture impact organizational practices and performance and thus, influence the implementation success of AISs.

2.3.6 Summary

This section focused on the impact of national culture on organisational culture and indicated that: (a) Organisational culture is influenced by national culture; (b) national culture affects the organisational culture of accounting firms; (c) both national and organisational cultures have an influence on organisational practices, use of information systems, and performance. Therefore, both national and organisational culture have an impact on the use of information systems, and thus, influence the successful implementation of AIS. As such, this requires that accounting and general organizations have the appropriate accounting information system that goes along with their organisational culture, which is influenced by the national culture, to ensure the process of implementing accounting systems is successful. Therefore, organisational culture needs to be taken into consideration during the implementation of AIS. Nevertheless, there is a clear gap in literature addressing a variety of other organisational cultural aspects that are influenced by the national culture and how the context of both cultures impacts the implementation success of AISs. Studies reviewed show significant and vital conclusions pertaining to the impact

of national culture on organizational culture and thus, on information systems. However, it is important to note that national and organizational cultures are abstract concepts that combine tens of dimensions. The reviewed studies fail to address numerous specific dimensions of organizational culture and how such dimensions affect the implementation success of AISs. This study will address the impact of specific organizational culture facets on the implementation success of AISs in two specific countries of different economic, environmental and societal contexts. While in this section, the impact of national culture on organizational culture and thus, AIS are addressed, the following section addresses the foundational accounting consulted, information systems and interdisciplinary theories of our study.

2.4 FOUNDATIONAL THEORIES

This study is founded on a combination of theories. Some of the theories are accounting relevant while others are relevant to information systems. Few other theories are interdisciplinary in nature. Besides these foundational theories, the study adopts Denison model (2012) in full to study organizational culture (*independent variable*) and DeLone and McLean (2003) model to study AISs success (*dependent variable*). The following subsections elaborate on the foundational and adopted theories in this thesis.

2.4.1 Consulted Theories in Accounting Research

Since the study addresses the impact of organizational culture on AIS success, it is important to consult with relevant accounting theories to establish a foundation for the conducted research. Multiple accounting theories have been consulted before formulating the conceptual model. The following are four theories that have been widely consulted in accounting research. These theories provide some social context for accounting applications and practice. The Figure 2.3 below overviews the relevant accounting theories that will be discussed in this section.

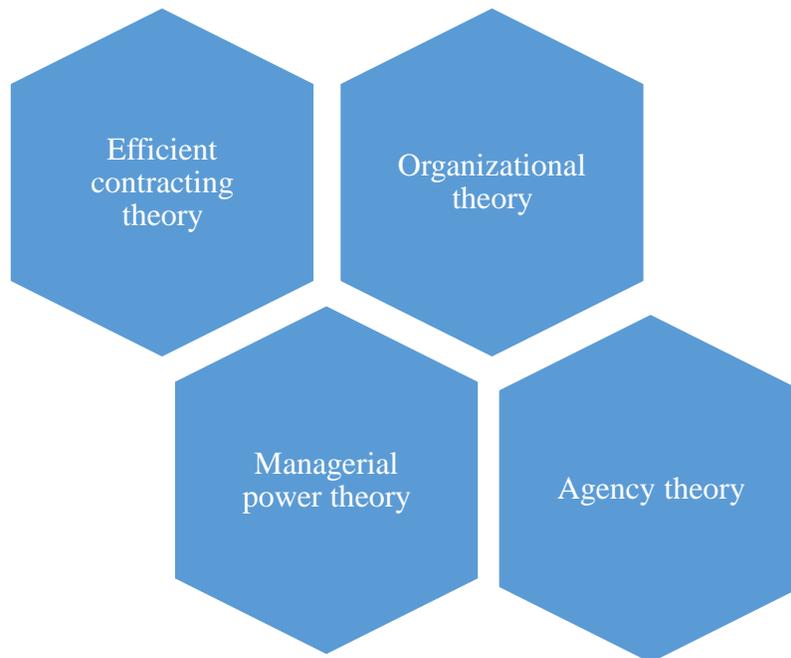


Figure 2.3 Theories consulted in accounting research

2.4.1.1 Efficient Contracting Theory

One of the roles of AISs is to offer decision support for accounting practices in an organization. Accounting decision-making can be founded in the efficient contracting theory. The theory explains accounting decision-making from a cost efficiency perspective. This theory assumes rationality by using accounting information to make the decisions that will be the most cost effective to a firm. According to Christensen, Nikolaev, and Wittenberg-Moerman (2014), an efficient contract generates trust between conflicting interests of various stockholders of a firm to make decisions that will cost the organization the least amount of resources. For instance, a manager can face conflicts of interests taking care of the interests of the managerial team, the creditors, or the shareholders. Managers can only make the best decision where they compromise on the interests that will have the least negative impact on the organization. Accounting plays a vital role in providing the information to support and benefit the most favourable decisions, according to efficient contracting theory. Transaction costs economizing over a long period of

contracting plays a fundamental role in boosting the organization and long term success of contemporary corporations (Emanuel et al., 2003). Firms rely on data for transactions within the organization to determine the opportunity cost and the direct costs of each transition, thus, supporting efficient contracting. The availability of well-managed accounting data makes it possible for an organization to have consistent and efficient information to support its contracting choices (Emanuel et al., 2003). Therefore, based on the contracting theory, accounting information must be available for the firm to make decisions that serve the best interests for the organization. Such information has to be reliable, truthful and reflective of the financial standing of the firms. Such information is usually provided by a successful AIS (Emanuel et al., 2003).

2.4.1.2 Organizational Theory

The organizational theory represents a range of approaches that help understanding the social units that make up an organization and how they interact with each other to create organizational effectiveness. An organization is made up of social units that have been structured and managed to meet specific goals and objectives (Glinkowska & Kaczmarek, 2015). The way these social units are structured or how they interact with each other affects the ability of the organization to meet those objectives. Accounting practices are profoundly affected by the interactions between the social units of an organization. The structure of leadership, decision making, division of labour, and culture of an organization directly influence the organization's accounting practices and outcomes.

In this respect, one way to structure an organization is following a bureaucratic model. Bureaucratic systems are characterized by an official hierarchy that is to be followed by the employees of an organization. Such organizations have rules and procedures that must be followed when conducting various management practices (Nonaka et al., 2014). One of the management areas that must follow the established organizational procedures is accounting. A bureaucratic system can help to provide consistency, accountability, and responsibility in organizational practices. These qualities can be translated into the accounting practices of an organization. The increased consistency, accountability, and responsibility brought about by the bureaucratic

structure enhance the quality of accounting practices. However, bureaucracy can also create inflexibility (Nonaka et al., 2014). Implementing change in such an organization can be difficult, considering the rigid processes needed to create and implement change ideas. When implementing AIS, it can be difficult to successfully shift to the new system of accounting in an organization that has a rigid bureaucratic structure.

An organization can also follow a rational system. The rational system perspective of organizational theory explains organizations as systems organized in the form of two main perspectives; formalization and specificity of goals (Nonaka et al., 2014). Specifying goals in an organization helps determining the right processes and people that are needed to achieve them (Nonaka et al., 2014). On the other hand, formalization is a way of structuring an organization in terms of the needed processes and systems to achieve the goals (Nonaka et al., 2014). In implementing AIS, it is important to make considerations for the goals of the systems, the systems themselves, and people needed to ensure the achievement of those goals. The rational perspective of organizational theory contributes to the development of the right system to support the accounting activities of an organization.

Other aspects of organizational theory involve understanding the right division of labour to facilitate the successful achievement of a goal. Organizational theory aids in understanding the right strategies to distribute responsibilities within an organization to achieve the best possible outcomes. When implementing technological improvements, for instance, it is essential to understand the division of responsibilities that will ensure that the organization successfully adjusts to the technological change (Nonaka et al., 2014). An example is in the implementation of AIS. The model of the division of labour will determine how well the employees handle different responsibilities that will contribute to successful implementation (Nonaka et al., 2014).

Generally, the organizational theory relates to accounting and implementation of AIS in the way that it explains the different ways of organizing and managing the units of an organization to facilitate optimal performance. In accounting, the right structures and cultures in organizations influence the decision-making and practices of the employees. Therefore, these factors affect the

effectiveness of different important practices of an organization, including accounting. The organizational theory sheds light on the role of organizational structure and thus, the organizational environment or culture in influencing the adoption of information systems. However, this theory is limited as it discusses the organizational structure as a whole. Organizational elements are numerous and each may have a different impact on AIS implementation success. The managerial power theory addresses more specific elements of the organisational structure, namely, the power of the managers.

2.4.1.3 Managerial Power Theory

Determining executive compensation is one of the major decisions that organizations have to make. Determining cost allocations on managerial compensation is a critical decision to make (Van Essen et al., 2015). A relatively low amount can affect executive motivation or the organization's ability to attract talent, while a relatively high amount can have a negative impact on the organization's revenue potential. The managerial power theory attempts to explain the existence of high executive pay in a majority of business organizations. This theory argues that executive compensation is often high when compared against an economically efficient compensation contract. Additionally, this theory refutes the existence of a correlation between a manager's compensation and performance (Van Essen et al., 2015). As such, it explains that a higher executive performance does not necessarily mean higher performance.

It has been shown that this theory is important in explaining the conflict of interest between executives' compensation interests and shareholder interests (Teimouri et al., 2015). This theory challenges the idea that business executives will make optimal decisions that favours the best interests of the company. In most public organizations, the shareholders are the owners of the business. While it is common to have business executives who own some shares in a company, it is also likely to have executives who are simply controllers of the business rather than owners of its stocks (Teimouri et al., 2015). The disconnection between control and ownership creates a risk of conflict of interest between those of the executives and those of the shareholders. The managerial power theory argues that managers having the power to control decisions in the

organization, often choose their interests when there is such a conflict. It refutes the idea that managers will evaluate the financial information available and choose the decision that is most favourable for the business (Teimouri et al., 2015). The top executives usually have power over other shareholders in the business, sometimes including board members. Such conditions lead to decisions that favour their interests.

From the accounting perspective, this theory is important in explaining the calculation of compensation costs in business organizations. When the organization understands the effect of managerial power, it is easier to fight this impact by implementing better strategies for determining managerial compensation. AIS can provide an organization with the relevant data that can be used in making better managerial decisions relating to costs, compensation, and shareholder interests. Furthermore, favouring specific interests can have an impact on the soundness of the information provided by an accounting information system. This theory pinpoints the role of management support and cooperating in the success of a newly implementation AIS. The theory supports that the management may consider their interests as they implement a new AIS. Management tends to support such implementation if it protects and reinforces its interests. However, the assumptions of this theory may be contradicted as per the agency theory that assumes agents will work for the best interests of their principals.

2.4.1.4 Agency Theory

Agency theory is used to explain and solve conflicts in the relationship between a principal and an agent. The most common principal-agent relationship is that of the shareholders of a business and the business executives as principals and agents, respectively. In broad terms, an agency can be defined as any relationship between two parties where one of the parties represents the other (Teimouri et al., 2015). The party being represented is the principal, while the representative is the agent. The agent does the day-to-day activities that affect the principal. For instance, the managers perform the day-to-day tasks that will achieve the best interests for the shareholders. In agency theory, the principal-agent problem is a representation of a possible conflict of interest between the agent and the principal. Many decisions that affect the principal

financially will also be affecting the agent. Sometimes, there may be differences in opinion arising from conflicts of interest between the two. Agency theory addresses the ways in which the two solve such issues (Teimouri et al., 2015).

Unlike the managerial power theory, agency theory assumes that agents make the decisions that achieve the best interests for the principle (Teimouri et al., 2015). The principles entrust the agent with their money and expect them to make decisions that will have the most benefit for them (Teimouri et al., 2015). In disputes arising between the two parties, the agent is expected to make the decision that leads to the most benefit, after being presented with adequate information. For instance, in business decision making, the managers may want to invest in something that will limit the business short term profitability but sets the company up for long term growth. On the other hand, the shareholders may want a decision that will earn them short-term profits. In such a situation, the agents will consider all the facts available and make the decision that benefits the business as a whole (Teimouri et al., 2015).

Agency theory plays a vital role in understanding organizational relationships. In solving principal-agent problems, adequate financial information must be available for use in the analysis. Accounting records provide both the principles and the agents with the data needed for favourable decision-making. The use of AIS makes accounting information easier to manage and accessible for the agents and principles to effectively evaluate the options and make the best decisions. This foundational theory supports the role of AIS in the relationship between agents and principals and the concerned interests in this context.

2.4.2 Consulted Information Systems and Other Interdisciplinary Theories

To come up with the conceptual model for this study, further multiple theories have been consulted. While some of the theories have been adopted as grounds for the study, others have been found to be of less relevance. However, the study is grounded on a combination multiple theories, which are discussed under this section. Figure 2.4 below overviews the theories to be discussed in the following subsections.

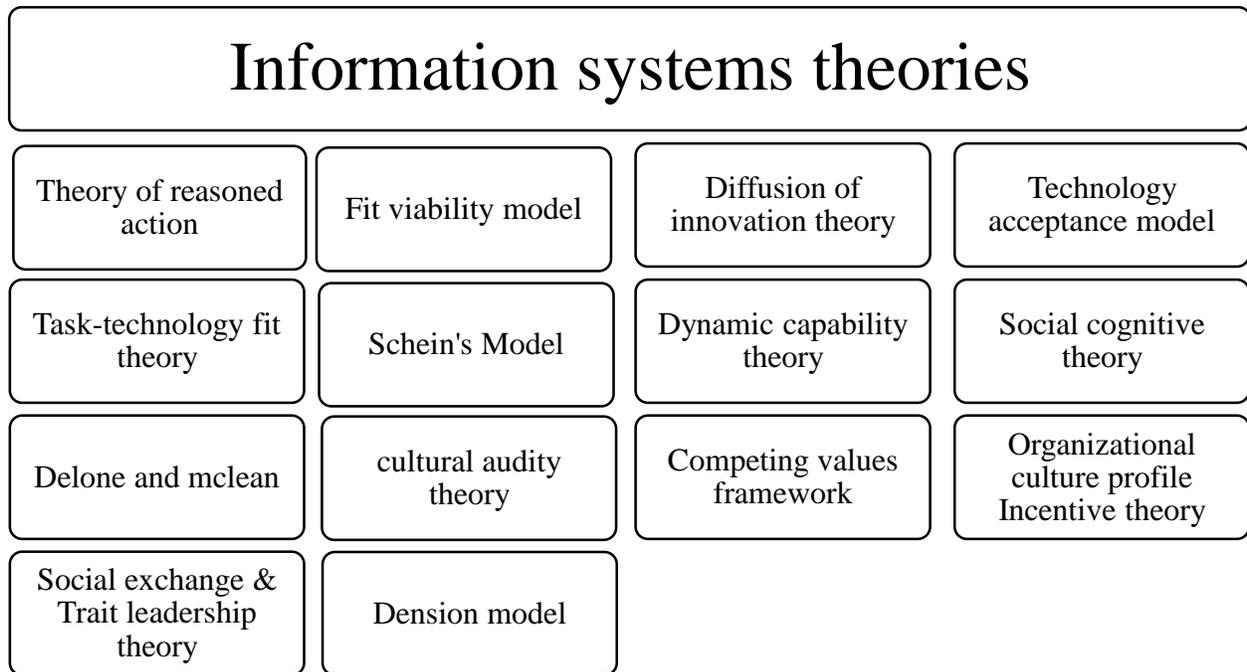


Figure 2.4 Consulted information systems theories relevant to this study

2.4.2.1 Theory of Reasoned Action

One of the theories that can explain the adoption of information systems, and in particular AIS is the theory of reasoned action (TRA), which has its roots in psychology (Sharma & Mishra, 2014). The theory has three components that explain the adoption of technology, which are the behavioural intention, attitude, and subjective norms. Research has established that a person's behaviour is determined by attitude and subjective norms (Trafimow, 2009). This theory tries to understand a person's behaviour through the examination of the underlying motivation to perform an action. In this regard, a person's intention to behave in a certain manner or perform an action is central to whether they actually perform that action. This theory also looks at the subjective norms, which explain the surrounding environment and how they influence the performance of an action (Trafimow, 2009). As such, the theory posits that intention to perform a certain act supersedes the actual act (Trafimow, 2009). A person is likely to perform an act if they believe that it will lead to a certain outcome. Further, it has been established that the stronger the belief about the outcome,

the more the likelihood that the person will perform the act (Southey, 2011). This theory is central to the adoption and implementation of technologies in an organizational context. It has been established that when users of technologies perceive it as helpful, they are likely to accept its adoption and implementation. According to this theory, users' positive attitude towards technology and in particular AIS, is essential if the successful implementation is to be achieved. However, in the era where accounting information has been fabricated to enhance fraud activities, it is possible that the intention to adopt an AIS will be lacking. In the recent past, cases of fraud and misreporting of accounting information have been prevalent. Top management have been seen to be involved in corrupt deals that have astounded the world of accounting and financial reporting (Southey, 2011). In the context of this theory, perceived use of an information system is central to its adoption and implementation. As such, when management is involved in corrupt deals and fabrication of accounting information to cover up the corruption, it tends not to support the successful implementation of AIS because of the transparency it brings into accounting information reporting. Therefore, this theory is relevant to the study, and thus, it is adopted.

2.4.2.2 Diffusion of Innovation Theory

Another theory that can explain the adoption of technology and innovation in an organization is the diffusion of innovation theory coined by Everett Rogers in 1960 (Wani & Ali, 2015). According to this theory, the spread of an idea is explained by four elements; invention, communication channels, time, and social systems (Dearing & Cox, 2018). In this regard, the theory looks at how innovation is communicated to people through persuasion over a period of time. Prior studies established that diffusion of technology has five stages; knowledge, persuasion, implementation, decision, and confirmation. This means that for an invention to be fully and successfully implemented in an organization, communication must be done through channels like social networks, the users must have the knowledge in regard to the technology, and they must be persuaded and later make an informed decision to adopt the technology (Dearing & Cox, 2018). As such, it has been shown that the implementation of innovation in an organization results in six categories of adopters and users of the technology. They are innovators, early adopters, early majority, late majority, and laggards (Dearing & Cox, 2018). In this regard, this theory explains

the adoption of innovations like AIS in terms of the invention itself, how the technology is communicated to the users, the social systems available and the time it takes to accept and adopt such technology (Dearing & Cox, 2018). The theory further explains that when such systems are being implemented, the pace of acceptance varies with time and the mode of communication. There will be innovators and early adopters who will accept the innovation fast, as well as the early majority who also accept the technology early. Initially, the rate of adoption is low as few people are able to accept the innovation, but as time passes, the early adopters influence others, and adoption of the innovation spreads across the organization (Dearing & Cox, 2018). This theory is typical for this study because it deals with multiple levels of analysis, including but not limited to individuals, groups, units, organizations, departments, etc.

2.4.2.3 Technology Acceptance Model

Technology acceptance model (TAM) is another model that explains the adoption of information systems in organizations. This model looks at the predictors of how users accept an innovation (Surendran, 2012). It is explained through this model that when users are presented with new technologies like AIS, there are factors that influence their decisions on whether to accept the innovation or reject it. The factors presented by this model include the perceived usefulness of the system and the perceived ease of use of the system. Perceived ease of use of a technology has a direct bearing on the usefulness of the system (Ma & Liu, 2005). It is, therefore, paramount to notice that in the implementation of AIS, the perceived ease of use will be fundamental (Ma & Liu, 2005). If users perceive the system as easy to use and not one that will phase them out of the organization, then they are likely to view the system as useful and thus, develop a positive attitude towards the system. The result of this in most organizations is that adoption and implementation of AIS will be smooth and successful because it will be accepted by the majority of users who perceive it as useful and easy to use. However, the theory can also be used to explain the failure of AIS due to its perceived ease of use. In the modern era where accounting and financial scandals have rocked the world, many organizations are in fear of transparency that technology brings on board (Ma & Liu, 2005). As such, an adoption of technologies like AIS would fail in case the

management fears reporting correct accounting information. This model is relevant to our study, and thus, it is considered foundational.

2.4.2.4 Task-Technology Fit Theory

This theory is developed by Goodhue and Thompson, and as explained by Overby (2010), management and supervisors study how effective the adoption of technology makes the performance of an employee. The theory further defined a task as actions that are performed and geared towards converting inputs into desirable outputs (Overby, 2010). Central to this theory, it is predicted that technologies that suit the task being performed well will enable the user to output more performance than those technologies that do not suit the task well. Further, the theory suggests that the characteristics of both the task and the technology influence the output of the performance. They defined task-fit as how fitting is the technology to the performance of a particular task. Research indicates that in most organizations, the characteristics of the task refer to the job requirements (Overby, 2010). As such, when job requirements change, it means that the technology may no longer fit in its performance. On the other hand, technology characteristics are the operationalized functionalities of a system being implemented. It is common knowledge that the components and usability of a system affect its performance. As such, adoption and implementation of AIS, can be explained by this theory. For AIS to be adopted and implemented successfully, the task and the system must fit one another. It has been shown that in organizations that the users of a system view a system as not being able to assist them in performing better in their duties, such systems are out-rightly rejected. As such, the attitude of users matters a lot in the adoption of such a system. When they perceive AIS as being able to ease their efforts in performing accounting tasks, they will accept the adoption and implementation of such a system. This theory promotes the idea that technology has a positive influence on the performance of individuals and thus has a positive relationship with their capabilities. System use and the perception of the system are important IS success variables as discussed by the adopted DeLone and McLean model (2003) and thus, this theory supports the adoption of the IS success model for this study.

2.4.2.5 Fit Viability Model

Another model that can be used to explain the adoption of technology in an organization is the fit viability model that was proposed by Tjan in 2001 (IRMA, 2017). This model explores two dimensions of adoption; *fit and viability*. Tjan argued that fit measures the extent to which the network application or technology being implemented is in tandem with the values, culture, and structure of the organization. On the other hand, viability looks at the value the technology adds to the organization in terms of the task requirements. In this model, organizational infrastructure in place is paramount to the adoption of technology (IRMA, 2017). In some organizations, it has been shown that technology adoption has been unsuccessful due to the existing poor infrastructure (IRMA, 2017). According to the model, an organization must be ready to adopt technology if the adoption is deemed to be successful. As such, the implementation of information systems like AIS requires the foundation of good networking, hardware, and software components of technology. If such infrastructure is insufficient, then such a system cannot be successfully adopted and implemented. As well, users must perceive AIS as useful to their tasks and must also possess skills to use the system. Failure to lay such a foundation will mean the failure of AIS implementation. The foundation of this model is the Task Technology Fit (TTF) perspective whose argument is that when there is a better fit between technology, task requirements and personal abilities or skills, there will be a better performance of tasks and hence an increase in the likelihood of technology adoption. The suitability of this theory makes it applicable to the study.

2.4.2.6 Dynamic Capability Theory

Literature has defined dynamic capability as the ability of the firm to build, reconfigure, and integrate internal as well as external competences in addressing the ever-changing business environment (McLaughlin, 2017). The foundation of this theory is that short-term competitive advantage can be leveraged to build long-term competitive advantage (McLaughlin, 2017). Research has shown that in accordance with this theory, three capabilities are the core base of dealing with emerging challenges. These are employees' capability to learn quickly and the ability to integrate technology and customer feedback within the organization as well as transforming the already existing assets and resources (McLaughlin, 2017). As such, what matters in a business

organization is the ability of the firm to sense and act on opportunities and threats, ability to seize opportunities and the ability of the firm to maintain a competitive advantage by enhancing, combining and protecting business processes and activities. In this respect, Arifin and Frmanzah (2015), state that the dynamic capability is central to building and reconfiguring the resource position of a firm, change operational routines, which, in return, affects organizational performance. In the current business environment, technology adoption is paramount for an organization to be competitive (Arifin & Frmanzah, 2015). Literature has indicated that AIS technologies have been seen to improve performance through automation of processes. In this regard, organizations whose members are able to learn quickly and can identify opportunities and seize them are more likely to adopt information systems successfully because of their capabilities. This theory is relevant and thus, it is a useful lens in this study.

2.5.2.7 Social Cognitive Theory

The social cognitive theory is another theory that can be used to explain the adoption of technology by an organization (Sharma & Mishra, 2014). This theory focuses on self-efficacy, which judges on the employees' ability to use technology in performing certain tasks (Sharma & Mishra, 2014). According to the proponents of this theory, the user's behaviour is normally influenced by the expected outcome of the technology use in regard to personal performance. This theory posits that there are always two opposing predictors that affect the users' behaviour. One of these predictors is the affect factor, which looks at the extent to which an employee likes his/her job. The other factor is anxiety, which is a negative contribution that looks at how anxious a person will be while performing a task (Sharma & Mishra, 2014). Therefore, the social cognitive theory looks at the influence brought about by individual experiences, the action of other people as well as environmental factors on the behaviour of individuals. According to this theory, behaviour change is achieved through installing expectations, observational learning, and self-efficacy. For an organization to be able to adopt and implement an information system successfully, a certain behaviour must be installed in its members. It has been shown that when employees develop positive expectations in regard to a system, the adoption of that system is not likely to be rejected. In particular, the adoption of AIS will depend on whether the employees expect the system to assist

them in performing tasks. This theory addresses the changing and the complex features of human behaviour and thus, organizational culture. Therefore, it is another lens used in this study.

2.4.2.8 Contingency Theory

Contingency theory posits that organizational practices depend on the environment that the organization operates in (Omoluabi, 2016). As a matter of fact, it can be looked at as dependent on the organization and the environment. Literature has argued that according to this theory, there is no one best practice for all organizations, but rather an organization adopts a practice according to the environment it operates under (Omoluabi, 2016). Although one may view this theory as simple and straightforward, it is complex to assess the contingencies that determine the decision to be taken (Betts, 2003). In normal practice, the term contingency means a relationship exists between phenomena. The contingency theorists believe that if one phenomenon exists, then it is possible to make conclusions about another phenomenon. It has been shown that organizations do not operate in a vacuum, but rather in an environment that has many forces. This means that different organizations will have different dynamics and forces that compel the organization to adopt the technology. It has been established that in any business environment, adoption of technologies like AIS is a competitive advantage (Omoluabi, 2016). As such, depending on the nature of the organization and the competition brought by other firms operating in the same environment, the rate of adoption of such systems will vary (Omoluabi, 2016). This theory is applicable for this study because it emphasizes the orientation that there is no best route to follow in an organization design. Information systems should fit within the organizational cultural dimensions of the adopting organizations, and these dimensions could differ between one organization and the other, considering, national, international, demographic, geographic and other contexts.

2.4.2.9 DeLone and McLean IS Success Model

According to D&M's model, measurements of IS success are important if we are to understand the importance of adopting information systems in an organization. As such, this theory is driven by the need to understand IS implementation and its impact on organizational processes.

D&M model uses a multi-dimensional and an integrated view of information system success dimensions (DeLone & McLean, 2003). It is important to note that stakeholders who have reviewed the implementation of IS in an organization have had a different point of view in terms of IS success (DeLone & McLean, 2003; Sabri, 2014). Yet, this model proposes that the success of an information system is well understood if looked at in terms of system quality, quality of information, the use of the system, satisfaction level of users, impact on individuals, groups and impact on organization itself. In view of this, therefore, when AIS is viewed as having all the above-mentioned characteristics, it is likely to be adopted and implemented successfully. This IS success model is fully adopted in the study and the measurement of the success variable which is the dependent variable of the study, rely on the dimensions of D&M model (2003).

2.4.2.10 Schein's Model

Schein's model is a theory that was developed in 1988 by Edgar Schein. Organizations take time to develop their culture (Mazur & Zaborek, 2016). In the process, employees have to undergo various changes and adapt to the external environment as they solve organizational problems (Mazur & Zaborek, 2016). In this regard, employees learn from experiences and implement practices while developing their attitudes as an element of the organizational culture. According to this model, organizational culture could be characterized into three levels; artefacts, values and assumed values. This model visualizes organizational culture as being a social force that is invisible, yet powerful. Hogan & Coote, (2014), showed that organizational culture significantly influences market-oriented behaviours and responses as well as financial performances of organizations. Further, this theory suggests that organizational culture influences employees' attitudes and organizational effectiveness. In this regard, Schein viewed organizational culture as an aspect that is beyond the control of authority and procedures, but that which elicits desired organizational outcomes (Hogan & Coote, 2014). However, this model has a problem of being too general, especially, when defining its three levels. For example, the term organizational attribute is too vague and comprises of everything from a smile to the colour of items in the organization, which makes this aspect lose its impact. However, when this model is viewed in terms of organizational culture and its influence on adopting and adapting to changes, it explains how

organizations are forced to accept change by the forces in the environment. Implementation of AIS has been seen to influence how organizations perform in the long term and thus, according to Schein's model, the market forces, especially, advances in technology will compel organizations to adopt AIS in order to solve organizational problems. Due to the relevance of this model to this study, partial dimensions of it are considered as lenses for this study.

2.4.2.11 Competing Value Framework

Quinn and Cameron (2006) developed this model as a way of giving classification to corporate cultures. According to the model, organizational culture can be viewed in terms of how a firm operates, the way employees collaborate, as well as, the existing organizational values (Datuon, 2015). This model groups organizational culture into four categories; clan culture, hierarchical culture, market culture, and adhocracy culture.

In the clan culture type, there is often a high degree of flexibility and internal focus (Datuon, 2015). As such, research has indicated that there is always a central relationship among the workers, which fosters a friendly working environment. Such organizations are often small in size or start-up businesses (Datuon, 2015). According to this cultural classification, the managers of such businesses are considered to be fathers or mentors who can be approached with ease. Therefore, such organizations are held together by a culture of loyalty and a traditional commitment of all members. On the other hand, hierarchical culture refers to organizations that have a more controlling management and are internally focused. Such a culture is highly formal, and the organization exhibits a structured working environment. Organizational procedures and policies often determine the employees' course of action. Regarding market culture, the organization depicts a high controlling behaviour and is externally focussed (Mahmoud Mahran, 2016). This means that the main focus in this type of culture is results, which makes employees highly competitive and goal-oriented. Organizations, in this respect, such as banks portray themselves as affordable and leaders in the market to the outside world. Last, adhocracy refers to organizations that are highly flexible and externally focused and whose innovation is the key to success (Mahmoud Mahran, 2016). Although this model does not try to integrate these cultural

aspects into one, other researchers have shown that hybrid organizations exist. In regard to information systems adoption, it has been shown that organizations that are open to innovation and change are more likely to adopt AIS. Further, a hybrid organization that encompasses all aspects of this model are likely to implement an AIS successfully because of encouraging innovation, having management in place to control the innovation process, and the internal focus of the organizational success. This theory is another lens through which this thesis formulates its hypotheses.

2.4.2.12 Organizational Culture Profile (OCP)

The OCP is a tool that was developed by O'Reilly, Chatman, and Caldwell in 1991 to enable the assessment of person-organizational fit. However, in the recent past, this tool has been used in the assessment of organizational culture change and evaluating the likelihood of success in mergers and acquisitions. According to this tool, an assessment must be done to know the fit between an individual employee and an organizational culture. In doing so, it is easy to implement changes in the organization when there is a fit between the two entities (O'Reilly et al., 1991). Although this tool or model does not take into consideration the diverse nature of the organizational workforce, it explains the need to align individual preferences to the organizational culture. In a dynamic working environment, it is usually important that individual preferences fit into the organizational culture (O'Reilly et al., 1991). Organizations that are highly flexible and able to accommodate change have been seen to be more successful. In the current business environment, a flexible organization is likely to adopt and implement AIS more easily and successfully, if its employees are harmonious with the organizational culture of dynamism and flexibility (O'Reilly et al., 1991). Therefore, the nature of the organizational environment may impact the implementation success of IS and thus, this theory supports the view that AIS is influenced by its adopting environment. It is another lens for this study.

2.4.2.13 Social Exchange Theory

Social exchange theory is a model that argues that social behaviour is a result of an exchange process that is geared towards maximizing benefits and minimizing costs (Aamir, 2013).

The proponents of this theory posit that people always weigh the potential benefits and risks of any social relationship. Research has shown that when social benefits outweigh risks or costs, people are determined to continue with the relationship (Chou, 2016). On the other hand, when risks or costs are high, people or organizations abandon the relationship. In this regard, costs are viewed as negative things that result from an action or a relationship (Chou, 2016). From an organizational point of view, organizations are likely to abandon change that is deemed to bring losses to the organization (Cropanzano et al., 2017). As such, it has been shown that organizations that view AIS as not beneficial to the firm are not likely to support adoption and implementation (Datoun, 2015). However, research has shown that in firms that have progressive management and thus view AIS as being beneficial and cost-effective, are likely to adopt and implement AIS successfully (Datoun, 2015). This theory is relevant to the study and it is partially adopted.

2.4.2.14 Cultural Audit Theory

This theory suggests that despite the importance placed on organization's culture and its outcomes, there is still a disconnection that exists between the desired and actual organizational culture (Testa & Sipe, 2013). It has been shown that in most organizations, espoused company values were conflicting with the actual organizational values. For instance, it has been shown that employees may not act in accordance with the desired organizational behaviour when the managers just speak on how employees should behave, but do not act as role models (Zaidi Aduce & Jubair, 2016). It has been shown that when management acts in contradiction to what it professes, the morale of employees is reduced (Testa & Sipe, 2013). In many organizations, it has been shown that management assumes the important role that technology plays in the modern business environment, but does just little to support the adoption and implementation of AIS or any other IS. As a result, employees feel less motivated to push for the adoption of such systems due to the conflicting signals from management. Due to its relevancy, this theory is partially adopted in our study and aids as a relevant theory for deriving the study theoretical model. It aligns with the managerial power theory as both support the role of management in the adoption success of AIS.

2.4.2.15 Incentive Theory of Motivation

The incentive theory of motivation proposes that certain behaviours are encouraged with rewards, money and recognition. Promotion at work and better financial rewards are forms of incentives that can guide certain behaviours (Killeen, 1981). Negative incentives play an opposite role (Killeen, 1981). Certain behaviours are stopped through applying negative incentives (Killeen, 1981). Rewards and incentives may encourage employees inside an organization to adapt to new technology. This theory is partially adopted for the study model.

2.4.2.16 Trait Leadership Theory

As per the trait leadership theory, leadership effectiveness is determined by several characteristics or traits that successful leaders have. Such characteristics can be related to personality, self-confidence, intelligence, persistence and other demographic and social characteristics (Zaccaro, & Klimoski, 2001). Successful leaders have specific characteristics that enable them to lead their followers successfully and thus, play an indispensable role in the implementation success of information systems. Due to relevancy, this theory is partially adopted for the thesis study model.

2.4.2.17 Denison Model (2012)

Denison model of organizational culture highlights four main traits of organizational culture. These traits are adaptability, mission, involvement and consistency. Under each category, three sub-categories are used to assess the organizational culture inside an organization. Effective organizations are those that have high profile considering the four main categories used for organizational culture assessment (Kokina et al., 2013). This study adopts the Denison model (2012) in full to assess the organizational culture characteristics of the surveyed organizations in Canada and Lebanon. After presenting the relevant accounting and IS theories in the prior sections, the following section in the literature will shed light on the social, political as well as cultural contexts or environments of AIS.

2.5 AISs: SOCIAL, POLITICAL AND CULTURAL CONTEXTS

The onset of the 20th century has seen a number of financial scandals that have shaken the world (Bhutta & Saeed, 2011). As a result, there has been a formation of innumerable critical views in regard to accounting processes and calls for changes in the accounting sector. Critics have questioned the role of the accounting professions in such scandals. Literature has shown that accounting is a discipline that does not only deal with financial reporting, but rather a discipline that helps to protect jobs, welfare payments, retirement accountings, environment, finances and economics in our societies (Loft, 1986). The accounting profession has innumerable definitions (Loft, 1986). Some have defined accounting as the unbiased observer and an objective producer of the independent economic reality of a society (Loft, 1986). As such, accounting is presented as a fundamental phenomenon that helps provide rational market participants with economic information that they need for decision-making. This means that accounting has a central role in the society owing to its role in directing people in the society towards their optimum balance in regard to markets.

It has further been argued that accounting plays a critical role in the provision of assurances on the true and fair view of markets' financial data including the information for the national accounts (Luft, 2016). Such information is paramount in ensuring that people make correct decisions when they want to invest by ensuring they are guided by accurate information. Further, accounting has been used to guide the management of organizations in making business decisions, planning, and budgeting (Bouquin, 1997). Such decisions ensure that organizations have a clear picture of what is required and whether they have made profits or losses. It is through accounting therefore, that organizations have realized the need to engage in corporate social responsibilities by being aware of their financial positions (Bergh & Wichardt, 2018). This means that by extension, accounting has been part of the larger society and cannot be viewed as being separate from society.

Accounting is a profession that has seen praise and criticism in equal measures. It has been argued that accounting is a field that is both technical and social in nature due to the ways it is practiced (Rodrigues et al., 2011). Literature has shown that accounting, whether private or public,

does not happen in a vacuum and thus, it is affected by the surroundings. As such, factors such as political settings, social and cultural factors have been seen to affect accounting significantly. It is, therefore, in this view that this review focuses on the role of accounting in the society in regard to socio-cultural and political dimensions. In the same perspective, social accounting could also be viewed as a social accounting and auditing, social-environmental accounting, corporate social responsibility, or corporate social reporting (Loft, 1986). This means that in some way, the environment affects organizational, economic actions, which also affect a particular social group in a society. In this regard, accounting, whether social or public, has commonly been used in the context of business and corporate social reporting (CSR) as a way of giving back to the society. It is also mainly used in conjunction with community-based monitoring. Literature has shown that many organizational accounting practices emphasize on the notion of corporate responsibility as a way of reporting firm's activities to stress the need for socially relevant behaviour (Bhutta & Saeed, 2011). In this regard, Bhutta and Saeed (2011) have shown that some organizations have utilized the notion of CSR as a hiding place when faced with scandalous acts involving financial malpractices. It has been reported that companies involved with CSR activities are less scrutinized and most financial scandals go unnoticed. As such, social accounting has been used by organizations to hide the corruption deals that have later come to haunt the organizations. Literature indicates that accounting involves professionals who interact with the world and thus cannot be separated from the social set-up. Therefore, AIS may be highly influenced by its surroundings as it is the engine or the heart on which accounting practices rely.

The political aspect of accounting can be clearly demonstrated across several governmental contexts (Loft, 1986). In practice, private accounting is demonstrated by the need to reduce cost in business operations. It has been shown that in many private organizations, the reduction in cost is the main objective so as to help maximize profits. On the other hand, the political economy that is embraced by politicians thrives by denying that cost exists in the first place. In a society that is controlled by politics and politicians, accounting processes have been seen to be influenced by politics either directly or indirectly (Loft, 1986). Literature has shown that accounting standards are mostly affected by world politics. It has been argued that in Western countries, the process of

setting up accounting standards and policies is often marred by political influences and conflicts among government bodies, NGOs, private bodies and accounting bodies against each other so as to gain favour with set standards (Bhutta & Saeed, 2011). It has been argued that the political aspect of accounting has seen various organizations face scrutiny due to poor accounting processes that are marred by malpractices. Research has shown that external politics, as well as internal organizational politics, have, in many cases, led to improper financial reporting and thus leading to scandals that have stunned the world. Recent studies have indicated that the concept of political waste is diametrically opposite of the economic concept of waste (Bhutta & Saeed, 2011). This is shown in accounting policies where if an economic activity produces value for money, then it is considered auspicious (Bhutta & Saeed, 2011). On the other hand, the political aspect of accounting looks at the votes or the popularity the activity brings or promotes. As such, government programs are designed to waste money in order to gain popularity (Bhutta & Saeed, 2011). This makes accounting for such programs fraudulent in order to present acceptable financial information (Bhutta & Saeed, 2011). It has been shown that most government agencies and organizations have, in most cases, produced inflated budgets, doctored financial statements, and incorrect figures so as to go by the set accounting standards. Therefore, it is impossible to separate political influence from the accounting processes because politics is part of the society that accounting operates in (Bhutta & Saeed, 2011).

At the core of accounting practices is culture. Although one may assume that practices like detecting mistakes and fraud in financial statements is common across the world, there is a lot of disparities due to the influence of culture dynamics across the globe (Loft, 1986). A simple practice like auditing could differ across different cultures. For instance, an auditor gives an opinion on whether the financial statements are made according to Generally Accepted Accounting Principles (GAAP) and are free from misstatements. To be able to offer an unbiased opinion, an auditor must be objective, independent and not influenced by culture (Loft, 1986). In societies with large power-distance, auditors are pressured by powerful clients to give opinions that favour them. Although accounting standards are in favour of a professional judgment, an auditor in such a situation may feel the need to please the authorities by issuing false audit opinions to help the clients stand away

from public embarrassment. Accounting plays a significant role in the society of promoting transparency and ethical behaviour. It has been shown that further, accounting promotes Corporate Social Responsibility (CSR) activities by organizations that have already made profits and want to give back to society. As such, accounting cannot be separated from the society and should always be viewed from a societal perspective due to the influence it receives from politics, social context, and culture. However, social accounting has often been used by organizations to clean their names in the eyes of the society, especially, after being involved in scandals. AIS is the engine on which accounting relies and thus, it is highly influenced by the environmental and other contexts in which it operates.

Accounting professionals and bodies operate in a political world and thus get influenced in the way they operate in such an environment. It has been shown that accounting is governed by common standards and policies that are designed to ensure that there is a common way of doing accounting. It has been argued that accounting bodies, especially, the International Accounting Standards Committee and the International Accounting Standards Board (IASB) are constituted by those that have most to lose or gain, which is itself political (Gallhofer & Haslam, 2007). Such political stances have seen the development of accounting in a way that has pleased many as well as left many with question marks. IASB being a non-profit organization may lack political accountability, one argues. However, its registration raises question marks in that it was registered in Delaware State in the US, which was a tax haven. It is further common knowledge that IASB and other accounting bodies may receive funding from corporations and individuals and thus making them biased in the formulation of policies and standards (Gallhofer & Haslam, 2007). There has been much criticism of accounting bodies and professionals, especially, in the way IASB formulates and implements accounting policies. It has been shown that some of the accounting scandals that have shocked the accounting fraternity have been engineered politically and politicians have protected the culprits. As such, it is tough to separate accounting from the political context as the latter affects the formulation and implementation of accounting policies and standards. According to Ahn, Jacobs, Lim, and Moon (2014), in a case reflecting on sides of the financial management practices, in the Korean Ministry of Government Administration and Home

Affairs (MoGAHA), the former MP used the political influence of the minister to support accrual accounting. The application of this type of accounting system required the use of internal politics to exert more pressure for its adoption (Ahn et al., 2014). Therefore, the political and social surroundings of accounting may impact the implementation success of AIS which is the core engine that runs accounting operations and practices.

Literature has indicated that it is hard to view accounting away from the lenses of cultural contexts. Although some studies have presented accounting as a technical concept, other studies have presented accounting as a concept that should be viewed in terms social and cultural aspects (Rodrigues et al., 2011). Accounting indeed happens in an environment that is marred with cultural dimensions. Accounting professionals are people that live and operate in a social setting, and thus, accounting is affected by culture and social setting of a population. Although it has been argued that there are common standards that are applied globally in regard to accounting, it is also vital noting that the implementation of such policies and standards is affected by culture and social setting of each country. Rodrigues, Schmidt, Santos, and Fonseca, (2011) in a relevant context of Brazil, argued that for one to understand accounting, it must be viewed as a social practice rather than a practical aspect only. Literature has further shown that each country is different, owing to its unique culture and social settings. As such, financial statements may from time to time appear different from one country to another. These differences are due to the differences in social settings, economic and legal frameworks that exist in different countries and cultures (Gallhofer & Haslam, 2007).

Therefore, this calls attention to the fact that it is hard to separate accounting from political and cultural context owing to the environment it operates in. It has been argued that although the accounting bodies are non-profit organizations, they usually receive funding from both corporations and individuals, which can easily lead them to be biased. As such, these bodies such as IASB and others are prone to both internal and external politics, as well as being affected by different cultures in the societies where they operate. While this section introduced the surroundings in which accounting operates and gets influenced, the following four sections address the interplay between humans and AIS, accounting constellations, fabrications, and social context.

2.5.1 The Human Context of AIS

Professional associations and reputable accounting firms have continued to develop new levels of disclosure standards and assurance certification (Bertrand, 2013). Bertrand (2013) has argued that there are no problems for accounting experts transferring their knowledge to the social, political environment, but the effects of deployment raise a political question. The accounting industry has an important role in regulating the socially responsible practices within business organizations (Bertrand, 2013). Further, the accounting industry plays an essential mediating role in creating individualistic and moral rationality (Bertrand, 2013), which acts as an essential symbol of political power that enhances the preservation of natural resources and social protection of affected vulnerable groups within a society (Bertrand, 2013).

On an institution level, the state is the primary causality of a depoliticization process in developing regulations and disciplines (Bertrand, 2013). From an epistemological perspective, sociology is concerned with how society shapes mankind, but pragmatic sociology focuses on how man influences society (Bertrand, 2013). Political action will be forced to express itself through a language of legitimacy, which will, in turn, marginalize individuals whose interests are subjective to human values and actions. The interaction between politics and accounting takes form in several ways. To start with, accounting firms become accountable to parliamentary committees to produce ‘soft laws’ (Bertrand, 2013). Second, accounting firms are required to develop a motion that envisages their vision and the common good that can be used to achieve it. Third, the politicization of accounting expertise cannot be developed without a straight effort to minimize the social context of society (Bertrand, 2013).

According to Walker (2016), “the main role of accounting in society is social control” (p. 45). This is determined by a structured relationship within an industrial society (Walker, 2016). In the contemporary world, there is an increased characterization of society, configurative relationships, and institutions that determine the level of interaction with accounting. For example, customer, risk, information, network, global, and audit societies have influenced accounting interactions (Walker, 2016). These aspects demonstrate that the world has become refashioned in the context of transnational corporations, but the forms of society and sociality remain relatively

constant (Walker, 2016). The level of transformation reinforces the need to investigate opportunities and understand the role of accounting in society (Walker, 2016).

Social features that occur in the 21st century have created interfaces with accounting (Walker, 2016). According to Walker (2016), the emergence of '*feral societies*' has created an opportunity to disorientating the impacts provided by internationalization and neoliberalism leading to the creation of civil conflicts or violence (Walker, 2016). Accounting is a new technology in governance that has effectively controlled '*feralised*' populations (Walker, 2016). Considering globalized consumerism and advanced systems of information networks, an 'entertainment society' has been created. This is responsible for promoting mediated entertainments, internet-based societies, and high-level online recreations that have connected accounting and culture (Walker, 2016). Such kind of societies had their impact on accounting in general and the AIS implementation success, in specific.

Catastrophes in our contemporary societies have developed from the interaction of biological, environmental, and nuclear threats caused by humans (Walker, 2016). As such, accounting research that focuses on promoting sustainability, development, and military conflict have become common. In a global management context, the need for accounting rituals that support verification has become necessary for the management of food, water, and fuel (Walker, 2016). According to Walker (2016), accounting has an essential role in managing crisis situations and is linked to the sociology of disruptions. Debating the role of accounting in the management of humanitarian disasters is a necessary strategy in leading a catastrophe free society (Walker, 2016).

In a parallel context, in contemporary societies, fraud, corruption, wrongdoings, are committed by individuals with high tendencies of committing unethical behaviour (Cooper et al., 2013). However, fraud in society produces social and economic effects (Cooper et al., 2013). On the other hand, evasion is regarded as a criminal activity, but avoidance is believed to be a form of sensible management. Cooper et al. (2013), has offered a constructivist approach on the activities actors undertake to ensure compliance with rules and regulations. This can be observed through increased tax avoidance schemes developed by accounting firms in managing fraud (Cooper et al.

2013). In this context, accounting has not only focused on tax compliance, but on developing reporting rules, earning management, and creative accounting practices (Cooper et al., 2013).

Accounting fraud is experienced through multiple domains consisting of different levels (Cooper et al., 2013). Fraud and corrupt activities are different because of institutional contexts. According to Cooper et al. (2013), disparate cultural frameworks can disrupt or promote fraud activities through bribery and corruption. Different designs and regulatory systems in the business environment have varying levels, and this influences corrupt practices. Besides, many organizations are facing increased levels of fraud. Also, there are high-level fraud practices experienced on individual level manifested through systemic, organizational values, and practices (Cooper et al., 2013). According to Cooper et al. (2013), daily fraud activities are manifested through misdirection, appropriation of resources, and non-work-related functions (Cooper et al., 2013). Increased fraud in the society that may be due to the use of organizational resources is not easily detected, and the resulting fraudulent behaviours become accepted norms (Cooper et al., 2013).

In this regards, accounting has an important role in the society, in terms of minimizing fraud activities (Cooper et al., 2013). Accounting firms are required to conduct audits and offer expertise on tax planning, risk management, and strategies for corporate governance. Cooper et al. (2013) state that accounting firms minimize fraud activities in society through providing advice to governments about financial management, proper controls, and risk management. Accounting firms interact with several occupations in managing disputes relating to nature, effects, and proposals for reducing fraud and risky behaviours (Macintosh & Hopper, 2005). The nature of accounting firms allows them to compete with other professions concerning better knowledge and approaches to managing fraud (Macintosh & Hopper, 2005). Technology has created a discourse about nature, and level of corruption in the society (Macintosh & Hopper, 2005). Therefore, this section presented accounting as a practice that is highly influenced by its environments. The following section will address accounting constellations in our contemporary societies.

2.5.2 Accounting Constellations

Accounting is a part of its environment. Accounting rules, standards and practices emerge and change according to the needs of the environment in which accounting operates. Institutions, individuals, external as well as internal stakeholders may come together as a constellation where value added is caught and thus, an accounting practice emerges. Therefore, accounting as a practice develops with its information and AISs are highly influenced by the interests of the parties occupying the environment in which they operate.

Accounting procedures must focus on realignment of market-based and rights-based mechanisms to minimise any differences between the state and the market to guarantee its successful implementation (Yasmine, 2009). There is a need to rethink a conceptual distinction that can exist between public and private centres of power. Yasmine (2009), states that the law should act as a monolithic centre of state power that will emphasize social and ideological aspects that will be used to determine the implementation of a regulatory framework. As such, effective implementation of AIS will be determined by a law that presents itself as social practice (Yasmine, 2009). Therefore, law and accounting have an important responsibility in making and shaping the implementation of policies that will govern the economy through its markets and society (Yasmine, 2009).

In this respect, Hopwood and Miller (1996), define accounting as a “social institution based on its traditions” (p.1). The literature revealed that accounting is integral in constructing reality as opposed to communicating a particular reality (Hopwood & Miller, 1996). First, accounting in its ordinary nature can change in content and form with time, and it can only achieve temporary stability (Hopwood & Miller, 1996). Second, accounting implementation is influenced by its institutions linked to it. Third, the need to implement an accounting system is influenced by cost control (Hopwood & Miller, 1996). In this regard, implementation is provided to create value to evaluate physical, monetary, human resource aspects and possibilities of the system (Hopwood & Miller, 1996). This makes implementing individuals to become calculable persons, which enables them to become accountable and responsible (Miller, 1991). As a strategy for managing calculable persons, it was revealed that power is always exercised over free subjects (Miller, 1991). Other

researchers have argued that a field of relations exists within the institutions, processes, knowledge, norms, measurement and classification techniques that develop an accounting constellation (Stuart et al., 1985). Further, there is a close relationship between the accounting profession and the state. Hopwood and Miller (1996), state that accountants have advanced a colonizing movement through financial services, and this has created an environment of a new state with regulatory structures that have taken independences of the profession (Hopwood & Miller, 1996). Therefore, this calls attention to the integration between AIS and its surroundings, namely, societal and political ones. Thus, AIS implementation success may be highly influenced by such surroundings. While constellations may lobby accounting practices, fabrications reshape facts to serve individual interests.

2.5.3 Accounting Fabrications

AIS technology may be abused by users and thus, resulting in fabrications of accounting records that manifest into major financial scandals as previously mentioned, namely but not limited to the cases of Enron, Arthur Anderson, Satyam India, etc. The fabrications are

“processes by which people attempt to enmesh accounting innovations within the functioning of organizations and the processes by which new patterns of language, meaning and significance emerge [...]” (Preston et al., 1992, p. 562).

Whilst inputs of this type consist of multiple human and non-human actors' participation, the outcomes are

[...] seen to shape the way in which people think, talk and feel and condition their participation in, and/or response to, the design, implementation and operation of it (Preston et al., 1992, p. 567).

The human fabrications of accounting records may take a variety of forms, namely but not limited to cash disbursement embezzlement that involves the creation of fake documents and entries. Such kinds of frauds are common in organizations where separation of duties and audit trails are either weak or non-existent (Shaw et al., 2000). The computerisation of organizations,

whether public or non-public, exacerbates the human fabrication of records as users trust data generated by AISs. Such human manipulations and fabrications initially surface in several ways. In this respect, accounting discrepancy, financial irregularity, questionable transactions, asset loss detection that may show in the course of a routine audits would elaborate on the fabrications committed (Shaw et al., 2000). Such fabrications may be a form of corruption. Human fabrication of accounting records impact the successful implementation of AISs as such systems will lose their intended purpose. AISs will be abused by users and their records will be fabricated to serve personal interests at the expense of the organizational stakeholders. Thus, accounting practices take place in an influential social context.

2.5.4 Social Context of AIS

The social context has an impact on accounting standards (Stuart et al. 1985). The economic and social impacts of accounting practices cannot be ignored because they influence the processes of setting accounting standards and the creation of theoretical resources (Stuart et al. 1985). Taking the agency theory perspective, financial statements are perceived as economic goods that create a demand for their production, but this can be costly (Stuart et al. 1985). Financial statements are used for determining the degree of certain financial transfers like dividends, tax credits, remuneration, agency costs, and loan payments. As such, the level of accounting procedures is different based on financial transfers, and no single procedure is followed as a universal standard (Stuart et al. 1985). The procedure adopted is determined by whether it can be unregulated within its business environment (Stewart, 1995).

Individuals in a particular society will tend to estimate financial effects as part of their changes to influence decision making as a part of their accounting procedures (Lawrence & Narayanan, 1984). Further, the level of government intervention into the economy has influenced the development of accounting (Hopwood et al., 1980). However, the government, as a social factor, may regulate or deregulate financial accounting because of the need for change at that particular time. Therefore, the agency theory provides that the state will allow its agents to place themselves to novel objects (Stuart et al., 1985). Importantly, Stuart et al. (1985), have revealed that there is a correlation in the classes of action through the positions adopted, set accounting

standards and approximated interests from individuals implementing the standards (Stuart et al. 1985).

Agency theorists perceive their model as being a self-interest because it is mainly focused on identifying personal interests and promoting specific policy positions (Stuart et al. 1985). In this regard, the agency theorists provide a way of calculating individual interests obtained from economic theory and point on a specific role within the financial statements (Stuart et al. 1985). In the analysis, agency theory proposes the use of a meta-accounting approach as the basis of developing guidelines for rational economic actions in order to understand a particular aspect of accounting (Stuart et al. 1985). Implementation of an accounting model focuses on revealing a specific administrative policy and ways of calculations as a part of discursive components in the whole process (Stuart et al. 1985). Overall, AISs operate in a variety of contexts. One of these contexts is social. AIS may be influenced by its social context and thus, such an influence can impact its success or failure.

Proposition: Political, social and culture contexts influence AIS implementation success in Lebanon and Canada.

2.5.5 Summary

Accounting has become an integral part of our complex societies. Through accounting, economists, governments, policy makers, environmentalists, analysts, sociologists make important decisions. AISs operate in a more complex environment in comparison with other information systems. Tax authorities and policy makers rely on AIS reports to make crucial financial and non-financial decisions. Politicians rely on accounting reports to set the country budgets. Fabrications and falsifications of AISs' reports will lead to major social, financial, political, economic and environmental repercussions. Founded on the organizational theory and efficient contracting theory, accounting information system is influenced and impacted by the organizational structure and departmental interrelationships. Furthermore, AIS reports are used to make prudent and cost effective decisions and thus, as per the efficient contracting theory, accounting information is essential for organizations to make effective decisions, and internal and external contractual relationships. Furthermore, founded on the managerial power theory, executive payments and

motivations are based on AISs' reports. In addition, considering the agency theory, for solving principle-agent problems, adequate financial information must be available for use in analysis and such information is provided by successful AISs. Therefore, AISs nurture and flourish in complex human, social, economic, environmental, political and financial contexts and they are highly impacted by these components. Human fabrications and manipulation of accounting records that could be driven by organizational factors will certainly lead to failure of these AISs and such failures will propagate catastrophic consequences on the national and even, international levels. This section presents the social, political, and cultural contexts with which accounting interacts. The following section studies the organizational culture and information systems interplay.

2.6 ORGANIZATIONAL CULTURE AND INFORMATION SYSTEMS INTERPLAY

An organisational culture entails the beliefs, norms, and values that are perceived valid by the human resources operating an organisation (Lapiedra et al., 2012). It influences the attitudes and behaviours that the organisational employees share and use on a daily basis within their working environment. An organisational culture defines the way employees describe their work, the business understanding, financial perceptions in the organisations and the implementation of the different business objectives (Lapiedra et al., 2012). Different scholars pose varied perceptions of the role of organisational culture in the organisation as a whole as well as the implementation of an AIS that sets the financial foundation. In this section, the literature analysis will focus on the organisational culture and its impact on AISs implementation success after providing a broader perspective on this relationship. Figure 2.5 below outlines the three main discussions of section 2.6.



Figure 2.5 Organizational culture and software

2.6.1 Culture-Software Relationship

Management of change occurring in an institution entails the achievement of a controlled identification and the implementation of activities that lead to the development of an organisation. Implementation of an AIS is one of the events perceived as strategies for change management (Wong et al., 2007). Cultural identities of different agencies pose an essential challenge to the activities geared towards the development of an organisation. Wong and Sazzad (2007) investigated the influences of cultural activities that are attached to organisational culture on the achievement of organisational change. Their study identified that an organisational culture might possess an obstacle that affects the choice and implementation of an accounting information system (AIS). These findings are significant because the organizational culture has not been yet, well-considered as a significant factor behind the failure of AISs across modern organizations.

There is a relationship between organisational culture and the choice of software (Gallivan and Srite, 2005). Wong and Sazzad (2007) showed a cognizant recognition of the importance of articulating the cultural assumptions that are attached to the information technology as well as the need for evaluating the impact of the assumptions on the implementation of AIS. Moreover, their research explained that culture is made of specific components that affect the way things are done in the technological environment of an organization. One of the critical definitions of an organisational culture outlined in their research entails the programming of the mind that makes the difference among individuals. This description relates to the implementation of AIS as it entails activities that involve dealing with people's perception or data. This study goes in parallel with the findings of (Gallivan & Srite, 2005). However, this study was general and did not address the specific elements of organizational culture and how organizational culture impacts AIS implementation success in modern organizations. In the same context, Wang, Archer and Yanli (2007) also identified a relationship between organisational culture and the process of implementing an information system. Their research showed that an organisation is made up of attributes that determine its participation in the implementation of an AIS. The researchers deduced that managers of an organisation might choose to adopt new cultural measures they find favourable for the implementation of an AIS (Wang et al., 2007). They added that the managers

have an obligation of determining the extent that the implementation of an AIS complies with the set cultural facets within an organisation. However, culture can also become an obstacle to the implementation of AISs in organizations (Gallivan & Srite, 2005). It has been shown that the culture of corruption is a menace that ails many organizations across the world. In organizations where the culture of corruption is inherent, adoption and implementation of an AIS becomes difficult because of the fear of transparency that comes with it (Gallivan & Srite, 2005). For example, Lehman Brothers accounting scandal shook the world. It was discovered that the company had hidden loans worth more than US\$ 50 million through accounting fabrications and made them look like sales (Carney, 2010). Therefore, it is possible that such type of management styles or corruption will not be supportive of an AIS adoption and implementation for fear of transparency in accounting processes. The managers have the mandate to change this process if they find it not complying with the organisation's cultural requirements (Wang et al., 2007). The findings of Wang, Archer and Yanli (2007) are significant as they shed light on the role of managers or leaders in building the right culture, which is one important consideration of this study.

Proposition: Leaders in organizations can build the right culture to nurture a successful AIS implementation.

2.6.2 Performance Initiative

Both profit and non-profit organisations have a common goal of performance that determines their orientations and endeavours. The organisational culture and the information technology of an organisation aim at achieving the overall intended performance. This initiative has paved the way for the interaction between the different entities of an organisation. Daoud (2013) argued that an AIS ought to interact with various aspects of an organisation to achieve the expected performance. The author added that a firm meets the expected level of performance when its culture supports the development and adoption of information technology (Daoud, 2013). However, it has been shown that some organizations harbour the culture of corruption and nepotism and thereby making the implementation of an AIS complex and challenging (Ifineod,

2013). Various cases have been published of organizations that have developed the culture of accounts fabrications with the aim of hiding financial malpractices. In support of Daoud (2013), Ifineod (2013) investigated the relationship between organisational culture and the information technology asserting that organizational culture influences the overall performance of an organisation. The research identified that the performance of an organisation commences with its ability to achieve the set financial obligations and the management of information obtained from different sources. The process of collection and management of information considers the shared perceptions, beliefs, rituals, symbols and rites that make the so-called organisational culture (Ifineod, 2013). This description shows an impact of the corporate culture in the implementation of an AIS. The effect extends to the overall performance of an organisation

Xuesong and Yan (2011) were concerned with determining the extent that organisational culture influences the way things are done in the implementation of an AIS. The ideas developed in their research were based on the internal control system as one of the essential business management aspects. Xuesong and Yan (2011) identified information systems as a business management thinking that helps in the integration of resources inside an organization (Xuesong et al., 2011). Similarly, Karamatova (2017) examined the factors that influence the choice of information systems used by different organisations. The author explained that all business enterprises are governed by a set of norms, attitudes and perceptions that influence choices made in the implementation of an AIS. This calls attention to the important relationship between AIS and organizational culture. However, the findings of these studies were limited. In this respect, integrity was identified to be among the factors that influence the decisions of information technology (Karamatova, 2017). Data integrity is said to be attached to the chosen organisational culture (Karamatova, 2017). The culture affects the working domains of the users and the authenticity of the data being processed in an information system (Karamatova, 2017). Although the findings by Karamatova (2017) are significant, they only address a partial relationship among data integrity, organizational culture and AISs implementation success. Therefore, a study with a broader view is needed to address the detailed impact of organizational culture on AISs implementation success. It is in this view that the current study addresses multiple facets of

organizational culture on the implementation success of AISs, where success being measured by multiple dimensions.

Proposition: Performance-orientation, as a dimension of organizational culture, affects the implementation success of AISs.

2.6.3 Organizational Culture and Information Systems: Summary

Relevant literature has identified organisational culture as one of the primary factors that influence the implementation of an AIS. Supporting this view, for Chan (2011), information technology has several aspects of managerial and operational facets that are attached to organisational culture. In support of this, El Sawah (2008) argued that the success of an ERP system depends on various factors attached to the culture of an organisation. Such factors are rules, values and practices at both corporate and individual levels of implementing an AIS. Further, El Sawah (2008) describes these factors as the causal agents of the cultural biases made in the implementation of financial functions within institutions. Therefore, organisations ought to consider the cultural issues in the development or adoption of information systems (El Sawah, 2008). On their part, Kouki et al. (2008) confirmed the influence of organisational culture on the implementation of an IS. They recognized the commitment of the top management in the implementation of information systems as a tool for achieving better organizational outcomes. The impact has been connected to the technological context of an organisation. Kouki et al. (2008) explained that organisational culture determines the IT expertise as well as the corporate infrastructure that defines the business needs. In parallel, Rabaai (2009) deduced that the implementation of an AIS is a process that can fail if not embedded in traditional cultural practices of an organization. Rabaai (2009) explained that the exercise requires an orientation to the cultural factors and the assurance of its success depends on its compliance with the set cultural practices.

In support of the arguments made on the impact of organisational culture on the implementation of ERP systems, Tariqi, Ahmad, Zalinda and Mukhtar (2010) explained that the implementation of the information systems is a complex and expensive activity that requires changes in the organisational culture. Therefore, both the corporate culture and ERP systems have

to incorporate their requirements to achieve different goals in an organisation. The relationship helps in streamlining the processes and simplifies the adoption of the best practices. Finally, Yeh & OuYang (2010) argued that the implementation of an AIS entails broad organisational transformational processes that lead to the adaptation of a management style and culture. The authors went further to conclude that organisational culture has the capacity to influence the ability of employees to use and implement various duties using the available technology. Overall, these studies call attention to the relationship between culture and information systems. While some studies address information systems in general, very few studies address the relationship between culture and AIS which is a totally distinguished system, namely, by its role, reports and intended functions. More studies are needed in this respect to identify the impact of organizational culture that is a complex phenomenon on the implementation success of AIS. In the following section, AIS success determinants are identified under the impact of various organizational culture dimensions.

2.7 AIS SUCCESS DETERMINANTS UNDER THE IMPACT OF ORGANIZATIONAL CULTURE

Information is obtained from data collected from organization processes and transactions, but this must be organized and processed. This is required to ensure that it provides meaning and improves decision-making processes (Romney & Steinbart, 2015). The information created through AIS must have attributes and qualities that will make it valuable for its targeted users (O'Brien & Marakas, 2011). Thus, the characteristics of quality AIS information include; accuracy, relevancy, timeliness, and completeness (Azhar, 2013; Hall, 2010). The purpose of AIS is to provide quality information that can promote effectiveness in the decision-making process (O'Brien & Marakas, 2011). Effective AIS will provide quality and useful information to an organization (Laudon & Laudon, 2014). AIS components are interlinked with other organizational systems to provide and process data to create quality accounting information (Azhar, 2013). The vital factor in a successful AIS implementation is through developing a proper integration of all its components (Rodin-Brown, 2008). Therefore, AIS cannot be appropriately implemented if it is not properly integrated with other systems so as to avoid audit problems (Nur et al., 2015). A

flawed process in implementing AIS will not provide quality information (Laudon & Laudon, 2012). Research has shown that a system that does not meet all merits will likely be the source of more problems for an organization especially, in regard to accounting (Romney & Steinbart, 2015). Therefore, AIS should be designed in such a way that it provides correct and useful information that can be used to make accounting, financial and managerial decisions (O'Brien & Marakas, 2011).

In the following subsections, the determinants of AIS success that are information, service, data and system quality as shown in Figure 2.6 below are discussed.

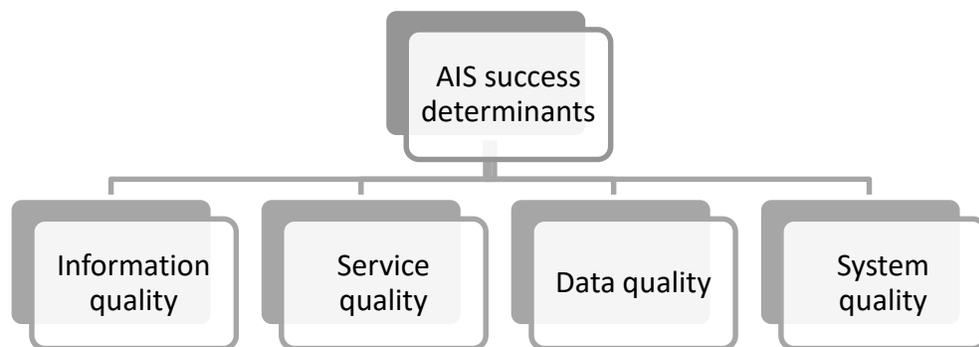


Figure 2.6 Determinants of AIS success

2.7.1 Information Quality

Information quality has been identified as an essential aspect of AIS that mostly relies on organisational culture. The quality of information entails the completeness, relevance to decision making and accuracy. Nusa (2015) examined the effects of organisational culture, specifically on the quality of information and provided that organisational culture can establish and deliver guidance in developing information systems within the entire organisation. Thus, the implementation of an AIS relies on the capacity of the organisation to adequately facilitate the establishment and availability of information. In a survey of commercial banks in Indonesia, Nusa (2016) highlighted that the quality of accounting information in different organisations varies with the differences in the organisational culture. The author found that a corporate culture determines and mandates the power and influences top management to promote the development of an

information system that allows users to take part in the development of the system as well as the achievement of the user satisfaction. Similarly, Wisna (2015) examined the impact of organisational culture on the quality of the information provided through AIS. Wisna explained that most of the present organisations are concerned about the need to integrate the data associated with their functions into continuous data warehouses. The research identified that the implementation of an AIS always considers the identification and understanding of meanings, power and norms that define the culture of an organisation. Wisna added that the information quality relayed within AIS depends on the complexity of the rules and powers that dictate a specific organisational culture. It means that organisations that possess complex norms and powers are likely to suffer from low information quality due to lack of flexibility and auditability in the process of implementing information systems (Wisna, 2015). Both studies have provided significant findings in regards to the relationship between corporation culture, quality of information and success of AISs. However, both studies are limited in their geographical scope, and they addressed corporate culture from a general perspective. It is vital to note that organizational culture is a major concept that underlies a variety of facets and can have up to 100 dimensions that define or conceptualize it (Jung et al., 2009).

On their part, Al-Hiyari, AL-Mashregy and Nik Mat (2013) made an investigation that examined the effects of organisational culture specifically on the quality of information. Their research provides that organisational culture can establish and provide guidance in developing information systems within the entire organisation. Thus, implementation of AIS relies on the capacity of the organisation to adequately facilitate the establishment and availability of information. In a survey carried in the University Utara Malaysia, researchers highlighted that the quality of accounting information in different organisations varies with the differences in the organisational culture. The study found that a corporate culture determines and mandates the power and influence the top management to promote the development of an information system that allows users to take part in the development of the system as well as the achievement of user satisfaction (Al-Hiyari, et al., 2013). Therefore, if the corporate culture of an organization is that which promotes transparency on financial matters like accounting information reporting, then the

management of such an organization will definitely support adoption of AIS to promote transparent financial dealings (Al-Hiyari et al., 2013). In addition, Tarigan (2016) also argued that financial reporting is a crucial aspect of an organisation. The organisational culture mandates this obligation to the concerned department through the implementation of AIS as a way of enhancing correct and transparent financial reporting (Tarigan, 2016). Sherif, Pitre and Kamara (2016) also provided the initiative of an organisational culture that accelerates its impact on the implementation of an ERP system. Choe (2014) supported this idea by arguing that most of the active organisations focus on the need to integrate the data associated with their functions into continuous data warehouses. The research showed that the implementation of an AIS always considers the identification and understanding of meanings, power, and norms that define the culture of an organisation (Choe, 2014).

On the other hand, Ismail (2014) investigated the failures and successes of information systems within an organisation. He identified the functions of organisational culture as one of the primary factors that influence the failures and success of information systems. The study explained that a corporate culture tends to shape the top management perspective, the system development perspective, users' perspective as well as the future directions of the implementation of the AIS. Moreover, the achievement of positive outcomes by the outlined aspects relies on the capacity of the organisation to adopt a culture that positively contributes to the growth and the attainment of the set objectives of an organisation. Thus, the management team mandated with the responsibility of implementing an AIS should ensure that agency adopts a culture with effects that do not expose failures, but promote the success of the information system. Past studies have shown that many firms across the world have been involved in corruption scandals that have involved accounting information fabrications (Al-Hiyari et al., 2013; Chung & Cheng, 2016). Such organizations have been shown to have perfected the culture of corruption. In this regard, it becomes impossible for such organizations to support adoption of AIS for fear of transparency that the technology brings into financial and accounting reporting and management. Fabricated information lead to AIS failure (Chung & Cheng, 2016). In this regard, Chung and Cheng (2016), also explained that the implementation of an AIS has a close relationship with the customers of an organisation.

Depending on the organisational culture, the authors believed that managers could handle a lot of complicated transactions and customer data to capture market changes. As a result, the organisation achieves its innovative objectives through adoption of AIS (Chung & Cheng, 2016).

In order to underline the importance of quality accounting information, Susanto (2015) investigated the factors that influence the quality of accounting information. Susanto (2015) outlined that quality information poses a critical impact on the improvement of decision-making and facilitates the profits of an organisation. The author held that the quality of information relies on the organisational culture and the role it plays in generating accounting information quality. The study offered an argument that the reliability of information may be determined by the attributes that make it relevant, concise, complete, accurate and right on time. In connection with AIS, the study found that information quality is an entity that bridges the gap between organisational culture and the implementation of an AIS. The study explained that the chosen organisational culture promotes the reliability of AIS by providing the appropriate information technology infrastructure and proper management of the services provided by the infrastructure (Susanto, 2015). These findings are vital. However, they are just partial findings in the relationship between organizational culture and AIS implementation success with a bias towards information quality. A more comprehensive study should address various facets of organizational culture and their impact on AIS implementation success (Susanto, 2015).

2.7.2 Service Quality

Service quality is another important aspect of AIS that relies on organisational culture. It involves issues like individual performance, general use, and user satisfaction by an AIS. Ilham Wahyudi (2016) investigated the effects of the user's competence and risk controls on the AIS quality. This analysis relied on the notion that a quality AIS should always produce eligible accounting information. Wahyudi held that organisational culture influences the competence of an individual that translates to the quality of services achieved during the implementation of an AIS. The study added that organisational culture influences the human resources involved in the information systems by hiring qualified employees that will be profitable for the organisation. Sari

et al. (2015) also found an organisational culture is an aspect that poses significant influences on the implementation of AIS. The authors outline that the culture of an organisation will entirely affect the capacity of a management level to implement measures and decisions that will make the organisation operational and create useful financial statements. In this regard, it is true that in organization that promotes integrity and openness as a culture, the quality of service offered by the AIS is excellent. This idea is supported by Sari et al. (2015) who have argued that the quality of services implemented in an organisation's AIS relies on the level of flexibility, integration, accessibility and formalization existing in the organisational culture.

Pornpandejwittay (2012) examined the effectiveness of AIS through the investigation of the performance of Thai-listed firms in Thailand. The examination revealed that organisational support poses a positive impact on AIS. Pornpandejwittay indicated that all types of learning organisations stay focused on the creation of the desired future by adopting a culture that promotes superior performance (Pornpandejwittay, 2012; Sari et al., 2015). Owing to the concept of service quality, this type of organisational culture emerges as a component of effectiveness, success and innovation. Various studies have also shown that for an organization to be competitive in this era of technology, adoption of an information system is paramount. As such, the quality of information provided by the AIS coupled with service quality that is guaranteed by the same, presents an important dimension of AIS (Pornpandejwittay, 2012; Sari et al., 2015). These initiatives enable the organisation to achieve the overall performance in the effectiveness of AIS. In another study, Mulyani and Rachmawati (2016) also investigated the influence of the service quality unit of AIS on the satisfaction of the user's needs as one of the critical requirements of organisations. Their study described organisational culture as a tool that enables different organisations to adopt a favourable attitude, user satisfaction on the system, reach a high level of system use and promote the achievement of the set objectives. The study continued to state that satisfaction of the customers of an organisation is determined using the information and improvements in the AIS. The arguments made in this study are empirical to the requirements of the different organisational cultures adopted by various organisations. In support of this, Wongsim (2011) also investigated the influence of the service quality unit of the AIS on the satisfaction of the user's needs as one of

the critical requirements of organisations and came to the conclusion that organizational culture is an important tool that impacts the implementation success of an accounting information system directly.

In the same context, Ramli & Iskandar (2014) highlighted the need for integrating knowledge to overcome barriers to the implementation of technological activities in an organisation. Ramli & Iskandar (2014) held that the obstacles to incorporating experience in the implementation of various activities limit the role played by an organisational culture in the implementation of AIS. The study also revealed that a corporate culture represents the most significant part of harnessing the knowledge and directing the understanding to the agility and competitiveness. Therefore, there is a need for understanding the importance of the organisational culture before implementing an AIS that requires significant knowledge application. The findings of (Wongsim, 2011; Ramli and Iskandar, 2014, Mulyani and Rachmawati, 2016; Pornpandejwittay, 2011; Wahyudi, 2016; Sari et al., 2015) spotlight on the relationship between organizational culture and AIS implementation success. However, these studies are limited by addressing organizational culture as one concept besides being limited to the service quality of AIS. Possible research orientation in this context will consider the detailed impact of organizational culture on the overall functions of AIS.

2.7.3 Data Quality

AIS involves the processing of data that helps in the production of information needed in making decisions. The effectiveness and quality depend on the input quality, process and output quality. Boban and Susak (2015) examined the decision-making process of different organisations using AIS. It was revealed that the goals of AIS mainly rely on the characteristics of an organisation that implements them. The researchers identified organisational culture as the primary determinant of the organisation's components that influence the overall implementation of AIS. Further, Boban and Susak (2015) added that organisational culture plays a vital in the quality characteristics existing in AIS. The features outlined in their research that are attached to the data quality entail functionality, maintainability, efficiency, usability and reliability. In support,

Carolina (2015) also argued that an organisational culture of a particular institution might constrain its activities on the use of information technology. In such a scenario, Carolina (2015) argued that the dependence of an organisation on information systems is inevitable. The study added that all the agencies stay focused to compete while the competition depends on their capacity to utilize the information provided by information systems. Carolina (2015) also claimed that right business decisions could be made through the consideration of quality and useful information that aid in the achievement of stated goals within an organisation. The success of an accounting information system is partially identified by the data input. Data of poor quality will result in poor information quality and thus, failure of AIS (Sari et al., 2015). With many accounting scandals being reported all over the world, one would be forgiven to link such scandals to incorrect data inputs into the manual accounting systems that then generate intended wrong and fabricated accounting and financial information (Sari et al., 2015). Studies conducted by Boban and Susak (2015) and Carolina (2015) shed light on the role on data quality in the success of accounting information system implementation success and address the impact of organizational culture in this context. The contributions of these studies are significant, and they merit further relevant research.

2.7.4 System Quality

System quality is another aspect of the implementation of AIS that relies on the culture of an organisation. It promotes the acquisition of incentives like cost reduction, improved process efficiencies and increased revenues through the implementation of an efficient AIS (Chung & Cheng, 2016). Mustafa, Mohamad, Ahmad and Mahussian (2010) confirmed the existence of a close relationship between AIS and organisational culture that facilitate the achievement of users' financial objectives. Napitupulu and Dalimunthe (2016) also provided the need for user involvement in the management of AIS as a way of promoting satisfaction. Despite the differences in the level of user involvement, the study provided that an organisational culture that supports adequate user involvement increased the likelihood of implementation success of AIS. In instances where the implementation of AIS has failed, it has been discovered that users were not involved (Sari et al., 2015). Research has shown that for an information system to be adopted and implemented with ease, user involvement is critical (Sari et al., 2015). For example, the

Queensland Health new payroll system fiasco is documented as one of the terrible system failures due to poor budgeting and lack of employee involvement. The payroll system was to go live in 2006, but this did not happen till late 2010 with serious defects and errors and an extra cost of US\$ 25 million (Moore, 2013). Investigations showed that there were faults and wrongdoings at every stage of implementation and employees felt they were being forced into a system that they did not take part in its implementation (Moore, 2013). Therefore, organisations should ensure proper user involvement in the process to promote the perceived returns from the implementation of accounting information systems.

In trying to understand the central role that organizational culture plays in the adoption of an information systems, Dwivedi, Wastell, Laumer and Henriksen (2014) examined the failures and successes of information systems within an organisation. The study mentioned the roles of organisational culture as one of the primary factors that influence the failures and success of information systems. The study explained that a corporate culture tends to shape the top management perspective, the system development perspective, users' perspective as well as the future directions of the implementation of IS. Further, Choe (1998) argued that the culture of user participation in many organizations has been central to adoption and successful implementation of ISs. The researcher's primary concern was to examine the problems that a new information system may cause in organisational factors like the structure of the organisation. The study identified that interactions among the organisational structure have positive outcomes for the management of IS. Choe (1998) established his conclusion that user participation is a vital performance variable that should be considered in the management of ISs.

The success of an AIS has been determined and identified in several studies by system quality, information and data quality, and service quality (Sari et al., 2015; Boban & Susak, 2015). Studies have identified a direct relationship between organizational culture and these determinants of AIS implementation success. The findings of these studies are crucial. However, some of which are focused only on information systems rather than on AISs. Both systems are different, as identified earlier in the study. Furthermore, organizational or corporate culture is not itemized into dimensions. Organizational culture is an abstract concept like personality, for example, and cannot

be studied as a whole but rather as focused dimensions as each dimension of organizational culture can have a different impact on AIS success. This merits future research endeavours. While this section 2.7 addressed AIS success determinants, the following section 2.8 elaborates on dimensions of organizational culture.

2.8 IMPACT OF ORGANIZATIONAL CULTURE ON AIS IMPLEMENTATION SUCCESS: MULTIPLE DIMENSIONS

Upon review of the available literature, it comes out clear that the variations in the efficiency and success of AIS in different organisations dramatically depend on the differences in organisational culture besides other factors. The variations emanate from the fact that some of the organisational cultures create more efficiency in the implementation of AIS as opposed to the organisational cultures associated with hindrances and challenges to the use of AIS. Lee et al. (2017) examined the effects of organisational culture on the relationship between absorptive capacity and software process (a particular section of AIS). Their investigation determined that a corporate culture influences the learning process that creates chances for acquiring and utilizing knowledge about software process improvements. As a result, organisations adopt AIS management practices that enhance the retaining and implementation of the preferred software process improvement models. In support of this, Napitupulu (2015) found a critical relationship between organisational culture and the quality of management AIS. He identified the corporate culture as a tool for unifying the activities of the members of an organisation. Napitupulu (2015) believed that organisational culture influences AIS through the provision of strategies for the identification and understanding of norms, meanings and beliefs within an organisation. Therefore, the management AIS of an organisation is forced by the organisational culture considering the nature of information, the methods used for the transmission of data as well as the shared values that exist within the organisation. The following subsections elaborate on a variety of organizational culture dimensions that are claimed to have an impact AIS implementation success. Figure 2.7 below presents the organizational culture dimensions that will be discussed in this section.

| Organizational culture dimensions impact on AIS success | | | | |
|---|---------------------------------|------------------------|---------------------------|---------------------------|
| Decision making | Training | Improved leadership | Organizational identify | Embracing diversity |
| Financial feedback | Accountability & responsibility | Teamwork initiative | Positive-based growth | Financial development |
| Results orientation | Change rigidity | Communication patterns | Organizational commitment | Management commitment |
| Innovative climate | Learning culture | Mind-shift issue | Learning culture | Leadership and commitment |
| Attitudes and perceptions | People orientation | Flexible culture | Business strategy | Incentives and rewards |
| Knowledge management | Corruption | | | |

Figure 2.7 Dimensions of organizational culture

2.8.1 Decision Making

Decision-making has been identified as one of the critical activities taking place within an organisation that may be influenced by the organisational culture. Jawabreh and Alrabei (2012) confirmed the impact of an organisational culture during the implementation of an AIS. His study showed that an organisational culture determines the extent that managers can understand their tasks and reduce financial uncertainty before making their decisions. Jawabreh and Alrabei (2012) also added that the implementation of an AIS relies on the method of decision-making adopted by a particular organisation whose primary tool for the decisions is the culture. Prasad and Green (2015) also examined the connection between organisational competencies and the implementation of an AIS. The study highlighted that organisational skills have much to do with the selected corporate culture because the latter determines the way individuals inside the organization do things. They explained that a dynamic AIS nurtures flourishes with a flexible organisational culture because it helps in meeting the changing corporate requirements. The study found that accounting professionals' knowledge can be a generic skill for implementing an

effective AIS. Soudani (2012) also found a close relationship between organisational performance and the effectiveness of an AIS. Owing to the impact of an organisational culture to its performance, Soudani explained that an organisational culture has a notable impact on the role that AIS plays in the management and control of issues related to organisation's economic and financial aspects. The study added that organisations achieve their success by considering an outcome of AIS design. Therefore, every organisational culture is focused on adopting an AIS design that contributes to the perceived level of success (Soudani, 2012). The findings of both (Jawabreh & Alrabei, 2012; Soudani, 2012) are significant, but they are too broad to provide specific contributions to the identified relationship between organizational culture and AISs.

In parallel, organisational culture is the primary factor that influences most of the decisions made in an organisation (Fitriati & Mulyani, 2015). The study perceived the implementation of an AIS as an activity that needs appropriate decision-making skills. This finding is of great significance, yet, decision making is just one facet of organizational culture. Decision making can be one crucial dimension of organizational culture. Thus, this study addressed the impact of one dimension of organizational culture on the implementation success of AIS explicitly. Fitriati and Mulyani (2015) added that the implementation of the AIS system creates a critical condition to build a managerial behaviour that accommodates specific terms of the system. Some of the particular activities taking place in the implementation of AIS entail the decisions of data collection and the analysis of this data. Salehi (2015) identified the role of organisational culture in the implementation of an AIS by stating that the quality of the information used in the system depends on the underlying process in the implementation of the system. Salehi added that organisational culture influences the effort made by the top management in data acquisition as well as their attitude towards the specific department dealing with information. Therefore, the culture stands a high chance of influencing most of the decisions made in the implementation of a system. Futrios (2016) also provided that the commitment of the top management used in the implementation of an AIS lies on its fidelity to the organisational culture. The latter determines the management beliefs, values, and perceptions of the need for an information system as well as the diversified efforts made to implement the system. Therefore, the differences existing in the

performance of an organisation do not only rely on external factors but also intrinsic cultural factors. Choe and Langfield-Smith (2004) also examined factors influencing the decision-making process of different organisations using AIS. The study described that the goals of AIS mainly rely on the characteristics of an organisation that implements them. Choe and Langfield-Smith (2004) identified that an organisational culture could be an important element of the organisation's components that influence the overall implementation of AIS. Choe and Langfield-Smith (2004) also deduced that an organisational culture plays a vital role in the quality characteristics existing in AIS. The features outlined in their research that are attached to the data quality entail functionality, maintainability, efficiency, usability, and reliability. Gray (1988) also identified a healthy relationship between organisational performance and the effectiveness of an AIS. The overall findings are significant, but, it is more important to have a more in-depth study that addressed the impact of organizational cultural dimensions on AISs implementation success across multiple regions. It could be that generalizing such results may be limited. Plus, the studies addressed here are general by addressing information systems more than accounting information system while both systems are different, and they operate in different contexts serving different users. Their findings merit further research investigation and broader coverage of organizational cultural dimensions impact on AISs implementation success.

Proposition: Decision making as a dimension of organizational culture impacts AIS success in organizations.

2.8.2 Improved Leadership

Leadership is another important aspect of organisational performance that relies on the adopted or built corporate culture. All successful organisations ought to employ an organisational culture that promotes ethical leadership in the various departments that enhance the overall development of the organization. Ali (2016) identified organisational culture as one of the critical determiners of the way leadership roles are implemented within the accounting departments of different organisations (Ali, 2016). According to the results of the study, the spread of information within departments has a remarkable impact on the administrative coordination within an

organisation (Ali, 2016). Ali (2016) identified that organisational culture has a significant effect on the information quality inside an organization. Organizational culture influences the capacity of managers to evaluate the financial performance of the organization. In this regards, the level of managers' involvement depends on the organisational culture because some organisations tend to adopt a lifestyle that limits the freedoms of their leaders as opposed to others (Ali, 2016).

In parallel, Chloe (2004) considered the cultural differences in the design of information systems. His study sheds some light on the role played by the norms of an organisation in the implementation of an AIS (Chloe, 2004). Culture is the collective programming of the individual mind that makes the difference among agencies (Chloe, 2004). The difference can be described on the basis of the leadership styles and other cultural dimensions of information processed in AIS. Moreover, Salehi (2010) underlined the importance of AIS in the development of an organisation. The research posited that the usefulness of AIS lies in its efficiency in the provision of quality information that further depends on the capacity of the adopted organisational culture (Salehi, 2010). In addition, Ali (2016), Salehi (2010) and Chloe (2004) identified the importance of organizational culture in improving leadership inside organizations and thus, promoting a successful implementation of information systems. Their findings are vital. However, they do not study how improved leadership impacts the implementation success of AISs. This reflects a gap in the literature which will be addressed by this study.

Proposition: Improved leadership as a dimension of organizational culture impacts AIS success in organizations.

2.8.3 Organisational Identity

Every organisation has specific characteristics that lead to its uniqueness and differences in a business environment. This uniqueness may occur at the level of decision making, performance level and the implementation of an AIS (Ismail, 2009). Ismail (2009) found that the usage of AIS can be one facet of the uniqueness of an organisation. The author's ideology relied on the notion that different organisations adopt different methods of implementing an AIS that basically relies on the selected organisational culture. Ismail (2009) provided that the method of

implementing an AIS is among the specific contexts that influence the behaviour portrayed by different organisations. It influences the chosen financial management practice that translates to the differences in the financial performance of the organisation. Similarly, Mbelwa (2015) examined the factors that influenced the way the local government of Tanzania uses accounting information. The research identified that the local government of Tanzania has unique factors attached to its norms or the culture that influenced its use of accounting information. The researcher believed that the unique qualities of the government influenced the decisions made on the implementation of accounting information and the related outcomes. Elden (2010) identified behaviour changes that occur in different organisations as one of the primary factors that determine the identity of an organisation. The author held that the behaviour changes are attached to the organisational culture used by an institution to implement most of the activities. In addition, arguments made in this research show a critical connection between the behaviour changes and the development of an AIS. The study concluded that behavioural changes that take place within an organisational culture environment impose significant changes in the implementation of AIS. The author further explained that individuals tend to exhibit new behaviours that change the data or information processed in an information system (Elden, 2010). Therefore, organizational identity is one factor that impacts the implementation success of AIS and such findings are of good significance to the literature. However, the study is limited to a specific country. Further research efforts are needed to uncover how organizational identity impacts the implementation success of AISs across multiple nations and thus, multiple organizational culture contexts.

Proposition: Organizational identity as a dimension of organizational culture impacts AIS success in organizations.

2.8.4 Diversity

Cultural diversity entails knowledge about the practices and cultures that differ across different people's cultural activities (Rodriguez, 2014). An organisational culture sets frames for the leaders and team members to examine the differences that influence their work. Different members of an organisation communicate the differences and affect the accounting processes

taking place in an organisation. Rodriguez (2014) identified the cultural factors contained in organisational culture as the primary agents in the implementation of ERP systems. The study explained that most of the problems that affect the adoption of ERP strategies emanate from the dominant organisational culture. Rodriguez also found that an organisation may experience resistance to change that involves the implementation of an ERP system because of the cultural norms and behavioural controls that are attached to its culture and the perceived usefulness of the system by the users. It shows that different users of the selected system have different perceptions of its implementation (Rodriguez, 2014). Yao & Yang (2014) also provided that an organisational culture of any organisation may compel its activities on the use of information technology. The study added that the dependence of an organisation on information systems is inevitable. The author added that all agencies stay dependent on their capacity to utilize the information provided by the information systems in order to meet the competitive challenges in their markets. Yao & Yang (2014) also claimed that right business decisions could be made through the consideration of quality and useful information that aid in the achievement of stated goals within an organisation. Afiah & Indahwat (2015) investigated the impact of organisational culture on the quality of AIS. The study found that an organisational culture poses a more significant impact on the quality of information yielded by AIS than any other related or unrelated factors. The study proceeded to explain that organisational culture influences the capacity of management to take actions and decisions in the preparation of financial statements. In parallel, Afiah & Indahwat (2015) identified corporate culture as an entity centred within an organisation that promotes knowledge transmission and the empowerment of the human resources capital in the firm. The description increases the meaningfulness of a culture in the processing of information within an AIS. Such findings shed light on that differences in organizational culture contexts can impact the implementation success of AISs differently.

Proposition: Diversity as a dimension of organizational culture impacts AIS success in organizations.

2.8.5 Financial Feedback

There is a need for acquiring organisational feedback as it is a tool for the identification of different areas of concern in the organisation (Mulyani et al., 2016). An effective organisational culture yearns for a feedback-oriented organisation by enabling the employees to remain receptive and productive (Mulyani et al., 2016). Mulyani, Hassan, and Anugrah (2016) shed some light on the context of an organisational culture that influences its use of information systems. They found that some components of organisational culture, such as personal attitudes and the subjective norms influence the implementation of an information system. They stated that the accounting function constitutes one major business component that supports the development of an organisation. The highlighted accounting function that seeks to provide the required financial feedback is contained in the selected organisational culture. Based on their research, an organisational culture determines the subjective norms and personal attitudes manifested in the implementation of an AIS geared towards the provision of financial feedback. Tarhini, Ammar, Takwa and Masa'deh (2015) believed in the need for integration and the use of ERP systems as a solution to problems that may affect the achievement of the required financial feedback. The integration of diverse technologies from different departments within an organisation creates an insight into the company's information and improves the overall performance. The initiative is linked to the privileges given by an organisational culture for the inclusion of diversified information in the implementation of AIS. It shows that organisations should focus on the flexibility in the culture to pave the way for the implementation of ERP systems. According to Bin, Zeng, Huang, and Liao (2010), an organisational culture poses a direct impact on the user satisfaction with AIS. The researchers added that organisational culture does not only affect the implementation process but also the performance of the implemented ERP system. The effects of organisational culture outlined in their research are reflected in the quality of financial feedback given by the system. It influences the self-efficacy of the participants and imposes a notable difference in the outcome of the financial information provided by ERP systems (Bin et al., 2010). The findings of the studies here are mostly focused on ERP systems and not AIS. In addition, the findings are limited to only few dimensions of organizational culture and thus, merit further

research investigations. An organization culture that promotes financial feedback is more likely to impact AIS implementation success positively.

Proposition: Financial feedback as a dimension of organizational culture impacts AIS success in organizations.

2.8.6 Training

Training is another important factor that is required in the successful implementation of an AIS because it provides an ability to achieve organizational goals (Mathis, 2011). Mahapatro (2011) argues that training is a set of organized activities that will enhance and create knowledge and skills to achieve a particular purpose. Dessler (2013) posited that training involves giving workers requisite skills that are important in promoting the success of their work. As such, organizations need to institute training programs to enable employees to acquire skills that are important in the effective utilization of information technology (Dessler, 2013). Laudon & Laudon (2012) have argued that employee training is required before implementation of an AIS to avoid resistance.

In support of this aspect, O'Brien and Marakas (2010) have positioned user training as an important tool in the successful implementation of an AIS. Training is not concerned with data entry alone, but it covers all aspects of an information system that require education on operations and management (O'Brien, 2011). User training follows five important steps, such as analysis, designing, developing, implementing, and evaluating the requirements of user needs (Dessler, 2013). Relevant components must be observed during the training phase such as; assessment, and identifying training needs. In the implementation phase, it can be founded on assessment results, while the evaluation phase will measure approaches that will make training suitable in achieving expected results (Mathis, 2011). Organizational cultures characterized by a tendency to adopt training and support for employees will more likely to have successful implementation of AIS.

Proposition: Training as a dimension of organizational culture impacts AIS success in organizations.

2.8.7 Teamwork Initiative

Teamwork is another important characteristic of an organisational culture that influences the implementation success of AIS. A progressive organisational culture focuses on team accomplishments rather than the individual accomplishment of duties (Panizzon, 2016). Panizzon (2016) examined the influence of organizational culture on the management system implementation. It was revealed that organisational culture is associated with different initiatives like teamwork build-up. The study added that the implementation of an effective information system requires an individual to consider various aspects of an organisation like awareness, attitudes, and beliefs. Abduljalil and Zainuddin (2015) also discussed both intrinsic and extrinsic motivators of the implementation of an information system. The authors identified teamwork initiative as an intrinsic factor attached to an organisational culture that influences the adoption of an AIS. The authors added that organisations are motivated by their cultures to adopt systems for many different reasons. They referred to the theory of reasoned action (TRA) that provides a critical argument about organisational influences. According to this theory, organisations have attitudes and subjective norms that influence their intentions to exhibit a specific behaviour. Moreover, Rabaai (2009) explained that information technology is an important element that improves the flow of information across the entire organisation. Therefore, an organisational culture ought to accommodate information technology to grow the business processes, reduce the costs, reduce response time to customer needs and offer product variety. Rabaai added that the implementation of the systems facilitates communication, coordination as well as the centralization of the administrative activities taking place within the organisation. The argument shows a critical connection between the requirements of organisational culture and the role of ERP systems (Rabaai, 2009). The findings are more focused on ERP systems rather than AISs. The findings are significant, and they go in parallel with each other, which gives insights into the importance of promoting teamwork inside an organization for the better implementation of AISs.

Proposition: Teamwork initiative as a dimension of organizational culture impacts AIS success in organizations.

2.8.8 Position-Based Growth

The implementation of an AIS relies on the capacity of an organisation to promote position-based growth. This type of growth entails strategies and plans promoted by the organisational culture that encourages and allows employees to perform better. Esparza-Aguilar (2016) confirmed the variation in the use of financial and accounting information or the implementation of ERP systems among different managers in Mexico. The author explained that the variation emanates from the cultures influencing the perceptions made by the managers on the use of financial information. Therefore, organisational culture is attached to a set of attributes like results orientation that creates the uniformity or differences in the use of different financial information. Esparza-Aguilar (2016) added that some sets of organisational culture offer the strategies that motivate the employees to seek better performance. Noravesh, Dilami, and Bazaz (2007) argued that cultural changes have a notable impact on the accounting changes of an organisation. An organisational culture promotes transparency in the implementation of business activities that attract new capital and increase the entity's market value. As a result, the employees are required to seek better performance and achievements in different departments to facilitate and materialize the expectations of the management team. In addition, Esteves (2003) linked the activities taking place in an organisation with the national cultural issues of an ERP system implementation. Esteves, in the same context, narrated that the implementation of an ERP system does not only consider the national perspective but also focus on the organisational perspective. He stated that an organisation has both micro and macro levels of cultural issues that play an important role in the implementation of an AIS. The outlined factors define the dimensions and the specificity of the ERP system implementation. Shao, Feng, and Liu (2012) also recognized an organisational culture as a tool for restoring the flexibility and maintenance of the external focus of an organisation. It provides guidelines and directions to an organisation on matters concerning performance and decision-making processes. Implementation of an AIS is perceived as one of the areas affected by the culture. Agbejule (2011) also found the relationship between organisational culture and performance that marks the organisation's position in the global market. According to Agbejule, an organisational culture influences the furniture, telecommunications, printing and

publishing facilities used in various functions within the enterprise. The variation in the definition of these facilities creates the differences that exist in the organisation's perception of the use of information technologies. Agbejule added that an organisation might fail to implement an IS because of a negative attitude attached to its culture or a deficiency in the resources required for the implementation of the exercise. On the other hand, Heryanto and Augustine (2017) argued that an organisational culture could improve the performance of organisations, facilitate problem-solving and enhance individual satisfaction. Heryanto and Augustine expressed their feeling about the outlined impact using the quantitative relationship between culture and primary requirements of information technology. The management of an accounting system is another aspect of organisational culture discussed by the two authors that target its role in an organisation. They explained that effective management of an AIS ensures rearrangement of various inputs and the application of reliable resources in the decisions made by the managers. The implementation of the outlined initiatives helps the organisation to achieve its position in performance. Therefore, these findings show that position-oriented growth as a characteristic of organizational culture promoted the successful implementation of information systems. However, these studies are limited. It may have been more significant to identify the direct impact of growth orientation on the successful implementation of information systems in organizations and specifically AISs as limited studies have addressed this relationship. Position-oriented growth can be one essential feature of organizational culture that has a direct impact on the success of accounting information system. Growth-orientation paves the grounds for better AISs implementation, and this relationship merits detailed research orientations across different cultural contexts.

Proposition: Positive growth as a dimension of organizational culture impacts AIS success in organizations.

2.8.9 Financial Development

Financial development is another dimension of organizational culture that may impact the implementation of an AIS. Financial development is achievable through the adoption of an organisational culture that creates a growth-oriented environment. In this respect, Baker (2017)

perceived financial development as an existing business initiative that motivates the implementation of different activities within an organisation (Baker, 2017). He highlighted that all organisational cultures delegate duties to the various departments that facilitate the achievement of the expected level of financial development. Therefore, ERP systems are set by an organisation to a standardized software and database for the processing of business transactions. Moreover, critical organisations aim at meeting the demands of their customers to promote higher retention and credibility in the services provided to the clients. These activities set by the organisational culture are geared towards the achievement of financial development (Baker, 2017). Amin et al. (2016) found that an organisational culture imposes certain traits among the employees that influence their intention to adopt an AIS. Amin et al. (2016), further, stated that an organisational culture requires the employees to implement financial functions such as data collection, categorizing the collected data, analysing the data and reporting the behaviour found in the data. These activities are geared towards the achievement of financial development that puts an organisation in a competitive position. The identified functions must be formulated by the management team that determines that nature of the adopted organisation culture. Moreover, Ali (2016) found the relationship that exists between organisational culture and the implementation of an AIS. The relationship between the two entities promotes financial development. Ali (2016) added, the two entities have a set of qualities whose primary concern is a common goal of financial development. Therefore, there is a need for incorporating financial initiatives in the definition of organisational culture as it influences the subcultures of different departments like information technology, accounting, etc. This is an important finding. However, it lacks application to AISs implementation. These findings merit further research focus.

Proposition: Financial development as a dimension of organizational culture impacts AIS success in organizations.

2.8.10 Results Orientation

An organizational culture that is results orientation may promote the successful implementation of AIS. Maas and Fenema (2014) explained the role of organisational control in

the implementation of an AIS. The author explained that organisations tend to increase the likelihood of individuals to exhibit a specific behaviour that leads to the attainment of organisational objectives. Maas and Fenema (2014) added that individuals mandated with the responsibility of implementing ERP systems operate under the influence of the organisational culture. In such a scenario, the achievement of the objectives is the overall results outlined by an organisational culture that determines the effectiveness of the implemented ERP systems. Zhang, Hoque, and Ruhana (2015) identified that organisational culture has interactive effects in the implementation of an AIS. The effects are centralized in various initiatives attached to organisational culture. Organizational culture has an outcome orientation that determines the extent that business units emphasize on actions and results (Zhang et al., 2015). The implementation of an information system has been identified as one of the important actions that are results-oriented seeking enhanced performance and improved competitiveness of an organisation. Etemadi, Dilami, Bazaz, and Parameswaran (2009) also added that budgetary participation and management accounting system make the control tools that are perceived to be interdependent in the accomplishment of the business strategy. This shows that all the activities taking place within an organisation are modified to accommodate the requirements of their prerequisites. Organisational culture is set to accommodate the requirements of effective information technologies adopted by an organisation to achieve a set of goals (Etemadi et al., 2009).

Literature showed an association between organisational culture and successful outcomes following the implementation of information systems (Daoud, 2014; Ifineod, 2013; Xuesong & Yan, 2011; Karamatova, 2017). Numerous studies provided findings showing the impact of organisational culture on performance outcomes following information systems implementation and it is important to note that most of these studies involved ERP systems only with no specific focus (Daoud, 2014; Ifineod, 2013; Xuesong & Yan, 2011; Karamatova, 2017). Therefore, it is possible that the findings might not be generalized to the implementation of AIS in firms. This underscores the necessity for studies focused on examining the relationship between organisational culture and the implementation of AIS and performance outcomes. Furthermore, literature in this

respect focused on overall organisational performance. Although this is useful, there is an opportunity for future studies to focus on the specific aspects of organisational performance that the implementation of AIS affects by considering the mediating role of organisational culture. This could provide a deeper understanding of the relationships between organisational culture, AIS implementation, and organisational performance in organisations. The findings suggest that the orientation of the organizational culture can impact the success of AISs. A results-oriented culture is likely to impact AIS implementation successfully.

Proposition: Results-orientation in organizations boosts the implementation success of AISs.

2.8.11 Accountability and Responsibility

Organisational culture may play an important role of empowering the employees to take ownership and foster accountability in different environments. Regarding the implementation of an AIS, the culture enables the participants to understand the need for taking responsibility and make their commitments to achieve the expected results. Kambarami and Chikowore (2012) expressed their knowledge on the success of ERP system implementation by the underlying organisational modifications. The authors explained that the success of an ERP system implementation relies on the company's dedication of resources towards the chosen activity. Kambarami and Chikowore (2012) also found that the failure of the ERP system implementation process emanates from the lack of sufficient time dedicated towards the accomplishment of the selected activities. Therefore, the management team of an organisation ought to allocate sufficient resources that translate to the success of the system. Almahamid and Awsi (2015) reinforced the knowledge about the impact of an organisational culture on the implementation of an ERP system. The researchers identified that the top management of an organisation has the right to withdraw themselves from the implementation of an ERP system and allocate the duties to the selected individuals that participate in the implementation process. Therefore, the commitment and accountability of the individuals chosen always rely on the requirements of the culture and the obligations formulated by the company. This shows a direct impact of organisational culture on employee accountability and responsibility. Chen (2012) also identified a relationship between the

implementation of an ERP system and the competitive environment set by an organisation. The author found that an organisation provides real-time access to operational and financial data while ERP paves the way for the organisation to streamline its management structure. This mutual interaction between the organisation and the implemented ERP system creates a flexible environment and a democratic way of communication between the two entities. Ion, Mihaela, and Săcărin (2010), in this context, believed that the principles of accounting are socially constructed regardless of the universal technique used to obtain the data or any other related data processes. This argument shows that the implementation of an AIS is associated with the social and cultural requirements of an organisation. Rhodes, Lok, Yang, and Xia (2011) also found the need for developing an accountable and responsible culture within an organisation that provides tangible factors in the implementation of an AIS. The authors held that incorporating ERP systems in an organisational culture does not only lead to significant cost reduction but also increases the efficiency and profitability of the various activities implemented in an organisation. An organisation achieves this objective because its culture allows the employees to adopt distinct characteristics and behaviours for ERP system implementation success. Rajapakse (2012) added that the culture of an institution enables the employees to understand the functionality of a system as well as its perceived benefits before its installation. Rajapakse supported his point, explaining that organisational culture supports the implementation of an AIS through the adoption of education programs as well as the provision of employee recruitment strategies. These initiatives provided by an organisational culture ensure that a company hires competent individuals and participates in different programs to achieve the expected level of performance. As a result, quality and reliable ERP systems are implemented in an organisation (Rajapakse, 2012). These findings are worth noting and significant. Accountability and responsibility are two important features that promote the success of information systems. However, it is essential to note the limitation of the results of the discussed studies in this context as the implications pertaining only to ERP systems and not AISs that operate in different contexts and serve different purposes. Besides, the quantitative and qualitative assessments of the studies are limited, and further research in this respect is warranted.

Proposition: Responsibility and accountability as dimensions of organizational culture impact the implementation success of AISs.

2.8.12 Innovative Characteristics and Supporting Climate

Innovative cultures promote the implementation success of AIS. The relationship between organisational culture and innovation has been addressed in literature. Research elaborated on the availability of different cultural variables that have contributed to the fragmentation of the concepts about the innovative characteristics of an organisation (Shao et al., 2015). Human capital emerges as the primary resource that connects the innovative nature of organisational culture and the implementation success of an AIS (Shao et al., 2015). Shao et al. (2015) explained that an organisational culture fosters the knowledge sharing and the computer self-efficacy that play the most significant part of information system implementation. They added that the computer self-efficacy promoted by organisational culture has a significant connection to the employees' ERP explicit knowledge-sharing intention. It shows that an organisational culture determines the level of knowledge possessed by the management team as well as the level of participation in the implementation of an AIS. Narasimha (2014), states that organisational leaders should focus on the development of an organisational culture that paves the way for the sharing of knowledge among individuals. The knowledge shared in this case should possess innovative characteristics to enable the achievement of the set objectives of an organisation. Narasimha (2014) added that knowledge sharing is a tool for innovation and implementation of new resources within the organisation. A quality AIS is an important part of the organisation that requires this important factor for efficiency purposes. Aoun (2010) also recognized the connection between information technologies developed by organisations and their cultural characteristics. Aoun expressed a critical feeling that cultures influence the flow of messages about innovation and put an organisation in a state of developing new ways of development. As a result, the organisation ought to incorporate an information technology that aid in the expansion of the organisation's operations as well as the expansion of the performance spectrum of an organisation. Therefore, organisational culture should remain a reliable tool for the development of new ideas and pave the way for decision making. Moreover, Susanto (2016) found that both the organisational culture and an ERP

system share common traits that create an innovative environment within an organisation. The primary characteristic outlined in his research is the timeliness of the operations implemented within an organisation. Regardless of the adopted organisational culture, Susanto explained that systems implemented in an organisation should be timely and efficient. These characteristics recognize the ability of the system to place the organisation into a new position of knowledge generation and problem resolution. Jati, Hassan, Harman, Jabar, and Majid (2015) examined the relationship between transformational leadership and organisational culture. They found that a transformational leadership decisions are influenced by the culture of an organisation. The implementation of an AIS is founded on the effectiveness of the decisions made in transformational leadership. Hassan, Jati, and Lazan (2012) later expressed their understanding of transformational leadership as a strategy for achieving quality AIS. They explained that the implementation of an AIS requires an organisation to make changes in the organisational and contextual characteristics. Ferreira-da-Silva (2013) also found the importance of organisational culture in the implementation of AIS as it influences the sustainability and behaviours portrayed by the individuals participating in the implementation process. Ferreira-da-Silva (2013) added that culture determines the attitude and the perceptions of the participants in the implementation of AIS.

An innovative organisational climate entails the presence of opportunities for the development of new ideas through creative thinking and collaboration. The creation of an innovative environment remains one of the critical concerns of an organisational culture that involves the use of brain skills like process, measurement and execution (Roni, 2015). These skills have a strong connection with the implementation of an AIS. Roni (2015) suggested that a healthy organisational culture encourages an institution to focus on the creation of new ideas and ensure the achievement of the set goals using innovation and creativity. The implementation of AIS stands a high chance of influence by this intervention because of the role it plays in the development of the necessary change (Roni, 2015).

Similarly, Lopez (2009) outlined the need for integrating knowledge to overcome barriers to the implementation of technological activities in an organisation. Lopez (2009) held that the

obstacles to incorporating experience in the implementation of various activities limit the role played by an organisational culture in the implementation of AIS. The author also explained that organisational culture plays the most significant part of harnessing and directing knowledge to enable better competitiveness and ability. Therefore, there is a need for understanding the importance of the organisational culture before implementing an AIS that requires significant knowledge application (Lopez, 2009).

These studies have shed light on important research contributions pertaining to the role of leadership in promoting innovation and change in organizations. Furthermore, these studies, as well, identify common traits between information systems and organizational culture. A positive culture will lead to successful use and implementation of information systems. However, the studies are limited because they do not study the impact of organizational culture on AISs implementation success. They study the relationship from a partial perspective. Such limitation will hinder the solutions that are needed for addressing the problem statement of this research that is represented by providing a comprehensive understanding for the impact of organizational cultural dimensions on the implementation success of AISs in Canada and Lebanon.

Proposition: Innovation as a dimension of organizational culture impacts AIS success in organizations.

2.8.13 Organisational Commitment

Indahawati (2015) explained that organisational commitment has a healthy relationship with the implementation of an AIS. The author outlined that the success of an AIS depends on factors such as information technology infrastructure and organisational commitment. He added that the positive relationship between the two entities facilitates the achievement of desirable outcomes such as high performance, low absenteeism and low turnover. As a result, the organisation enjoys related outcomes like the enactment of information security behaviours that facilitates an organisation's objectives (Indahawati, 2015). Indeje (2010) added that organisational culture creates an essential link between the use of technology and the corporate growth that influences the development and implementation of information systems. The study stressed the

need for understanding the extent that an organisational culture facilitates or hinders the implementation of an information system. Indeje (2010) added that a corporate culture determines the norms, rules and resources used in the accomplishment of various activities that foresee the development of the entire organisation. Implementation of an AIS is one of the events accomplished applying the rules, norms and resources prescribed by the organisational culture. Therefore, organisational culture is a tool that ensures the organisation remains committed to its agenda and objectives. Suzanto (2017) supported the impact of corporate commitment on the implementation success of AIS. The study deduced that all organisations are obliged by their cultures to collect, record, store and process data that determines its capacity to generate information for decision-makers. Moreover, the study suggests several characteristics of organisational culture that influence its impact on the implementation of an AIS. These features include outcome orientation, team orientation, aggressiveness and stabilities (Indahawati, 2015; Indeje, 2010; Suzanto, 2017). AIS operates under the principles of the highlighted characteristics of organisational culture. Studies by (Indahawati, 2015; Indeje, 2010; Suzanto, 2017) shed light on several dimensions of organizational culture and their impact on information technology. These studies have a vital contribution to the literature and of great significance. However, they lack comprehensiveness as they do not shed a clear light on how these dimensions impact AISs implementation success. Furthermore, they do not address organizational culture differences across countries. These gaps in the literature merit further detailed investigations.

Proposition: Organizational commitment as a dimension of organizational culture impacts AIS success in organizations.

2.8.14 Management Commitment

The management commitment to the implementation of AISs cannot be undermined (Shetat, 2015). It is an important organizational culture dimension that has to be well considered by researchers. In this respect, the literature has elaborated on the importance of management commitment to the AIS implementation process. The development of effective employee engagement and loyalty is promoted and reinforced by the organisational culture. The initiative

has much to do with the implementations of various duties within AIS. Shetat (2015) found that the implementation of ERP systems has been associated with many successes and failures that are linked to the differences in the organisational culture. The researcher explained that the achievements and the failures in the implementation of AIS, depend on the amount of resources invested in the process and the commitment of the human resources used in that specific sector (Shetat, 2015). The commitment of the people always relies on the underlying norms and values contained in the organisational culture. Khalifa (2012) believed in the fact that most of the ERP vendors rely on the existing marketing conditions that value their products while identifying the role of ERP systems in cost reduction, integration of smooth business operations and the promotion of better decision making. This argument recognizes the implementation of an AIS as a process whose success is influenced by a variety of organizational cultural facets such as management of change, managerial commitment as well as the capacity to deal with user resistance to change. Khalifa (2012) also explained that the reliability of these factors is limited to the chosen norms and beliefs.

In the same context, Iskandar (2015), stated that management commitment poses a notable impact on the quality of AISs. The author explained that the commitment of organisational management makes it easier for the acquisition of resources like human skills, finances, and other essential requirements. The quality of the financial information generated by the ERP systems relies on the commitment of the management to provide multiple sources of information and create a conducting environment for the implementation of the intended system. Iskandar (2015) added that management commitment varies with the selected organisational culture. Skoumpopoulou and Teresa (2017), stated that the implementation of an enterprise system impacts the cultural changes that occur in an organisation. They explained that a particular technology could be interpreted differently by organisational subcultures or individuals mandated with the task of implementing various duties. Depending on the interpretation of technology by the different subcultures, management commitment in the implementation of technology varies from one organisation to another. Therefore, organisations should make relevant interpretation of technology to facilitate

the attitudes and other related factors that influence management commitment (Skoumpopoulou et al., 2017).

Therefore, in parallel, other studies support the orientation that the success of a proper AIS implementation is influenced by top management commitment and user training (Bagranof, 2010; Sheth, 2010; Stair & Reynolds, 2012; Pearlson, 2010). Top management commitment shows the power of all individuals within an organization through the identification and engagement of its systems (Armstrong & Taylor, 2014). Top management commitment is defined as the process of involvement and developing behaviour that provides assistance to other employees to achieve their goals (Cooper, 2006). An organization with a high level of commitment will bring an obligation as a vital practice to increase independence and avoid any external influence (Armstrong, 2006). Bagranoff (2010), has argued that commitment from top management is vital in the successful implementation of an AIS. Sheth (2010) postulated that top management support is an imperative factor that will determine success or failure in the process of implementing AIS. Commitment is a measure of an individual strength to be identified with and involved in organizational objectives and goals. Regarding this, management commitment is a form of leadership style that allows managers and subordinates to participate together in realizing the purpose of employment, determine the level of responsibility and increase the level of obligation to perform their duties (Chalk, 2008). Thus, commitment explains the promise and actions of top managers within an organization to allocate sufficient resources and ensure the presence of support to work and duties completed by the organizational resources (Philips, 1999). It is focused on efforts that will maintain behaviours that ensure achievement of goals and objectives (Cooper, 2006). Top management commitment will aim to raise subordinates' commitment and independent behaviour that is not influenced by sanctions and external forces, but one with high-level confidence (Armstrong, 2006).

In the same respect, Mohammad (2017), asserts that organisational commitment and the knowledge of accounting managers affect the success of an AIS. He identified that an organisational culture determines the quality of the developed applications, incorporation of ERP systems in corporate planning and user involvement in the development of an information system.

Therefore, companies should foster the importance of the human factors by encouraging the employees to exploit their mandated abilities in the system development and participate in the acquisition of the required knowledge in the implementation of an AIS. Tartaraj and Hoxha (2014) also recognized an organisational culture as an essential factor for the determination of an accounting system. They insisted that organisational culture is not only paramount to the acquisition of financial feedback but also an essential figure in all the activities implemented in an information system. The authors later defined management in the context of culture through an explanation that people cannot participate in the implementation of an information system without the appropriate coordination and commitment. Therefore, organisational culture is meant to outline the managerial skills that are needed in the entire ERP system implementation (Tartaraj et al., 2014). The findings of these studies are essential. However, the problem is that management or organizational commitment is just one dimension of organizational culture that could be changing and evolving across different demographics and geographical contexts. These studies are limited to address the impact of organizational and management commitment on only the implementation success of ERP systems in general without referring to a specific country or geography. Furthermore, it is important to note the differences between ERP systems and AIS. AIS interacts with a broader context of organizational and national culture, and the impact of organizational and managerial commitment may differ across both systems. Therefore, these studies are limited, and their contributions merit further research to have a wider view of the impact of organizational culture dimensions on the implementation success of AISs and how such impact evolves or changes across different national, international and organizational contexts.

Proposition: Top management commitment as a dimension of organizational culture impacts AIS success in organizations.

2.8.15 Communication Patterns

One of the major cultural factors that affected the implementation of new technology within business organisations was the communication patterns, especially, between the management and the employees (Dezdar & Ainin, 2012). Dezdar and Ainin (2012) studied various

businesses that implemented or were planning to implement ERP software in Iran. The study found that the successful communication of information between the top management and the lower level employees has a significant impact on the successful implementation of ERP systems. In an organisation where the communication is poor, the implementation of ERP systems is likely to be unsuccessful. The study found that organisations with an open system culture and an employee-oriented culture had better chances of implementing their ERP systems successfully. This type of culture encourages open communication between the management and employees; hence, it is easier to communicate any challenges that may be hindering the successful implementation of ERP systems. Similarly, Jewels (2011) argued that an organisational culture that promotes transparency in communication promotes innovativeness. Therefore, it is easier for an organisation to assimilate new ERP software when the communication between the employees and the management is transparent. In an organisation where there is no transparency in the dissemination of information, the employees have a hard time adjusting to the new technology because of the lack of understanding of the changes that are taking place (Jewels, 2011).

Organisational culture influences effective communication by ensuring a good flow of information from the source to the various departments within the organisation. It implements the outlined function by providing the observation of courtesy, clarity, and pro-activity in all types of communication made in the implementation of all the business activities. Alhirz and Sajeew (2015) determined a critical relationship between the communication processes made in the implementation of an AIS and the chosen organisational culture. They explained that organisational culture impacts ERP systems that enable organisations to run their businesses effectively and manage their resources efficiently. Choi (2013) identified the importance of implementing ERP systems that improve communication within an organisation. Choi found that ERP systems help in the creation of external business networks and management of transactions and processes in the logistics pipeline. This trend has been linked to the role played by an organisational culture in the determination of communication processes used to convey messages. Choi (2013) also established critical factors for implementing fashion ERP systems in China that were found connected to the chosen organisational culture. Some of these factors involve the

changing mindset and fine-tuning cultural norms (Choi, 2013). These findings are significant and reinforce the importance of promoting effective communication inside organizations for better competitiveness and more effective operations.

Additionally, Gupta, Balakrishnan, Rajagopal, and Nguwi (2014) identified various aspects of organisational culture as the primary determiners of the success of ERP systems. Some of the aspects of an organisational culture found relevant in the implementation of an AIS involve effective communication and planning processes. The efficiency of the communication made in an organisation relies on the level of engagement of the employees to promote the flow of information and the availability of financial information within an organisation. Rouhani, Ashrafi, and Afshari (2013) segmented the most important factors that influence ERP systems implementation by denoting the need for integrating diverse systems that help an organisation to achieve its competitive advantage. The idealists identified that the success and acceptance of an AIS are dependent on organisational culture because it brings a new way of working and communication. Moreover, Venkatraman and Fahd (2016) studied the impact of ineffective discussion on the implementation of an AIS. Their research held that every type of organisational culture defines the expectations for the management team that is required to be communicated to the ERP vendors. Therefore, a failure in the communication process adopted by a management team poses a direct impact on the implementation of an ERP system. They added that communication failures in the implementation of an ERP system translate to the inefficiencies in the availability of information. These findings are fundamental. Communication patterns across organizations facilitate the successful implementation of ISs. The focus of the studies in this regards is only on ERP systems. It is worth noting that AIS systems operate in different contexts. It may be that communication patterns and the implementation success of AISs have a positive relationship. However, such claims merit further research investigations especially, that the contributions of AISs step beyond the organizational boundaries to impact the national, economic, societal, financial, political and environmental considerations.

Proposition: Communication patterns as a dimension of organizational culture impact AIS success in organizations.

2.8.16 Change Rigidity

The inability to adapt to changes was also found to be a cultural characteristic that limits the implementation of new ERP systems. Herberhold (2013) investigated the connection between IT culture and the implementation of ERP systems. The study found that human values and behaviours have a great impact on the acceptance of changes within an organisation. Herberhold (2013) argued that the most significant challenge experienced in the implementation of new IT systems is the fact that human beings are afraid to let go of their old habits. They resist the changes in management and operation of business processes because they are used to the old ways of operation. The research found that whenever an organisation tries to implement a new ERP system, the employees undergo a cultural battle trying to balance between the older ways of operation with the new one. Some organisations manage to get through the cultural battle, but the challenges consume some; hence, they choose to stick to the older methods of operation. Similarly, Hurbean (2011) found that the harmonization of the already existing business process within an organisation can be a challenge because of the difficulties in changing the organisation's culture. When a business implements a new software system, it gets hard for the employees to immediately harmonize the already existing business processes with the new technology. Therefore, some organisations take a lot of time before they are able to make the new software effective. Others never successfully implement the systems because of the limitations in the efficiency of the business processes in the period the employees are trying to adjust to the technology (Hurbean, 2011).

In the same context, Busco and Scapens (2011) studied organisational structures to determine how barriers to change can affect the implementation of new technology in an organisation. Their research focused on the structuration theory to determine how social systems within an organisation can affect the flexibility of a business to the implementation of changes. Their study found that some structures in an organisation limit the implementation of change. For instance, institutions with a bureaucratic structure are likely to have a hard time implementing changes. Therefore, when new technology systems are implemented in such an organisation, the adaptation of the employees may take a long time or even be ultimately unsuccessful. Busco and

Scapens (2011) also analysed the concept of a duality culture that makes it hard for organisations to implement changes. A duality culture is an organisational culture that has more than one distinctive culture. This mainly occurs when two organisations combine their cultures. In the presence of a duality culture, there are many assumptions and interpretive schemas that leave the employees in confusion (Busco & Scapens, 2011). The employees fail to understand the kind of culture they are supposed to implement. Therefore, responsiveness to any changes implemented in the organisation will be slow and filled with confusion. Waring and Skoumpoupoulou (2012) also found that organisational culture is a complex system that is deeply rooted in the structures that are developed by the management and the employees. The organisational culture is created by the behavioural norms and practices that are performed on a day to day basis by the employees of an organisation. The implementation of a new ERP system creates a challenge in the conceptualization of organisational change because the employees are forced to alter the way they do their jobs entirely (Waring & Skoumpoupoulou, 2012). This can affect the efficiency of all departments across the organisation. Therefore, when the cultural behaviours in an organisation do not promote change, it is hard for the organisation to implement new technologies (Waring & Skoumpoupoulou, 2012). Tang and Cheung (2009) studied Chinese companies that are struggling to implement ERP systems into their supply chain management and found that the reason why many companies have been unsuccessful in their efforts is that they are finding it hard to implement a system that does not align with their existing methods of operation. Implementing an ERP system into the supply chain management would mean that the organisations have to undergo a lot of changes for the new system to be successful. Many Chinese organisations were not ready to go through these changes to have better functioning ERP systems. Therefore, the rigid cultures that are not responsive to changes were blamed for the unsuccessful implementation of ERP systems (Cheung, 2009). These findings are essential. However, findings may not be generalizable. The specific difference may exist across organizations operating in different national contexts.

Proposition: Change rigidity as a dimension of organizational culture impacts AIS success in organizations.

2.8.17 The Mind-shift Issue

Aside from the organisational changes, organisational culture can make it hard for employees to change their perception of the operational processes. The successful implementation of new technology depends on the perception of the users towards the technology itself. Tang and Cheung (2010) describe the mind shift problem as one of the main challenges to the successful assimilation of new software in an organisation. A new ERP software can be successfully aligned with the business processes that were already in existence (Tang & Cheung, 2010). However, if the users are unable to successfully change their perceptions from the old operation process to the new one, the system will likely be unsuccessful. Bai and Cheng (2010) also analysed the importance of user participation in the successful implementation of new ERP software. They argued that the users play the most important role in the implementation of ERP software. If they are unable to change their perceptions towards the software, then the implementation will most likely fail. Therefore, it is important to perform employee training to help them understand more about the new systems and help them to change their perceptions towards the software (Bai & Cheng, 2010). The study suggested that user participation can be enhanced through the use of a detailed prototype test. In the process of implementing new ERP technology, the consultants are required to include the real users of the system in the prototype testing. Therefore, when the real technology is implemented, it will not be a completely new thing to them. It will be easier for them to adjust to the new methods of operations hence making the assimilation much easier (Bai & Cheng, 2010). These studies limited their investigation to ERP systems only. It is important to note that ERP systems and AIS differ in role, functions, applications and reporting operations. However, these findings call attention to further research orientations into the mind-shift role as one dimension of organizational culture impact on the implementation success of AISs.

Proposition: The mind-shift issue as a dimension of organizational culture impacts AIS success in organizations.

2.8.18 A Learning Culture

Another cultural factor that was found to have an impact on the implementation success of information systems was the rate at which an organisation's culture promotes learning. Guo et al. (2014) argued that an organisation that does not promote learning is likely to be unsuccessful when attempting to integrate new technology into its operating system. The implementation of new technology systems requires new learning as employees need to adapt to the new system of operation. Therefore, when the culture discourages learning, the employees will most likely be unable to change their modes of operation from the old system to the new one (Guo et al., 2013). Lapiedra et al. (2011) argued that an organisation's learning capability, coupled up with the consultant quality are the two major components that are required for the successful implementation of ERP systems in an organisation. The implementation of new ERP systems comes with a significant change in organisational culture, which requires new learning for all the employees to be successful. Therefore, having learning capabilities enables the organisation to successfully change from one culture to another without compromising the quality and efficiency of the supply chain. These findings point to the need for understanding the importance of knowledge and learning in organizations. This cultural trait is essential for the adoption success of new technology. These findings point to important conclusions. However, they are limited by being unable to show a direct and measured relationship between the organizational learning culture and the implementation success of AISs. Information technology is a general concept under which thousands of technological advancements can be listed. Therefore, it is important to have a focused research on how learning culture impacts implementation success of AISs. This is one problem identified in these findings, which is worth noting for further research investigations.

Proposition: Learning culture as a dimension of organizational culture impacts AIS success in organizations.

2.8.19 Leadership commitment

The kind of leadership that is promoted by an organisation and the level of commitment that is demonstrated by the organisation's leaders have a great impact on the successful

implementation of information systems (Kekale et al., 2011). The implementation of new information systems in an organisation can be a complex and challenging process. Therefore, when there is no commitment to the success of the systems, it is highly likely that the entire implementation will fail. Ke and Wei (2008) argued that an organisation's culture should promote commitment not only among the leaders but also the lower-level employees of the organisation. Ke and Wei (2008) argue that ERP systems implementation poses a great challenge to business organisations and that great leadership and managerial resources are needed for the successful implementation to be achieved. Commitment is demonstrated through a dedication to communication and high tolerance to the risks and conflicts that are associated with the implementation of new information systems (Ke and Wei, 2008). Bustinza et al. (2013), in the same respect, argued that the commitment to successful ERP implementation within an organisation is profoundly affected by the organisation's cultural traits. An organisation with a quality-oriented culture is more likely to be committed to the successful implementation of the ERP systems. Such organisations understand the benefits that ERP systems will have to the quality of the products or services they provide; hence, they will be willing to overcome all the challenges that come about in the implementation of information systems.

In parallel, Boersma and Kingma (2005), found that it is important for leaders to implement new rules and policies that encourage employees to be committed to the implementation of new ERP software. Their study asserts that employees tend to respond to the implementation of new ERP systems according to their 'awareness context'. Employees understand about the organisation through the contents of the policies. Therefore, when the leaders take part in the implementation of an ERP systems 'constitution', it will be easy for the employees to understand the systems better, and they will become more responsive to change. A change in the culture is motivated by the actions of the leaders within an organisation (Bourrie et al., 2012). Leaders need to lead by example to show the employees the importance of implementing new ERP systems for them to follow the same route. The actions of the leaders will always impact the actions of the junior employees because they look up to them as a guide for the kind of behaviour and attitude they are required to demonstrate (Bourrie et al., 2012). The findings in this context are significant. However, further

research is warranted as organizational culture is a multi-faceted phenomenon and further dimensions of organizational culture ought to be considered.

Proposition: Leadership commitment as a dimension of organizational culture impacts AIS success in organizations.

2.8.20 A Flexible Culture

While studying the effectiveness of accounting information technology in business organisations, Soudani (2012) found that organisations with a flexible culture are more likely to implement accounting technology successfully. A flexible culture is one that encourages innovation by encouraging adaptability (Soudani, 2012). The employees in an organisation with a flexible culture can quickly adapt when an organisation introduces technological changes. Due to the high rate of adaptability, they will be more likely to successfully learn about new information systems and have a minimal level of resistance to change (Soudani, 2012). Therefore, the study recommends that organisations create a more flexible corporate culture where employees can quickly adapt to any technological changes made (Soudani, 2012).

The successful implementation of information systems requires organisational culture changes to ensure that the culture is an enabler of the adoption of these systems as found in several studies (Chan, 2011; El Sawah, 2008; Kouki et al., 2008; Rabaai, 2009; Tariqi et al., 2010). Most of these studies were based on ERP systems implementation in organisations. The limited number of studies that have looked at changes in organisational culture for the implementation of AIS demonstrates a gap in the literature. Consequently, future research should address this gap by conducting empirical investigations on the influence of organisational culture changes on the implementation of AIS in firms. This research should consider utilizing an organisational change model, such as Kotter's (1996) model to examine how the change in the organisational culture of accounting firms has an impact on AIS implementation. The Kotter model (1996) is an eight-phase process of organisational change that includes the establishment of a sense of urgency, creation of a guiding coalition, development of a strategy and vision, communication of the vision for change, empowerment of more comprehensive action, generation of short-term achievements,

consolidation of gains and production of more change, and the anchoring of new organisational culture. This model could be used in comparative case studies of firms that have undertaken changes in their organisational cultures before AIS implementation to demonstrate the impact of such changes on successful IS implementation. Denison model (2012) can be another organizational culture framework to be considered to identify the impact of organizational culture on AIS implementation success.

Proposition: Flexible corporate culture enables employee's quick adaptation to technology changes and thus, a successful implementation of AIS

2.8.21 Rewards and Incentives

Formal rewards are composed of recognitions and reinforcements that are given to the employees in order to motivate their performance (Bushardt et al., 2011). These rewards can take the form of a system or individual rewards. The system rewards and incentives are those that are given to the employees to be motivated to be a part of the organization, such as health and dental insurance (Bushardt et al., 2011). However, individual rewards are those incentives that are given to employees in order to boost superior performance (Bushardt et al., 2011). Such rewards and incentives create a positive organizational culture and more employee attachment and thus, a higher level of information systems implementation success (Bushardt et al., 2011).

Proposition: Rewards and incentives create a higher level of employee commitment and thus, better opportunity for AISs implementation success.

2.8.22 Business Strategy

Simons (1987) argued that AISs included as parts of the business strategy are likely to be implemented successfully. Organisations that have developed a good business strategy include it as part of the organisational culture (Simons, 1987). This study suggests that an organisation will be successful in implementing financial accounting technology if they are considered a part of the greater organisational culture. All aspects of the business strategy, including the organisational culture, should be designed in a manner that promotes the implementation of AISs (Simons, 1987).

Proposition: Successful implementation of AISs aligns the business strategy for success.

2.8.23 Knowledge Management

In parallel, knowledge management is another organizational culture element that impacts the success implementation of IS. Sori (2009) defined knowledge management as the process through which new information is created and shared within the organisation. Specific cultural characteristics need to be put in place for successful knowledge management to take place (Sori, 2009). For instance, a culture that promotes open communication is necessary for efficient knowledge management (Sori, 2009). The employees within the organisation should be able to share ideas openly. A bureaucratic culture is highly discouraged for knowledge management to take place. Bureaucracy discourages sharing of information (Sori, 2009). For successful implementation of AISs, knowledge management should be encouraged through the organisational culture (Sori, 2009). Similarly, Bushman and Smith (2001) found that the management culture can impact the implementation of accounting technology systems. While studying American and European organisations, the study found that there is a close relationship between the governance culture and the successful implementation of accounting information technology (Hall, 2010). Corporations that are keen on promoting positive managerial behaviour are more likely to have a successful implementation of AISs because these systems contribute to transparency in management (Hall, 2010). Therefore, an organisation that wants to promote positive governance will most likely be focused on the successful implementation of AISs (Hall, 2010).

Proposition: Promoting knowledge and sharing of information within the organization reinforces effective AIS implementation.

2.8.24 People-Oriented

Human-related factors connected to the organisational culture were found to have a direct impact on the implementation of AISs (Xu, 2009). Xu (2009) revealed that various organisational issues prevent successful implementation of accounting technology. For instance, the management and leadership culture was found to have an impact on the implementation and quality of

accounting systems (Xu, 2009). The study promotes the implementation of a people-centred culture for successful implementation of accounting information technology. A people-centred culture is one that is designed to provide the best environment for all stakeholders, such as employees and customers (Xu, 2009). The findings here are worth noting. However, they are not focused and further research is warranted in this respect as studying people can be a complex endeavour. More focused investigation is needed in this regards.

Proposition: A people-oriented organizational culture impacts the implementation success of an accounting information system

2.8.25 Attitudes and Perceptions

Culture creates an attitude or perceived success of the implementation of new technology into the organizational system (Chapman & Kihn, 2009). An organisation where people have a positive perception of the new system is likely to implement it successfully (Chapman & Kihn, 2009). A positive attitude is necessary for the implementation of business technology systems. In case any challenges are experienced in the process of implementation, an organisation with a positive perception of the process is likely to search for solutions for the challenges instead of giving up on the implementation of the system (Chapman & Kihn, 2009). In organizations that have perfected the art of corruption, for instance, through accounting fabrications, adoption of information systems becomes a difficult task due to fears of the transparency the system shows. As such, these organizations have already developed a negative perception towards technology and this makes it hard to adopt an AIS successfully (Chapman & Kihn, 2009). In a situation where adoption and implementation of an information system is not supported by management, failure is a more likely scenario. The findings call attention to the importance of having positive attitudes and perceptions towards AIS systems to facilitate successful adoption and thus, further research is warranted in this context to uncover further noteworthy details.

Proposition: The successful implementation of an accounting information system is influenced by the attitudes and perceptions of the employees.

The following Table 2.2 depicts some of the organizational and AIS culture dimensions addressed in the literature in relation to information systems.

Table 2.2 AIS and organizational culture dimensions in the literature

| Dimension | References |
|-----------------------------------|--|
| Information quality | (Nusa, 2015; Nusa, 2016; Wisna, 2015; Susanto, 2015, Al-Hiyari et al., 2013; Tarigan, 2016; Sherif et al., 2016; Choe, 2014; Ismail, 2014; Chung & Cheng, 2016) |
| Service quality | (Wahyudi, 2016; Sari et al., (2015); Pornpandejwittay,2012; Mulyai & Rachmawati, 2016; Wongsim, 2011; Ramli & Iskandar, 2014) |
| Data quality | (Boban & Susak, 2015; Carolina, 2015) |
| System quality | (Mustafa et al., 2010; Napitupulu & Dalimunthe, 2016; Dwivedi et al., 2014; Choe, 1998) |
| Decision making | (Jawabreh & Alrabei, 2012; Prasad & Green, 2015; Soudani, 2012; Fitriati & Mulyani, 2015; Salehi, 2015; Fitrius, 2015; Choe & Langfield-Smith, 2004; Gray, 1988) |
| Improved leadership | (Ali, 2016; Chloe, 2004; Salehi, 2010) |
| Organizational identity | (Ismail, 2009; Elden, 2010) |
| Embracing diversity | (Rodriguez,2014; Yao & Yang, 2014; Afiah & Indahwat, 2015) |
| Financial feedback | (Mulyani et al., 2016; Tarhini et al., 2015; Bin et al., 2010) |
| Teamwork | (Panizzon, 2016; Abduljalil & Zainuddin, 2015; Rabaai, 2009) |
| Position-based growth | (Esparza-Aguilar, 2016; Noravesh et al., 2007; Esteves, 2003; Shao et al., 2012; Agbejule, 2011; Heryanto & Augustine, 2017) |
| Leadership and commitment | (Kekale et al., 2011; Ke & Wei, 2008; Bustinza et al., 2013; Boersma & Kingma, 2005; Bourrie et al., 2012) |
| Financial development | (Baker, 2017; Amin et al., 2016; Ali, 2016) |
| Results orientation | (Maas & Fenema, 2014; Zhang et al., 2015; Etemadi et al., 2009) |
| Accountability and responsibility | (Kambarami & Chikowore, 2012; Almahamid & Awsi, 2015; Chen, 2012; Ion et al., 2010; Rhodes et al., 2011; Rajapakse, 2012) |
| Innovative characteristics | (Shao et al., 2015; Vajjhala et al., 2014; Aoun, 2010; Susanto, 2016; Jati et al., 2015; Hassan et al., 2012; Ferreira-da-Silva, 2013) |
| Financial attachment | (Alobaid, 2016; Saleh, 2014) |
| Communication patterns | (Dezdar & Ainin, 2012; Jewels, 2011; Alhirz & Sajeev, 2015; Choi, 2013; Gupta et al., 2014; Rouhani et al., 2013; Venkatraman & Fahd, 2016) |
| Change rigidity | (Busco & Scapens, 2011; Waring & S koumpoupoulou, 2012; Tang & Cheung, 2009) |
| Management commitment | (Shetat, 2015; Khalifa, 2012; Iskandar, 2015; Skoumpopoulou & Teresa, 2017; Suratman & Mohammed, 2017; Tartaraj & Hoxha, 2014) |
| Mind-shift issue | (Tang & Cheung, 2010; Bai & Cheng, 2010) |
| Innovative climate | (Roni, 2015; Lopez, 2009; Sari et al., 2015) |
| Financial attachment | (Alobaid, 2016; Saleh, 2014) |
| Learning culture | (Guo et al., 2014; Lapedra et al., 2011) |
| Knowledge management | (Sori, 2009; Hall, 2010) |
| Attitudes and perceptions | (Chapman & Kihn, 2009) |
| People orientation | (Xu, 2009) |
| Business strategy | (Simons, 1987) |
| Rewards and incentives | (Bushardt et al., 2011) |

One main dimension that is considered in this study is nepotism. As a form of corruption, nepotism is believed to have a direct and profound impact on the implementation success of information systems. While the preceding sections discussed the impact of other organizational culture dimensions on IS implementation success, the following section will address the impact of nepotism on IS as a facet of corruption in organizations.

2.8.26 Nepotism and Corruption

2.8.26.1 Introduction

Innumerable studies have shown that corruption is rampant in many organizations across the globe (Seleim & Bontis, 2014; Torsello, 2018; Alison, 2016). Seleim and Bontis (2014) pointed out that corruption is a phenomenon that should not be viewed as just affecting a specific organization, but instead it affects economic indicators such as GDP, government expenditure and foreign aid (Alison, 2016). Torsello (2018) in the same context, argued that there is a strong relationship between organizational culture and corruption and thus, it is the culture of the organization that promotes corruption. It has been shown that it is a procedure for an organization to lay down policies and rules that call for ethical practices, but may be a totally different and a more challenging resort for the organization to implement such policies (Torsello, 2018).

Further, national culture is another core factor that promotes corruption in organizations (Yahya et al., 2015). This statement could be explained by the fact that some developing countries have more corruption related cases than others owing to their national cultures that tolerate unethical behaviours (Yahya et al. 2015). Corruption in a country could be influenced by various social factors, economic policies, and the rule of law (Yahya et al. 2015). As a result, a country that has weak anti-corruption laws is bound to have many corruption cases both at the national level and organizational level. It has been shown that national culture is the umbrella of organizational culture, and therefore, one's behaviour in an organizational setting is learned elsewhere (Seleim & Bontis, 2009). In the following subsections, several contexts of corruption are discussed. Figure 2.8 below shows the topics of discussion for this section.

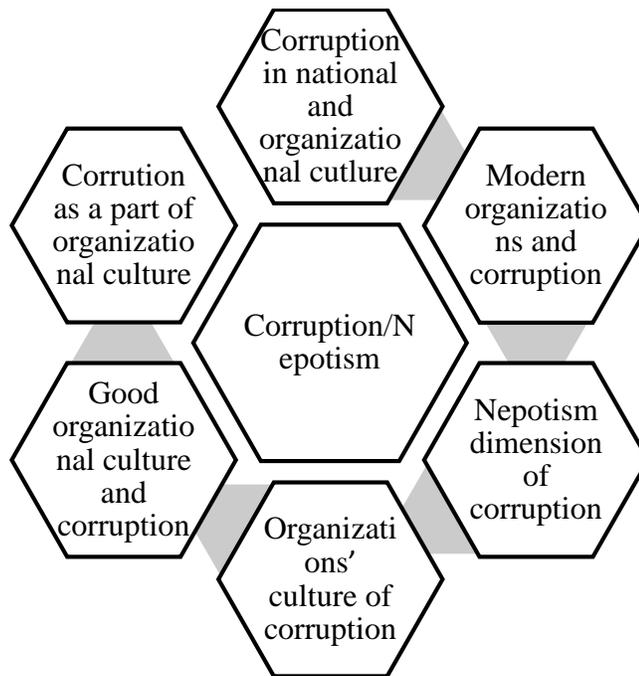


Figure 2.8 Facets of Corruption and the organizational culture: Nepotism

2.8.26.2 Corruption in the Context of National and Organizational Culture

National culture could be defined as the norms, values, behaviour, and customs shared by a population of a country (Torsello, 2018). On the other hand, organizational culture refers to the same set of values, behaviours, and customs shared among employees of a particular organization (Torsello, 2018). In regard to this, there are organizational and national culture aspects that affect corruption in organizations (Torsello, 2018). There is a general agreement that national and organizational leadership, motivation, organizational structure, as well as national and organizational cultures affect corruption occurrences in organizations (Torsello, 2018). Literature has shown that the national culture of a country has a huge influence on the way an organization is managed. In a country where there are rampant cases of corruption, unethical behaviours, and mismanagement of resources and nepotism, similar behaviours could trickle down to the organizational level. When such unethical behaviour trickles down to the organizational level, the results are the cases of accounting and financial misreporting that are done intentionally to hide corrupt deals (Torsello, 2018). This means that such organizations cannot support adoption of

information systems such as AIS due to the transparency and accountability that are sought by AIS and other information systems.

In the same context, Pinto et al. (2008) have argued that the leadership of any country sets the tone for the way private companies are managed. As such, a country's leadership acts as a role model of how things are done. It has been shown that in a nation where corruption has become a norm, organizations suffer from corrupt practices, influenced by the corrupt national culture. Although there has not been a clear definition of corruption, some studies have shown that mismanagement of resources, favouritism, and nepotism are types of corruption at both national and organizational levels. Jamie-Lee & Anja (2014) showed that in countries where the culture of corruption was an accepted reality nationally, organizations in such countries were prone to corruption. The authors argued that mostly, corruption was rampant in developing countries both at national and organizational levels. Due to the culture of intolerance to corruption in developed countries, corrupt practices are not as common.

Further, it has been posited that developed countries have clear laws and policies that deal with corruption at the national level. On the other hand, developing countries have laws that are weak and therefore, provide loopholes for corruption to thrive. In this regard, developed countries have been helped by their laws to develop a culture of integrity and accountability as opposed to the culture of irresponsibility and ingenuity in developing countries (Medcraft, 2017). In an environment where laws on corruption are weak and not well enforced, minor considerations are given to accountability, honesty, and trust. In return, this environment provides a perfect place for corruption to thrive at organizational, unit and national levels. Kimemia (2013) gave an overview of how national culture influences corporate culture and in extension, corruption. Kenya is an example of how national culture sets the base for organizational culture. In a country that has been marred by cases of mega corruption scandals since independence, Kenya has witnessed the spread of corruption from the national to the corporate organizational levels (Kimemia, 2013). In view of this, it is important to note that both national and organizational cultures play an important role providing the nurturing environment for corruption, and are, therefore, inseparable. Therefore, the analysis of corruption is better understood when both national culture and organizational cultures

are addressed in this context, because national culture acts as the basis for an organizational culture to thrive.

2.8.26.3 Corruption as A Part of Organizational Culture

Studies have tried to establish a relationship between organizational culture and corruption, and some others tried to even look at them from one perspective. Domoro and Agil (2012) identified a high correlation between culture and corruption. The authors' focus was on the role of police culture in regard to police corruption in Libya. The authors argued that culture could either have a positive or negative impact on the way people carry out their duties in an organization. It was shown that culture is a phenomenon that affects the level of integrity and honesty in the workplace (Domoro & Agil, 2012). The culture of dishonesty in the Libyan police force has made corruption to be rampant in the police departments. As such, it has been shown that when an organization breeds the culture of corruption, even the newly recruited employees are bound to be corrupt to survive (Domoro & Agil, 2012). Organizational culture can be explained through various dimensions as listed before, namely but not limited to personal perceptiveness, leadership behaviour, ethos, communication, top management support, etc.

2.8.26.4 Impact of Good Organizational Culture on Corruption

Organizational culture is a set of values, beliefs, and assumptions that are shared by individuals in a particular organization and a good organizational culture is likely to combat corruption (Medcraft, 2017). Regarding this, employees and stakeholders' attitudes and behaviours are impacted by organizational culture. Organizational culture influences corporate life because it has an impact on every aspect of the organization. In particular, it causes instability in the production level through negatively impacting the employee's behaviour towards work (Yahya et al. 2015). Besides productivity, organizational culture affects commitment, self-confidence, and ethical behaviour of employees (Yahya et al. 2015). In other instances, the culture within an organization will develop into an ethical culture which is shared among all stakeholders in an organization to influence what is perceived as correct behaviour and conduct (Medcraft, 2017). This implies that a poor organizational culture is likely to result in misconduct, whilst a good

corporate culture will enhance best practices and ethical conduct (Medcraft, 2017). A positive organizational culture in an organization can be improved through top management support, accountability, effective communication, recruitment and training, and religion (Medcraft, 2017).

Top management support is important because it is required to set the values and principles that will guide the organizational culture. According to the *Organizational for Economic Cooperation and Development (OECD) Foreign Bribery Report*, majority of corruption misconducts within an organization are perpetuated by the top management that is usually aware of it (Medcraft, 2017). Thus, top management is important in creating a positive culture within an organization that will curtail corruption. Accountability as a driver of positive culture requires that employees understand organizational core values, and a reward will be given for those that strictly observe such values (Medcraft, 2017). Accountability, for instance, is used as a basis for protecting whistle-blowers and complaints and thus, it can minimize corruption (Medcraft, 2017). Effective communication is important in creating a positive culture because it will encourage diversity in decision-making, testing of current practices, promoting a positive and critical attitude among employees as it enables a workplace environment that is open to constructive engagement to curb corruption (Medcraft, 2017). Recruitment and training are an important factor that allows management to align its employees' attitude and behaviour to organizational core values (Medcraft, 2017). Training is important because it can be used to maintain employees' knowledge level about organizational core values, attitudes, and behaviour (Medcraft, 2017).

A poor organizational culture results in an instance where bribery and corruption become dominant in an organization (Medcraft, 2017). Omer and Syed (2012) found that the culture within an organization influences the organizational level of honesty and integrity. For instance, organizational culture in police departments impacts police officers' perception of integrity and honesty (Omer & Syed, 2012). Thus, management of employees, corporate glue, and criteria of success was found to have a direct influence on police level of corruption in police organizations (Omer & Syed, 2012). In this regard, corruption within an organization impedes economic development and skews competition through the discriminatory allocation of resources. Further, a poor organizational culture will affect the proper implementation of good governance and the rule

of law (Medcraft, 2017). Moreover, corruption causes inefficiency in the service delivery level of employees because they fail to diligently perform their duties without bribery or other financial rewards (Yahya et al. 2015). Such behaviour has a direct impact on the quality of services provided, leading to loss of general trust (Yahya et al. 2015). In addition, corruption hampers sustainable development policies which weaken environmental policies and controls (Yahya et al. 2015). Therefore, an influential culture that is supported from top management and embraced in the organizational units is essential in curtailing corruption. A strong culture will have policies that prevent corruption, protect whistle-blowers, and help in raising awareness to combat unethical practices (Medcraft, 2017).

2.8.26.5 Corruption in Multinational Enterprises: Curbing Corruption Effect

Literature has established that a corrupt culture is prevalent in multinational enterprises (MNE's). In the case where corrupt cultures are stronger in comparison between a host and home country, they result in internal and external pressures on functions of multinational enterprises (MNE's), which creates an environment for corruption to thrive in the host countries. This is a typical case where host countries have a tendency to host more corruption. As a strategy of managing corruption across boundaries, MNE's must have their independent modes of entry that identify objectives, core values and ethical code of conducts to restrict any form of bribery, nepotism, embezzlement, fraud or any other facet of corruption (Sampath & Rahman, 2019). Where MNE's have not properly implemented anti-corruption control measures, the ability to detect and restrict corruption can be compromised. Sampath and Rahman (2019) established that having a better understanding of corrupt cultures across boundaries is vital for stakeholders and policymakers to formulate appropriate modes of entry for MNE's to function in an environment devoid of corruption.

In this context, Schneider and Gautam (2015), asserted that peer effects have a major impact on creating consistent cultures of corruption and thus, established that every corrupt employee in an organization can influence others to be as equally corrupt (Schneider & Gautam, 2015). However, the actual perceived levels of corruption for different departments will lead

different levels of corrupt practices depending on the opportunities available for each employee level. The different levels of corruption in an organization are determined by vantage points perceived by the observer (Schneider & Gautam, 2015). The culture of corruption in an organization can be managed by reducing the benefits of corruption (Schneider & Gautam, 2015). Reducing the benefits of corruption will introduce a tipping point that will make organizations focus on lower levels of corruption for curbing its impact further (Schneider & Gautam, 2015).

Targeting the social-psychological mechanism of organizations can be applied as a strategy to reduce corruption where the two focal points characterize organizational corruption (Schneider & Gautam, 2015). However, this is a difficult scenario because departmental corruption may not provide requisite change to the incentive structure (Schneider & Gautam, 2015). The main focus of this strategy is to destabilize corrupt subculture policies. However, such strategies will work well where the tipping point is higher, and there is an urgent need to push bureaucrats' expectations and other employees' behaviour towards a certain line as opposed to directing them below established corruption equilibrium (Schneider & Gautam, 2015). Also, whittling the culture of corruption within departments at a time will reduce its impact in comparison with cutting corruption at all departments on the same time (Schneider & Gautam, 2015). Organizational culture can promote a higher level of corruption because of weak incentives and higher social isolation (Schneider & Gautam, 2015). It was revealed that departmental corruption is mainly driven by internal culture and not the actual level of corruption in the whole economy (Schneider & Gautam, 2015). Setting a true and actual perception as a social norm will function properly to shift a department from its current focus (Schneider & Gautam, 2015). However, this can be a challenge in departments that have low corruption levels. The decision to be corrupt is narrowly affected by economic costs and benefits, but instead, it is motivated by moral factors founded on the social norms that later become a commonly accepted practice in organizations (Schneider and Gautam, 2015).

2.8.26.6 Nepotism Dimension of Corruption

Nepotism has historical roots, and it has been discussed in "evolutionary biology, anthropology, religion, sociology, psychology, political science, history, law and economics" (Aldraehim et al., 2012, p. 656). People have different racial, national, linguistic, tribal and religious backgrounds (Aldraehim et al., 2012). Although nepotism is believed to exist around the world, it is a more common practice in the developing world.

Nepotism has been defined as the act of hiring relatives and close family members to fill vacant positions in an organization (Vveinhar & Petrauskaitė, 2013). This phenomenon has been practised since middle ages, but until recently, few studies explored it as a thematic variable of organizational culture (Vveinhar & Petrauskaitė, 2013). Research shows that nepotism has been prevalent in both private and public organizations with the former taking the large percentage of the practice (Vveinhar & Petrauskaitė, 2013). According to Sarpong and Maclean (2015), nepotism could be defined as the tendency of humans to bestow patronage or give favours to their friends, family, and relatives without regard for qualifications. The authors have described this act as being in contradiction with the natural law of equity and social justice as well as being counterproductive to the success of an organization (Sarpong & Maclean, 2015). In prior studies, nepotism was seen to unanimously accord priority in regard to employment and promotion to family members, romance and friendships. It was further shown that nepotism could occur when people received favours due to them sharing a common culture, physical resemblance, and friendships (Sarpong & Maclean, 2015).

Definitions of nepotism suggest that it is a sort of favouritism shown to relatives (Aldraehim et al., 2012). In addition, some definitions of nepotism consider various contexts of the word. For instance, from a human resource management point of view, Padgett and Morris (2005) define nepotism as the practice of showing favouritism during the process of hiring employees for specific positions inside the organization. Nepotism is a behaviour inside a society. For instance, Robertson-Snape (1999) argues that business in Indonesia is mostly about "who you know" and not what you can do". The people in the Indonesian society or organizations feel more loyal to their families rather than expressing loyalty to their country. There is a possible impact of

the culture inside a country on nepotism. Therefore, understanding the cultural and organizational factors can lead to a deeper understanding of nepotism (Aldraehim et al., 2012). Aldraehim et al. (2012) considered nepotism as a part of the Saudi culture. Nepotism can be linked to the culture of the individuals. For instance, in the Arab world, still the tribal mentality dominates, and an individual of desert origin exists as a part of the kingship network, and his fate and welfare rely on the actions of the group rather than the individual actions, and thus, such behaviour nourishes nepotism (Aldraehim et al., 2012).

Nepotism can have positive as well as negative impacts on the organizations. In this context, nepotism tends to foster family-oriented businesses. It boosts the morale and job satisfaction for all employees and relatives and leads to the development of family ties (Aldraehim et al., 2012). Besides, nepotism leads to improved communication, consistency of policy and a robust family-led business orientation (Aldraehim et al., 2012). From another perspective, nepotism has negative consequences such as lowering the morale of those individuals that supervise relatives of high-level executives. Besides, nepotism is blamed for having unfair pressure on the employees and leads to family conflicts and rivalry over managerial successions. Laker and Williams (2003) stated, "if there is nepotism, there will be favouritism, inequity, employee dissatisfaction and lower commitment" (as cited in Aldraehim et al., 2012, p.658). The drawbacks of nepotism strongly outweigh its benefits according to a study conducted by Ford and McLaughlin (1986) (as cited in Aldraehim et al., 2012).

In some parts of the world, nepotism is highly regarded, especially, in the private sector. In the Middle East region, for example, the practice of nepotism has been embodied in the organizational culture, and little has been done to avert the situation (Kragh, 2012). It has been shown that many organizations in the region hire and promote blood relatives to top management. Even in governments, it has been demonstrated that relatives of senior people in governments receive appointments to senior positions in parastatals (Al-Salem, 1996). Kragh (2012) notes that nepotism presupposes that particular social morals influence organizational behaviour and in particular in cases where utilitarian and universalistic behaviour are expected. Thus, nepotism has been seen to exist when decisions are made in accordance with the particularistic morals of social

distance. This means that tribal and family ties override the modern principles of equality in organizations (Kragh, 2012). In the African context for instance, it is not possible to understand an organizational culture without first looking at the role played by nepotism in those organizations. It has been noted that in Kenya, for example, nepotism plays an integral role in the hiring process, and a few communities dominate the public sector in the disguise of qualifications and thus, the organizational culture in Kenya may be influenced by nepotism (Kragh, 2012). Not only in Kenya, but across the modern world, nepotism has its impact as shown below.

2.8.26.7 Modern Organizations and Nepotism

Research has shown that there is a universal tendency of people to help those that are socially close to them; however, this tendency is not evenly distributed. In developing countries, especially, African and Arab countries, this is prevalent and is associated with particularistic social morality that has its root in the pre-industrial period of such countries (Kragh, 2012). As such, in the African context and other countries in the Middle East region, nepotism plays a key role in the expression of social distance and reciprocity, which are concepts central to the idea of nepotism and tribalism in the early stages of modernization (Kragh, 2012). Research has shown that in places such as African and Middle Eastern countries, nepotism is rooted in the core of these organizations and has been accepted as normality (Kragh, 2012). The culture of nepotism and favouritism in organizations in these countries, as well as the public sector, has been practised at length, and it does not seem to end. Proponents of this practice have argued that nepotism is useful, especially, for family businesses, while others have argued that nepotism is an outdated culture or norm and everyone should have equal chances. In modern organizations, nepotism is perceived as the protection of relatives and friends, which is not invested or geared towards productivity but by a mere cluster of family connections (Biermeier-Hanson, 2015). This scenario has been seen to degrade the quality of human resource activities and in particular organizational performance. This is because nepotism affects the objectivity of activities and instead subjectivity creeps in due to the existence of family interpersonal relationships. Although researchers have tried to separate nepotism from favouritism and protectionism, these themes are inseparable in modern organizations whose common denominator is own cluster (Urbanová & Dundelová, 2015).

It has been argued and rightly so that for management of organizations in both private and public domains to be improved, ethical evaluation of nepotism should be done by refining organizational values and disintegrating the culture of nepotism and unfair decisions. According to Kragh (2012), nepotism, favouritism, and protectionism exist side by side, and for an organization to succeed, it must deal with the three of them. As such, nepotism has been viewed as a form of unwanted organizational culture, and it is prevalent in the African, Arab contexts and many other parts of the world. In other studies, nepotism has been presented as being a dual organizational-management anomaly which results in an ineffective and rather sick organizational culture (Kragh, 2012).

Other researchers have tried to connect organizational culture and nepotism by defining corporate culture as a set of beliefs and values that contribute to organizational behaviour (Urbanová & Dundelová, 2015). Nepotism has been shown to accelerate the attraction-selection-attrition process in an organization (Hanson, 2015). The argument in this regard is that individuals who are socially connected become more attracted to an organization because of human capital advantage. Further, the author argued that hiring family members in a family business has an advantage because they have been exposed to the business from a young age. Additionally, family members share a cultural connection and that their integration into the organization culture is easier compared to people of different affiliations. Further, Hanson (2015) states that modern organizations have the tendency to hire family members due to fear of turnover as a result of a cultural misfit. However, nepotism should not be viewed from one lens, but from different perspectives, objectively (Urbanová & Dundelová, 2015).

Overall, nepotism is seen as a natural social phenomenon. However, it becomes a sort of anomaly inside an organization. Nepotism cannot be separated from favouritism and protectionism. The existence of nepotism, favouritism and protectionism are related inside an organization, and they exist side by side, and together they lead to unfair managerial decisions (Vveinhardt et al., 2013). These phenomena lead to unfair and unethical managerial decisions. It is established that there is a connection between nepotism and organizational culture. Nepotism is considered a form of an organizational management anomaly that affects organizational culture

(Vveinhardt et al., 2013). However, still, empirical studies are needed in order to substantiate these relations. There is a clear gap in the literature in this respect. Our study may establish a clearer relationship between nepotism as a form of corruption and organizational culture and thus pave the route for further relevant research endeavors.

Proposition: Nepotism as a part of organizational and national culture impacts AIS implementation success in Lebanon and Canada

2.8.27 Summary

The role played by an organisational culture in the implementation of AIS has been discussed by different scholars using the outlined various forms of reviewed literature. Scholars have demonstrated the presence of cultural values attached to the organisational culture that influences the implementation success of AIS. The various characteristics of a corporate culture that make it influential in the implementation of AIS entail its determination of leadership, organisational commitment, coordination of employees, determination of employee characteristics and the provision of an ethical environment within an organisation besides many other facets or dimensions of organizational culture.

This literature fails to provide an adequate and robust relationship between organisational culture and the process of implementing AIS. In addition, a corporate culture involves a multitude of dimensions, namely but not limited to attitudes, beliefs, values, formalization, etc. that influence the way things are done in the entire organisation. The reviewed literature fails to show the connection between the various dimensions of organisational culture and the significant information technology's activities like data collection, analysis and presentation. The relationship between the outlined aspects of organisational culture and the implementation of AIS expands the perceived gap in the literature. Therefore, any future research should seek to examine the specific connection between organisational culture and the implementation of AIS based on their components as well as the different areas of interaction within the business settings of an organisation.

As seen in the analysis above, most researchers have shown consistent results in their analysis of this relationship. The scholars are successful in demonstrating that there is a relationship between organisational culture and the implementation of different kinds of information systems. Different factors such as the leadership, attitudes of the employees, the innovative culture of the organisation, the level of coordination among the employees, and the organisation's responsiveness to change are some of the factors that have been identified by the analysed studies as the cultural characteristics that affect technology implementation within business organisations. Additionally, the studies that have been analysed have also given some suggestions for the solutions of cultural barriers to the implementation of technology systems. Therefore, most of these studies are resourceful for real business organisations as they provide some insights on the changes needed to implement new technology successfully.

However, clear gaps exist in the reviewed literature. Most of these studies focus on ERP technology that is meant to improve the efficiency of the overall organization. Accounting is a special department of organisations as it deals with records reported to various internal and external stakeholders. Certain cultural factors may affect AIS but do not affect the other types of information systems. For instance, the accounting department is more impacted, in comparison with other organizational departments by fraud, corruption and mismanagement of funds. Such issues can affect the implementation of AIS as employees will not facilitate the implementation of an information system that will stop their fraudulent activities.

When reviewing the literature for this study, one trend that was established was that organisational culture has a great impact on the successful assimilation of any new ERP systems within an organisation. AIS is another form of technology systems that has different functions and serves different roles and thus, it is found that its successful implementation depends on the kind of culture that is promoted within an organisation. Therefore, organizational culture may impact directly the implementation success of AISs. The reviewed literature identified numerous facets or dimensions of organizational culture. In this study, 17 dimensions of organizational culture are addressed. However, literature has provided discussions of a wider range of organizational culture facets to establish future research orientations. While in this section, organizational culture facets

are discussed in relation to ISs implementation success, the following section discusses the literature findings.

2.9 DISCUSSING LITERATURE FINDINGS

The results of this review have pointed out the gaps in the existing literature in relation to the direct impact of organisational culture on the implementation of AISs. This section is divided into three subsections, itemized research findings, discussions and identified research gaps. In the first sub-section, important research findings are listed, while the second subsection addresses the results of the study that are further discussed and analysed. Deductions are made, and further identifications are extracted. The third sub-section presents an identification of research gaps. Figure 2.9 below shows the three discussion subsections that will be addressed in this section 2.9.

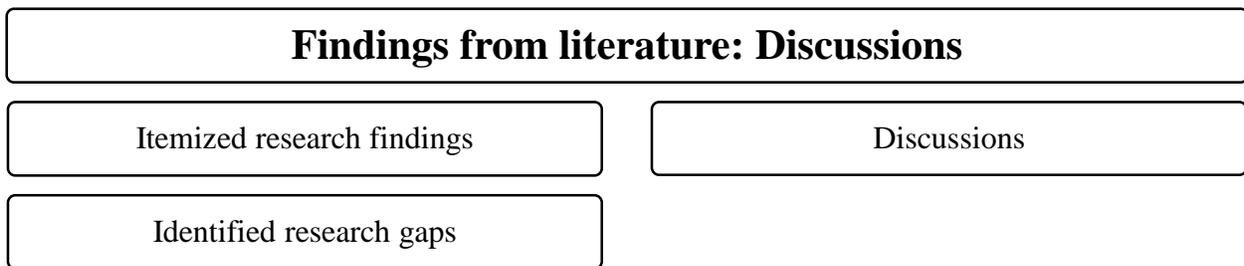


Figure 2.9 Discussing literature findings

2.9.1 Itemized Research Findings

The following Table 2.3 provides a representation summary of the reviewed literature most relevant findings.

Table 2.3 General itemized findings

| Author/s | Context | Findings |
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| Theme 1: Organizational culture and communication | | |
| Schein (2011) | Organizational culture and communication | Organisational culture makes it easy to identify the required information system that is needed in an organisation. Its importance relates to its use in external and internal communications of organisations. |

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| Alhirz & Sajeev (2015) | Communication dimension of organizational culture and AIS | Authors determined a critical relationship between the communication processes made in the implementation of an AIS and the chosen organisational culture. |
| Chen (2012) | Communication and interaction between organization and ERP | The study asserts that an organisation provides real-time access to operational and financial data while the ERP paves the way for the organisations to streamline their management structure. This mutual interaction between the organisation and the implemented ERP system creates a flexible environment and a democratic way of communication between the two entities. |
| Theme 2: Organizational culture and technology | | |
| Wong & Sazzad (2007) | Organizational culture and software | The study identified that an organisational culture might possess an obstacle that affects the choice of software used in the implementation of an AIS. |
| Ifineod (2013) | Organizational culture and information | Research identified that performance of an organisation commences with its ability to achieve the set financial obligations and the management of information obtained from different sources. The process of collecting and management of information considers the shared perceptions, beliefs, rituals, symbols and rites that make the so-called organisational culture. |
| Karamatova (2017) | Data integrity and information technology | Data integrity is among the factors that influence the decisions of information technology. This factor is said to be attached to the chosen organisational culture. |
| Chan (2011) | Organizational culture and AIS; ERP systems and leadership | This researcher concluded that an organisation should ensure there is a concurrence of the different facets within its environment to achieve the expected outcomes from AIS. He also added that ERP systems should make a partnership with the leadership to streamline the performance. |
| El Sawah (2008) | Organizational culture factors as causal agents | The study describes cultural factors as the causal agents of the cultural biases made in the implementation of financial functions within institutions. |
| Kouki et al. (2008) | Organizational culture and IT expertise | The study explained that an organisational culture determines the IT expertise as well as the corporate infrastructure that defines the business needs. |
| Indeje (2010) | Organizational culture and technology use | Study results added that organisational culture creates an essential link between the use of technology and the corporate growth that influences the development and implementation of information systems. |
| Theme 3: Organizational and national culture | | |

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| Akdeniz & Seymen (2012) | Organizational culture and national culture relationship | Authors found that indeed, an isomorphic pattern was present between the national and organisational culture. |
| Korsakiene & Gurina, (2012a) | National and organizational culture and differences in organizational culture across two nations | The differences in the organisational culture between Lithuanian and Russian SMEs were attributed to differences in the national culture. |
| Korsakiene & Gurina (2012b) | National and organizational culture and difference in organizational culture across two nations | The differences in the organisational culture between Lithuanian and Russian SMEs were attributed to differences in the national culture. |
| Causin & Ngwenya (2015) | Impact of national culture | National culture has a direct impact on the organizational culture which impacts IS. |
| Dezdar & Ainin (2012) | Open system culture organizations | The study found that organisations with an open system culture and an employee oriented culture had better chances of implementing their ERP systems. |
| Nelson & Gopalan (2003) | Organizational and national culture (USA-India-Brazil) | The study results suggested that organisational cultures replicated national values as shown by uniformity in certain values across the countries. At the same time, organisational cultures reject national culture by having local variations in their values, which differ from national cultural values (USA-India-Brazil). |
| Figiel (2011) | American and Japanese national cultures (Honda) | The study demonstrated that Honda had successfully blended the American and Japanese national cultures into an organisational culture that contributed to the firm's success. |
| Paijo & Vonheim (2017) | National and organizational culture and the difference in organizational culture across two nations (UK and Sweden) | Authors investigated the impact of national culture on organisational culture of Handelsbanken, UK and Handelsbanken, Sweden by interviewing 3 participants and studying secondary data from annual reports and the corporate website of the firm. The findings showed a translation of organisational culture, where the local UK national culture influenced the Handelsbanken's organisational culture in the UK. |
| Sweeney & Hardaker (1994) | National culture impact on organizational culture (East and West Germany) | The findings indicated the national cultural values in East and West Germany prior to unification had an influence on organisational culture. |
| Omar & Urteaga (2010); Marima (2013); Šapić et al. (2009); Pauleen et al. (2007) | National and organizational culture impact | The national and organisational culture have an impact on organisational practices |

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| Marima (2013) | The influence of national culture on organizational practices | This study found that national culture influenced various organisational practices in petroleum firms in Kenya, including public relations, advertisement, financial acquisition decisions, social network creation, staff development and training, organisation learning and employee recruitment. |
| Soeters & Schreuder (1988) | The influence of national culture on organizational culture. | The study found that the US national culture had significant effects on the organisational cultures of the international firms, particularly on the dimensions of masculinity and uncertainty avoidance |
| Pratt et al. (1993) | National culture impacts organizational culture (Britain) | The study found that the organisational cultural values of British accountants in US firms in Britain reflected those of accountants from the US due to self-selection. This showed a strong impact of national culture on organisational culture in accounting firms. |
| Pratt et al. (1993) | National culture impacts organizational culture (Taiwan) | The findings indicated that US affiliates had organisational cultures that differed from those of domestic Taiwanese firms that reflected the culture of parent firms in the US. |
| Zixiu & D'Ambra (2009) | National culture impacts organizational culture (Australia) | The results showed a similar preference for email communication between the subsidiaries and headquarters. Therefore, the national culture of Australia explained the similarity in the preference for email communication between the subsidiaries and the headquarters. |
| Brits (2011) | The positive impact of a rational culture on (System Development Methodologies) SDM | The findings demonstrated that a developmental culture was associated with more success of the SDM, while an intellectual culture was correlated with higher perceptions of the success of SDM. |
| Theme 4: Culture and organizational management | | |
| Napitupulu (2015) | Organizational culture and management AISs | The study found a critical relationship between organisational culture and the quality of Management AISs. |
| Fitriati & Mulyani (2015) | Organizational culture and decisions | Found an organisational culture as the primary factor that influences most of the decisions made in an organisation. |
| Yeh & OuYang (2010) | Management style, culture and information systems | The study identified that the implementation of an AIS entails broad organisational transformational processes that lead to the adoption of a management style and culture. |
| Theme 5: Organizational culture and information systems | | |
| Lapiedra et al. (2012) | Organizational culture impact on AIS | One of the major hindrances to AIS implementation is the organisational culture. |
| Rabaai (2009) | AIS and Organizational culture | Author deduced that the implementation of an AIS is a process that fails to achieve success if not embedded in the traditional cultural practices |

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| Choi (2013) | Positive impact of ERP systems on organizations | The study identified the importance of implementing ERP systems that improve communication within an organisation. Choi found that ERP systems help in the creation of external business networks, and management of transactions and processes in the logistics pipeline. |
| Daoud (2013) | Organizational culture attributes and AIS | The author identified that an AIS ought to interact with various aspects of an organisation to achieve the expected performance. |
| Choi (2013) | Organizational culture and ERP systems in the fashion industry | Choi (2013) established critical factors for implementing fashion ERP systems in China that were found connected to the chosen organisational culture. Some of these factors involve the changing mindset and fine-tuning cultural norms. |
| Rouhani et al. (2013) | AIS and organizational culture | The idealists identified that the success and acceptance of an AIS are dependent on organisational culture because it brings a new way of working and communication. |
| Shetat (2015) | Organizational culture and ERP success relationship | It was found that the implementation of ERP systems has been associated with many successes and failures that are linked to the differences in the organisational culture. |
| Herberhold (2013) | ERP systems implementation in a cultural battle | The research found that whenever an organisation tries to implement a new ERP system, the employees undergo a cultural battle trying to balance between the older ways of operation with the new one. Some organisations manage to get through the cultural battle, but the challenges consume some; hence, they choose to stick to the older methods of operations. |
| Ismail (2014) | Organizational culture and IS | The study identified the functions of organisational culture as one of the primary factors that influence the failures and success of information systems. |
| Ismail (2009) | AIS definition | AIS as a tool that determines the uniqueness of an organisation |
| Mulyani et al. (2016) | Organizational culture and IS | The study deduced that organisational culture is a component of the personal attitude and the subjective norms that influence the implementation of an information system. |
| Shanks (2000) | Organization characteristics and ERP systems | The study found out a significant need for project management, data accuracy and planning for the implementation success of ERP systems. |
| Theme 6: National culture and information systems | | |

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| Chtorurou et al. (2008) | National culture impact on information systems | The study found that the strategic alignment of new information systems is profoundly affected by national cultural dimensions. |
| Theme 7: Organizational culture dimensions | | |
| Nusa (2016) | Top management commitment and role in promoting AIS success | The author found that a corporate culture determines and mandates the power and influence the top management to promote the development of an information system that allows users to take part in the development of the system as well as the achievement of the user satisfaction. |
| Wang et al. (2007) | Organizational culture attributes | The research identified that an organisation is made of attributes that determine its participation in the implementation of an AIS. |
| Susanto (2015) | Information quality as an important mediating factor between organizational culture and AIS success. | The author found the information quality as an entity that bridges the gap between organisational culture and the implementation of an AIS. |
| Pornpandejwittay (2012) | Organizational support and AIS | The author identified that organisational support poses a positive impact on the AIS. |
| Choe (1998) | Organizational structure and management AIS | The study identified that interactions among the organisational structure have positive outcomes for the management AISs. |
| Elden (2010) | Organizational behaviour impact | Elden (2010) identified behaviour changes that occur in different organisations as one of the primary factors that determine the identity of an organisation. |
| Sari & Effendy (2015) | Organizational culture and quality of information | The investigation found that an organisational culture poses a more significant impact on the quality of information yielded by the AIS than any other related factor existing. |
| Hurbean (2011) | Organizational culture change difficulty | The harmonization of the already existing business process within an organisation can be a challenge because of the difficulties in changing the organisation's culture. |
| Busco & Scapens (2011) | Organizational structures impact | The study found that some structures in an organisation limit the implementation of change. |
| Waring & Skoumpoupoulou (2012) | Organizational culture as a complex system | Researchers found that organisational culture is a complex system that is deeply rooted in the structures that are developed by the management and the employees of an organization. |
| Tartaraj & Hoxha (2014) | Organizational culture (financial feedback) and AIS | The study recognized an organisational culture as an essential factor for the determination of an accounting system. They insisted that organisational culture is not only paramount to the acquisition of financial feedback but also an |

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| | | accounting figure in all the activities implemented in an information system. |
| Choe & Langfield-Smith (2004) | Decision-making process and AIS | The study examined factors influencing the decision-making process of different organisations using AIS. The study described that the goals of AIS mainly rely on the characteristics of an organisation that implements them. The researchers identified organisational culture as the primary determiner of the organisation's components that influence the overall implementation of AIS. |
| Choe & Langfield-Smith (2004) | AIS quality and organizational culture | The study deduced that organisational culture plays a vital role in the quality characteristics existing in AIS. |
| Gray (1988) | Organizational performance and AIS | This study also identified a healthy relationship between organisational performance and the effectiveness of an AIS. |
| Al-Hiyari et al. (2013) | Organizational culture and quality of information | The study examined the effects of organisational culture specifically on the quality of information. It provides that organisational culture can establish and provide guidance in developing information systems within the entire organisation. |
| Al-Hiyari et al. (2013) | Organizational culture, top management and IS | The study found that a corporate culture determines and mandates the power and influence top management to promote the development of an information system that allows users to take part in the development of the system as well as the achievement of user satisfaction. |
| Sherif, et al. (2016) | Information quality and the dimensions of organizational culture | The study added that the information quality relayed within an AIS depends on the complexity of the rules and powers that dictate a specific organisational culture. It means that organisations that possess complex norms and powers are likely to suffer from low information quality due to lack of flexibility and auditability in the process of implementing information systems. |
| Esparza-Aguilar (2016) | The general impact of organizational culture | The study confirmed the variation in the use of financial and accounting information or the implementation of ERP systems among different managers in Mexico. The author explained that the variation emanates from the cultures influencing their perceptions made by the managers on the use of financial information. |
| Shao et al. (2012) | Organizational culture and the flexibility and external focus of organizations | The study recognized an organisational culture as a tool for restoring the flexibility and maintenance of the external focus of an organisation. |

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| Agbejule (2011) | Organizational culture and performance | The study found a relationship between organisational culture and performance that marks the organisation's position in the global market. |
| Amin et al. (2016) | Organizational culture impact on employees and thus AIS | The study found that an organisational culture imposes certain traits among the employees that influence their intention to adopt an AIS. |
| Ali (2016) | A limited relationship between AIS and organizational culture (financial development) | The study found a relationship that exists between organisational culture and the implementation of an AIS. The relationship between the two entities is none other than financial development. |
| Kambarami & Chikowore (2012) | Commitment and ERP system failure | The study determined that the failure of the ERP system implementation process emanates from the lack of sufficient time dedicated to the accomplishment of the selected activities. |
| Rhodes, et al. (2011) | Accountability and responsibility and AIS success | Authors identified the need for developing an accountable and responsible culture within an organisation that provides tangible factors in the implementation of an AIS. |
| Susanto (2016) | Organizational culture, ERP systems and innovation | The study determined that both the organisational culture and an ERP system share common traits that create an innovative environment within an organisation. |
| Ferreira-da-Silva (2013) | Attitudes and perceptions and AIS | Ferreira-da-Silva (2013) added that culture determines the attitude and the perceptions of the participants in the implementation of AIS. |
| Nusa, (2015) | Behavioural changes impact in organizations | The study identified behaviour changes that occur in different organizations as one of the primary factors that determine the identity of an organization. |
| Afirh & Azudin (2016) | Corporate culture, organisational skills and AIS | The study examined the connection between organizational competencies and the implementation of an AIS. The authors highlighted that organizational skills have much to do with the selected corporate culture because the culture determines the way things are done by members inside an organization. |
| Maswadeh (2016) | Organizational strategy and AIS | This study identified an interactive relationship between an organisation's strategy and AIS design. Author believed that the organisation's strategy influences the strategies used by an organisation to achieve its goals, mission, and vision. |
| Wisna (2016) | Transformational leadership and AIS | Wisna (2016) highlighted the processes of improving the quality of accounting information using transformational leadership contained in the organisational culture. |

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| Afirh & Azudin (2016) | Knowledge and effective AIS implementation | The study examined the connection between organizational competencies and the implementation of an AIS. The authors found a connection between accounting professionals' knowledge of the accounting activities as a generic skill for implementing an effective AIS. |
| Kouki et al. (2008) | Relationship between a few organizational culture dimensions and IS success | The study found that the level of management commitment influences the implementation success of information systems, absorptive capacity of the firm, strategic alignment of the information system with the overall business strategy, institutional pressure to implement a successful system, rewarding and encouraging employees and the long term relationship with vendors. |
| Suratman (2017) | Organizational commitment and AIS success | The study found out that organisational commitment, the knowledge of accounting managers, and managers' knowledge about managerial accounting, impact the implementation success of AIS and thus, the relevancy, timeliness, completeness, and accuracy of accounting information. |

Assessing the findings, the majority of the studies in the literature lacks to focus and specificity. Few studies provide insights into the organizational culture and the importance of communication dimension in modern organizations. Other studies identified a relationship between organizational culture and AIS success from a general perspective without considering the dimensions of organizational culture that could be more than 100 dimensions (Jung et al., 2009) and each of them can have a different impact on the AIS implementation success. (Lee et al., 2017; Napitupulu, 2015; Nusa, 2015; Wisna, 2015; Susanto, 2015; Ilham Wahyudi, 2016; Sari et al., 2015; Pornpandejwittay, 2012; Mulyani & Rachmawati, 2016; Boban & Susak, 2015; Carolina, 2015; Mustafa et al., 2010; Napitupulu & Dalimunthe, 2016; Dwivedi et al., 2014; Choe, 1998; Jawabreh & Alrabei, 2012; Prasad & Green, 2015; Soudani, 2012; Ali, 2016; Chloe, 2004; Salehi, 2010; Ismail, 2009; Mbelwa, 2015; Elden, 2010; Indahawati, 2015; Indeje, 2010; Suzanto, 2017; Roni, 2015; Lopez, 2009; Sari et al., 2015).

Further, other studies addressed a general relationship between organizational culture and software. Organizational culture is a significant obstacle and its dimensions directly impact

software implementation in modern organizations. Furthermore, leadership has been pointed out as a significant dimension that impacts the implementation success of AIS. Limited research addresses the impact of organizational factors on AIS implementation success. One sees organizational culture as the DNA of an organization, as it influences every operational and strategic aspect inside the organizations. The review of the literature presents a clear gap in addressing the research problem. One important aspect is the conceptualization of organizational culture. To measure organizational culture, researchers have to address the dimensions of this phenomenon. These dimensions are numerous, and thus, studies that address the organizational culture impact on ERP systems are limited in terms of addressing the dimensions of organizational culture as these studies address only a few dimensions, namely, teamwork, top management commitment, and few other dimensions. Do these dimensions measure organizational culture? Just partially, as these are actually just a few dimensions that shed partial light on the organizational culture. Therefore, the results of such studies cannot indicate or reflect a full measure or manifestation of organizational culture because it is just a fractional measure. Moreover, these same studies are either general in nature without a specific geographical focus or focusing just on a few countries.

One question that can be raised here is: Are the results of a study conducted in the United States applicable in Japan? The answer is most likely to be no. Every country may have its own cultural differences, and this merits further research orientations that are applicable to specific countries (Al-alawi, 2016). Moreover, it is essential to denote important differences across information systems, namely, AISs that are the cornerstone of our organizational and national financial and economic reports. National taxes are collected based on the reports retrieved by the accounting information system, and thus, the major national, economic, financial, environmental and policy decisions are made based on these reports. The literature does not differentiate between AIS and ERP systems. The employees that interact with AISs inside the organization interact as well with external stakeholders on the national as well as the international levels. Such interaction brings in more complications and thus, more dimensions of organizational culture to be considered. For instance, an organization that is operating flawlessly with no reported issues in its ERP systems

may face complications dealing with AISs because the environment in which the accounting information systems operate go beyond the organizational boundaries (Ghaffoori, 2016). In this respect, a corrupt national culture will influence the operations of the AIS as the financial and economic reports could be reshaped in order to satisfy external and internal stakeholders concerns to cope with the corrupt taxation and financial policies within a specific nation. While in Table 2.3, the general findings on the relationship between culture and ERP or AIS systems are identified, the following Table 2.4 presents more specific findings with comments addressing the relationship between specific dimensions of organizational culture and information systems with limited studies tackling relationship with AIS.

Table 2.4 Specific itemized findings and comments

| Authors | Context | Findings | Comments |
|--|--|--|---|
| Hossain et al. (2011); Panizzon, (2016); Abduljalil & Zainuddin, (2015); Rabaai, (2009); Arifin & Frmanzah, (2015) | Involvement (ERP, AIS; Jordan, Brazil and Libya) | Authors have addressed the impact of involvement as a dimension of organizational culture on information systems success across different countries. | The studies did not provide a clear conceptualization of organizational culture. In some circumstances, they looked at AIS from the same perspective as ERP systems. While some of their studies were just too broad and not country-specific, others focused on specific nations with different national cultures and thus, the study conclusions cannot be generalized. Furthermore, these studies address only the involvement dimension of organizational culture that can be manifested in more than 100 dimensions (Jung et al., 2009). |
| Hossain et al. (2011) | Empowerment (ERP) | The study found a positive role for empowerment in boosting organizational performance. | Empowerment is one dimension of organizational culture. The focus of this study is not sufficient to result in significant findings pertaining to the impact of organizational culture on AIS success. Plus, the focus of this study is only on ERP systems. |

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| <p>Panizzon, (2016); Abduljalil & Zainuddin, (2015); Rabaai, (2009)</p> | <p>Teamwork (ERP systems; AIS; Libya, Jordan)</p> | <p>Teamwork was proven to be essential for the success of information systems in organizations in Libya and Jordan.</p> | <p>Teamwork is just one dimension of organizational culture. The three studies reported focus mainly on ERP systems. One study addressed AIS in Libya. The studies make little contribution to show the impact of organizational culture on AIS success. The studies are based on limited quantitative or qualitative data.</p> |
| <p>Arifin & Frmanzah, (2015)</p> | <p>Capability development</p> | <p>Capability development improves the adaptation of the organization to the new technology being implemented or adopted.</p> | <p>The findings of this study are limited, addressing only one dimension of organizational culture with no specific focus to any country. The generalizability of the results is challenging as organizational culture may differ across locations.</p> |
| <p>Li, (2012); Pishdad et al. (2012); Guo & Wang (2015); Stuart, 2013; Tartaraj & Hoxha, (2014); Azhar et al., (2016); Nur et al., (2015); Tarhini et al. (2015); Ahmady et al.(2016)</p> | <p>Consistency (ERP specific with some general reference to AIS; Albania, Bangladesh and Indonesia)</p> | <p>Consistency impacts ERP systems implementation success.</p> | <p>These studies detected a relationship between the consistency dimensions of organizational culture and information systems. However, these studies did not focus on this relationship and provide further details but instead provided a general perspective on the subject. This warrants further research efforts to identify how consistency dimensions of organizational culture impact information systems, specifically, AIS.</p> |
| <p>Li, (2012); Pishdad et al., (2012); Guo & Wang. (2015); Stuart, (2013); Tartaraj & Hoxha, (2014); Azhar et al., (2016); Nur et al., (2015); Tarhini et al. (2015)</p> | <p>Coordination and integration (ERP; AIS; Indonesia, Albania and Bangladesh)</p> | <p>Coordination and integration have a direct impact on information systems implementation success across countries studied.</p> | <p>Coordination and integration represent only one dimension of the organizational culture. Literature has addressed this dimension within the ERP systems context. The results of one dimension of organizational culture cannot be generalized to represent the impact of organizational culture. Furthermore, limited evidence was found in regards to the impact of this</p> |

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| | | | dimension on AIS implementation success. |
| Ahmady et al. (2016) | Agreement | The study identified a relationship between agreement and IS implementation success | The study was not specific to any country and was general addressing IS. |
| Choe, & Langfield-Smith, (2004) | Adaptability (Organizational learning) | Organizational learning was found to have a positive relationship with the implementation success of ERP systems. | The study did not address the implementation success of AIS and was not specific to any geography but rather, provided a general perspective on the relationship between learning and IS implementation or use. The deductions made from this study cannot be sufficient for generalizations. |
| Kouki et al. (2008); Shatat, (2015) | Mission (Strategic goals and intent) | ERP context in Tunisia and Oman with a focus on strategic goals and intent | The focus was limited to ERP systems and two specific countries. Further research is warranted to identify the relationship between AIS and organizational culture in Lebanon and Canada. |
| Kouki et al. (2008); Bagranof, (2010); Sheth, (2010); Stair & Reynolds, (2012); Pearlson, (2010); Armstrong & Taylor, (2014); Al-Hiyari et al. (2013); Shatat, (2015); Shanks (2000); Nusa, (2016); Chatterjee, (2000); Kamhawi, (2007); Ragu-Nathan et al. (2004); Ramayah et al. (2007) | Top management commitment | Top management commitment (ERP; technology; Portugal, Oman, China, Australia, USA, Malaysia, Bahrain, Egypt) | Diverse studies have addressed as noticed, the impact of top management commitment on ERP systems success. The studies may not have addressed information systems as separate entities. AIS is different from ERP systems and has different stakeholders. |
| Vadivelu & Klein, (2011); Chtorurou et al. (2008); Kanagaretnam, et al. (2013); Laksana et al. (2017); Dezdar & Ainin, (2012); Jewels, (2011); Alhirz & Sajeev, (2015); Choic, (2013); Gupta, et al. (2014); Ashrafi & Afsharfi, (2013); Ke & Wei, (2008); Rouhani et al. (2013); Karamatova, (2017); Zaglago et al., (2013), Van Der Meijden et al., (2003); Ramayah et al. | Communication flow | The studies identified a direction relationship between communication and information systems implementation. | Addressing the communication flow in the literature was of a diverse nature. While most of the studies were not specific to any country, some were specific to just a few that are different from the context of this study. Furthermore, communication flow is just one dimension of more than 100 dimensions that can be conceptualized within the umbrella of organizational |

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| (2007); Ravesteyn & Batenburg (2010) | | | culture. Most of the studies focused on ERP systems, which are different from AIS. Therefore, the literature still, has no findings that are precise in determining or even measuring the impact of communication flow on AIS implementation success. This warrants deeper investigation and more coherent and definitive evidence. |
| Vaitkunaite et al. (2006); Jucevicius, (1998); Schein, (1992); Spivak, (2001) | Rewards and incentives (ERP) | Rewards and incentives impact the implementation success of ERP systems | These studies do not provide any quantifiable measure of the rewards and incentives dimension of organizational culture on AIS success. Their contributions are limited and thus, further research in this context is warranted. |
| Lee et al. (2017); Guo et al. (2013); Lapiedra et al. (2011) | Organizational leadership, (ERP) | Organizational leadership impacts the implementation success of ERP systems | These studies are specific to ERP systems as general information systems with no application to a specific country context. Results cannot be generalizable on other countries, and ERP systems and AIS systems are different. |
| N/A (Few studies of relevance) Biermeier-Hanson (2015); Briggs & Wated (2012); Kragh (2012); Pelit et al. (2015); Vveinhardt & Petrauskaitė,, (2013); Kimbro, (2002); Everett & Rahaman, (2007); Ainge, et al. (2010); Ghaffoori, (2016) | Corruption/nepotism | Studies tried to identify that corruption in many forms could impact the implementation success of IS. | The context of these studies is general, and it has no contributions in regards to the impact of organizational culture or explicitly, the corruption/nepotism dimension of organizational culture on the implementation success of AIS success. |

2.9.2 Discussion

Upon evaluation of the literature provided in the previous sections, it is clear that AISs (Salehi et al., 2010), national culture (Jaggi & Low, 2000), and organizational culture are three essential aspects of business activities that complement each other. This discussion provides a personal evaluation of the literature and a recap of the identified ways that the three important

organizational elements affect each other. Literature shows that AISs influence the quality of financial reporting, the decisions making the process, internal control systems and the performance measures of an organization (Sajady et al., 2008). It highlights that AISs involve the use of software that minimizes the errors that may affect the quality of the overall accounting results as well as the quality of the decisions that may emanate from the accounting process. Grande, Estébanez, and Colomina (2011) found that both management and quality control agencies enjoy benefits from AISs success. Moreover, AISs have been identified as important resources that help an organization in the process of data synchronization (Salehi et al., 2010; Fitrius, 2015). This impact does not only improve the quality of data stored within an organization, but also improves the security of the company's information. Wahyudi (2016) proves that AISs improve individual performance and user's competence in the implementation of various duties within a company. Therefore, organizations should focus on the development of reliable AISs to achieve various benefits, enhance corporate governance and remit reliable, valid and correct financial statements and reports.

It is shown that national culture may have a direct impact on the accounting principles of an organization in any country. Jaggi and Low, (2000) analysed the national culture in regards to legal characteristics and market forces in a country, and realized that those companies operating in states that have a universal law system have a higher likelihood of being open in their financial disclosures. Moreover, the study also revealed that cultural values of the country might not affect accounting principles of individual firms.

International cultures impact the individual behaviours in the accounting environment (Finch, 2010). Using the Hofstede-Gray cultural framework as the basis of studying social systems, Finch (2010) found that social characteristics of individuals in a particular environment affect the practices of their accounting disclosures. There is also a high prevalence of secretiveness among employees that have individualistic cultures. These employees have a low likelihood of implementing accounting technology, which would force them to reveal their financial information (Finch, 2010). Moreover, Abernethy and Bouwens, (2005) studies numerous factors determining successful implementation of accounting innovation in business firms and discovered that culture

was among those factors. They found that both corporate and national cultures have a direct impact on the successful implementation of accounting technology. It was argued that culture mostly influences the process of making decisions by the managers of various organizations regarding accounting practices. Organizations that have individualistic cultures have their role of making the decision centralized to only a few people in the firm (Abernethy & Bouwens, 2005). On the other hand, there are decentralized models of making decisions in firms that have collectivist cultures. There is a likelihood of successful implementation of accounting technology being realized in an organization that has a decentralized decision-making process as all the members will participate in the change-making process (Abernethy & Bouwens, 2005). This leads to better adoption of the changes in the models of operations (Abernethy & Bouwens, 2005). As shown by these studies, national culture may have an impact on the accounting practices of a firm.

The reviewed literature also deduced that an organizational culture poses a significant impact on the implementation of AIS (Al-Hiyari et al., 2013). This deduction is valid because an organizational culture influences the behaviours demonstrated by the employees that participate in the implementation of an AIS. Literature found that values and cultural behaviours existing in an organization affect the success of various management systems. Robey, Boudreau, and Rose (2000) explained that an organizational culture determines the process of retaining, creating and transferring knowledge in an organization. The implementation of an AIS is one of the primary tools that an organization uses to create, retain and transfer information among the different sectors of investments (Al-Hiyari et al., 2013). Moreover, an organizational culture tends to influence employee commitment towards the implementation of various systems (Al-Hiyari et al., 2013). It shows that an organizational culture that is committed towards the implementation of various systems creates a conducive environment for the implementation of AISs. Soudani (2012) also believed that flexible organizational culture has higher chances of implementing a successful accounting information system than an organization whose culture is inflexible. These studies provide significant insights. However, fail to provide specific conclusions in regards to the impact of the organizational culture dimensions on the implementation success of AISs.

The method and need for an accounting information system depend on the business strategy chosen by an organization. Sori (2009) believed that organizational culture affects the culture of knowledge within the employees that participate in the implementation of an AIS. In addition, an organizational culture impacts the managerial behaviour of the employees that take part in the implementation of an AIS. The other vital fact about organizational culture contained in the outlined literature lies on the way it affects the attitudes and perceptions of employees towards the implementation of an accounting information system (Chapman & Kihn, 2009). Lee et al. (2017) also found that an organization poses a vital influence on the absorption capacity and software process of implementing an accounting information system. Organizational culture influences the implementation strategies used by an organization to implement an AIS (Chapman & Kihn, 2009).

The literature has highlighted on a realistic relationship between organizational culture and the quality of information retained in an information system. Nusa (2015), asserts that the implementation of an accounting information system relies on the extent that an organizational culture allows for the availability of information. Culture determines the mandates and influence of the top management in the process of implementing an information system. Leadership and the identity of an organization are among the primary functions of an organizational culture found to be connected with the implementation of an accounting information system (Mbelwa, 2015). An organizational culture creates results-oriented working environment (Maas & Fenema, 2014), promotes financial development (Baker, 2017) teamwork (Panizzon, 2016) and enhance diversity (Yao and Yang, 2014). These factors stand a high chance of facilitating the implementation of an accounting information system. Other keys factors attached to the culture of an organization that influence the implementation of an accounting information system entail change rigidity (Busco & Scapens, 2011), communication patterns (Dezdar & Ainin, 2012) and financial development (Alobaid, 2016). These factors have truly confirmed that organizational culture is indeed a factor that influences the implementation of an AIS. However, yet, literature may fail to elaborate on the relationship between organizational culture and AIS implementation success. In the following section, literature research gaps are identified.

2.9.3 Research Gaps

The majority of the studies addressed in the literature have investigated the relationship between organisational culture and different aspects of information systems in organisations in a general geographical context. However, studies of this relationship with reference to specific countries seem to be limited. In particular, studies focused on the relationship between organisational culture and absorptive capacity for acquisition and use of knowledge concerning software improvement processes (Lee et al., 2017). However, absorptive capacity in this context can be studied on group and individual firm levels. Further, these studies addressed quality of AIS (Napitupulu, 2015), quality of accounting information (Nusa, 2015; Wisna, 2015; Susanto, 2015), service quality (Ilham Wahyudi, 2016; Sari et al., 2015; Pornpandejwittay, 2012; Mulyani & Rachmawati, 2016), data quality (Boban & Susak, 2015; Carolina, 2015), system quality (Mustafa et al., 2010; Napitupulu & Dalimunthe, 2016; Dwivedi et al., 2014; Choe, 1998); decision making (Jawabreh & Alrabei, 2012; Prasad & Green, 2015; Soudani, 2012), improved leadership (Ali, 2016; Chloe, 2004; Salehi, 2010), organisational identity (Ismail, 2009; Mbelwa, 2015; Elden, 2010), organisational commitment (Indahawati, 2015; Indeje, 2010; Suzanto, 2017), innovative climate (Roni, 2015; Lopez, 2009; Sari et al., 2015), etc. Evidently, these studies have highlighted how the different outcomes of information systems implementation are influenced by organisational culture. Conversely, limited studies have focused on the role of organisational culture on the process of implementing AIS in organisations and the outcomes following the implementation of these systems. This suggests an area for further research. This line of future research would be useful in providing important knowledge on the influence of organisational culture on the specific aspects of AIS implementation process.

Moreover, the existing studies on this topic concentrated on examining the issues at the firm level without considering national, international, or other moderating and mediating variables. This points to future research opportunities where the influence of organisational culture on AIS implementation is examined from a comparative approach considering geographical and other differences, including but not limited to age of the organization, size of organizations, industry, market levels, market locations, etc. This approach would ensure that firms are compared in

relation to their implementation of AIS and associated outcomes, and the impact of organisational culture in this context. This would provide a robust basis for elucidating any differences in the results that might be attributable to organisational or national culture differences.

Another line of research looked at the obstacles in the organisational culture that affect the implementation success of information systems. These obstacles included but are not limited to the creation of financial attachment (Alobaid, 2016; Salehi, 2014), and the relationship between culture and software (Wong & Sazzad, 2007; Gallivan & Srite, 2005; Wang et al., 2007). The studies that have addressed the barriers in the organisational culture that influence information systems implementation are limited, although this topic is of specific interest in understanding the impact of organisational culture on the implementation of AIS in Lebanese and Canadian firms. It is anticipated that factors, namely but not limited to the cost of acquiring and maintaining the AIS systems, and the technical expertise of users of AIS might act as barriers to the implementation success of information systems. However, such factors are not the focus of this study but bring an insight into future research orientations. Thus, there is a need for more research to identify more barriers that may have an influence on the implementation of AIS in organisations and whether such barriers are other dimensions of organizational culture.

The future studies should consider using appropriate technology adoption models to identify the barriers to the implementation of AIS in organisations. At the firm level, the innovation diffusion theory (Rogers, 1983) could be applied to examine the barriers to AIS implementation by firms. In particular, the innovation diffusion theory posits that implementation of technology by firms is determined by aspects of the technology, such as relative advantage, compatibility, complexity, observability, and trialability. Therefore, it would be important to determine how these characteristics of AIS affect its successful implementation in firms with particular organisational culture. Furthermore, the innovation diffusion theory postulates that firm characteristics, such as centralization, size, interconnectedness, slack, complexity, and formalization affect the implementation of technology (Rogers, 1983). This could be examined in future studies to determine whether these organisational characteristics act as barriers to AIS implementation in firms with particular organisational cultures. In addition, the barriers to AIS implementation can

be at the individual level, and thus future research should employ a suitable technology adoption model to examine this issue. For instance, the technology acceptance model (Davis, 1989) explain factors at the individual level that influence technology implementation, such as perceived usefulness, perceived ease of use, attitudes towards the technology, and intention to use the technology. Thus, these factors should be investigated to establish whether they are barriers to the implementation of AIS by firms. Possibly, such future research might demonstrate how accountants' and other employees' perceived ease of use and usefulness affect their attitudes towards AIS and intent to utilize AIS, which may lead to successful implementation.

One major research gap identified in the literature is represented by the lack of studies that address the impact of organizational cultural dimensions on AISs success considering moderating and mediating effects. Literature seem limited on conceptualizing organizational culture that may encompass more than 100 dimensions. Studying the relationship between these dimensions and AIS implementation success may seem impossible due to its complexity and the unavailability of modeling software that can address this relationship. Furthermore, no mediating and moderating variables have been studied in the context of the relationship between organizational culture and AIS. This study tries to provide a unique understanding that is as comprehensive as possible including mediating and moderating variables on the relationship between organizational culture and AIS.

2.10 CHAPTER SUMMARY

This systematic analysis of literature investigates the direct impact that organisational culture has on the implementation success of AIS. The study has evaluated the results of relevant literature. The most prevalent results in the study show that there is a relationship between organisational culture and the successful implementation of AIS. Although the reviewed literature discusses different aspects of organisational culture, most of the studies show that the kind of culture promoted in an organisation can determine whether or not the implementation of AIS will be successful. AISs implementation success was found to be affected by organisational culture. There are various themes that have been identified in the study with regards to the implementation

of information systems. However, the literature findings are limited in this context and the focus of reviewed literature is on information systems in general rather than AIS that are of different operational and reporting characteristics.

The characteristics of an organisation's culture that were found to have an impact on the implementation of IS include but are not limited to the communication patterns, change rigidity, mind-shift issues, the availability of a learning culture, system quality, information quality, data quality, teamwork orientation, financial development, embracing diversity, position-based growth, results orientation, accountability, responsibility, innovation characteristics, innovative climate, creation of financial attachment, decision making, improved leadership, financial feedback, organisational identity, and the commitment of leaders to the successful implementation of the information systems. For instance, the communication patterns were found to have an impact on the responsiveness of employees to new information systems. When there is developed communication within an organisation, the assimilation of information systems to the business process is likely to be successful because employees and other stakeholders will feel themselves as part of AIS adoption process. In another instance, change rigidity and mind-shift issues were found to affect the implementation of new information systems negatively. In an organisation where structures are rigid, and the perception of the employees is hard to change, the implementation of information systems will be harder. The implementation of information systems leads to many changes in the manner in which organisational practices are conducted. Therefore, flexibility is an important component of successful assimilation. Organizations that have flexible structures and are ready to accommodate changes are more likely to adopt and implement AIS successfully because no party feels threatened by the role of the AIS. This study also found that the location of a company can affect the implementation of information systems because the national culture affects the organisational culture. Power distance and uncertainty avoidance are the two national cultural dimensions that were found to have the most impact on the successful implementation of information systems. Uncertainty avoidance limits organisations from taking risks hence affecting their ability to deal with the challenges that are experienced during the ERP systems implementation process. On the other hand, power distance prevents effective interaction

between employees on different levels of the organisation; thus, affecting the ability to successfully share information that will contribute to the integration of the information systems to the business processes. These findings that are relevant to the national culture impact are beyond the scope of this thesis but establish sound basis for future research endeavours. In addition, this study found that having a learning culture and leadership commitment also contributes to the successful implementation of information systems. The employees need to be given a chance to learn new things that relate to the information systems so that they can be responsive to the changes. In addition, the leaders need to be committed to the success of new information systems for them to challenge obstacles and risks that are encountered in the implementation process. Furthermore, a variety of other cultural components, as stated above, were found to have either a negative or positive impact on the implementation success of information systems.

This study comprehensively reviewed the current literature on organisational culture, national culture and information systems implementation success. A total exceeding 340 articles were chosen, reviewed, classified, and analysed to determine relevant discussions, opportunities of research and future directions in organisational culture, national culture, and IS/AIS implementation. Besides, this chapter identified negative consequences of AISs abuse, national and international culture interplay, accounting and IS relevant theories and a justification for adopting these theories for this study, accounting social, political and cultural contexts, a differentiation between AIS and ERP systems and the IS and organizational culture interplay before moving to tackle various AIS success factors. After shedding clear light on the relevant literature in chapter two, the following chapter three will derive the theoretical and conceptual frameworks of the study.

Chapter Three: Theoretical and Conceptual Frameworks

“If the facts don’t fit the theory, change the facts.” - Albert Einstein

“A complex system that works is invariably found to have evolved from a simple system that works.”- John Gaule

3.1 CHAPTER OVERVIEW

This chapter presents the theoretical and the conceptual frameworks of the study. First, the chapter draws a comparative definition between conceptual and theoretical frameworks, presenting the foundational theories of the study. Second, the chapter derives the dependent variable of the study defining AIS success and clarifying the adopted measurement dimensions. Third, the chapter presents the study adopted model for AIS success which is the study dependent variable. The AIS success dimensions adopted from D&M (2003) model are presented. Fourth, the chapter derives the independent variables adopting Denison model (2012) besides other organizational culture relevant theories. Fifth, the chapter explains the moderating and mediating variables included in the study before deriving the overall study theoretical model. Finally, this chapter provides a summary for the hypotheses of the study.

This chapter is broadly divided into ten subsections. Section 3.2 addresses the study dependent variable before the adopted model is presented in section 3.3. Section 3.4 sheds light on the AIS success (*dependent variable*) dimensions and section 3.5 derives the organizational culture dimensions from the adopted relevant theories. Sections 3.6 and 3.7 address the moderating and mediating variables of the study. Section 3.8 comes up with the study theoretical and conceptual models. While section 3.9 summarizes the study hypotheses, section 3.10 concludes and summarized the chapter findings.

3.2 AIS SUCCESS AS A DEPENDENT VARIABLE

AIS success is the derived dependent variable of this study. The dependent variable is fundamental in the structure of any research (Sekran, 2003). It is influenced by the independent variable and in the case of this study, the AIS implementation success is the dependent variable

that is influenced by organizational culture. The focus of this study is only on the successful implementation of AIS. The literature has presented a variety of theoretical models, and thus, IS success dimensions that measure the implementation success of information systems. This study employs the DeLone and McLean model (2003). This model success dimensions are used to assess the AIS implementation success in Lebanon and Canada.

3.2.1 AIS Success: Definition and Dimensions

The study AIS success dimensions are fully adopted from D&M (2003) model, viz., information quality, system quality, service quality, use, user satisfaction and benefits. AIS success may be challenging to define and may take several changing forms. Despite heavy investments and training, many organizations faced failures implementing AIS. Furthermore, it is challenging to define the success of information systems as success itself is a multifaceted and abstract concept that is difficult to be defined as it can have numerous manifestations or dimensions. Success can be similar to intelligence or personality and these are hard to define concepts (Seddon et al., 1999). In this viewpoint, Markus and Tanis (2000) consider success as a subjective concept that can be assessed and understood differently according to numerous dimensions that are difficult to explain. In this regards, Markus and Tanis (2000) look at success as a multidimensional, vibrant and comparative concept. The implementation success and business results represent the multidimensionality (Markus & Tanis, 2000). The changing state of success represents dynamism multidimensionality (Markus & Tanis, 2000). In other words, success today cannot be applicable tomorrow as the concept can be developing overtime (Markus & Tanis, 2000). It does change its nature across time. Relativism can be explained as a subjective assessment of success multidimensionality (Markus & Tanis, 2000). For instance, a successful AIS means that the system was user-friendly for the end-users (Markus and Tanis, 2000). However, this success may be meaningless for managers, for instance. Managers consider an accounting information system as successful if it renders excellent benefits for the organization (Seddon et al., 1999). It may be true that success definitions can be subjective. It is a relative concept that changes across individuals' point of views as well as circumstances and environments in which it occurs (Seddon et al., 1999). Therefore, it is clear that a successful AIS can be described differently by stakeholders (Berg,

2001). Due to this fact, it is important that this study relies on valid success measurements and dimensions. DeLone and McLean's model (2003) was one essential model that operationalizes the definition of success of information systems. It is the most widely adopted model in the literature.

3.2.2 Success Measurements of AIS

Studies addressing the success of information systems are numerous. However, one main model of AIS success measurements can be attributed to DeLone and McLean (2003) which is the mostly adopted in the literature. Successful implementation of information systems is essential for the success of contemporary organizations. These systems bear heavy financial and operational losses when they fail. Therefore, IS success measurements pull the attention of many IS researchers. One of the most influential studies conducted on the success of information systems is by D&M (1993) and was updated in 2003. DeLone and McLean (1992, 2003) classified the IS success into seven categories that are: *1. System quality, 2. Information quality, 3. Use, 4. User satisfaction, 5. Individual impact, 6. Workgroup impact and 7. Organizational impact.* However, measuring these dimensions along is debatable as it is suggested to include other factors to make the success measurement instrument more comprehensive. These factors can include task and technology factors. Van Der Meijden et al. (2003) suggested that measurement determinants viz., involvement, learning, communication, and training should be considered as dimensions for measuring the information systems implementation success. However, this suggestion was viewed as very broad to consider (Abdullah, 2013). The suggested constructs can be too abstract to measure (Molla & Licker, 2001).

Other researchers, in the same context, resorted to combining more than one work together in order to come up with a comprehensive IS assessment framework (Kappelman & Prybutok, 1997). It is worthwhile to note that the D&M (1992) model has been criticized by many researchers (Kettinger & Lee, 1994; Li, 1997). As a result of this criticism, D&M upgraded their model in 2003 to include an additional assessment factor that is the service quality. For D&M model, service quality is supported as a net benefit for information systems (Abdullah, 2013).

3.3 THE STUDY AIS MODEL

The literature sheds light on many IS success measurement models but incorporating all models in just one study is not viable. However, this study aims to provide a comprehensive assessment of AISs success under the impact of organizational culture. In this study, the D&M (2003) IS success model is adopted. This model is currently the most commonly adopted IS theory that concentrates on IS success as the dependent variable. The D&M model has great support in the literature and has been acknowledged as a fundamental IS success measurement tool (Seddon et al., 1999). Furthermore, this model considers prior research on IS success, categorizes IS success and identifies various perspectives addressing the success of IS. Therefore, it is highly supported in the literature and considered to be an appropriate model for further empirical and theoretical research endeavors. It is highly accredited in the literature (Seddon et al., 1999). AIS is one fundamental type of Information Systems (IS). As a result, the model is established integrally in this study's theoretical framework.

3.4 THE STUDY AIS IMPLEMENTATION SUCCESS DIMENSIONS

Before addressing the adopted AIS implementation success dimensions, herein, a representation of the updated D&M success model (2003) is presented.

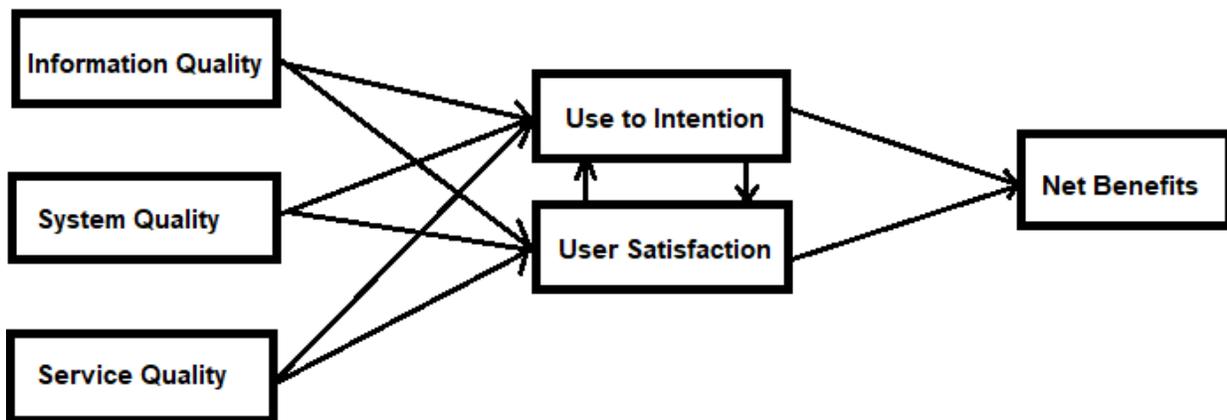


Figure 3.1 Updated model of information systems success (Delone & McLean, 2003)

Source: Adopted from Petter et al. (2008)

The first dimension that is addressed is information quality. Information quality refers to the quality of the information that is provided by the information system and in our case, the accounting information system. As referred in the literature, the quality of the output information provided by the accounting information system is assessed by its accuracy, reliability, completeness, precision as well as relevancy. In addition, the system quality dimension refers to what the system contributes to the end-users or adopting firms in terms of the response time of the system, stability as well as the ability of the system to recover fast in case of the occurrence of errors (DeLone & McLean, 2003). The third adopted dimension is service quality. DeLone and McLean added this dimension in the updated model version in 2003. This dimension intends to measure the overall support of the system. An AIS is intended to provide the users with positive applications and useful financial, environmental and social responsibility reports, and thus, promote user satisfaction. If the services provided by the system are satisfying for the adopting firms or individual users, then, it is more likely that these users will continue using the system (DeLone & McLean, 2003).

The other success dimension that is adopted from the DeLone and McLean (2003) updated model is the *use* of IS. However, this construct is considered one of the most debatable ones due to the different interpretations that are associated with it. The usefulness of the information systems explains it. The use construct can be interpreted subjectively as it is mostly related to the subjective human opinions. In this regards, if we consider the theory of Technology Acceptance Model (TAM) by Davis's (1986, 1989), we can have a better understanding of the use construct. The theory hypothesizes that an IS system is accepted if it has been perceived as useful and easy to use. However, this theory has been criticized due to the fact that it relies on the subjective opinions of humans. Therefore, the opinions of humans are subjective and differ across various circumstances and environments. Therefore, such opinions and subjective perceptions cannot be considered as a standard construct or a unit of measure due to the fact that results cannot be replicated and they can totally differ across populations of study (Markus et al., 2000).

Many critics argue that DeLone and MacLean (1992) IS success model is confusing pertaining to the several meanings that it can lead to. In this respect, much debate has taken place

in relevance to the meaning of the benefits from the *use* construct. *Use* can be looked at from a variety of perspectives. For instance, benefits can be assessed at a variety of organizational levels. The individuals in the organization can have their own benefits in comparison with the management and the overall organization. Therefore, benefits retrieved from AISs differ across the levels of the organization. Furthermore, benefits can take a variety of forms, namely, financial, operational, managerial, organizational, etc. In this regards, and in order to minimize the level of confusion pertaining to this construct, Seddon (1997) has addressed the term used in the D&M model and replaced it with the term usefulness. Further interventions took place, and a new variable called user involvement has been as well added to clarify the meaning of the use construct in the original model. User involvement is an essential variable as it falls in parallel to the Participative Decision Making (PDM) theory. In the same context, it has been supported that user involvement surges users' happiness and system usage consequently (Baroudi et al., 1986). System use is an important construct because a system that fails to be used is a failure (Hu et al., 1999; Amoako-Gyampah, 2007). However, the reliability and validity of this construct is questionable. In some organizations, the use of AISs is just mandatory. However, in other organizations, the use of AISs is optional. Therefore, we cannot say that the use of AISs signifies the success of the system because some organizations are obliged to adopt and use an AIS as per their policies and thus, the use, by itself, as a factor cannot indicate the success of the accounting information system. Organizations, in Canada and Lebanon, have the options to either use AISs or not. However, it is not dictated that the accounting information system is to be used in both countries. Therefore, the use is optional, and thus, the use construct can be adopted in this study. D&M (2003) claim that system use reflects user satisfaction. In other words, user satisfaction will lead to increased use of AISs. The items of measurement used to assess the user satisfaction and usage level are adopted in this study.

Further, the construct of user satisfaction has been supported by a variety of papers across reviewed literature. User satisfaction is a reliable indication of the success of IS systems (Au, Ngai, & Cheng 2002; DeLone & McLean, 1999, 2003). In this current study, user satisfaction is included in the system quality and individual impact measures. Sedera and Tan (2005) concluded that user

satisfaction measures encompass both system quality and individual impact measures after analyzing 310 responses in a relevant study. The net benefits construct suggested by D&M IS model refers to all the benefits that can be harvested from the use of the information systems. These benefits can be social, group, individual, organizational, etc. For the sake of this study, some of the benefits are not considered, and the focus is only on the individual, work group as well as the organizational benefits inside the firm. Therefore, the net benefits construct is represented by individual, work group and organizational impacts. Limiting the benefits to only individual, work group and organizational impacts simplifies the IS success model adopted and thus, the study conducted.

D&M IS success model (2003) is the most prominent and cited model in the literature. However, it is important as well to note other studies that have addressed the IS success dimensions. Many studies tried to categorize and identify the IS success dimensions. The following Table 3.1 sheds light on relevant studies on IS success dimensions.

Table 3.1 Prior research on information systems' success dimensions

| Authors | IS success dimensions |
|--|--|
| Parasuraman, et al. (1985); Kettinger & Lee (1997) | Tangibles, dependability, receptiveness, assurance, empathy, service quality |
| Scott, et al. (2016) | Trust, well-informedness, participation |
| DeLone & McLean (2003) | System quality, information quality, service quality, use, user satisfaction and net benefits. |
| Rai, et al. (2002) | System quality, information quality, use, user satisfaction, individual impact |
| Wixom & Watson (2001) | Data quality, system quality, perceived net benefits |
| Chin & Lee (2000) | User satisfaction |
| Myers, et al. (1997) | System quality, information quality, service quality, use, user satisfaction, individual impact, workgroup impact and organizational impact. |
| Seddon (1997) | System quality, information quality, perceived usefulness, user satisfaction, net social, organizational and individual benefits |

| | |
|-------------------------|---|
| Seddon & Kiew (1996) | System quality, information quality, perceived usefulness, user satisfaction |
| Pitt et al. (1995) | System quality, information quality and service quality |
| Kettinger & Lee (1994) | Service quality |
| DeLone & McLean (1992) | System quality, information quality, use, user satisfaction, individual impact and organizational impact. |
| Doll & Torkzadeh (1988) | End-user computing satisfaction (EUCS) |
| Baroudi et al. (1986) | User involvement |
| Ives et al. (1983) | User interface satisfaction (UIS) |
| Bailey & Pearson (1983) | Computer user satisfaction |

The current study adopts the AIS success dimensions as proposed by D&M model. These dimensions include system quality, service quality, information quality, individual impact, organization impact, workgroup impact, user satisfaction and use. The individual impact, workgroup impact and organizational impact are a representation of the net benefits construct suggested by D&M (2003). System quality is concerned with the speed, timeliness, efficiency, behaviour of the system, friendliness of the system, its reliability, flexibility and accuracy. Information quality construct measures how accurate and timely is the delivered information by the system (Abdullah, 2013). The service quality construct is related to the overall performance and evaluation of the system by the users, and thus, a high service quality reflects a high level of user satisfaction. In this regards, the use construct is also measured by or embedded into other constructs in the adopted IS success dimensions. The net benefits construct proposed by (D&M, 2003) represent the contribution of the system to the success of individual employees, institutions, corporations, customers, investors and other stakeholders (Petter et al., 2008). However, this study focuses only on the individual, workgroup as well as the organizational impacts of the AIS system. This focus will allow detailed analysis and thus, establish a future research orientation. Addressing the benefits of the AIS systems for all stakeholders is not viable in this study and goes beyond its scope. Therefore, future studies may tackle AIS benefits not covered in this study.

3.5 ORGANIZATIONAL CULTURE DIMENSIONS AS AN INDEPENDENT VARIABLE

The concept of organizational culture has been widespread across literature since the 1970s (Meyer et al., 1988). However, still, in the present, scholars still disagree on the way to measure organizational culture. Several types of instruments are used to measure organizational culture. These instruments include but are not limited to quantitative methods, including surveys, questionnaires, and qualitative methods through interviews, focus groups, observations and participation. The qualitative researchers propose that psychometric methods that are employed in quantitative methodology are not effective in measuring organizational culture due to the implicit and the changing nature of culture across organizations and regions. In this respect, Martin (1992) suggested that the quantitative assessment of organizational culture has been well criticized because of the mono-method bias in the study field. However, quantitative researchers do not agree with this point of view and suggest that it is essential to develop measurement instruments that are standard in order to be able to generalize the findings across organizations. The measurement instruments have to be comparable in order to allow for valid and reliable conclusions (Martin, 1992). As a result, several questionnaires have become available in the literature. It is suggested that the surveys can have a fundamental role in the quantitative analysis of organizational cultures. Researchers have identified endless theoretical, definitional as well as methodological debates for culture. Unfortunately, this has caused significant confusions and researchers face difficulties finding a standard definition, methodology or theory to follow or adopt. Some critics look at qualitative research from a negative perspective. For instance, in this regards, Martin & Frost (1996) consider the qualitative methodology of research as fundamental in culture research. However, we cannot undermine the fact that many critics question its validity and reliability. From another perspective, and considering the quantitative form of research, several critics have looked negatively at this methodology considering the use of surveys as a limited and narrow method (Martin & Frost, 1996). Using surveys, the researchers tend to identify items beforehand to be tested (Martin & Frost, 1996). However, these items are considered narrow and thus lead to limitations in the domain of inquiry. The qualitative research can have wider boundaries. Some

other researchers support the use of mixed methods. However, such methods may be not feasible as they are expensive, complex and time-consuming. Some researchers support the view of using both the quantitative surveys combined with qualitative data as such methods enhance the opportunity of providing standardized means of assessing organizational culture as a complex research phenomenon (Martin & Frost, 1996). Still, the researchers have not come to an agreement in regards to the standard forms of a questionnaire that can be used in order to measure organizational culture. Furthermore, the qualitative data collected cannot provide basis for systematic comparisons (Martin & Frost, 1996).

The independent variable in this study is represented by the organizational culture. It is considered one of the most crucial factors in bringing in organizational change and modernizing public and private organizations (Jung et al., 2017). Despite the availability of several conceptualizations and connotations of organizational culture, still, little agreement exists in regards to how culture should be conceptualized. Still, the concept is not very clear, and its definitions vary (Jung et al., 2017). The literature has addressed more than 100 dimensions that measure organizational culture. Still, further research is needed to identify even further dimensions of organizational culture. Furthermore, tens of instruments have been developed to study organizational culture (Jung et al., 2017). These instruments differ across contexts, societies, organizations and even nations. In order to measure organizational culture, this study, comprehensively, adopts the most commonly adopted and tested organizational culture dimensions. In this respect, the Denison model of evaluating organizational culture was adopted. In the year 2000, Denison conducted a comprehensive research on organizational culture with a specific focus on innovation and effectiveness. In this model, he identified four main traits of organizational culture that are involvement, adaptability, mission, and compatibility (Ahmady, et al., 2016). Figure 3.2 presents the 4 main dimensions and 12 sub-dimensions of organizational culture as per Denison et al., (2012) model.

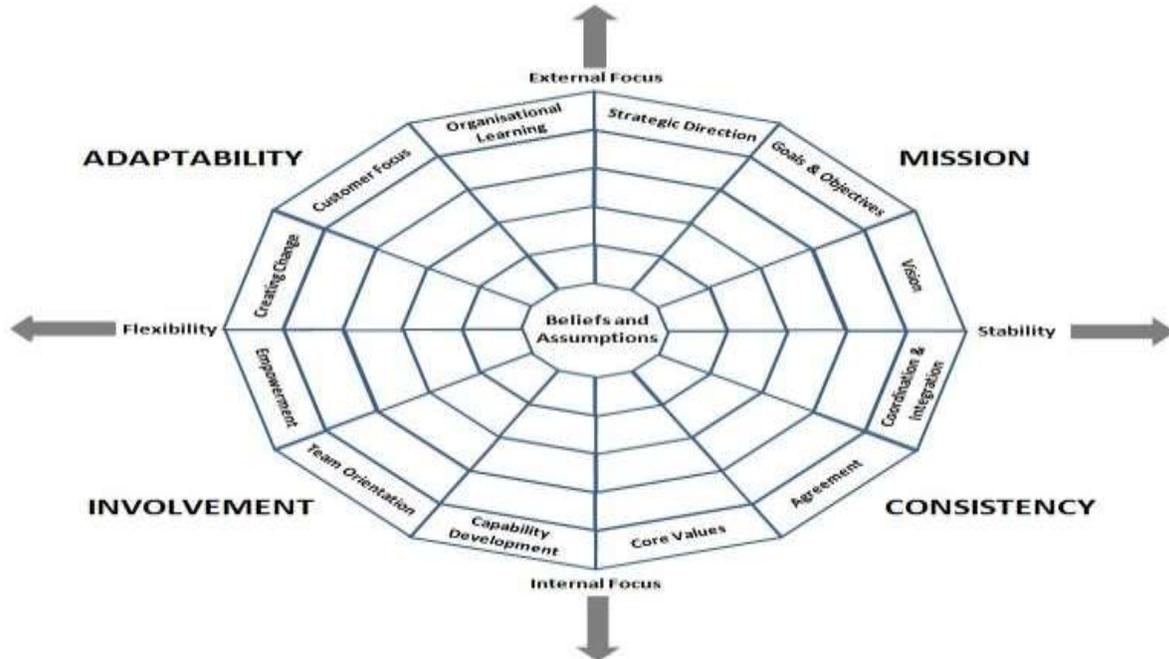


Figure 3.2 Denison organizational culture model

Source: Adopted from (Denison et al., 2012)

3.5.1 Involvement

One of the dimensions that Denison (2012) discussed in his model was involvement. This dimension of organizational culture indicates that an effective organization is one that involves its members in running the organization (Ahmady et al., 2016). In doing so, the organization empowers its employees to develop better human resource capacity. According to Ahmady et al. (2016), employees who are involved in the operations and management of the organization, are more motivated and empowered. This is due to the fact that when people feel engaged in the decision-making process of the organization, especially, in decisions that affect their responsibilities, it is highly likely that they will establish a stronger relationship between their work and the core purpose of the organization. As such, Denison and Neale (1996), defined involvement as a way of encouraging employees to participate in various activities of the organization especially, in activities that involve decision making, which translates to such employees feeling valued and part of the organization.

Some successful organizations build their success around their employees by empowering them (Ehtesham et al., 2011). As such, it has been revealed that in an organization where empowerment and involvement are applied, managers and employees are overly committed to their responsibilities because they feel that they are part of the firm. (Denison & Neale, 1996) When people at all levels of the organizational structure feel they have an input in the decision making process of the organization, the result is excellent performance due to their feeling that their decisions and work are in line with the goals and objectives of the organization. Further, research has revealed that adoption of information systems (IS) by any organization is a process that has failed in many organizations due to lack of involvement (Wahyuningsih, et al., 2019). It has been shown that in instances where the management has taken it upon themselves to make decisions in regard to the adoption of technology, such projects have failed terribly (Wahyuningsih, et al., 2019). Employees have been seen to resist adoption of technology in most cases. However, in cases where the management has built a culture of involvement, the adoption of such technologies has been successful. Thus, the successful adoption of AISs by any organization is a process that should involve all employees, especially, those in the accounting as well as the finance departments. Employees in these departments interact directly with such systems, and lack of their involvement in the adoption process would lead to resistance. This organizational culture trait can be further broken down into three dimensions; capability development, team orientation, and empowerment.

Hypothesis 1: Effective involvement has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.1.1 Empowerment

Empowered employees have the authority and ability to manage their work without much supervision (Denison & Neale, 1996). Such individuals have the initiative to try new things and think beyond the standard way of doing things in their organization. Further, empowerment in an organization brings in a sense of ownership and responsibility towards the firm (Ahmady et al., 2016). Research has indicated that empowered employees are significantly involved in the organization, and this means any decision being taken by the organization is shared with

employees (Denison & Neale, 1996). Further, it has been shown that when employees are empowered, information in the organization flows freely, and any individual can get the right information needed to make a decision any time. In addition, empowering employees means giving them the autonomy of making decisions in their work (Ahmady et al., 2016). An organization with an empowerment culture rewards employees with financial and non-financial contributions. Furthermore, the employees are involved in the organizational decision making process. Organizations that empower employees have a higher chance of adopting AISs successfully as employees will become a part of the adoption process (Wahyuningsih et al., 2019). As such, the successful implementation of AIS depends as well on the acceptance of the employees. It has been shown that once employees are involved in the implementation of any technology by allowing them to air their opinions, acceptance will be easier (Wahyuningsih et al., 2019). Further, empowered employees become a part of their organization, and thus they tend to become a part of the organizational success through adopting a new technology. To verify that empowerment has a positive impact on AIS implementation success in Canada and Lebanon, the following hypothesis is developed.

Hypothesis 1a: Effective empowerment has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.1.2 Team Orientation

Team orientation is one facet of organizational culture. This cultural dimension means that all employees work together towards achieving a common goal for the organization (Denison & Neale, 1996). In this regard, employees will feel mutually accountable for the achievement of organizational goals (Ahmady et al., 2016). Research has shown that when employees are involved through team orientation, the organization does not rely on individual efforts but rather on the efforts of the entire team to achieve its core objectives (Denison & Neale, 1996). Research has demonstrated that in organizations that encourage team orientation as a facet of organizational culture, cooperation and collaboration across teams and functional roles are encouraged. This, therefore, means that working in such organizations is just like being in a team where no individual achievements are made without the efforts of the entire team (Ahmady et al., 2016). Yilmaz and

Ergun (2008) revealed that organizations that have a team-oriented cultural behaviour establish unity among their employees and overall cooperation to achieve organizational goals. Such organizations embraced horizontal control mechanism rather than hierarchical organizational structures. In such organizations, adoption and implementation of an information system is viewed as the objective of everyone as opposed to being a management concern only. This cultural dimension makes sure that all employees collaborate to achieve a common goal for the organization. Therefore, for adoption and successful implementation of technology like AIS, every individual in the organization plays a key part in understanding the benefits brought about by such a system. Instead of viewing the implementation of such a system as a role preserved for the management, accounting and IT departments only, everyone takes centre-stage knowing that their efforts towards successful implementation of the information system mean success for the organization. Thus, effective team orientation may be one important facet of organizational culture that impacts the implementation success of AIS in Lebanon and Canada and as a result, the following hypothesis is formulated.

Hypothesis 1b: Effective team orientation has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.1.3 Capability Development

Research has shown that a successful organization invests in developing the capacity and skills of its employees in order to stay competitive in contemporary volatile business environments (Yilmaz & Ergun, 2008). Ahmady et al. (2016), showed that many successful business empires in the US; Google, Microsoft, and Apple, provide continuous training and development for their employees for better capability improvements. Trained employees with developed skills perform better to achieve organizational goals (Ahmady et al., 2016). It has further been revealed that organizations that continually improve their employee skills have been successful in adopting changes (Yilmaz & Ergun, 2008). Research has shown that it is easier to involve employees who are capable and skilled in the organizational decision-making process as opposed to unskilled employees (Yilmaz & Ergun, 2008). It has been shown that most information systems are resisted in organizations because employees fear being phased out by technology. However, when such

employees are trained, acceptance of technology becomes easy, as explained by the Technology Acceptance Model (Yilmaz & Ergun, 2008). To confirm that capability development positively influences AIS implementation success in Canada and Lebanon, the following hypothesis is developed.

Hypothesis 1c: Effective capability development has a positive influence on AIS Implementation success in organizations in Lebanon and Canada.

3.5.2 Consistency

Ehtesham, Muhammad, and Muhammad (2011) showed that effective organizations are consistent in what they do. Organizations with well-coordinated and well-integrated cultures have been seen to be more effective. As such, the behaviour of such organizations is rooted in their core values. Every leader and follower has the freedom to give an opinion and often different ideas and suggestions, but eventually agree for the common good of the organization (Ahmady et al., 2016). Research has indicated that consistency in making decisions, following organizational core values and behaving in accordance with the organizational culture, brings forth robust stability as well as internal integration owing to the prevailing mindset and greater conformity (Yilmaz & Ergun, 2008).

Other researchers have defined consistency as the adoption of values and systems that form the basis of a particular organizational culture (Rahmati et al., 2012). They argued that consistency should be viewed as the central source of integration, control, and coordination of organizational activities. Organizations that have been consistent enough have been able to develop mindsets and governance systems that are based on consensual support systems. Thus, consistency builds an organizational culture based on values, beliefs, and symbols that are understood and accepted by every stakeholder (Yilmaz & Ergun, 2008). It has further been argued that consistent organizations have committed employees that follow clear values and a clear method of doing tasks. Such organizations even promote people from within the organizations as opposed to hiring externally (Yilmaz & Ergun, 2008). This is because such employees already understand the values and objectives of the organization. Yilmaz & Ergun (2008) argue that implicit control systems for

internal values are more effective when an organization wants to achieve coordination and integration as opposed to external control systems that are based on explicit rules. Further, this cultural dimension can be viewed in terms of agreement, coordination, integration as well as core values (Rahmati et al., 2012).

Adoption and implementation of information systems is a complex process that needs the efforts and agreement of all the involved parties (Ahmady et al., 2016). It has been revealed that many organizations have failed to successfully implement information systems due to a weak culture in the organization. Adopting AIS, an organization that values the culture of consistency will be able to implement it successfully. According to Denison cultural model, leaders and their followers must be able to agree even when they hold diverse opinions on the implementation of an information system. This means that although some employees may hold reservations for the adoption of AIS when consistency comes into play, they are able to air their opinions to the management and eventually agree on the way forward because of the organizational values and beliefs that they follow. In regards to the impact of consistency on AIS implementation success, the following hypothesis is formulated.

Hypothesis 2: Effective consistency has a positive influence on AIS Implementation success in organizations in Canada and Lebanon

As per Denison Model, consistency is presented in three different dimensions that are coordination and integration, agreement and core values. An elaboration on these three dimensions is presented in the following subsections.

3.5.2.1 Coordination and integration

Integration and coordination could be viewed as a way in which a firm coordinates different units to work together smoothly and seamlessly (Yilmaz & Ergun, 2008). It has been shown that a highly integrated organization exhibits strong connections among all its departments, product lines whilst working under strict rules and policies. As such, this means that organizations that have shown high integration and coordination are highly vertical in nature, which is a characteristic of a hierarchical structure (Denison & Neale, 1996). To be able to achieve integration and

coordination, organizations operate in a top-down approach, as suggested by Fayol (Godwin et al., 2017). In this approach, Fayol suggested that such organizations have a structure in which the management sits at the top and decisions trickle from the top downwards, and do not allow units to make their own decisions (Godwin et al., 2017). In this regard, employees are expected to behave and act in a particular manner to promote a sense of integration and cohesion.

Organizations that have embraced the culture of integration have been seen to adopt and implement information systems successfully and easily. The culture would promote working together towards a common goal. An organization ought to make sure that every employee is involved in the adoption process of AIS as opposed to involving a few individuals in the organization. Therefore, the consistency dimension of organizational culture takes a centre-stage in making sure that all units are integrated and are aware that such an information system is meant to benefit the entire organization. In this regards, the following hypothesis is formulated.

Hypothesis 2a: Strong coordination and integration have a positive influence on AIS implementation success in organizations in Lebanon and Canada.

3.5.2.2 Agreement

Denison and Neale (1996), view that organizations exhibit the agreement dimension of culture if its members are able to agree on critical issues as well as solve any emerging differences to improve organizational success. Research indicates that organizations that are able to agree on critical issues and solve emerging differences amicably have been successful. This is because such organizations are able to adapt easily to the changing market forces as opposed to firms that cannot agree on the way forward. In particular, when problems and disagreements occur, such organizations look for win-win solutions to such problems and disagreements (Yilmaz & Ergun, 2008). Additionally, a culture of agreement within an organization dictates the presence of a clear path showing the right or the wrong way of doing things, which makes it easy to reach a consensus in case of disagreements (Denison & Neale, 1996).

Although research has shown the importance of adopting information systems in the modern world, there is still considerable resistance from employees concerning successful

adoption and implementation of such systems (Yilmaz & Ergun, 2008). However, in organizations that have embraced agreement as a culture, the issue of resistance is minimal because there is room for discussion and agreement. It has been, therefore, noted that in such organizations, adoption of technologies like AIS is easy because there is a clear way of how the implementation will be done and the benefits such an adoption brings forth (Yilmaz & Ergun, 2008). It is important to note that an organization that is consistent in its decisions and agrees on critical issues will easily agree and see the need for adoption of AIS due to its importance in today's volatile business environment (Yilmaz & Ergun, 2008). In this respect, the following hypothesis is established.

Hypothesis 2b: Clear and effective agreement has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.2.3 Core values

Core values as a cultural dimension refer to the shared set of values that create a bond and identity among members as well as clear objectives and expectations (Denison & Neale, 1996). Research indicates that a set of core values assist organizations to be consistent in their decisions and the way of doing things. Research has revealed that successful organizations have a clear set of values that are clear and consistent in guiding how such organizations conduct their business operations (Kokina & Ostrovska, 2013). For instance, it has been shown that companies like Google and Microsoft, have a unique management style that has been consistent over time and their management practices are governed by their core values (Yilmaz & Ergun, 2008). As such, management in such organizations practice what they believe in and preach to the staff whilst being guided by an ethical code of conduct. Any employee who ignores such an organization's core values and code of ethics may face managerial penalties (Yilmaz & Ergun, 2008).

Various studies have revealed that the reason why many organizations are not able to adopt new technologies successfully is due to resistance from employees brought about by internal conflicts (Rahmati et al., 2012). When employees conflict with management and the situation becomes "Us vs. Them," it is clear that the adoption of an information system like AIS will face some resistance (Rahmati et al., 2012, p.128). However, a proper understanding of the

organizational core values by all stakeholders minimizes such internal conflicts, and thus the adoption of AIS faces little or no resistance. The result is the successful adoption and implementation of the system. Capability development may have a positive influence on AIS implementation success in Canada and Lebanon. In this regards, the following hypothesis is developed.

Hypothesis 2c: Strong and well-adhered to core values have a positive influence on AIS implementation success in organizations in Canada and Lebanon.

3.5.3 Adaptability

Adaptability means the ability of the organization to change or be flexible with the changing needs of customers. It has been shown that that well-integrated organizations, thanks to consistency, are hard to accommodate adaptability (Ehtesham et al., 2011). It has been revealed that integrated organizations have protocols and core values that govern their way of doing things. Therefore, such organizations are inflexible and accommodating change is complicated for them. According to Ehtesham, Muhammad, and Muhammad (2011), internal integration and external adaptation are most of the time at loggerheads. They argued that the changing needs of customers drive adaptable organizations, competition in the market, and technological updates. Such organizations are most often at ease with taking risks and learning from the market forces. As such, they have the ability to change with the tides in the market whilst aware of the impending danger of failure.

Other critics argue that for an organization to survive in the current unpredictable and challenging global economy, it must be flexible and adaptable to the external environment (Caraballo, 2016). Ehtesham et al. (2011) defined adaptability in big organizations as being able to perceive and respond to environmental changes and demands whilst not being oblivious of the organizational goals. Moreover, it was argued that for an organization to learn from failures and successes, it must be flexible enough to accommodate the change that is brought about by market forces and customer needs (Caraballo, 2016). It was shown that in most cases, organizations that have flexible leadership are more like to ride with the market changes brought about by the

changing customer needs, technological inventions, improved human capital and other external factors. Further, it was shown that adaptable organizations were more likely to survive the market changes and make more profits compared to those that were too integrated internally to accept changes (Ehtesham et al., 2011).

The application of this dimension of organizational culture can explain the adoption and implementation of information systems in an organization. It is important to note that in most cases, organizations do not implement new systems, but rather automate the manually existing systems. As such, to be able to adopt and implement AIS successfully, organizational leadership must be flexible enough to realize that the modern business environment has changed (Ehtesham, Muhammad, & Muhammad, 2011). In the US and Canada, organizations that have adapted to new forms of technologies have been seen to perform well and survive the economic turbulence (Ehtesham et al., 2011). Therefore, if an organization wants to survive in the current dynamic market, it has to adapt to new ways of doing things (Yilmaz & Ergun, 2008). The firm must ride with the tide of ever-changing customer needs and technological inventions. In doing so, organizational management should find the point at which internal consistency and adaptability can make a trade-off. This cultural trait of adaptability can be viewed in terms creating change, customer focus and organizational learning. The following hypothesis is formulated for verification in this context.

Hypothesis 3: High level of adaptability in organizations has a positive influence on AIS implementation success in organizations in Lebanon and Canada.

3.5.3.1 Creating Change

Creating change as an organizational culture dimension could be viewed as the ability of the organization to adapt to the changing business environment as a way of maintaining a competitive advantage (Yilmaz & Ergun, 2008). Thus, an organization can observe the trends in the business environment and use available information to predict future changes and therefore react to the current and anticipated changes (Yilmaz & Ergun, 2008). It has been shown that successful organizations demonstrated flexibility in adopting new changes in the business

environment whilst maintaining their organizational goals. As such, these organizations can change their tactics and adopt new strategies and technologies to remain competitive (Yilmaz & Ergun, 2008). Furthermore, it has been shown that once competitors have adopted new strategies, adaptive organizations create change by responding quickly and strategically to the new competition. Moreover, organizations that exhibit the dimension of creating change continually adopt new ways of operations, including technologies geared towards improving their way of doing things. All organizational departments work in union to create the desired change (Yilmaz & Ergun, 2008). Although this cultural dimension is in conflict with the concept of internal integration, most successful firms have continually created change (Yilmaz & Ergun, 2008). Flexibility in such organizations is reflected in easier and successful adoption of new technology, owing to the nature of the organization willing to adapt to new ways of operations. When an organization understands the importance of being flexible in its activities, implementation of AIS becomes easier as all stakeholders can agree on the importance of adopting such a system (Yilmaz & Ergun, 2008). Creating change is hypothesized to have a positive impact on AIS implementation success and in this regards, the following hypothesis is formulated.

Hypothesis 3a: Creating change has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.3.2 Customer Focus

Customer needs guide some organizations that often change with changing customer needs (Denison & Neale, 1996). Such organizations are able to gather information and use customer information to anticipate future customer needs and thus adapt their operations according to such needs (Yilmaz & Ergun, 2008). In this regards, organizations that are customer-focussed take customer comments and recommendations seriously to instigate organizational changes (Yilmaz & Ergun, 2008). As such, organizations that have adopted an organizational culture with good customer focus, have been seen to be influenced directly by the customers' inputs (Kokina & Ostrovska, 2013). It has been argued that most of the successful organizations understand and consider customer needs in their decisions and thus make all decisions based on the changing

customer demands. In particular, members of such organizations have a deep understanding of the needs and wants of the customers and how these needs change over time (Kokina & Ostrovska, 2013). Most often, the members of such organizations have direct contact with the customers so as to understand their needs. The modern business environment is volatile. As such, businesses try to focus on customer satisfaction in order to remain competitive. With the advancement of technology, many firms are adopting information systems geared towards serving customers more efficiently (Kokina & Ostrovska, 2013). It has been shown that the adoption of technologies helps different departments work together for better customer service (Rahmati et al., 2012). For example, using the AIS system, management can establish sales goals and then the staff can use it to order the right amount of inventory while customer service department uses the system to track down customer orders. As such, adaptable organizations are better placed to adopt and successfully implement AIS geared towards meeting customer needs. In this context, the following hypothesis is posited.

Hypothesis 3b: Effective customer focus has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.3.3 Organizational Learning

Organizational learning enables organizations to accept, interpret and respond to internal as well as external changes in the environment (Yilmaz & Ergun, 2008). Therefore, organizational learning is not only about the information held by employees, but also about integration and collective interpretation of new information that leads to new knowledge base and thus instigating a collective action and risk-taking. Saadat and Saadat (2016) state that organizational learning is a source of competitive advantage in firms. The authors have shown that organizations that learn faster than their competitors have always had an advantage over them (Saadat & Saadat, 2016). As such, organizations that have adopted a learning culture have been seen to adapt quickly to the changing business environment. Furthermore, research has shown that learning is the only sure way of improving performance in organizations, especially, in regards to long-term performance (Yilmaz & Ergun, 2008). The authors claimed that organizations that utilize people's ability,

commitment, and learning at all the organizational levels, are superior to others. It has been revealed further that learning in organizations utilizes common beliefs, understanding, and values to increase the process of change in an organization (Yilmaz & Ergun, 2008). Implementation of information systems in an organization is a process that has been very often clouded by failure (Saadat & Saadat, 2016). However, in organizations with learning orientations, adoption of information systems is more likely to succeed (Yilmaz & Ergun, 2008). As such, these organizations reward innovations and encourage people to take risks, even when things may not work as a way of learning. Such firms believe in daily learning as they carry out organizational activities. In this context, the following hypothesis is formulated.

Hypothesis 3c: Effective organizational learning has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.4 Mission

Denison and Neale (1996) defined mission as a meaningful and long-term direction for a firm. The authors argued that mission is central to the definition of the social role and external goals of the firm. As such, the mission is a dimension that provides direction and goals for the organization and therefore, providing a clear guideline on the course of actions for the organization and its stakeholders (Denison & Neale, 1996). Furthermore, the authors argued that organizational mission defines current behaviours by looking at the future. Therefore, as employees, management and all other stakeholders are able to identify with the organizational mission, better achievement of both long-term and short-term goals and objectives of the firm will occur. Success is likely to be realized when all stakeholders move in the same direction (Denison and Neale, 1996).

Furthermore, successful organizations have been seen to score high in terms of mission as a cultural dimension (Caraballo, 2016). Caraballo (2016) revealed that most of the well-performing firms have a clear mission that guides the employees in understanding the organizational goals and objectives (Caraballo, 2016). In his argument, Caraballo (2016) explained that a clear mission acts as a guide for employees to know the importance of their responsibilities and how it relates with the organizational goals. The mission cultural dimension is significantly correlated with the firm's

growth in terms of revenue and market share (Caraballo, 2016). This notion was supported by another study conducted by Nazir and Lone (2008) who argued that mission is the most important cultural trait of an organization because it answers the question "What is our business?" (p.55). They argued that the answer to this question is the basis upon which the objectives are set, strategies are formulated and decisions made. Mission has also been viewed as the fundamental unit of culture in organizations that have been used to improve quality continually.

Therefore, organizations that have a clear mission are more likely to adopt information systems successfully (Yilmaz & Ergun, 2008). Adoption and successful implementation of an IS require an organization with tendency to learn and change with the changing market needs. However, this has not been the case for many organizations whose mission is not clear. Mission is a critical aspect that differentiates one firm from the other, and positively influences the adoption of technology. An organizational mission, in this regards, ensures a clear focus on attaining common organizational goals. Therefore, this cultural trait can be viewed in terms of three dimensions, namely strategic direction and integration, goals and objectives and vision. The following hypothesis is formulated in this context.

Hypothesis 4: Effective organizational mission has a positive influence on AIS Implementation success in organizations in Canada and Lebanon.

3.5.4.1 Strategic Direction and Intent

When an organization has a clear mission as a cultural trait that portrays strategic direction and intent, the organizational purpose is conveyed and organizational roles are clear (Denison & Neale, 1996). As such, strategic direction and intent explain how everyone in an organization can contribute as an individual to achieve a collective organizational goal. Thus, such organizations have a mission that is clear and gives direction to the work of employees both for the short and long-terms (Ehtesham et al., 2011). Organizations that have a strategic direction have higher chances of success adapting to the market changes and thus, the implementation of information systems (Ehtesham et al., 2011). The following hypothesis is formulated in regards to the impact of effective strategic direction and intent on AIS implementation success.

Hypothesis 4a: Effective strategic goals and intent have a positive influence on AIS implementation success in organizations in Canada and Lebanon.

3.5.4.2 Goals and Objectives

Denison and Neale (1996) argued that clear goals and objectives are linked to the organizational mission. These goals and objectives, when set out clearly in an organization, give a clear direction for employees (Ahmady et al., 2016). Therefore, the element of confusion is removed, and every employee is aware of what is expected of him/her. In organizations where goals and objectives are clearly followed, there is a widespread agreement among the employees and stakeholders in regards to the organizational actions. In this context, the management of such organizations set ambitious, but realistic goals that are attainable. The goals are tracked and progress evaluated by all concerned parties whilst making sure that everyone is aware of his/her roles in this regards (Denison & Neale, 1996). Organizations that have clear goals and objectives are more likely to adopt and implement AIS successfully (Yilmaz & Ergun, 2008). In this regards, the following hypothesis is made.

Hypothesis 4b: Effective goals and objective have a positive influence on AIS implementation success in organizations in Canada and Lebanon.

3.5.4.3 Vision

Vision can be viewed as a desired future state of the organization that is shared by its members (Denison & Neale, 1996). An organizational vision has been seen as an embodiment between the core values and the hearts of the employees. Therefore, vision helps to propel the organization into the future while providing the needed guidance and direction. Further, literature has shown that organizations that have a clear vision in most cases have a long-term orientation and their forecast of future achievements excites and motivates employees (Kokina & Ostrovska, 2013). With the understanding that technology is a core component of modern firms, such organizations are likely to adopt information systems like AIS. Therefore, organizations that have clear visions of where they want to be in the future have higher chances of adopting and

implementing AIS to propel themselves for better achievements and competitiveness. In this regards, the following is hypothesized.

Hypothesis 4c: Effective organizational vision has a positive influence on AIS implementation success in organizations in Canada and Lebanon.

3.5.5 Other organizational culture adopted dimensions

Besides Denison model dimensions, the study has adopted five other organizational culture dimensions. These five dimensions are widely adopted in the literature and support by a variety of relevant theories.

3.5.5.1 Top Management Support

Top management support is considered one of the most essential organizational culture characteristics that plays an important role in the implementation success of AISs. Numerous research studies have provided evidence that top management commitment is essential for AIS implementation success in organizations (Akkermans & van Helden 2002; Al-Mashari et al., 2003; Somers & Nelson, 2001). Several responsibilities are held by top management in regards to the implementation of an AIS system (Abdullah, 2013). These responsibilities include but are not limited to assessing overall needs of the organization, budgeting, assessing costs and benefits, appointing the management and the developing teams, promoting the use of the system and motivating the tendency to accept the change and seek a level of innovation and creativity through the implementation of the new AIS system (Bingi et al., 1999; Sumner, 1999). Furthermore, top management is responsible for creating a defined vision and mission besides the needed planning. These management aspects are needed for successful implementation of AIS. Top management support may have a positive influence on AIS implementation success in Canada and Lebanon. In this regards, the following hypothesis is developed.

Hypothesis 5: Continuous top management commitment has a positive impact on AIS implementation success in organizations in Canada and Lebanon.

3.5.5.2 Enterprise-wide Communication

Effective communication is essential for the implementation of AISs inside organizations (Alavi & Leidner, 1999). Effective communication will help promoting knowledge and spreading it fast across the departments inside the organization (Abdullah, 2013). A good flow of communication will propagate knowledge among team members (Alavi & Leidner, 1999). Through effective communication, the benefits of AISs will be propagated to users, management and all stakeholders across all the departments inside the organization (Alavi & Leidner, 1999). Users will be able to express their feedback in regards to the implementation and the benefits or the drawbacks of the implemented AISs. Enterprise-wide communication promotes organizational cooperation and collaboration (Alavi & Leidner, 1999). In order to verify that effective enterprise-wide communication positively impacts on AIS implementation success in Lebanon and Canada, the following hypothesis is developed.

Hypothesis 6: Effective organization-wide communication has a positive influence on AIS implementation success in organizations in Canada and Lebanon.

3.5.5.3 Reward Systems and Incentives

Kerr et al. (1985) pointed out that one crucial facet of organizational culture is the relationship that exists between the organization and its individuals. The reward systems and incentives inside the organization articulate this relationship by establishing a system of exchange between the organization and its individuals. The reward system will establish the interaction between the individuals and the organization (Kerr et al., 1985). In other terms, such systems will establish the norms and the routines that the employees will conform to and the responses that they expect from their organization as a result of their behaviour. The organization evaluates the performance of the employees and has certain expectations from these individuals. "The reward system - *who gets rewarded and why* - represents an unequivocal statement of the organization's true values and culture." (Kerr et al., 1985, p. 4). The changes in the reward systems in the organization can lead to organizational changes because top management expects different directions and behaviours as a result of different reward systems. An overall agreement in regards

to the rewards system inside an organization would undoubtedly lead to a high level of shared beliefs and behaviours and thus, a system of connection between expectations, rewards and behaviours (Kerr et al., 1985). An effective reward and incentives system reflects a healthy organizational culture. An effective reward system can be designed in order to modify organizational culture. In this respect, if employees are lacking motivation, a reward system can be communicated in order to motivate and change their behavior. In this regards, a reward and incentives system can increase the acceptability of AISs inside the organization and thus, increase the implementation success of such systems through modifying the organizational culture to absorb information systems changes (Nacinovic et al., 2009). Thus, effective reward and incentive system may have a positive influence on AIS implementation success in Canada and Lebanon. In this context, the following hypothesis is developed.

Hypothesis 7: Effective reward and incentives system has a positive influence on AIS implementation success in organizations in Lebanon and Canada.

3.5.5.4 Organizational Leadership

Leadership can be described as the process or tools through them a leader uses his intelligence, charisma, skills to influence a group of subordinates to follow a specific action or adhere to an overall strategy or orientation inside the organization and thus, achieve set goals objectively, effectively, and efficiently (Amin & Abu Hassan, 2010). The effective leaders inside an organization play a fundamental role to bring people together and motivate them to work collaboratively in order to achieve commonly set goals and objectives (Abdullah, 2013). A good leader establishes a common vision and communicates an effective strategy throughout the organization and thus, allows for organizational success. An effective organizational leadership leads to the development of specific and measurable goals and thus, establishes a functional organizational structure that aims for success and progress. Such leadership characteristics establish an efficient organizational environment and thus, a higher level of success in terms of adopting new technology such as the implementation of an accounting information system (Salehi,

2010; Chloe, 2004). To validate that organizational leadership positively influences AIS implementation success in Lebanon and Canada, the following hypothesis is developed.

Hypothesis 8: Effective organizational leadership has a positive influence on AIS Implementation success in organizations in Lebanon and Canada.

3.5.5.5 Corruption/Nepotism

Some cultures, such as the case in the Arab world, are traditionally characterized by interpersonal networks. Corruption in the form of nepotism is one dominant characteristic in the Arab world. This is referred to as *Wasta*. In this world, the relationships and connections among individuals and the commitment to protecting the interests of the group provide a foundation for information sharing (Rabaai, 2009). In several Arab countries, such as the case in Jordan, for instance, this kind of cultural behaviour has established an obstacle in front of many projects pertaining to privatization and administrative structural reforms (Rabaai, 2009). The organizational culture dominant in this regards can be described by having many layers of employees that have uncontrolled intervention in major decisions and bypassing the applicable rules. As a result, important decisions and information sharing are impacted. Such a characteristic of the organizational culture is blamed for constituting an obstacle in front of the implementation success of AISs. To verify that nepotism has a negative influence on AIS implementation success in Canada and Lebanon, the following hypothesis is developed.

Hypothesis 9: Corruption/nepotism dimension of corruption has a negative influence on AIS implementation success in organizations in Canada and Lebanon.

Overall, in the following Table 3.2, the adopted 12 dimensions of organizational culture adopted from Denison model (2012) are presented. These presented dimensions are the first order constructs representing second order constructs described by involvement, consistency, adaptability and mission. The main third order construct (independent variable) *organizational culture* is manifested in the 4 main categories constituting the second order constructs, (involvement, consistency, adaptability and mission). The other dimensions presented are founded

on other theories adopted from the literature (*top management support, communication flow, organizational leadership, rewards and incentives and corruption/nepotism*).

Table 3.2 Summary of organizational culture adopted dimensions

| Dimension | Description | References |
|--------------------------------|---|--|
| Empowerment | Employees inside an organization must be empowered to take decisions and be an active part of the organization. | Denison & Neale (1999) |
| Team orientation | Teams must have technical and business competence and work effectively and efficiently to achieve organizational goals and objectives. All employees work together towards achieving the common goals of the organization. | Denison & Neale (1999) |
| Capability development | Investing in the skills and abilities of the employees is necessary inside the organization. | Denison & Neale (1999) |
| Coordination and integration | A proper coordination and integration of resources and activities should characterize the organizational culture. | Denison & Neale (1999) |
| Agreement | Employees inside the organization should be in agreement on critical issues for better organizational success. | Denison & Neale (1999) |
| Core values | The shared set of values in the organization create a bond and identity among members as well as clear objectives and expectations. | Denison & Neale (1999) |
| Creating change | User involvement should be encouraged. Education and training are necessary for employees to be more involved. | Denison & Neale (1999) |
| Customer focus | The organization has to be guided by customer focus and the changing customer needs and orientations. | Denison & Neale (1999) |
| Organizational learning | The integration and collective interpretation of new information inside the organization should be promoted to lead to new knowledge-based and collective actions. | Denison & Neale (1999) |
| Strategic direction and intent | Clear strategic goals and directions should be defined in the organization. | Denison & Neale (1999) |
| Goals and intent | Clear goals and intent should be defined in the organization. | Denison & Neale (1999) |
| Vision | Clear vision should be defined in the organization. | Denison & Neale (1999) |
| Top management commitment | Top managers are senior leaders that demonstrate strong commitment to new changes in the organization, such as the implementation of a new AIS. | Allen & Mayyer (1990) |
| Communication flow | Effective communication has to be active across all groups inside the organization, namely but not limited to the implementation team, top management, general employees, and stakeholders of the organization via all communication means. | Vaitkunaite et al. (2006) |
| Organizational leadership | Effective leadership inside an organization should be available to motivate members of the organization to achieve common goals and objectives. | Quinn & Cameron (2006) |
| Rewards and incentives | A motivating system of rewards and incentives reflects a healthy organization and thus, is needed for accepting critical changes inside the organization. | Vaitkunaite et al. (2006); Jucevicius (1998); Schein |

| | | |
|---------------------|---|------------------------|
| | | (1992); Spivak (2001). |
| Corruption/nepotism | Nepotism does not support the successful implementation of AISs, and thus, merits, education and knowledge have to prevail in the organization. | Bute (2011) |

The dimensions of the independent variable, organizational culture were presented in the preceding sections. In the following, the moderating variables are discussed and relevant hypothesis are formulated.

3.6 MODERATORS

Prior studies have shed some light on the relationship between organizational culture and information systems. Limited studies have provided a diffident view on the relationship between organizational culture and AISs. Results across studies were inconsistent. It appears that prior studies did not address the impact of moderating variables in a relevant context. In this study, location, industry, market level and firm size are included in the study model as moderating variables with an impact on the relationship between organizational culture and AISs. Some prior researchers have identified moderating effect of industry, location, market level and organizational size in the context of culture and information system studies (Vij & Rayees, 2017; Hung, et al., 2019; Awa et al., 2015; Swart & Roodt, 2015; Haapaniemi & Makinen, 2008).

3.6.1 Industry

Some prior studies have identified that the adoption success of technology could differ from one industry to another. Some of the industries are more relevant to technology than others. Therefore, firms that belong to such industries are more likely to successfully adopt technology and information systems than firms of different nature (Rayees & Vij, 2017). Firms, for instance, that operate in the agriculture industry are less likely to successfully adopt new technology or complex information systems than those firms that operate in the Information and Communication Technology (ICT) industry. As there are claims that the success of technology and information systems adoption changes across industries, the study hypothesizes the following:

Hypothesis 10: Industry moderates the organizational culture impact on AIS implementation success in Lebanon and Canada.

3.6.2 Location

Different locations can have different cultural contexts, and thus, the success of implementing AISs can change across locations due to the impact of national or even, international cultures. Prior studies have identified that technology adoption success changes across locations due to various factors (Hung et al., 2019; Awa et al., 2015). Studies have been too general, and thus, inadequate studies have addressed the moderating impact of location on the relationship between organizational culture and information systems. Limited research addressed the moderating impact of location on the relationship between organizational culture and AISs. However, since several studies have shown an impact of national culture on organizational culture (Finch, 2010; Kanagaretnam et al., 2013; Gray, 1988; Jaggi & Low, 2000), this study hypothesises the following:

Hypothesis 11: Location moderates the organizational culture impact on AIS implementation success in Lebanon and Canada.

3.6.3 Market Level

Similar to location, some organizations operate in or across different market levels. The market levels chosen for this study are regional, national and international. The regional and national market levels are within the boundaries of a nation. While the international market goes beyond these boundaries. Prior studies have found differences in the success of technology adoption across different market levels (Swart & Roodt, 2015; Haapaniemi & Makinen, 2008). Furthermore, other studies identify cultural differences across organizational, national, and organizational contexts (Finch, 2010; Kanagaretnam et al., 2013; Gray, 1988; Jaggi & Low, 2000, Leidner & Kayworth, 2006). Limited studies have addressed the moderating impact of market-level on the relationship between organizational culture and AISs implementation success. Therefore, due to such findings, and due to the fact that the study focuses on two different cities of different market characteristics, this study hypothesizes as follows:

Hypothesis 12: Market level moderates the organizational culture impact on AIS implementation success in Lebanon and Canada.

3.6.4 Firm Size

Some views suggest that firm size can have a differential impact on technology adoption success (Rayees & Vij, 2017). It is claimed that a larger firm faces more complications adopting new information system or technology than smaller firms with simpler organizational structures. In a larger firm, the organizational culture is more complex to manage and monitor and thus, adoption of new technology fails more often in comparison with smaller firms that have simpler organizational culture dimensions. Inadequate studies have identified the role of firm size in the relationship between organizational culture impact and AISs implementation. Therefore, this study hypothesizes that:

Hypothesis 13: Firm size moderates the organizational culture impact on AIS implementation success in Lebanon and Canada.

3.7 MEDIATORS

Limited studies have addressed the mediating effects of use and user satisfaction through information, system and service quality on the success of AISs (Wahyudi et al., 2017; Adrianto et al., 2013). A mediator such as accounting information use can help to explain the AIS success (Namazi & Namazi, 2016). User satisfaction is another mediating variable that can be used to explain the relationship between the dependent variable (*AIS Success*) and the predictor variable (*Organizational culture*) (Milin & Hadžić, 2011). System quality, information quality, as well as service quality, play a role in the mediating impact of use and user satisfaction on AISs individual, group and organizational impacts (Milin & Hadžić, 2011; Santhanamery & Ramayah, 2015). Due to the fact that prior studies have mentioned some possible mediating roles, measuring AIS success as dependent variables, the following is hypothesized.

Table 3.3 Moderating variables hypotheses

| | |
|---------------|---|
| Hypothesis 14 | Use mediates the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. |
| Hypothesis 15 | Use mediates the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. |
| Hypothesis 16 | Use mediates the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. |
| Hypothesis 17 | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. |
| Hypothesis 18 | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. |
| Hypothesis 19 | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. |

3.8 THE DERIVED THEORETICAL AND CONCEPTUAL MODELS

The following Figure 3.3 presents this study’s derived theoretical model showing the general supporting theories as well as the adopted theories. Besides, the model presents the adopted organizational culture dimensions and AIS success variable dimensions.

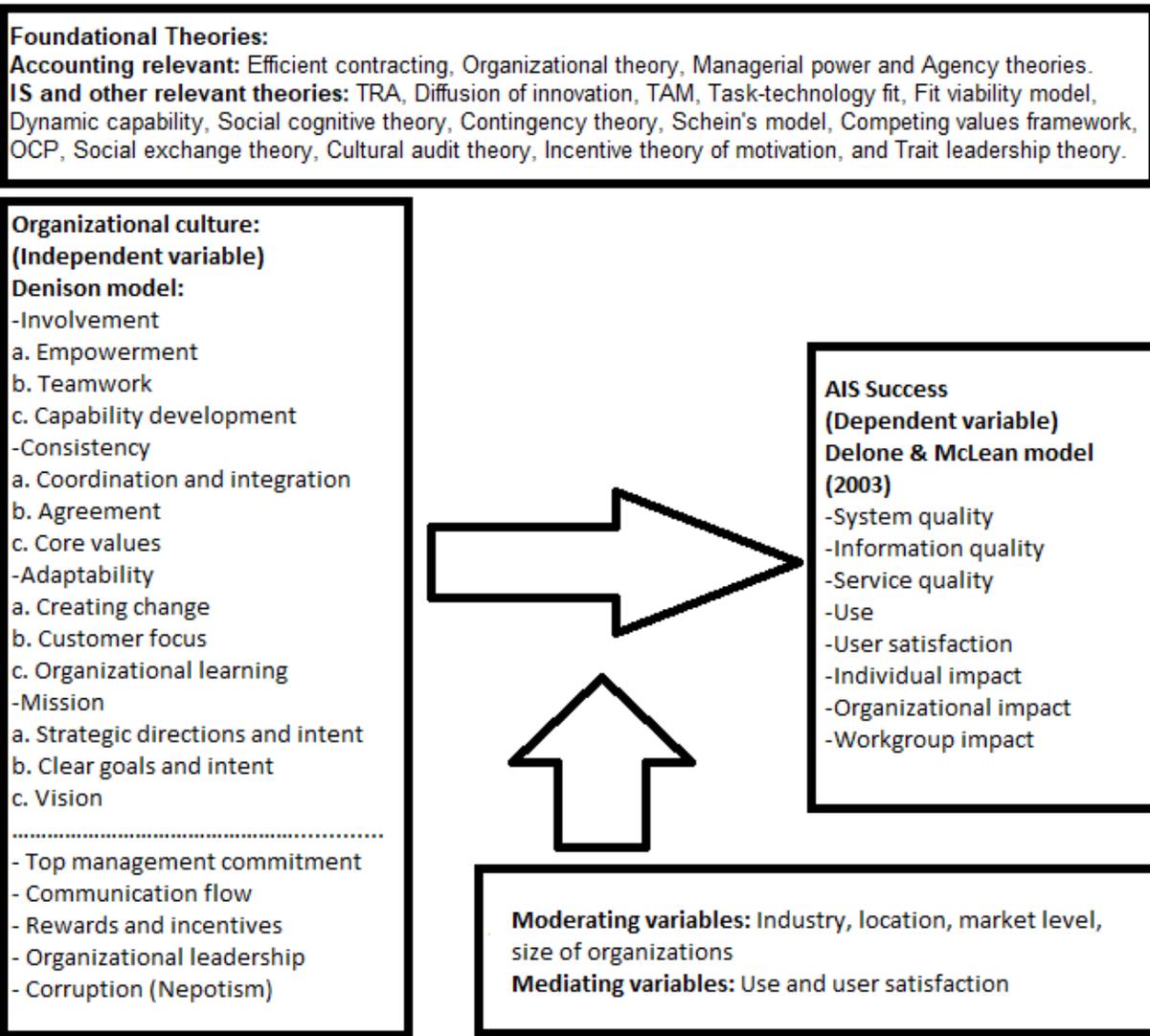


Figure 3.3 Thesis theoretical model

The above theoretical model depicts the relationship between the independent and the dependent variables, along with the moderating and mediating variables. Furthermore, the theories on which this model is grounded are presented. The theories adopted establish the foundation of the study and guide the research for conclusions in regards to the impact of organizational culture on accounting information systems.

Alternatively, Figure 3.4 identifies the conceptual framework that presents the relationship between the exogenous variables that are represented by the organizational culture dimensions and the endogenous variables that are represented by the AIS implementation success dimensions. The arrows indicate a potential relationship among the variables of the study, and as a result, 19 hypotheses are formulated in order to support or reject the relationships among the variables of the study. The AIS implementation success dimensions adopted for this study are demonstrated to have a positive influence on the AIS success. These dimensions are, information quality, system quality, individual impact, service quality, workgroup impact, organizational impact, user satisfaction and use. In addition, the 17 dimensions of organizational culture are presented and established as having a positive impact on organizational culture. These dimensions are empowerment, team orientation, capability development, coordination and integration, agreement, core values, creating change, customer focus, organizational learning, strategic direction and intent, goals and intent, vision, top management commitment, communication follow, organizational leadership, rewards and incentives, and corruption/nepotism. Further, this figure presents AIS implementation success as a third-order construct because the implementation success of AIS is measured by means of the second-order constructs that are measured by the first-order constructs. Therefore, AIS implementation success dimensions are represented as a reflective third-order construct.

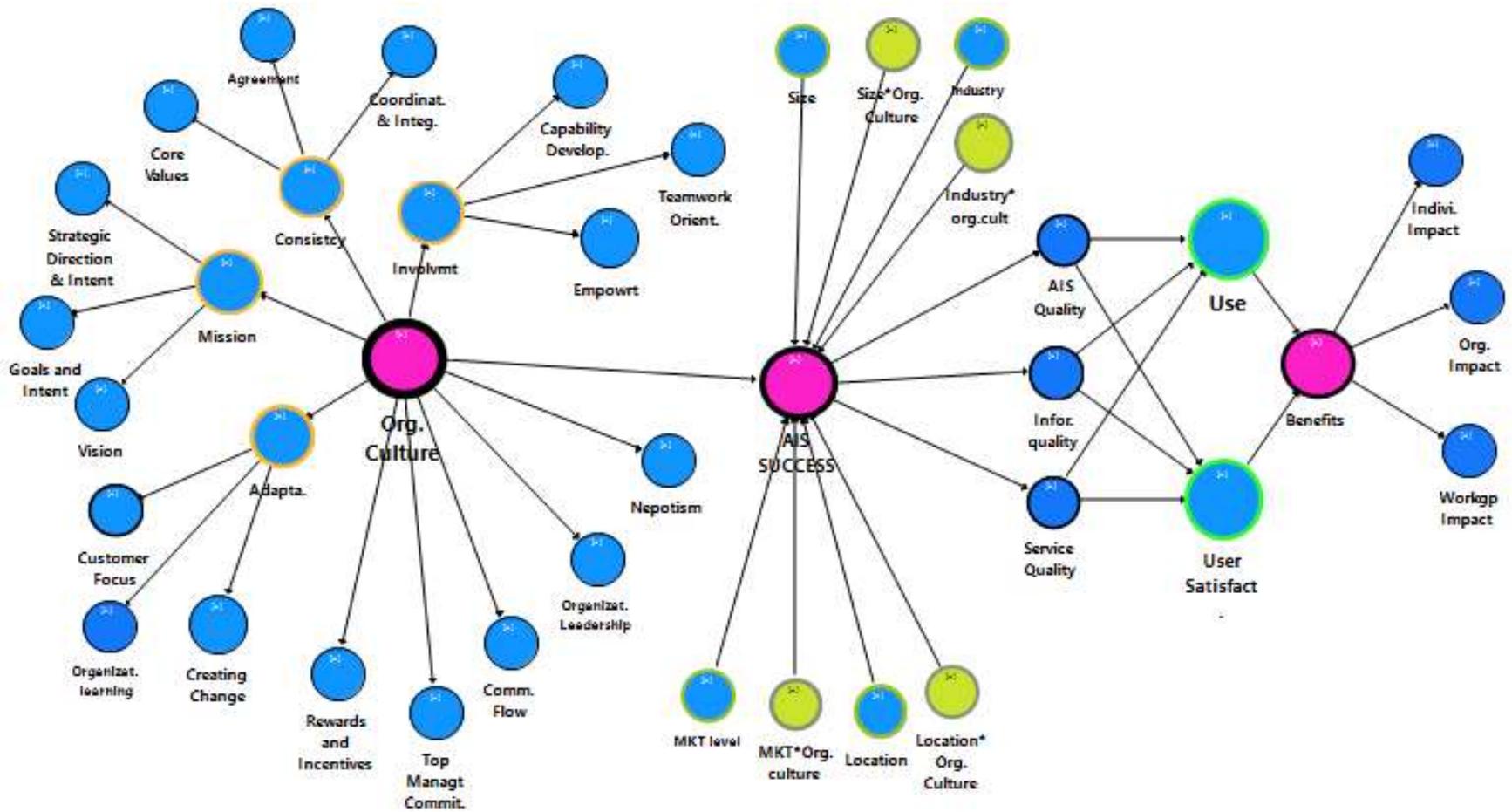


Figure 3.4 Thesis conceptual model

Going in further details, the conceptual model (Figure 3.4) depicts the relationships in the study. The pink coloured circles represent the main exogenous and endogenous variables of the study. The main exogenous variable is organizational culture. Seventeen other variables manifest this variable. Twelve of these variables are adopted directly from the Denison model (2012) that groups them into four separate categories. These categories are as follows:

- Involvement: manifested by capability development, empowerment and teamwork orientation
- Consistency: manifested by coordination and integration, agreement and core values
- Mission: manifested by strategic direction and intent, goals and intent and vision
- Adaptability: manifested by customer focus, organizational learning and creating change

Therefore, involvement, consistency mission and adaptability become second-order variables manifested by their corresponding first-order variables. Besides the above 12 variables, four other variables are adopted from other theories, namely, Schein's model, competing values framework, cultural audit theory and organizational culture profile. Furthermore, corruption/nepotism is a new dimension added to the model to manifest organizational culture. Therefore, organizational culture becomes a third-order variable and is manifested through these 17 identified dimensions. The arrow between organizational culture and AIS success represented the impact of organizational culture on AIS success, and this is the main relationship in the study. This relationship is subject to moderation effects of 4 different variables that are location, firm size, industry and market level.

The right side of the conceptual model image depicts the measurements for AIS success, showing two mediation variables that are use and user satisfaction. Therefore, AIS success that is represented by its individual, organizational and teamwork impacts is mediated by use and user satisfaction through information, system and service quality. The success of AIS is determined by a high level of use and user satisfaction that are reflected in higher individual, group, and organizational benefits. In other words, AIS success is measured by its benefits that are represented by one layer of three first-order constructs that are individual impact, organizational impact and workgroup impact. The benefits construct is a second-order construct reflecting the sum of the indicators of the three first-order constructs. Use and user satisfaction are mediating variables, and

they are hypothesized to mediate the relationship between organizational culture impact and the AIS benefits through information quality, service quality and AIS system quality variables. The use and user satisfaction are first-order constructs and they are manifested or measured by their indicators. The constructs of AIS quality, information quality and AIS system quality are first-order constructs as they are measured by their own indicators or survey questions. AIS success is a second-order construct manifested by the first-order constructs of AIS quality, service quality and information quality.

The PLS-SEM, higher component model, presented in the above figure 3.4, shows three-level of constructs. The first order constructs are measured through the questionnaire items (indicators). The second-order constructs are manifested in the first-order constructs, and the third-order constructs are manifested in the second-order constructs. This is an advanced hierarchical component model. It is a reflective-reflective model. The second-order constructs have the sum of the indicators of all the first-order constructs and the third-order constructs have the sum of all the indicators of the second-order constructs. Therefore, the main independent variable, which is the organizational culture, represented in the model, by a third-order construct, is manifested in both the second as well as the first-order constructs.

The moderating variables that are location, size, industry and market-level have their own indicators that are retrieved from the questionnaire items. They are hypothesized to impact the relationship between the independent and the dependent variable and they are set in the model to test their moderating impact on the relationship between the endogenous and exogenous variables.

3.9 SUMMARY OF HYPOTHESES

In this study, 19 hypotheses have been formulated to be tested for a positive influence of organizational culture dimensions on AIS implementation success in the Lebanon and Canada. The following Table 3.4 presents the hypotheses summary of this study.

Table 3.4 Study hypotheses summary

| Hypothesis | Hypothesis Statement |
|------------|--|
| | Hypothesis 1: Involvement has a positive influence on AIS Implementation success in organizations in Canada and Lebanon |

| | |
|--|---|
| Hypothesis 1a | Empowerment has a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 1b | Effective team orientation has a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 1c | Effective capability development has a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 2: Consistency has a positive influence on AIS implementation success in organizations in Canada and Lebanon | |
| Hypothesis 2a | Strong and effective coordination and integration has a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 2b | Clear and effective agreement has a positive influence on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 2c | Strong and well-adhered to core values have a positive influence on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 3: Adaptability has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | |
| Hypothesis 3a | Promoting change creation has a positive influence on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 3b | Effective customer focus has a positive influence on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 3c | Effective organizational learning has a positive influence on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 4: Mission has a positive influence on AIS implementation success in organizations in Canada and Lebanon | |
| Hypothesis 4a | Clear strategic direction and intent have a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 4b | Clear goals and intent have a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 4c | Clear and effective vision has a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 5 | Top management support has a positive impact on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 6 | Effective organization-wide communication has a positive influence on AIS implementation success in organizations in Canada and Lebanon |
| Hypothesis 7 | Effective rewards and incentives system has a positive influence on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 8 | Effective organizational leadership has a positive influence on AIS implementation success in organizations in Canada and Lebanon. |

| | |
|--|---|
| Hypothesis 9 | Corruption through the dimension of nepotism has a negative influence on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 10 | Industry moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 11 | Location types moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 12 | Market level moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 13 | Organization size moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. |
| Hypothesis 14 | Use mediates the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. |
| Hypothesis 15 | Use mediates the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. |
| Hypothesis 16 | Use mediates the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. |
| Hypothesis 17 | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. |
| Hypothesis 18 | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. |
| Hypothesis 19 | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. |
| <i>Main thesis hypothesis H₂₀</i> | <i>Main research hypothesis (Objective): Organizational culture impacts AIS implementation success in Canada and Lebanon.</i> |

3.10 CHAPTER SUMMARY

This chapter derives the theoretical framework of the study based on the literature review. Considering the complexity of the organizational culture (*independent variable*), the study adopted 17 dimensions of organizational culture. Furthermore, DeLone and McLean (2003) IS success model dimensions were adopted. The organizational culture dimensions are numerous in the literature, and they may exceed 100 dimensions (Jung et al., 2009) and thus, organizational culture is still a very complex phenomenon to decipher (Jung et al., 2009). However, the study organizational culture dimensions of this study are the most commonly adopted across relevant

literature. A focused research required that only organizational culture relevant dimensions are adopted, and any dimension that can be interpreted as a reflection of national culture is excluded. Therefore, a focused scope was necessary to conduct a study with meaningful results and significant contributions. Based on the theoretical framework developed, and a thorough review of relevant literature, independent and dependent variables dimensions derived, 19 hypotheses have been formulated. The relationships among the studied variables are analysed to interpret and explain whether the model presents most of the variance. Thus, while this chapter 3 addresses the theoretical and conceptual frameworks of the study, the following chapter 4 presents the research approach of the study.

Chapter Four: Research Approach

“The important thing is not to stop questioning.” - Albert Einstein

“Important thing in science is not so much to obtain new facts as to discover new ways of thinking about them.” -
Sir William Bragg

“Science may set limits to knowledge, but should not set limits to imagination.” - Bertrand Russell

4.1. CHAPTER OVERVIEW

This chapter describes the research approach applied in this study. The chapter starts by providing a synopsis of the research paradigms before presenting a reasoning of the paradigm adopted for the study. As such, this chapter explains the methodology utilized in this research whilst describing the various methods of data collection and analysis. After presenting the research methodology, this chapter explains the stages followed in the research process. Then, the chapter addresses the research design of the study, namely sample selection and unit of analysis before addressing the development of the survey instrument and wrapping up with an overall summary.

In light of this, this chapter is broken into various subsections. Section 4.2 provides an overview of the research paradigms and pinpoints the study research paradigm. Section 4.3 deliberates on the research methodology while section 4.4 addresses the research process. The study research design and the development of the survey instrument are clarified in sections 4.5 and 4.6 respectively. The chapter is summarized in section 4.7.

4.2 AN OVERVIEW OF RESEARCH PARADIGMS

Various theories and notions underlie research paradigms. Different researchers use different groupings, terms, and labels to describe their studies (Abdullah, 2013). Owing to these differences, different research paradigms must be discussed and contrasted for proper understanding. The main paradigms, positivism and interpretivism have been used widely by researchers (Clark & Creswell, 2008). These paradigms may resemble worldviews to some extent, but are not all-inclusive. Instead, they can be viewed as matrices of conceptual frameworks that form the basis and guide the research (Clark & Creswell, 2008). The understanding of various paradigms and the underlying differences will then lead to the clarification of the specific paradigm adopted in this research.

4.2.1 Research Paradigm Categorizations

Different research paradigms are available for researchers to follow. Each paradigm has its own philosophy. The interpretivist and positivist paradigms are prominent ones. The following three sub-sections shed clearer light on the research paradigm classifications.

4.2.1.1 A glimpse over research paradigms

A research paradigm has been defined using different terms. Some authors view research paradigm as an epistemological stance (Collins & Hussey, 2009), worldviews, a set of shared beliefs (Guba & Lincoln, 1994; Clark & Creswell, 2008) or a framework that guides research. In order to be referred to as a paradigm, four components must be present; ontology, epistemology, methodology, and methods. According to Asghar (2013), ontology addresses the nature of existence while epistemology studies the nature of knowledge (Asghar, 2013). These two components are the foundations under which research is built because the researchers' ontological and epistemological notions make the choice of research methodology and methods (Kivunja & Kuyini, 2017). On the other hand, methods are a range of techniques or approaches that are utilized in gathering research data and used as the basis for analysis, inference, and interpretation (Kivunja & Kuyini, 2017). This component differs with methodology component, which looks at the strategy that tries to justify the choice of methods (Kivunja & Kuyini, 2017). This section reviews three widely used paradigms; positivist, interpretivist and critical theory paradigms.

4.2.1.2 The positivist paradigm

The positivist paradigm holds that the only authentic knowledge is the scientific knowledge that can be confirmed scientifically through scientific methods of gathering data and analysis (Creswell, 1994; Hussey & Hussey, 1997). A French scientist advanced this paradigm in the mid-19th century known as Comte (Creswell, 1994; Hussey & Hussey, 1997). The term 'positive' as used in epistemology means an objective approach to the study of social sciences and share conventional methods with natural sciences. Positivism holds that the logic of inquiry is similar in both social and natural sciences, where the goal of research is to predict, explain as well as discover the necessary conditions for a particular phenomenon (Creswell, 1994). Therefore, the research that follows this paradigm should be empirical and observable with human senses whilst using inductive logic to test the hypothesis (Crotty, 1998). Therefore, positivists try to apply the methods

of natural sciences in conducting social sciences research. This paradigm is committed to neutrality, quantifiable elements, statistical measurements, and observable events as a basis for establishing causal-effect relationships (Crotty, 1998). As such, the role of neutrality is emphasized in this paradigm where the researcher is not part of the research, but only present objective explanations of the analysis (Crotty, 1998). This paradigm forms the foundation of this study.

4.2.1.3 Interpretivist paradigm

Interpretivism centres itself in the researcher's interpretation of the elements of the study (Kivunja & Kuyini, 2017). Therefore, this paradigm integrates human interests in the study (Kivunja & Kuyini, 2017). Interpretivists believe that one can only access reality through social constructs like consciousness, shared meanings, and language. A paradigm that is associated with Max Weber (Kivunja & Kuyini, 2017), presents reality as being multi-layered and complex in nature because people are creative and are actively constructing their own social reality. Consequently, this paradigm is built on the criticism of positivism and therefore, emphasizes qualitative data analysis (Hussey & Hussey, 1997). At the centre of interpretivism, is realism, an anti-foundationalism ontology (Zikmud, 2003). The proponents of this paradigm believe in relativism where reality is seen to differ among people, thereby presenting multiple realities, which can be socially constructed (Hussey & Hussey, 1997). Epistemologically, this paradigm holds the view of subjectivity in constructing meanings and making interpretations (Zikmud, 2003). Crotty (1998) found that it is not possible to describe an object adequately in separation from the subject, nor can one describe a subject adequately away from the object. As such, the relationship between the researcher and the subject of research is not detached, but rather that of continuous interaction (Crotty, 1998).

4.2.1.4 The critical theory paradigm

Human intervention is one main characteristic for the critical theory paradigm. This approach seeks human intervention as a way of liberating humans from the events that enslave them (Kivunja & Kuyini, 2017). As opposed to traditional theories and paradigms that explore and gear towards confirming the existing reality (status quo), critical theory challenges this fallacy and tries to attain balanced and democratic social settings (Kivunja & Kuyini, 2017). In this regard, this approach is primarily concerned with issues of power in the society as well as interactions of

race, education, class, economic status, gender and religion as they pertain to social systems (Kivunja & Kuyini, 2017). As such, to stand the test, critical theory must meet certain criteria; explaining what is wrong with the current social reality, identifying the actionable change and providing explicit norms for criticism and transformation (Scotland, 2012). According to Scotland (2012), an ontological reality in critical theory exists and can be explained within a historical, economic and political context. Ontologically, there are diverse points of view in regard to social realities, and these viewpoints must be viewed from political, cultural, historical and economic perspectives to comprehend the existing differences (Scotland, 2012). Epistemologically, critical theorists regard highly the interaction between the researcher and research participants in the lenses of historical and societal aspects that influence them (Scotland, 2012). The following Table 4.1 classifies the assumptions of the main paradigms.

Table 4.1 Presumptions of the principal research paradigms

| Assumptions | Positivism | Interpretivism | Critical theory |
|---|---|--|---|
| Methodology | <ul style="list-style-type: none"> ▪ Deductive ▪ Quantitative designs | <ul style="list-style-type: none"> ▪ Inductive ▪ Qualitative designs | <ul style="list-style-type: none"> ▪ Action-based ▪ Critical ethnography ▪ Ideology critique ▪ Critical discourse analysis |
| Ontology <i>(The nature of reality)</i> | <ul style="list-style-type: none"> ▪ Objectivity ▪ Single reality | <ul style="list-style-type: none"> ▪ Subjectivity ▪ Multiple realities | <ul style="list-style-type: none"> ▪ Historical realism ▪ Virtual reality constructed by social and historical influences |
| Epistemology <i>(The interaction between the researcher and the focus of the research)</i> | <ul style="list-style-type: none"> ▪ Researcher and research subject are independent | <ul style="list-style-type: none"> ▪ The researcher has an interest in what is being investigated | <ul style="list-style-type: none"> ▪ Regard highly interactions between researcher and participants ▪ Consider social and historical factors that influence researcher and participants |
| Data gathering techniques | <ul style="list-style-type: none"> ▪ Questionnaires ▪ Tests ▪ Scales ▪ Quasi-experiments ▪ Experiments | <ul style="list-style-type: none"> ▪ Interviews ▪ Observations ▪ Focus groups | <ul style="list-style-type: none"> ▪ Focus groups ▪ Interviews ▪ Questionnaires ▪ Observations ▪ Surveys ▪ Journals |

| | | | |
|-----------------|--|---|---|
| Characteristics | <ul style="list-style-type: none"> ▪ Quantitative data is detailed and accurate ▪ Generalization is made on large samples from a population ▪ Reliability level is high | <ul style="list-style-type: none"> ▪ Qualitative data ▪ Small samples ▪ Data is comprehensive ▪ Reliability level is not high ▪ Small sample | <ul style="list-style-type: none"> ▪ Dialogic methods ▪ Discuss meanings and interpretations ▪ Attend to tensions in competitive research orientations ▪ General community agreement ▪ Challenging guiding assumptions |
|-----------------|--|---|---|

Source: Adapted from Creswell (1994); Collis & Hussey (2009); Hussey & Hussey (1997); Creswell & Clark (2007); Kinchloe et al. (1994)

To wrap up, this section presented three types of paradigms that can be used in research. Each paradigm has its methodology, ontology, epistemology, data gathering techniques and features. After describing the different possible paradigms in this section, the following section will present the paradigm adopted in this thesis.

4.2.2 This Study's Research Paradigm

The positivism research paradigm is adopted as it conforms to the purpose of the research, theoretical and conceptual framework of the research, research questions, as well as, the research process followed. In the Table 4.2 below, the positivist paradigm is operationalized.

Table 4.2 The study's positivism

| Assumptions | The positioning of the study |
|-----------------|--|
| Human nature | The behaviour of humans, excluding case when rationality is not present, can be explained by the situation in which it occurs. |
| Theoretical | The positivist paradigm uses the positivism and post-positivism approach. |
| Epistemological | Researcher and research subjects are independents, and the researcher only plays the role of distributing questionnaires. The researcher does not intervene in the distribution process of the questionnaire to collect the data to ensure no bias or influence in the reported results. |
| Ontological | There is objectivity in view of social reality, and only a single reality exists |
| Axiological | The researcher distances himself/herself from the study, and therefore biasedness is avoided. Appropriate data analysis methods are used, results and findings reported accordingly. |
| Rhetorical | A research that follows this paradigm is impersonal (<i>uses third person</i>) to narrate the events quantitatively, qualitatively in an objective manner. |

| | |
|---------------------------|---|
| Methodological | In this assumption, the researchers derive generalizable models or theories of behaviours. The research took a deductive approach using quantitative methodologies. The research starts broadly from the general information systems to a more specific focus which is the accounting information system and in particular how its implementation is influenced by organizational culture in two specific countries, Lebanon and Canada. The starting point was the development of the theoretical hypotheses and testing them using empirical data. A cross-sectional approach of data collection within the same time-frame was adopted and used to collect data from the study participants. |
| Data gathering techniques | The primary mode of data collection was by a self-administered survey, and a partial least square structural equation model was used to analyse the data collected. Furthermore, seven interviews were conducted using the survey questionnaires. Those interviews just resulted from face-to-face meetings to fill the surveys. The study did not intend to use any qualitative methods as a separate data collection process. However, the face to face method used to fill in questionnaires from participants resulted in the collection of quantitative data. |
| Summary | The study adopted the positivist research paradigm due to its ability to guide the research and achieve the research objectives by answering the research question, which is “ <i>What is the impact of organizational culture on the implementation success of AISs in Canada and Lebanon.</i> ” The positivism approach is the best fit for this research. |

Research indicates that positivists look at the world from an external and objective rather than a subjective perspective (Abdullah, 2013). The proponents of this paradigm have further argued that a single reality exists and the objective of a researcher is always to know the cause of this reality (Collis & Hussey, 2009). In this regard, objectivity requires the researcher to realize the existence of reality and the need to understand the causal-effect relationship of that reality and the subject. As such, realism ontology takes centre stage where the researcher, embraces the independence of reality and researcher (Aliyu et al., 2014). In order to carry out a successful inquiry, the researcher must be independent of the subject or reality being discovered (Abdullah, 2013).

With the appreciation that the central purpose of this research is to explore the impact of organizational culture on the implementation success of AISs in Lebanon and Canada, it is inaccurate for the researcher to be involved in reality inquiry (Collis & Hussey, 2009). It is clear that the researcher if involved, would be biased because he/she would try to predetermine the organizational cultural impact on the implementation of AIS success in the two chosen countries. However, the researcher should be independent of the study and let the respondent who understands these factors give information without bias or being coerced in any way (Aliyu et al.,

2014). As such, the objectivity component of the research will be maintained, and thus subjectivity is avoided. Since this research aims to empirically test whether the organizational cultural factors significantly impact the successful implementation of AIS, quantitative data was collected and analysed to help make conclusions in regard to the phenomenon being studied. This gives more support to the adoption of the positivist paradigm because one of the aspects of this paradigm is the use of numerical data and quantitative methods in testing hypotheses. This approach was chosen due to the ability to test the research model for reliability and validity as well as test the significance of variable relationships through various statistical tests. Therefore, positivism is viewed as the best approach owing to the research purpose, question and methods of data collection and analysis (Abdullah, 2013). The next section discusses the methodology adopted in this research.

4.3 RESEARCH METHODOLOGY

A research methodology is an approach adopted to conduct the entire research process using different techniques (Collis & Hussey, 2009). Other researchers have defined methodology as techniques and methods that are adopted in a research process to guide the collection, analysis, evaluation, and interpretation of data (Collis & Hussey, 2009). Therefore, research methodology explores and defines the specific tools that are used in the process of gathering and analysing data in a particular research. Therefore, a research methodology is particular to a research problem because choosing a suitable methodology helps in solving the research problem and thus ensuring the success of a research. Further, the chosen methodology must be in tandem with the research paradigm chosen (Collis & Hussey, 2009). This section presents the common research methodologies, survey types of research and a justification for the research methodology adopted for this thesis.

4.3.1 The Common Research Methodologies

The common research methodologies are qualitative methodology, quantitative methodology and mixed methods methodology, which is basically a mix of qualitative and quantitative methodologies (Kothari, 2004). Qualitative research methodology deals with qualitative data or narratives that try to explain a phenomenon through narratives. On the other hand, quantitative methodology deals with numerical data and quantitative analysis of such data

so as to identify themes and relationships among variables and make conclusions (Abdullah, 2013). The mixed methodology involves both qualitative and quantitative data (Crotty, 1998). Owing to the paradigm chosen for this research, the quantitative methodology was deemed more appropriate but some interviews were conducted as a part of collecting the quantitative data through personal meetings with respondents. The data collected for this study is via self-administered surveys, and then, the data collected was analysed using partial least squares variance-based structural equation modeling. Therefore, a research methodology acts as the blueprint of a research study (Abdullah, 2013). Failure to adhere to the correct methodology leads to making wrong assumptions, collecting the wrong data or collecting data using wrong instruments. As such, research methodology a fundamental research component. The following Table 4.3 draws a comparison between methodologies used in the two main paradigms, positivism and interpretivism before moving further to shed some light on experimental research.

Table 4. 3 Research methods of interpretivism and positivism

| Positivism | Interpretivism |
|------------------------------------|---|
| Tests | Case study |
| Scales | Ethnography |
| Quasi experiments | Participative enquiry |
| Surveys | It can use a grounded theory approach |
| It can use a cross-sectional study | It can use a participative approach like interviews |
| It can use a longitudinal design | It can use action research |
| Experimental design | Case studies |

Source: Adapted from Collins & Hussey (2009)

4.3.2 Survey Research for Collecting Primary Data

Survey research is the main method applied in this study for collecting data. Results of the analysed data using statistical methods are generalizable to the entire population (Collis & Hussey, 2009). This method can be classified into two types. On one hand, the descriptive survey aims at describing the precise representation of the phenomenon being studied at a particular or different instances in time. On the other hand, an analytic survey is used when testing whether a relationship between variables (independent and dependent) exists and whether it is significant. To be able to

use analytical survey, the researcher has to come up with a theoretical framework first. While this section discusses the survey research used for collecting primary data, the following section provides a justification for the thesis research methodology.

4.3.3 Thesis Research Methods Justification

Determining a suitable research methodology, a researcher is forced to consider the purpose and sufficiency of the methodology to address the study research questions and objectives. Yin (2003) has provided several positivist recommendations that can be used in selecting a suitable methodology, namely experimental or survey-based ones. In an experimental methodology, the research question is asked as 'how and why,' and should focus on contemporary events (Yin, 2003). A survey methodology has research questions like who, what, where, how often, what size, or how much, and it should answer the contemporary events (Yin, 2003).

Further, a survey is the ideal methodology that should be adopted for this particular study. It is a suitable methodology as it guides research to determine the impact of organizational culture on the implementation success of AIS. A survey is important because its cost implication is fairly cheaper. Second, data collection using survey is easier because it makes reading and analysis of data more effective (Yin, 2003). Third, a survey uses a comparatively larger sample size, which makes generalizing of results easier. Further, through a survey, many respondents can be reached to provide a relatively accurate sample to make conclusions (Yin, 2003).

Analytical surveys are an ideal survey strategy that can be used in this study because its core objective is to determine an existing relationship between the independent and dependent variable (Kumar, 2004). The independent variable is organizational culture and the dependent variable is AIS implementation success. Similarly, it allows the researcher to sufficiently collect responses from a large number of respondents within a short period of time, making the process considerably cheaper (Kumar, 2004). Apart from that analytical surveys offer a quantitative description of responses, they also allow for generalization of results (Creswell, 2009). In this study, the researcher is required to collect the opinions of AIS users, implementers, maintainers, developers and other stakeholders regarding organizational culture facets that impact the AIS implementation success. The results of the study may be generalizable and of great significance to relevant stakeholders (Creswell, 2009).

Researchers in IS studies have used survey research methodology due to several fundamental reasons. One of the reasons is its ability to allow data to be analysed from different viewpoints. Second, due to its use of large samples, survey research permits a rigorous hypothesis testing activity and thus improved generalization of results (Carrier, 2007). Further, survey methodology helps to add more knowledge to already established existing research instruments (Carrier, 2007) whilst making it easier for the researcher to document the norm, identify extremes and outliers, and explain the correlation of the variables (Carrier, 2007). Owing to all these reasons that also underpin the objectives of this research, survey was chosen as the most appropriate method of data collection. To further support the survey as a suitable methodology for this particular study, other relevant IS studies were reviewed, and the results are presented in the following Table 4.4.

Table 4.4 Common research methods used in prior IS implementation studies

| Study | Study focus | Method used | Size of sample | Useful size | Location | IS |
|------------------------|--|--|---|----------------------------------|----------|-------------|
| Aldegis (2018) | The study focuses on the quality of AIS to determine the relationship between organizational culture and accounting information. | Study used a quantitative analytical descriptive approach. | 63 Jordanian industrial, public shareholding companies & 315 questionnaires | 300 questionnaires were returned | Jordan | AIS |
| Hong & Kim (2002) | This study examined the underlying causes of ERP systems implementation failures. | Field survey adopted and 34 organizations participated. | 106 | 30.3% | N/A | ERP systems |
| Inta & Setya (2015) | The study focused on organization culture and structure and its impact on AISs success. | The study utilized a descriptive, explanatory survey. | 45 universities in Bandung and 90 questionnaires | 75 questionnaires were returned | Bandung | AIS |
| Taweel & Hamdan (2014) | The study focused on the impact of quality and interactive nature of AIS to organizational culture with an emphasis on its benefits to system users. | Quantitative relying on interviews using questionnaires. | Undisclosed sample | N/A | Syria | AIS |
| Frantz et al. (2002) | This study is formulated to explore aspects of difference and similarities in perceptions of CFOs and CIOs in regard to best practices that promote ERP implementations. | Mail survey adopted, CFOs and CIOs from 170 US institutions were surveyed. | 308 | 53.0% | USA | ERP systems |

| | | | | | | |
|---------------------------|---|---|--|----------------------------|-----------|-------------|
| Wisna (2015) | The study focused on identifying the relationship of organizational culture and quality of AISs. | The study used a survey method. | 75 workers in the accounting department. | 75 responses were analysed | Indonesia | AIS |
| Petroni (2002) | This study aimed at identifying the underlying factors of MRP implementation geared towards ensuring success in the implementation process. | Postal survey adopted and manufacturing SME's in northern Italy were surveyed. | 109 respondents | N/A | Italy | MRP |
| Somers & Nelson (2004) | This research examined the key players and activities in the process of ERP implementation. | Mail survey was adopted and Fortune 500 organizations were picked, where 200 firms were sampled randomly. | 700 respondents | 19% | N/A | ERP systems |
| Fitriati & Mulyani (2015) | The study focused on factors that affect the success and quality of the AISs. | The study used a survey method. | Undisclosed sample | Undisclosed response | Indonesia | AIS |
| Nah, et al. (2003) | This study explored CIO's perception of top five critical factors in IS implementation | Mail survey was adopted and Fortune 1000 companies in the USA were surveyed. | N/A | 76 responses received | USA | IS |

| | | | | | | |
|---------------------------|---|--|----------------------------|---|-----------|-----------------|
| Diamonalisa et al. (2015) | The study focused on identifying the impact of organizational culture on the performance of AISs. | The study focused on explanatory research. | 6 Banks in Bandung | 6 Banks in Bandung returned responses | Bandung | AIS |
| Ehie & Madsen (2005) | This study aimed at exploring the critical issues in the implementation of ERP systems. | Mail survey was adopted and companies in the Midwest of the USA were used. | 200 respondents | 18% | USA | ERP systems |
| Kim et al. (2005) | This study aimed at classifying critical issues in the implementation of ERP systems and how they impact success. | IT managers from a variety of major US companies were considered for the survey. | N/A | 14.6% | USA | ERP systems |
| Napitupulu (2015) | The study focused on the impact of organizational culture on the quality of management accounting systems. | The study used an explanatory survey method of literature review. | 83 State-owned Enterprises | 236 operational managers returned questionnaires for analysis | Indonesia | management AISs |
| Karimi et al. (2007) | The study investigates the impact of ERP systems implementation on aspects of business processes through the incorporation of diffusion theory. | Mail survey was adopted and manufacturing companies in the US used to conduct the study. | 550 respondents | 27% | USA | ERP systems |

| | | | | | | |
|----------------------|---|---|---|--|----------|-------------|
| Rapina (2015) | The study focused on the effect of organizational commitment and culture on the quality of accounting information by using AISs | The study used a quantitative survey methodology | 30 hotels in Bandung | Sixty-nine accountants returned their responses for analysis. | Bandung | AIS |
| Tsai et al. (2007) | The study investigated the correlation between implementation variable and improved performance of ERP systems. | The study used a quantitative survey methodology | 3597 respondents | 18.3% | Taiwan | ERP systems |
| Ali et al. (2016) | The study focused on the impact of AISs on organizational performance and how organizational culture affects AIS success and performance. | The study used a quantitative survey methodology. | 13 traditional commercial banks in Jordan | 273 branch managers from the Jordanian banking sector returned questionnaires for analysis | Jordan | AIS |
| Zabjek et al. (2009) | The study investigated the BPM and CSF impact on ERP systems implementation success. | A survey was done on companies with more than 50 employees in Slovenia. | 600 respondents | 25.3% | Slovenia | ERP systems |

Table 4.4 above shows that the majority of the IS relevant studies resort to using surveys and questionnaires as the main research methodology or tool for collecting data. These findings reinforce the important role of survey methodology that is the main method used in this thesis. Findings show different sample sizes ranging from small to large ones. Surveys were conducted and distributed through different means. Results of the studies were generalizable.

The purpose of this research is to determine the impact of organizational culture on the successful implementation of AISs in Canada and Lebanon. This is influenced by several dependent and independent factors that require a bigger sample size to obtain adequate number of responses. Considering the IS implementation studies, some relied on the case study approach to answer the study questions (Schaefer & Dillman, 1998; Carrier, 2007; Kothari, 2004; Schaefer & Dillman, 1998). Survey research deemed the most suitable methodology that includes a bigger sample to understand the impact of organizational culture on the success of AIS implementation. In addition, it is important to determine the suitable approach for collecting data that can be used within a survey research methodology. This survey methodology employs questionnaires that are distributed through the internet, mail, social media sites and apps, personal meetings, telephone conversations, and face to face interviews.

Whereas a survey methodology is suitable for this study, it has its disadvantages that can hinder its ability to achieve suitable results. First, a survey methodology can be affected by inflexible design because it cannot be changed once data collection has commenced (Zikmund, 2003). In this method, inflexibility is a significant weakness, but it creates a major possibility of enhancing preciseness and fairness in identifying the organizational cultural impact on AIS successful implementation (Kothari, 2004). Second, the perception of individuals concerning the corporate culture impact on AIS implementation can be controversial because of using a survey methodology (Kothari, 2004). In this regard, respondents are not likely to answer questions that contain controversies because of difficulties involved in recalling information related to such issues. The researcher focused on reducing the inappropriateness of questions included in the survey by standardizing the survey questions which may be another disadvantage. The importance of setting a research method is to ensure an appropriate technique is used to collect the correct data in regards to the phenomenon being studied (Hasan, 2003). The research method that was adopted

in this study is the survey method, and primary data was collected for analysis. Organizational culture impact on the successful implementation of AIS can only be obtained from the primary response of participants. This means the level of data collection should focus on testing research concepts, attitudes of participants and promote participant satisfaction so that specific factors from professionals and concerned people can be evaluated. As such, a survey method can suitably be used in quantitative research designs (Kothari, 2004). A survey research method serves two primary purposes. These include; describing particular aspects and characteristics of organizations and participants. Second, it ensures that the hypotheses are tested to determine the nature of relationships between organizational culture and AIS. While this section shed light on the study research methodology, the following section addresses the study research process.

4.4 THIS STUDY'S RESEARCH STEPS

The research process addresses the steps followed to complete the research study starting with chapter 2 and ending with chapter 7. Every study has different phases that should be appropriately implemented to provide answers to study questions. These phases cover research steps starting with problem formulation to the interpretation of results, so as to understand the implication of study findings and provide relevant future research recommendations. After defining a research problem, it is important to develop a design that will be followed by collecting and analysing data to obtain information about the phenomenon being studied (Zikmund, 2003). Figure 4.1 depicts the stages of the research steps followed.

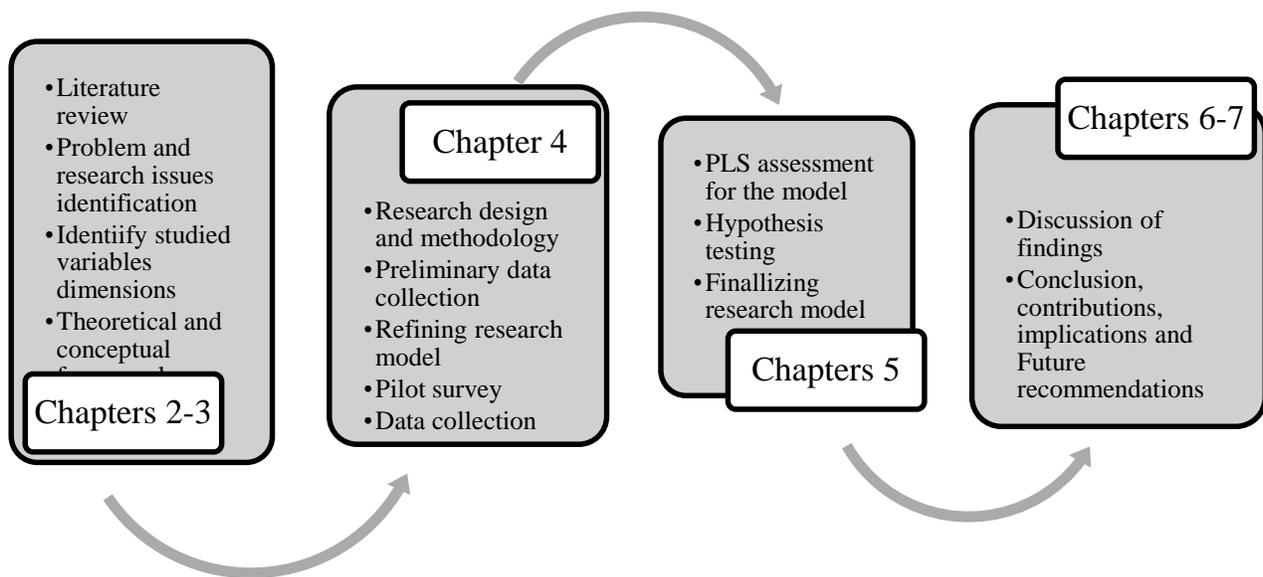


Figure 4.1 The stages of the research process followed

Selecting the research area is important in the process phenomenon (Cresswell, 2009). Selection of a study area is influenced by professionalism and personal interests to examine a particular phenomenon (Cresswell, 2009). For example, in this study, personal interests are to examine the impact of organizational culture on the successful implementation of AIS. Majority of researchers underestimate the research process, but it is important to ensure that the researcher is really interested in the topic being investigated (Cresswell, 2009).

The study involves formulating aims, objectives and study questions. This is important because it leads to the development of a framework that will guide the process to either support or refute the study hypotheses through the findings (Kothari, 2004). It is important to clearly state the aims and objectives of the study so that the process remains devoted to achieving the objectives. In this study, the overall objective was to find out the impact of organizational culture on the successful implementation of AIS in Canada and Lebanon.

The study process follows 4 stages. The first stage in the research process involves conducting a literature review to determine available information about the topic that has been already established in research. This should be done even before the aims and objectives are stated. Given this, a literature review demonstrates whether other studies have answered this thesis study questions. Secondary data sources are utilized in performing a literature review. The literature

review focuses on determining relevant concepts, discussions, gaps, variables and theories (Abdullah, 2013). Establishing gaps will serve as an important factor in ensuring that the study properly fills the gaps identified by reviewing the literature. Also, a literature review will ensure that a theoretical framework is developed to assist in justifying the hypotheses that will later be tested by the study. Furthermore, the literature review identifies the statement of the study problem. In the second stage, after deriving the study variables, theoretical and conceptual frameworks, the research design, methodology are chosen. Preliminary data collection is conducted to refine the model of the study. As the model is refined and the questionnaire is tested, the actual data collection process starts. Therefore, a pilot study was performed to make sure that the survey tool was of acceptable reliability and validity (Kothari, 2004). Diligently, a finalized survey was distributed to research participants. In the third stage, data collection is followed by data analysis to study the research hypotheses. In this study, SmartPLS structural equation model was applied to analyse collected data. An assessment for both the measurement as well as the structural models was conducted to analyse the data and thus, support or reject the study hypotheses. In the fourth stage, the interpretation and discussions of the results followed data analysis. Conclusions are drawn based on the results provided by data analysis. Then, the study is wrapped up by listing its theoretical, practical and methodological contributions, implications, recommendations and determination of possibilities for future research. While this section presented the study process, the following section addresses the study research design.

4.5 RESEARCH DESIGN

Research design is the collection of methods and techniques chosen by the researcher to address the research problem efficiently (Abdullah, 2013). It describes exactly what and how the researcher plans to conduct the study. It reflects the overall strategy followed to incorporate the study components in a rational and coherent way (Creswell, 2009). It encompasses a combination of various research components used in a systematic manner to achieve intended research results (Creswell, 2009). Before research design, a paradigm should be established as it impacts the choices made by a researcher in formulating questions, research problem, methods of data collection and procedures for analysing data. Throughout the research process, the paradigm should be reviewed so that it is appropriately aligned with the research problem (Abdullah, 2013). Moreover, the research problem can also be further upgraded and polished. One crucial step in the

research design stage is identifying the research problem (Abdullah, 2013). This section will address the sample selection and the study unit of analysis as presented below.

4.5.1 The Sample Selection of the Study

The questionnaires were distributed to 750 employees in tens of different organizations across tens of industries in both chosen countries. Sampling is another important process that is involved in selecting the correct participants. In this study, responses were required, and proper sampling was necessary based on making generalizations. Several participants were selected from the target population so as to represent the characteristics of the whole population (Sekaran, 2003). Sampling is essential because it enables the collection of data that would otherwise be difficult in a large population. For this study, a large sample was desired as it will make generalizations more valid and reliable. Where the sample is quite large, the statistical tests will be significant (Hair et al., 2010). Most of the statistical techniques that use covariance-based and variance-based structural equation modeling necessitate greater samples for more reliable, valid and generalizable results (Hair et al., 2010). The variance-based partial least square SEM model analysis was applied in the study. According to Barclay, Higgins and Thompson (1995), the minimum accepted sample size in SmartPLS is either ten times the number of observable variables of a construct with the most significant number of items or the largest number of independent variables affecting the dependent variable in the study, whichever greater of both. A sample size of 170 participants was the minimum threshold for this study. The development of the survey instrument is as important as formulating the study design.

4.5.2 The 'Who' or 'What' Is Being Studied

The unit of evaluation or analysis refers to the level of grouping data collected as identified by the statement of research problem (Cavana et al., 2001). For instance, in a study where the focus is on the intelligence of the students, the corresponding unit of analysis is an individual. In this thesis, the unit of evaluation is the individual employees inside surveyed organizations in Lebanon and Canada. The following section 4.6 explains the development of the survey instrument for this study.

4.6 THE ADOPTION AND CREATION OF THIS STUDY'S SURVEY TOOL

The main instrument for data collection in this study is a questionnaire. The intended purpose of the questionnaire is to collect data studying the organizational culture as well as the AIS constructs identified in the research model (Abdullah, 2013). In order to ensure a high level of validity and reliability for the instrument used, the research adopted well-developed instruments and constructs that already exist. Literature pinpointed validated instruments that have been adopted for the purpose of this study. Zmud and Boynton (1991) states that one should not create a questionnaire to conduct a specific study when valid and useful questionnaire already exist in the relevant literature. Prior studies have provided the basis for the instrument used in the study. The instrument used is based on well-tested and validated models, namely the Denison and D&M models. However, in order to ensure further coverage of organizational culture dimensions, other constructs have been added. These added constructs have been well-adopted scholarly in the literature. Before addressing constructs management, it is worth noting the type of questionnaire used as shown in the following subsection.

4.6.1 Five-point Likert Scale

In this study, the five-point Likert scale is used. The five-point Likert scale items are easier and less time consuming to address by participants in comparison with the seven or nine-point Likert scale items. Elmore and Beggs (1975) state that no statistical improvement of reliability exists among the three types of scales. It is stated that the 10-point scale is more suitable when there is a concern for face validity (Preston & Colman, 2000). The following section will address AIS success constructs measurements.

4.6.2 Constructs Measurements: AIS Success

The constructs of the study are based on the dependent variable that is represented by the adopted dimensions from DeLone and McLean (2003) IS success model. These dimensions are indicated by information quality, system quality, workgroup impact, service quality, individual impact, organizational impact (net benefits), user satisfaction and use. The items of the constructs are adopted from prior literature and reworded to enhance the face validity of the study (Abdullah, 2013). The following Table 4.5 represents the items adopted for the IS model considered for the study.

Table 4.5 Items measurements for AIS implementation success

| Dimensions | Measurement Items | References |
|-----------------------|---|--|
| Information Quality | <ul style="list-style-type: none"> • The information generated by AIS is correct. • Information generation by AIS is useful for its purpose. • I trust the information output of AIS. • AIS provides timely information. • AIS makes information more understandable. • AIS provides custom information. • AIS provides accurate information. • The information provided by AIS is up-to-date. • The information output is presented in a useful format. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |
| System Quality | <ul style="list-style-type: none"> • Our AIS has accurate data. • Our AIS is flexible to interact with. • Our AIS is easy to learn. • Our AIS is easy to use. • Our AIS is reliable. • I find it easy to get the AIS to do what I want. • Our AIS system is user friendly. • Our AIS system is unchanging. • The AIS system recovers fast from errors. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |
| Service Quality | <ul style="list-style-type: none"> • Division/unit employees provide assurance to solve problems. • Division/Unit employees are consistently courteous with users. • Division/Unit employees understand my needs and those of my workgroup. • Division/Unit people provide prompt service to users. • There is adequate technical support from the system provider/s. • The overall infrastructure in place is adequate to support AIS. • The AIS can be relied on to provide information when needed. • The output of AIS is complete for work processes. • Division/Unit employees provide follow-up service to users. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |
| Individual Impact | <ul style="list-style-type: none"> • AIS allows me to complete tasks faster. • AIS saves my time. • AIS improves my job performance. • AIS increases my productivity. • AIS makes me more effective in my organization. • AIS allows me to accomplish tasks more easily. • AIS improves my mindfulness and recollection of job-related information. • AIS allows me to learn faster and more efficiently. • My overall satisfaction of with AIS is high. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |
| Organizational Impact | <ul style="list-style-type: none"> • Capacity planning, cost estimation and inventory control have improved. • AIS led to productivity improvement. • AIS led to an increased capacity to manage a larger volume of tasks. • AIS has resulted in an improved business process. • AIS lead to a decrease in operating costs. • AIS led to better cooperation between various departments within the organization. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |

| | | |
|-------------------|--|--|
| | <ul style="list-style-type: none"> • AIS led to higher employee morale and job satisfaction. • AIS improves communication effectiveness efficiency. • AIS improves service quality. | |
| Workgroup Impact | <ul style="list-style-type: none"> • Our AIS helps to improve workers' participation in the organization. • Our AIS improves organizational-wide communication. • Our AIS creates a sense of responsibility. • Our AIS improves the efficiency of sub-units in the organization. • Our AIS enhances solution effectiveness. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |
| Use | <ul style="list-style-type: none"> • Using AIS enables me to accomplish tasks more quickly. • Using AIS has improved my job performance. • AIS supports my work procedures. • Implementation of AIS entails new tasks for me. • AIS replaced paper records. • Generally, AIS has made my work easier. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |
| User Satisfaction | <ul style="list-style-type: none"> • I am satisfied with the functions of AIS. • AIS has eased work processes. • I am generally satisfied using the AIS. • AIS meets customer needs. • AIS allows efficient exchange of information. | DeLone & McLean (2003); Seddon & Kiew (1996); Ifinedo et al., (2010) |

Each dimension intends to measure a specific portion of AIS implementation success. The system quality intends to measure and identify the desired features of the AIS system. The information quality dimension intends to measure the quality of the information provided by the AIS system, namely, the precision, timeliness, accuracy, relevancy, and adequacy of the information. The service quality identifies the level and the quality of the service provided by the system providers, maintenance personnel and overall relevant service providers. The individual impact dimension is a part of the net benefits provided by the AIS system. This dimension intends to measure the impact that the AIS system has on the individuals in the organization. In other words, these dimensions measure the overall benefits that the individual employee harvests from the implementation of the AIS system in the organization. The organizational impact dimension addresses and identifies the overall organizational benefits harvested from AIS. The workgroup dimension assesses the role of AIS in promoting and improving group work in the organization. The use dimension measures the overall use of the AIS system and how the use of the system advances the organization or changes the work procedures and interaction among the employees inside the organization. The last dimension considered is the user satisfaction dimension which addresses and measures the overall satisfaction of the AIS users. Information and system quality dimensions are considered the most significant quality elements to measure IS success (D&M,

2003). While this section addressed the dependent variable measurement constructs, the following section addresses the independent variable (*organizational culture*) measurement constructs.

4.6.3 Constructs Measurements: Organizational Culture

As for the dimensions used to measure organizational culture, it is important to understand the complexity of this concept. Organizational culture is considered one of the most prominent factors that bring a change in a contemporary organization (Jung et al., 2009). The importance of organizational culture motivated researchers and practitioners to look for explanations to understand it and conceptualize its nature, determinants, as well as its key determinants and predictions (Jung et al., 2009). Practitioners and researchers are looking for explanations of organizational culture and thus, answers to questions such as how organizational culture can be changed in order to meet the organizational needs. As a result of that, a multitude of instruments for assessing and measuring organizational culture has been established and used across a wide range of environments (Jung et al., 2009). Many conceptualizations of organizational culture exist. There are many connotations of the word "instrument", while there is little agreement as to how organizational culture should be conceptualized despite the various uses of it and the widespread of its measurement instruments applied by researchers, practitioners as well as policymakers (Jung et al., 2009). One prominent description is worth mentioning to convey the confusing message in regards to identifying and measuring the dimensions or components or nature of organizational culture. The concept has been described as "a riddle wrapped in a mystery wrapped in an enigma" (Pettigrew, 1990 as cited in Jung et al., 2009). In the literature, well above 100 dimensions linked to organizational culture have been identified (Jung et al., 2009). These dimensions describe various ideas, concepts of phenomena such as rituals, satisfaction, warmth, behaviour, structures, etc. The set of dimensions identified per instruments differ in scope, the number of items as well as characteristics. There is an ongoing debate around the description of organizational culture dimensions. There are multitudes of schools and models across the globe that try to study organizational culture. The debates are still unresolved, and no one standard or appropriate approach to researching culture is agreed upon. Therefore, there is a clear multiplicity of perspectives surrounding organizational culture. This reflects a paradigm wars. Such confusion has led to comments that organizational culture field mirrors the "king of the mountain" game,

where "[o]ne king or queen's temporary triumph at the top of the sand pile is rapidly superseded by the reign of another would-be monarch, until a succession of short-lived victories and a plethora of defeats leave the pile flattened" (Martin et al., 2004, 4 as cited in Jung et al., 2009).

Therefore, there is a spectrum of perspectives and approaches from specific quantitative and qualitative tools aimed to measure organizational culture. Seventy instruments for exploring and assessing organizational culture were identified (Jung et al., 2009). Organizational culture is likely to remain for the near future, at least, a contested and complex concept despite its common and prominent use by researchers, academicians, policymakers and business individuals (Jung et al., 2009). Such complexity is reflected in the diverse nature and features of the identified instruments that offer different sorts of dimensions, typologies, quantitative as well as qualitative approaches or a combination of both (Jung et al., 2009). Exploring organizational culture in this study, the self-administered or self-report questionnaire was used.

4.6.4 Self-report Questionnaire

The self-report questionnaires are considered the most commonly used approaches to exploring organizational culture as they are cost-effective and easy to use or administer (Jung et al., 2009). They allow a thorough survey of an organization (Jung et al., 2009). There is a trend toward using quantitative approaches to study organizational culture rather than qualitative approaches. This trend has been identified from the late 1980s onwards (Jung et al., 2009). This preference can be attributable to the consultancy background of various famous researchers and instruments in the field. Some previous examples are those instruments provided by Peters and Waterman (1982). Some more current examples are the Denison Organizational Culture Survey and the Organizational and Team Culture Indicator. Quantitative approaches are considered more pragmatic than qualitative approaches. However, it is important to note that quantitative cultural exploration has some limitations or shortcomings, and this is represented by the right categories that are operationalized by such research. Furthermore, the transferability of the instrument over space and time is another shortcoming. Organizational culture can be developing and unstable to define in a standard manner across space and time (Jung et al., 2009).

As a result of this confusion, no one instrument can measure organizational culture perfectly (Jung et al., 2009). Different instruments tend to offer different insights. In addition, these

instruments might show some aspects of organizational culture and leave others in shadow. Therefore, for the determinants of organizational culture, the study did not adopt just one instrument but rather relied on multiple prominent instruments in the literature (Jung et al., 2009). Denison Organizational Culture Survey is adopted along with other prominent dimensions of organizational culture across relevant literature. It is nearly impossible to study organizational culture using a quantitative approach adopting various dimensions of organizational culture found in the literature (Jung et al., 2009). These dimensions differ across the globe, and they exceed one hundred. Furthermore, several typological and dimensional studies were applied and adopted across the literature (Jung et al., 2009). The dimensions adopted in this study were mostly taken from pertinent organizational culture studies. The following Table 4.6 shows the measuring items for each organizational culture dimension used.

Table 4.6 Measuring items for organizational culture

| Dimensions | Items | References |
|------------------------|---|------------------------|
| Empowerment | <ul style="list-style-type: none"> • Most employees in this organization are highly involved in their work. • Decisions in this organization are usually made at the level where the best information is available. • Information is widely shared in this organization so that everyone can get the information she needs when it is needed. • Everyone in this organization believes that s/he can have a positive impact. • Business planning in our organization is ongoing and involves everyone in the process to some degree. | Denison & Neale (1999) |
| Teamwork Orientations | <ul style="list-style-type: none"> • Cooperation and collaboration across functional roles are actively encouraged in this organization. • Working in this organization is like being part of a team. • Work is sensibly organized in this organization so that each person can see the relationship between his/her work and the goals of the organization. • Teams are the primary building block of this organization. • This organization relies on horizontal control and coordination to get work done, rather than hierarchy. | Denison & Neale (1999) |
| Capability Development | <ul style="list-style-type: none"> • This organization delegates authority so that people can act on their own. • The capability of the people in this organization is viewed as an important source of competitive advantage. • This organization continuously invests in the skills of its employees. • The "bench strength" of this organization is continuously improving. • Problems often arise in my organization because we do not have the skills necessary to do the job. | Denison & Neale (1999) |

| | | |
|------------------------------|--|------------------------|
| Coordination and Integration | <ul style="list-style-type: none"> • Our approach to doing business is very consistent and predictable. • There is a proper alignment of goals across levels of this organization. • People from different organizational units still share a universal perspective. • It is easy to coordinate projects across functional units in this organization. • Working with someone from another part of this organization is like working with someone from a different company. | Denison & Neale (1999) |
| Agreement | <ul style="list-style-type: none"> • There is a clear and consistent set of values in this company that governs the way we do business. • This company has a characteristic management style and a distinct set of management practices. • The managers in this company "practice what they preach." • This organization has an ethical code that guides our behavior and tells us right from wrong. • Ignoring the core values of this organization will get you in trouble. | Denison & Neale (1999) |
| Core Values | <ul style="list-style-type: none"> • Understanding task details before making a decision is important in my organization. • Minimizing financial uncertainty is given high importance in the decision-making process in my organization. • Availability of professional knowledge is important in my organization. • My organization's decision making is based on a systematical collection of data and facts | Denison & Neale (1999) |
| Creating Change | <ul style="list-style-type: none"> • This organization is very responsive and changes easily. • This organization responds well to competitors and other changes in the external business environment. • This organization continually adopts new and improved ways to do work. • Attempts to change this organization usually meet with resistance. • Different units in this organization often cooperate to create change. | Denison & Neale (1999) |
| Customer Focus | <ul style="list-style-type: none"> • Customer comments and recommendations often lead to changes in this organization. • Customer input directly influences our decisions • All members of this organization have a deep understanding of customer wants and needs. • We encourage direct contact with customers by members of the organization. • The interests of the final customer often are ignored in our decisions. | Denison & Neale (1999) |
| Organizational Learning | <ul style="list-style-type: none"> • This organization encourages innovation and rewards those who take risks • We view failure as an opportunity for learning and improvement. • Lots of things "fall between the cracks" in this organization. • Learning is an important objective in our day-to-day work. | Denison & Neale (1999) |

| | | |
|--------------------------------|--|---------------------------|
| | <ul style="list-style-type: none"> • We make certain that the "right-hand knows what the left is doing." | |
| Strategic Direction and Intent | <ul style="list-style-type: none"> • This organization has a clear mission that gives meaning and direction to our work. • This organization has a long-term purpose and direction. • The strategic direction of this organization is unclear to me. • This organization has a clear strategy for the future. • Our organization's strategy is leading other firms to change the ways that they compete. | Denison & Neale (1999) |
| Goals and Intent | <ul style="list-style-type: none"> • There is widespread agreement about the goals of this organization. • The leaders of this organization set goals that are ambitious, but realistic. • The leadership of this organization has "gone on record" about the objectives we are trying to meet. • We continuously track our progress against our stated goals. • The people in this organization understand what needs to be done for us to succeed in the long run. | Denison & Neale (1999) |
| Vision | <ul style="list-style-type: none"> • We have a shared vision of what this organization will be like in the future. • The leaders in this organization have a long-term orientation. • Short-term thinking often compromises long-term vision. • Our vision creates excitement and motivation for our employees. • We are able to meet short-term demand without compromising our long-term vision. | Denison & Neale (1999) |
| Top Management Commitment | <ul style="list-style-type: none"> • Clearly identify AIS goals to be achieved. • Willing to change the current work procedures to conform to the requirements of the AIS system. • Allocate sufficient financial resources for the success of AIS implementation. • Provide necessary guidance, direction and leadership throughout the implementation process. • Allocate sufficient human resources for the success of AIS implementation. • Management in my organization treats quality as more important than cost. | Allen & Mayyer (1990) |
| Communication Flow | <ul style="list-style-type: none"> • In this organization, my ideas are frequently passed on to top-management. • In my organization, management takes timely and appropriate follow-up action on communication received from customers, vendors, regulators, or other external parties. • In my organization, the lines of communication are "open" all the way to top executives. • My coworkers and I readily share important information that is critical to our success • My organization appears committed to keeping the channels of communication "open." • Most of the information I receive on a daily basis is detailed and accurate. | Vaitkunaite et al. (2006) |

| | | |
|---------------------------|---|--|
| Organizational Leadership | <ul style="list-style-type: none"> • The leadership in the organization is generally considered to exemplify mentoring, facilitating or nurturing. • The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk-taking. • The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus. • The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency. | Quinn & Cameron (2006) |
| Rewards and Incentives | <ul style="list-style-type: none"> • Reward system is efficient in my organization (employee is getting salary/ wage according to the results and efforts) • It is always rewarded (in monetary or other forms) for the good work, ideas, innovations, etc. • Existing punishment system is correct in my organization • Employees are more often awarded than punished in our organization • Managers care about the welfare of employees (e.g. they are provided with free services, things, | Vaitkunaite et al. (2006); Jucevicius, (1998); Schein, (1992); Spivak, (2001). |
| Nepotism | <ul style="list-style-type: none"> • Employees in my firm always feel that they need someone they know or a friend in a high-level position. • Supervisors are afraid of subordinates who are related to high-level executives. • The interests of executive relatives and acquaintances are given priority over the use of Accounting Information Systems (AIS) when making important decisions in my organization. • Executives are more interested in keeping friends and acquaintances in good positions than skillful and more qualified employees. • My firm permits the employment of executives' relatives and has, as a result, difficult time firing or demoting them if they prove inadequate. • The power of connections with relatives and acquaintances supersedes formal rules, policies and systems in place. | Bute (2011) |

Therefore, the literature sheds light on many possible dimensions of organizational culture. However, it is nearly impossible to investigate all dimensions and typologies due to time, resources, variance and covariance-based structural equation modeling software and budget limitations. The following section will shed light on the pre-testing and pilot study conducted to ensure distributing a valid final questionnaire.

4.6.5 Pre-testing and Pilot Study

The pilot study helps assessing the success of the chosen research questionnaire. It plays a fundamental role in pinpointing the unanticipated problems through assessing cost, time, human

and other resources needed. The pilot study allows researchers to address any issues in the questionnaire and thus, helps avoiding significant problems in the real data collection process (Thabane et al., 2010). It improves the reliability and validity of the measurement items of the study main constructs (Thabane et al., 2010). In addition, sometimes, surveys fail to report meaningful and useful data. Pre-testing and pilot studies are necessary to avoid such discrepancies (Thabane et al., 2010). Through the pilot study, the face validity and the content validity of the questionnaire are tested. The face validity of the questionnaire means that the questions are clear, understandable and measure what they intend to do clearly. The content validity ensures that the questionnaire represents thoroughly the theoretical constructs being tested (Cavana et al., 2001). Therefore, despite the fact that the questionnaire was adapted from prior well-tested and validated studies, a pilot study is needed to ensure that the questionnaire is still valid in the context of this study (Cavana et al., 2001).

Therefore, before conducting the actual pilot study, the survey was distributed on a very small sample of expert employees in the relevant departments of a few chosen organizations in both identified countries for the study. The intended purpose of this distribution is to have an opinion from these expert employees on the structure of the survey, its questions as well as general recommendations or suggestions pertaining the overall quality of the questions, time spent and the wording of the questions. Through pre-testing suggestions and recommendations, the questionnaire was modified. Some constructs were removed, and items were reworded. In addition, some of the items allocated to some constructs were changed as well. The pre-testing stage made the questionnaire ready for the pilot study. The questionnaire was distributed on a sample of participants in both countries, and 32 usable responses were received. For the pilot study as well as the main questionnaire distribution, Qualtrics survey platform was used. Data collected from the pilot study was exported into an SPSS file. For data analysis, the AMOS co-variance based SEM modeling software was first used. However, this software had limitations due to the complexity of the study. Data collected represents 22 constructs and more than one hundred items. AMOS software is not suitable to analyse the relationships among these large number of constructs. Therefore, the SmartPLS software was used instead. In this regards, Goodhue et al. (2012) state that with complex research models, SmartPLS has an advantage over other SEM modeling software as it can analyse the whole model as a unit rather than addressing it as pieces.

The literature shows that the research using SmartPLS based on the partial least squares method is increasing. Using SmartPLS, complex data can be analysed even if the sample size is small and there is no constraint on the normal distribution of the sample. It can build models for formation indicators and adopts a method to minimize errors of internal variables (Thabane et al., 2010).

4.6.6 Ethics Clearance

Prior to conducting any survey, the questionnaire had to be approved by Curtin's university human resources ethics office. The study survey had a cover letter that explains researcher's intentions, definition of terms and the directions on how to be completed. Each distributed survey was accompanied by a cover letter that introduces the questionnaire and its purpose to the respondents.

4.6.7 Procedures for Data Analysis

Analysing a large amount of data was not an easy endeavour. Three software were involved in the data analysis process. The data was collected using an administered questionnaire distributed in person to relevant individuals. Other questionnaires were emailed and sent as links to participants via Qualtrics survey platform. Partial data collected was input into SPSS and other data was exported via Qualtrics survey platform. Initially, the AMOS software was used. However, due to the difficulty of the research model involving a large number of constructs and measurement items, AMOS was determined to be inappropriate to use. The data analysis procedures had various errors using AMOS. SmartPLS was a better software to conduct data analysis. Using first-generation statistical techniques, namely multiple regressions, simple models and assumptions that all variables are observable and measured without errors is unrealistic as there are always errors in the measurements, random errors and systematic errors (Bagozzi et al., 1991). In order to overcome these concerns and limitations, structural equation modeling (SEM) was used in this study. The nature of the latent variables, first order, second order, and third order constructions as well as the multitude of measurement items required the use of SEM. The latter offers several advantages as it allows for studying multiple relationships among observable and latent variables. SEM techniques allow researchers to address separate relationships among variables or a multitude of relationships at the same time. It allows for single, systematic and comprehensive analysis (Gefen et al., 2000). SEM evaluates both the structural model as well as the measurement model in the

same analysis. While first-generation analysis techniques fail to treat measurement errors, latent constructs and complex model limitations, SEM offers a sound solution to ensure useful analysis (Gefen et al., 2000). Two main approaches have been used to SEM, the covariance and variance-based approaches. The software packages that operate using the covariance-based approach are LISREL, AMOS, R, EQS, TETRAD, and RAMONA. PLS uses the variance-based approach. In this study, both the IBM SPSS Statistics package and SmartPLS software were used. The model is complex, and more than 100 indicators for latent constructs are adopted. Therefore, the SmartPLS variance-based approach was more appropriate.

4.7 CHAPTER SUMMARY

This chapter presented the research paradigm and the study's theory of knowledge. Grounded on the available literature and the nature of the study, especially, the part of which that is concerned with the organizational culture, the positivist paradigm approach was chosen to be the most suitable one. Identifying the research paradigm, dependent variables and independent variable as well as the relationship among the variables allow for understanding the research process and thus designing the actual study framework. This stage focuses on designing the questionnaire adopting already validated and tested theoretical constructs. Measurement items chosen were reliable and valid. The pre-testing survey, as well as the pilot survey, were fundamental for improving the reliability and the validity of the measurement items in the questionnaire as well as rewording and modifying questions to increase the participation rate. While this chapter sheds light on the research approach, paradigms, methodology, research process and design, the following chapter 5 will shed light on the study data analysis and results.

Chapter Five: Data Analysis and Results

“There’s a fine line between fishing and just standing on the shore like an idiot.” - Steven Wright

“Numbers have life; they're not just symbols on paper.” -Shakuntala Devi

“There's probably nothing quite like crossing the finish line and seeing the clock read numbers that you have never seen before.” -Bonnie Blair

5.1 CHAPTER OVERVIEW

In this chapter, the data collected is described. In addition, the statistical methods employed are explained. Data is analyzed in lights of the measurement and the statistical models constructed using variance-based partial least square (PLS) structural equation modeling (SEM). Common method variance (CMV) using Harman's single factor test is used to address common method bias. After the analysis of quantitative as well as qualitative data collected, the proposed 19 hypotheses are tested. This chapter presents results for data collected from two different countries in two totally different social, economic, national and organizational culture contexts. Each country is hypothesized to have different organizational culture element due to the different national cultures dominating. Data analysis addresses the impact of organizational culture on AIS success in both countries. The measurement as well as the structural models of the study are assessed to accept or reject the study hypotheses. The moderating and mediating effects are analyzed. Then, using the multi-group SmartPLS analysis, significant differences for the group-specific path coefficients are identified.

This chapter 5 is presented into several subsections. Section 5.2 presents the response rates addressing the non-response bias and common method bias. Section 5.3 describes data and methods focusing on the participants’ profile information, types of SmartPLS models and assessments. Data analysis results through assessing the measurement and the structural models are presented in section 5.4. Section 5.5 clarifies the moderating and mediating effects of the study. Common Method Variance (CMV) analysis is presented in section 5.6. Section 5.7 deliberates on the study multi-group analysis (MGA) and presents the study model fit. The qualitative data analysis is presented in section 5.8 and the chapter is summarized in the last section 5.9.

5.2 RESPONSE RATES

A total of 750 questionnaires were distributed to companies in various industries across both countries, Canada and Lebanon. The distribution method used direct emails, WhatsApp, LinkedIn, face-to-face interviews, and phone interviews. The questionnaire is lengthy, composed of 33 questions to answer. Some of the questions had more than ten items to address. Therefore, in order to ensure the highest response rate, most possible distribution methods were followed. Overall, 402 questionnaires were returned from both countries. However, only 349 questionnaires were useful and analyzed. Some of the respondents did not have AISs installed in their firms, and thus, they ended the questionnaire after filling in the profile information. Most of the questionnaires that were completed were useful from both countries. The final sample size was 349. Taking both countries as one pool and as an individual or separate pools, the sample size was considered adequate since this study used the SmartPLS as its main analysis technique. According to Barclay, Higgins and Thompson (1995), the minimum accepted sample size in SmartPLS is either ten times the number of indicators on the construct with the largest number of items or the largest number of independent variables affecting the dependent variable in the study, whichever greater of both. The use of self-administered approach was effective in the data collection process. It is one outstanding approach that was followed besides the face to face approach where respondents were asked the questions directly, and they had the opportunity to answer the questions with comments. In Lebanon, some of the respondents that filled the questionnaire had no good English language background. Therefore, the questions were orally converted to them into Arabic, and they provided their responses. The face to face approach was extremely effective, and each questionnaire took more than 30 minutes to fill due to the intervention and comments and general explanations provided to and retrieved from the respondents. Personal meetings conducted to fill in surveys ended up having an interview like meeting. Qualitative data, as a result, was collected besides the quantitative data collected from the survey. The same happened with the participants who filled the questionnaire via phone. They intervened in the depth of the study and provided comments beyond answering the survey questions. These comments and interventions provided the study with more insights, namely into the impact of national culture on organizational culture, accounting fabrications, corruption, and the interaction between organizational culture and AISs. Respondents, specifically, in Lebanon, pinpointed the role of corruption and nepotism in

fabricating accounting records and reports for the sake of satisfying the greed of few individuals at the expenses of the general stakeholders.

5.2.1 Non-Response Bias

Although it is considered as a common issue when conducting epistemological issues, non-response bias is a serious concern when undertaking survey shows and improving the credibility of the study that is being conducted (Cheung et al., 2017). There are different forms of non-response bias with the common one being selective non-response bias in which it is associated with the study population's general characteristics. In a survey, for instance, the choice of the individuals to participate in the research is solely dependent on the objective and the users of such information (Cheung et al., 2017). As such, it is always important to consider assessing the possibility of non-response bias towards determining the best way in which it can be addressed in improving the reliability of the study findings. Cheung et al. (2017) point out that the researcher plays a role in influencing the non-response bias, and this is by selecting the subjects and influencing the study findings. Before the distribution of the surveys or questionnaires to the participants, the research should inform or prepare the respondents on the expectation that is required when conducting this study. When targeting a given population that has no relationship with the study being conducted, there is the possibility of the response rate being low (Cheung et al., 2017). As such, importance should be placed on reviewing the characteristics of the population and determining the best course of action to be undertaken by the researcher. Non-response bias results in problems with the validity of the study, and this should be minimized by the researcher for the study findings to be used and generalized (Cheung et al., 2017). Also, non-response bias can be reduced by reducing the possibility of discrimination of the respondents, for instance, targeting only certain gender within the population on an issue that affects both male and female genders. The following section sheds further light on the common method bias.

5.2.2 Common Method Bias

Jakobsen & Jensen (2015) argue that common method bias involves a bias that is produced from a common source such as the survey respondents when providing information related to the dependent and independent variables. In most cases, the common method bias is produced where the item characteristics differ, and this can be challenging when addressing longstanding

differences existing in the variables. Common method bias arises from the respondents' application of certain tendencies that impact the responses provided. Attention has been focused on the response bias rather than focusing on the implication of the common method bias. The researchers often claim that the problems with the response rate are attributed to response bias, and they tend to ignore the overarching issue of common method bias. When addressing the common method bias, the researcher should review all possible causes of variances and determine the best way in which such bias can be reduced (Jakobsen & Jensen, 2015).

Min, Park and Kim (2016) indicate that common method bias is often reported in applied statistics and social science research. It is important to test the availability of common method bias in any social research, and the most straightforward way in which the bias can be tested is with the use of Harman's single factor score. In this method, all the items or variables are loaded into a common factor for analysis. In a situation where the test results show that the total variance is less than 0.5, then the common method bias has no significant effect on the data collected (Min et al., 2016). As such, the researcher can continue to use this method for conducting the research study. However, where the total variance in Harman's single factor score is more than 0.5, the method affects the results of the study. The researcher has to ascertain the reliability and credibility of the method used for conducting the research (Min et al., 2016).

5.3 DATA AND METHODS DESCRIPTION

The second generation of data analysis technique is used due to the complexity of the study and the numerous constructs that are investigated. The first generation data analysis technique is not suitable for this study. SEM is the most suitable approach for this analysis, as indicated in prior chapters of this study. The first generation of data analysis techniques is limited in its scope, covering, for instance, analysis of variance, discriminant analysis and multiple regression analysis. The models constructed when using these simple data analysis techniques are straightforward research models. The first generation of data analysis techniques can measure only one relationship at a time between an independent and a dependent variable, and this increases the measurement errors when all study variables have to be measured. However, in this study, this technique does not serve the purpose. The study focuses on measuring how organizational culture, identified by 17 adopted dimensions, impact AISs implementation success, identified by eight adopted dimensions. Furthermore, four moderator variables are added to the model besides mediation

relationships. Therefore, the relationship between the dependent and the independent variables is too complex to be measured by the first generation data analysis techniques. The variance-based SmartPLS structural equation model overcomes these limitations as it allows testing relationships among all variables systematically and comprehensively (Gefen et al., 2000).

Two approaches are usually followed when conducting data analysis by the mean of structural equation modeling. The first is a variance-based approach, and the second is a covariance based approach. For this specific study, the variance-based approach is the only suitable one for many reasons. First, SmartPLS variance-based approach is appropriate in meeting the study objective by identifying how organizational culture constructs impact the implementation success of AISs. Second, the constructed research model has 147 indicators to be measured. The covariance approach is not recommended to be used when the number of model indicators exceeds 100 items. Furthermore, the data collected is not assumed to be normally distributed and thus, the non-parametric assumption of variance-based SEM is favoured over the covariance-based SEM that is preferred for data that fulfils the parametric multivariate normality assumption (Gefen et al., 2000). While this section introduced the data analysis technique adopted, the following subsection shows the study respondents' profiles.

5.3.1 Participants Profile Information

The study conducted was as comprehensive as possible. Surveys were distributed to hundreds of companies and individuals across tens of industries. The following Table 5.1 and Figure 5.1 present the range of industries surveyed.

Table 5.1 Participants by industry

| Industry | Participants | Industry | Participants |
|-------------------------|--------------|------------------|--------------|
| Airline | 2 | Restaurants | 6 |
| Optics | 1 | Law | 2 |
| Advertising | 4 | Insurance | 11 |
| Cosmetics | 2 | Arts | 1 |
| Banking | 124 | Textiles | 1 |
| Accounting | 84 | General Services | 16 |
| Computer and Networking | 13 | Real Estate | 2 |

| | | | |
|-------------------------|----|----------------------------|---|
| Finance | 8 | Oil and Gas | 1 |
| General Trading | 36 | General Consultancy | 1 |
| Education | 31 | Publishing | 1 |
| Tourism | 4 | Electronics | 1 |
| Media | 10 | Security and Investigation | 1 |
| Auto | 3 | Grocery | 3 |
| Hotels and Resorts | 7 | Hospitals | 2 |
| Unidentified | 23 | Government | 1 |
| Total Participants: 402 | | | |

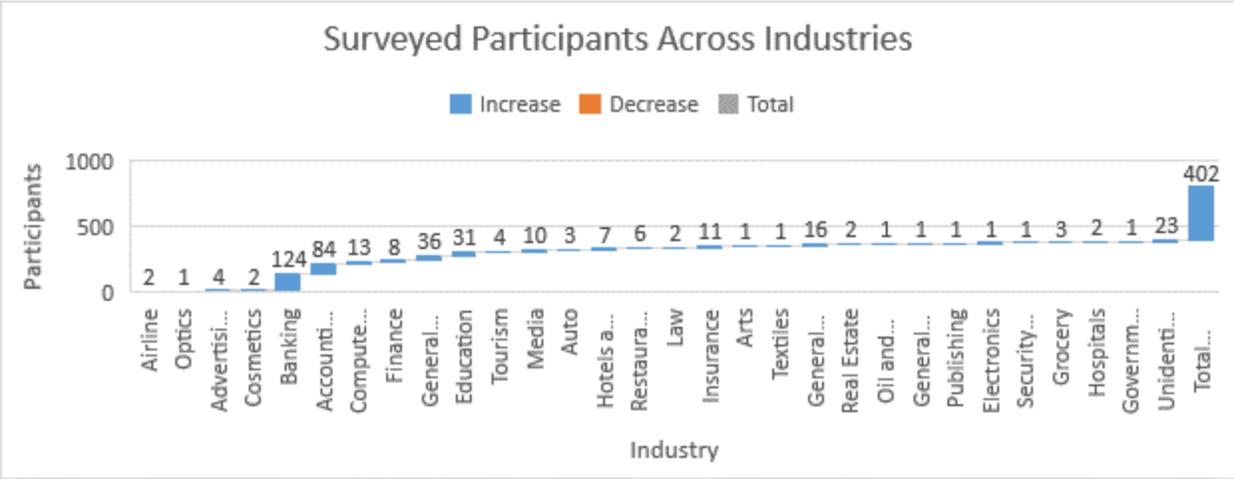


Figure 5.1 Surveyed participants across industries

SPSS software was used to analyze and tabulate the demographic and AISs characteristics of the participating individuals and organizations. Further descriptions of the demographics of the participants in regards to age, firm size, market level, location, education, adoption of AIS, AIS sources and organizational roles of the participants are presented in the following Tables 5.2-5.10.

Table 5.2 Participants by industry category

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------------|-----------|---------|---------------|--------------------|
| Valid | Materials | 1 | 0.3 | 0.3 | 0.3 |
| | Industrials | 3 | 0.9 | 0.9 | 1.1 |

| | | | | | |
|--|------------------------|-----|-------|-------|-------|
| | Consumer Discretionary | 89 | 25.4 | 25.4 | 26.6 |
| | Consumer Stables | 3 | 0.9 | 0.9 | 27.4 |
| | Health Care | 1 | 0.3 | 0.3 | 27.7 |
| | Financials | 227 | 64.9 | 64.9 | 92.6 |
| | Information Technology | 14 | 4.0 | 4.0 | 96.6 |
| | Information Services | 10 | 2.9 | 2.9 | 99.4 |
| | Real Estate | 2 | 0.6 | 0.6 | 100.0 |
| | Total | 350 | 100.0 | 100.0 | |

Table 5.3 Participants by age group

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|--------------|-----------|---------|---------------|--------------------|
| Valid | 24 and under | 6 | 1.5 | 1.5 | 1.5 |
| | 25-34 | 307 | 76.4 | 76.8 | 78.3 |
| | 35-44 | 58 | 14.4 | 14.5 | 92.8 |
| | 45-54 | 29 | 7.2 | 7.3 | 100.0 |
| | Total | 400 | 99.5 | 100.0 | |
| Missing | System | 2 | 0.5 | | |
| Total | | 402 | 100.0 | | |

Table 5.4 Participants by firm size

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------|-----------|---------|---------------|--------------------|
| Valid | Small | 62 | 17.7 | 17.7 | 17.7 |
| | Medium | 102 | 29.1 | 29.1 | 46.9 |
| | Large | 185 | 52.9 | 52.9 | 99.7 |
| | 4 | 1 | 0.3 | 0.3 | 100.0 |
| | Total | 350 | 100.0 | 100.0 | |

Table 5.5 Participants by market level

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------------|-----------|---------|---------------|--------------------|
| Valid | Local | 37 | 10.6 | 10.6 | 10.6 |
| | National | 135 | 38.6 | 38.6 | 49.1 |
| | International | 177 | 50.6 | 50.6 | 99.7 |
| | 9 | 1 | 0.3 | 0.3 | 100.0 |
| | Total | 350 | 100.0 | 100.0 | |

Table 5.6 Participants by city location

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------|-----------|---------|---------------|--------------------|
| Valid | Beirut | 197 | 56.3 | 56.3 | 56.3 |
| | Halifax | 153 | 43.7 | 43.7 | 100.0 |
| | Total | 350 | 100.0 | 100.0 | |

Table 5.7 Participants' educational profile

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|------------------------|-----------|---------|---------------|--------------------|
| Valid | PhD | 3 | 0.7 | 0.8 | 0.8 |
| | Masters | 82 | 20.4 | 20.6 | 21.3 |
| | Bachelor | 277 | 68.9 | 69.4 | 90.7 |
| | Diploma | 29 | 7.2 | 7.3 | 98.0 |
| | Others, Please Specify | 8 | 2.0 | 2.0 | 100.0 |
| | Total | 399 | 99.3 | 100.0 | |
| Missing | System | 3 | 0.7 | | |
| Total | | 402 | 100.0 | | |

Table 5.8 Participants' adoption of AIS

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|---|-----------|---------|---------------|--------------------|
| Valid | Yes | 343 | 85.3 | 87.7 | 87.7 |
| | No (Go to end of survey please and SUBMIT, THANK YOU) | 48 | 11.9 | 12.3 | 100.0 |
| | Total | 391 | 97.3 | 100.0 | |
| Missing | System | 11 | 2.7 | | |
| Total | | 402 | 100.0 | | |

Table 5.9 Source of adopted AIS

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------------|-----------|---------|---------------|--------------------|
| Valid | Local developer | 38 | 9.5 | 10.8 | 10.8 |
| | National developer | 147 | 36.6 | 41.6 | 52.4 |

| | | | | | |
|---------|-------------------------|-----|-------|-------|-------|
| | International developer | 160 | 39.8 | 45.3 | 97.7 |
| | In-house developed | 8 | 2.0 | 2.3 | 100.0 |
| | Total | 353 | 87.8 | 100.0 | |
| Missing | System | 49 | 12.2 | | |
| Total | | 402 | 100.0 | | |

Table 5.10 Participants' organizational role

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|--------------------------------|-----------|---------|---------------|--------------------|
| Valid | IT Manager | 4 | 1.0 | 1.1 | 1.1 |
| | HR Manager | 10 | 2.5 | 2.8 | 4.0 |
| | ERP Manager | 2 | 0.5 | 0.6 | 4.6 |
| | Accountant | 240 | 59.7 | 68.4 | 72.9 |
| | Programmer | 3 | 0.7 | 0.9 | 73.8 |
| | Database Administrator | 3 | 0.7 | 0.9 | 74.6 |
| | Information Security Analyst | 3 | 0.7 | 0.9 | 75.5 |
| | Software/Application Developer | 1 | 0.2 | 0.3 | 75.8 |
| | Chief Information Officer | 3 | 0.7 | 0.9 | 76.6 |
| | IT Support Specialist | 5 | 1.2 | 1.4 | 78.1 |
| | Technical Specialist | 4 | 1.0 | 1.1 | 79.2 |
| | Computer Support Specialist | 7 | 1.7 | 2.0 | 81.2 |
| | Chief Technology Officer | 5 | 1.2 | 1.4 | 82.6 |
| | Others, Please Specify | 61 | 15.2 | 17.4 | 100.0 |
| | Total | 351 | 87.3 | 100.0 | |
| Missing | System | 51 | 12.7 | | |
| Total | | 402 | 100.0 | | |

The above tables present the respondents' profile. In the following section, the types of SmartPLS models are discussed pinpointing the differences among them before drawing a comparison between the variance-based and co-variance based structural equation modeling techniques in section 5.3.3 while addressing the measurement and structural types of PLS assessments.

5.3.2 Types of SmartPLS Models

Four types of models can be applied via the partial least squares variance-based structural equation modeling. These types are reflective-reflective, reflective formative, formative reflective and formative-formative. The path directions among constructs and their indicators determine the type of model applied.

5.3.2.1 Reflective-Reflective Model

Research has indicated that this type of SmartPLS modeling techniques is the most commonly used in structural equation modeling (Afthanorhan, 2014). This model is also referred to as 'second-order construct type 1'. Afthanorhan (2014), showed that the causal path of lower-order constructs gets imposed on related and or observed variable. Further, the items of constructs are enclosed in a rectangular shape as well as the causal paths of higher-order constructs getting exerted on the lower order constructs (Afthanorhan, 2014). However, Lohmoller (1989) as cited by Afthanorhan (2014) argues that this type of model is a 'Common Factor Model' because the higher-order constructs can represent the common factors in several specifications. However, Lee and Cadogan (2005), as cited by Afthanorhan (2014) deny this claim by arguing that this model is meaningless and misleading.

5.3.2.2 Reflective-Formative Model

Modeling the reflective-formative model is different from the reflective-reflective model (Afthanorhan, 2014). As such, this type of model comprises both formative and reflective measurement models. It has been shown that in this type of model, the lower-order constructs are always and selectively measured constructs. They share nothing in common, but instead form a general concept that helps mediating the impact on the endogenous variables (Afthanorhan, 2014). According to Hassan, Mohamed and Maghsoud (2015), such variables as exhibited by this model are also utilized in accounting for the measurement errors of indicators in regard to the 'normal' formative constructs. Since this model is both formative and reflective, the reflective indicators are operationalized to explicitly model the measurement error (Afthanorhan, 2014).

5.3.2.3 Formative-reflective Model

Research has shown that this model is, as well, slightly different from the reflective-formative model presented above (Afthanorhan, 2014). It has been shown that in this model, a

higher-order construct is imposed by each variable manifestation as well as the causal-effect emanating from the higher-order construct being exerted on lower-order constructs, which comprise study indicators (Hassan et al., 2015). This type of model contains first-order factors as reflective indicators just like type II model (Hassan et al., 2015). However, the difference is that instead of first-order constructs having reflective indicators, they have formative indicators instead (Hassan et al., 2015).

5.3.2.4 Formative-formative Model

This model is also known as type IV model and is seen as the oddest model to be implemented in contemporary studies (Hassan et al., 2015). Research has suggested that this type of model is most applicable when both the Higher Order Component constructs (HCMs) and the Lower Order Component constructs (LCM's) are in the form of formative constructs. This model application has also been termed as the higher model or a two-stage approach (Hassan et al., 2015). This multidimensional factor model has formative constructs on both sides, and it is a second-order construct model (Afthanorhan, 2014). Generally, this type of model has lower-order constructs, which are formatively measured constructs, and they form a general concept of higher-order constructs (Afthanorhan, 2014). This type of models has been seen to have the advantage of being able to estimate all variables and indicators at the same time and thus eliminating the challenge of interpretation confusion that is exhibited by other models (Afthanorhan, 2014). Thus, after shedding light on the 4 types of SmartPLS structural equation models, the following section addresses the assessment types of such models, differences between higher and lower component models and bootstrapping in PLS.

5.3.3 PLS Assessment

Data analysis using PLS follows two phases. In the first phase, the measurement model is performed, and in the second stage, the structural equation model assessment is conducted (Barclay, Higgins, & Thompson, 1995).

5.3.3.1 Assessment using measurement model

The measurement model is a mathematical model that deals with and examines the relationship between the implicit or rather explicit models, which relates the latent variables to their measures (Henseler et al., 2009). In order to build a measurement model, there are factors

that one needs to consider. The first factor is to establish whether there are causal or effect indicators. This factor seeks to investigate whether the indicators have an influence on the latent variables or whether the latent variables drive the indicators. In social science, measurements have focused on the effect indicators. In this case, the indicators are dependent on the latent variable (Hair et al., 2012). For a measurement model, there are three key factors involved. These are the causal indicators, composite indicators and the third one is covariates or rather the effect indicators (Hair et al., 2012).

Effect indicators normally are chosen so that they can correspond to the theoretical definition that is represented by the latent variable; hence, they can be considered as the demonstrations of the latent variable (Fornell & Larcker, 1981). Effect indicators, which share a similar latent variable, have one thing in common; they all have to correspond to the same dimension that is represented in a concept. This dependence on a common variable has the effect of creating an association within the effect indicators (Henseler et al., 2009). Causal indicators, on the other hand, have a conceptual unity, which means that they have to correspond to the definition of dimensions whose concept is represented by the latent variable. The reason why a disturbance is included in this model is that the causal indicators are not singly and wholly used in the determination of a latent variable. Composite indicators are referred to as weighted elements (Hair et al., 2012). These normally form composite variables whereby there is no disturbance term present. This, therefore, means that the composite variable is an exact linear combination of the variables for composite indicators. The difference between composite and causal indicators is that the causal ones have got a disturbance while the composite ones do not have any disturbance. In their equations, a coefficient is applied to a variable that is followed by it. This symbol stands for weight, but in the case where we are dealing with an intercept, it stands for a constant (Chin et al., 2003). Further, covariates are the variables, which do not necessarily measure the latent variable, but rather address both the indicators and the latent variable. Any omission of the controls would cause a bias in the estimate of relationships between indicators and latent variables (Henseler et al., 2009).

5.3.3.2 Assessment using a structural model

This is a causal modeling, which incorporates a diverse set of mathematical models, statistical models, as well as, computer algorithms, which are meant to represent the networks of data constructs. This model has a combination of confirmatory factor and composite analysis, latent growth modeling, path analysis, as well as modeling dealing with partial least squares. SEM is mainly used in the assessment of the latent constructs, which are unobservable in nature (Fornell & Larcker, 1981). SEM has the characteristic of combining both the structural and measurement models. The measurement model used by SEM is the one that defines its latent constructs through the use of one or more variables that are observable. The structural model imputes relationships among latent variables (Chin et al., 2003). A structural model has the ability to show the correlation and causal link between the latent variables, which are present in a theoretical model. It expresses relationships among the disturbances or the errors in an equation and the latent constructs. The structural model has three important abilities. First of all, it has the ability to estimate relationships that exist among latent variables. Second, it has also the ability to test an overall model as an addition to the test of the individual paths (Fornell & Larcker, 1981). Third, it has the ability to model disturbances. Structural equation modeling imputes relationship between the observable models and the latent variables. The structural model is further used to examine how a given variable may affect another variable through the use of data in a model building, which can be used to explain the channels through which each of the variables affects one another (Hair et al., 2012). The advantage of the structural model is that it is easier to gather the evidence depending on the causal direction. It is used to give accurate predictions yet explains how institutional changes can affect the links (Hair et al., 2012).

5.3.3.3 Comparing Variance based and covariance-based structural equations

The use of structural equation modeling with latent variables can be represented through the use of two statistical techniques. These are the covariance-based SEM which is conducted by software such as LISREL, EQS and AMOS while the variance-based SEM uses the partial least squares SmartPLS software (Chin et al., 2003). The variance-based SEM is used in the prediction of the indicators through the expansion of components (Chin et al., 2003). The instances when a PLS-SEM should be used are whenever a goal is used in the prediction of a key target construct or rather if it is identifying key driver constructs (Dufour, 1987). The second instance when PLS-

SEM is appropriate to use is whenever the research is an exploratory one or in an extension of an existing structural theory. When there are many constructs and indicators, and the structural model is complex, the most appropriate model to use is the variance-based structural equation model. The PLS-SEM is also appropriately used in cases where the sample size is small or even in instances when the data is not normally distributed (Fornell & Larcker, 1981). Two reasons determine why a PLS-SEM is used for a particular equation. The first reason is that the PLS-SEM has a broad scope of the theory, as well as flexibility and practice (Hair et al., 2012). The second reason is because a SmartPLS path model is developed through a dialogue between the investigator and the computer (Hair et al., 2012). More so, in the analysis dealing with prediction, complex models and data that is big or archival, the PLS-SEM is the most appropriate model to use.

On the other hand, if the goal is theory testing, a confirmation of a theory or comparison of theories that are alternatives, then the CB-SEM is the most appropriate to use (Dufour, 1987). In instances where there are structural models, which represent circular relationships, it is appropriate to use the covariance-based structural equation model. Equations in this model are used for the observed and predicted covariance that exists between given variables. They are used in the minimization of the differences through adjustment of the parameters present in a model. A covariance is a representation of a function of a set of model parameters. Mathematically, it can be represented as $\Sigma = \Sigma(\theta)$ (Dufour, 1987). CB-SEM is used to test three types of theories. These theories are:

- Strictly confirmatory – this theory testing is used where the researcher has to formulate a single model upon availability of empirical data that needs testing. This kind of a model can only be accepted if its implied covariance matrix has no significant differences from a matrix of the empirical covariance (Dufour, 1987).
- Alternative models – this is where the researcher has to use specified alternative models, which sometimes are referred to as competing models. In this case, where an analysis is required, a single model should be selected (Dufour, 1987).
- Model generating – this is where the researcher has to modify and test data in instances where the initial model does not fit the set of data that has been provided. This re-specification should be either theory or data-driven (Dufour, 1987).

For more specific comparison between co-variance and variance-based structural equation modelling before moving to discuss hierarchical component models in the following section 5.3.3.4, the following comparative Table 5.11 is presented.

Table 5.11 Comparison between covariance and variance-based SEM

| Theme | Points of comparison | Covariance-based | Variance-based |
|----------------------|-----------------------------|---|---|
| Theory | Background | Based and driven by theory | Based on theory but data-driven |
| | Required theory base | Requires sound theory base | Does not require sound theory base |
| | Relation to the theory | Confirmatory | Exploratory and predictive |
| | Research orientation | Parametric | Prediction and non-parametric |
| Model specifications | Type of the latent measures | Reflective only but formative indicators can be added if identified by reflective ones. | Reflective and/or formative indicators |
| | Latent variables | Factors | Components |
| | Model complexity | Less than 100 indicators | 100-1000 indicators |
| | Type of study | Psychometric analysis (perceptions, intentions, attitudes, etc.) | Factors of success, organizational constructs (organizational culture, AISs success factors, customer satisfaction, etc.) |
| | Structure of unobservable | Indeterminate | determinate |
| | Input data | Covariance/correlation matrix | Individual-level raw data |
| Sample | Minimum sample size | 200-800 cases recommended | At least 10 times the number of items in the most complex construct |
| | Data distribution | Identical distribution is assumed | Identical distribution is not assumed |

| | | | |
|--------------------------------------|-----------------------------|--|--|
| Model evaluation and Goodness-of-fit | Assessment of the model fit | <ul style="list-style-type: none"> - Model parsimony - Comparative fit measures - Overall (absolute) fit measures | <ul style="list-style-type: none"> - Model predictiveness (coefficient of determination, Q^2 predictive relevance and average variance extracted (AVE)) -Stability of estimates, applying the resampling procedures (Jack-knifing and bootstrapping). |
| | Residual co-variance | Residual co-variances are minimized for optimal parameter fit | Residual variances are minimized to obtain an optimal prediction |
| Suitability | Best suited for | Confirmatory research and available theory testing | Exploratory analysis and new theory building |

Source: Adapted from Chin & Newsted (2003); Gefen, et al. (2000); Dufur (1987); Aimran et al. (2017)

5.3.3.4 Hierarchical component models

Developing Hierarchical Component Models (HCM's) requires a proper assessment of second-order models that involve two or even three or four layers within their structures of constructs (Becker et al., 2012). The level of satisfaction can be evaluated based on two categories of abstraction for instance. A resultant HCM will be characterized by abstract constructs with several accompanying sub-constructs that will serve to present different aspects of abstraction, such as personality, intelligence, quality, service, satisfaction, etc. (Becker et al., 2012). Studies have concluded that a high level of reuse and standardization is required for maintaining high quality and cost-effective system. This can be achieved through a design process that will focus on ensuring high quality, reusability, verification and validation of its components (Becker et al., 2012).

Hierarchical component models focus on representing multidimensional constructs found in higher abstraction levels and linked to other constructs. This exists because it serves to mediate the impact created by underlying dimensions (Hair et al., 2018). According to Ringle (2012), establishing a higher component model can be classified as an exceptional feature of PLS-SEM, and this requires testing of second-order constructs comprising of two layers of variables (Hair et al., 2018). Higher components models use more generalized constructs that measure high levels of abstraction, and incorporate other subcomponents so that they can provide strongly reflective

traits of their constructs (Becker et al., 2012). HCM is important because it works in reducing structural model relationships to create a parsimonious PLS path model (Becker et al., 2012). Further, HCM is developed on a strong theoretical foundation that is carefully selected from four main types, viz., reflective-reflective, reflective-formative, formative-reflective or formative-formative. Here, every HCM type has its own specific relationships in regards to HOC's, LOC's, measurement and structural models that are required to operationalize constructs at different levels (Becker et al., 2012). HOC serves to capture an abstract entity, whereas LOC is based on sub-dimensions within the abstract entity (Hair et al., 2018). Basically, HOCs in reflective-reflective and formative-reflective HCMs have been found to be general constructs that are closely related. On the other hand, HOCs are established through LOCs within a reflective-formative and formative-formative HCMs (Hair et al., 2018). In the recent years, researchers have focused on using SmartPLS as a tool for modeling HCM's. Through applying a PLS path model, evaluation of HOC's is not focused on associations of HOC's and indicator variables; instead, it emphasizes the relationship between HOC's and LOC's (Hair et al., 2018). While this section elaborated on the HCM's, the following section discusses bootstrapping with SmartPLS.

5.3.3.5 Bootstrapping

Bootstrapping is a procedure, which is nonparametric that is used for testing statistical significance for results of PLS-SEM, which are path coefficients, Heterotrait-monotrait (HTMT), Cronbach's alpha and the R^2 values (Cheng, 2017). Since the PLS-SEM does not make an assumption of normally distributed data, the parametric significance tests cannot be used in testing of coefficients. The bootstrapping has subsamples being created with observations that are randomly drawn from the original sets of data. This subsample thereafter is used in the estimation of PLS path model (Cheng, 2017). To enhance the stability of results in bootstrapping, the variables or sets of data should be large. In cases where processing is done by parallel computing, the algorithm is calculated individually (Cheng, 2017). The confidence interval method is used to set the bootstrapping, which is used for the estimation of nonparametric confidence intervals (Cheng, 2017). Therefore, bootstrapping is mainly suitable for parameters, which are nonparametric in nature. After elaborating on the types of SmartPLS models and drawing a comparison between variance-based and covariance-based SEM, the following section 5.4 will discuss the data analysis results.

5.4 DATA ANALYSIS RESULTS

In this section, the results of the study are reported. The evaluation of the research model is conducted over two phases. The measurement model is presented first before moving to the structural model.

5.4.1 The Assessment of the Measurement Model

Two main analyses are addressed when evaluating the measurement model. The first is convergent validity, and the second is discriminant validity. In order to evaluate the measurement model, the following steps are followed.

5.4.1.1 Step one: Examining the Indicator Loadings

The loadings of the measurement model (outer model) meet the cut-off threshold as suggested at 0.7. Some of the items that had a lower loading level were dropped. Loadings at a level of 0.7 and above are recommended as they indicated that they explain more than 50% of the indicator's variance and thus, providing acceptable indicator reliability (Sarstedt et al., 2018).

5.4.1.2 Step two: Assessing Internal Consistency Reliability

The indicator used for assessing internal consistency reliability is most often Joreskog's (1971) composite reliability. Higher values of composite reliability reflect higher levels of reliability. In this regards, three ranges are acknowledged in exploratory research. Composite reliability (CR) values ranging between 0.60 and 0.70 are considered just acceptable. Values that range between 0.70 and 0.90 are considered "satisfactory to good" and values of 0.95 and higher are considered problematic as they might reflect redundancy in indicators besides triggering inflated correlations among the indicators' error terms (Sarstedt et al., 2018). In parallel, Cronbach's alpha is another measure of internal consistency reliability that goes by similar thresholds. However, it is acknowledged in research that this measure tends to provide lower values than composite reliability (CR). Since the research items are unweighted, the Cronbach's alpha tends to provide a less reliable measure of reliability (Sarstedt et al., 2018). On the contrary, considering the composite reliability (CR) indicator, the items are weighted based on the construct's indicators of individual loadings. As a result, this reliability measure is more reliable. Furthermore, comparing both indicators, CR is considered more liberal than Cronbach's Alpha that

is considered too conservative (Sarstedt et al., 2018). The results of the study indicate acceptable level of CR.

5.4.1.3 Step three: Assessing the Convergent Reliability

The convergent reliability can be defined as the extent to which the construct will converge to explain the variance of its items. The main indicator that is used to assess the convergent reliability of the constructs is the Average Variance Extracted (AVE) for all the items on each construct. The acceptable threshold for AVE is 0.50 or higher, and this level tells that the construct explains at least 50% of its indicators (Sarstedt et al., 2018). Results of this study meet the acceptable threshold for AVE.

5.4.1.4 Step four: Assessing the Discriminant Validity

Assessing discriminant validity is necessary to ensure that the constructs do not highly correlate with each other. They need to be distinct from each other to avoid the redundancy of the construct or the indicators. Discriminant validity measure assesses whether the constructs are distinct from each other in the inner or structural models. Several measures are considered in this respect. One measure is the Fornell and Larcker (1981) traditional metric. Actually, this measure has been criticized in the literature for being not suitable for discriminant validity assessment as it does not perform as expected when the loadings on a specific construct fall at a close distance from each other (Sarstedt et al., 2018).

As a replacement for this assessment, Henseler et al. (2015) suggested another measure which is the Heterotrait-monotrait (HTMT) ratio of the correlations. The highest cut-off threshold for this measure is 0.90. Any higher value will indicate discriminant validity problems, as suggested by Henseler et al. (2015).

The following Figure 5.2 and Tables 5.12-5.22 show the study results pertaining to the measurement model. Measures and figures are presented and conclusions are drawn accordingly in regards with indicator loadings, consistent, convergent reliabilities and discriminant validity.

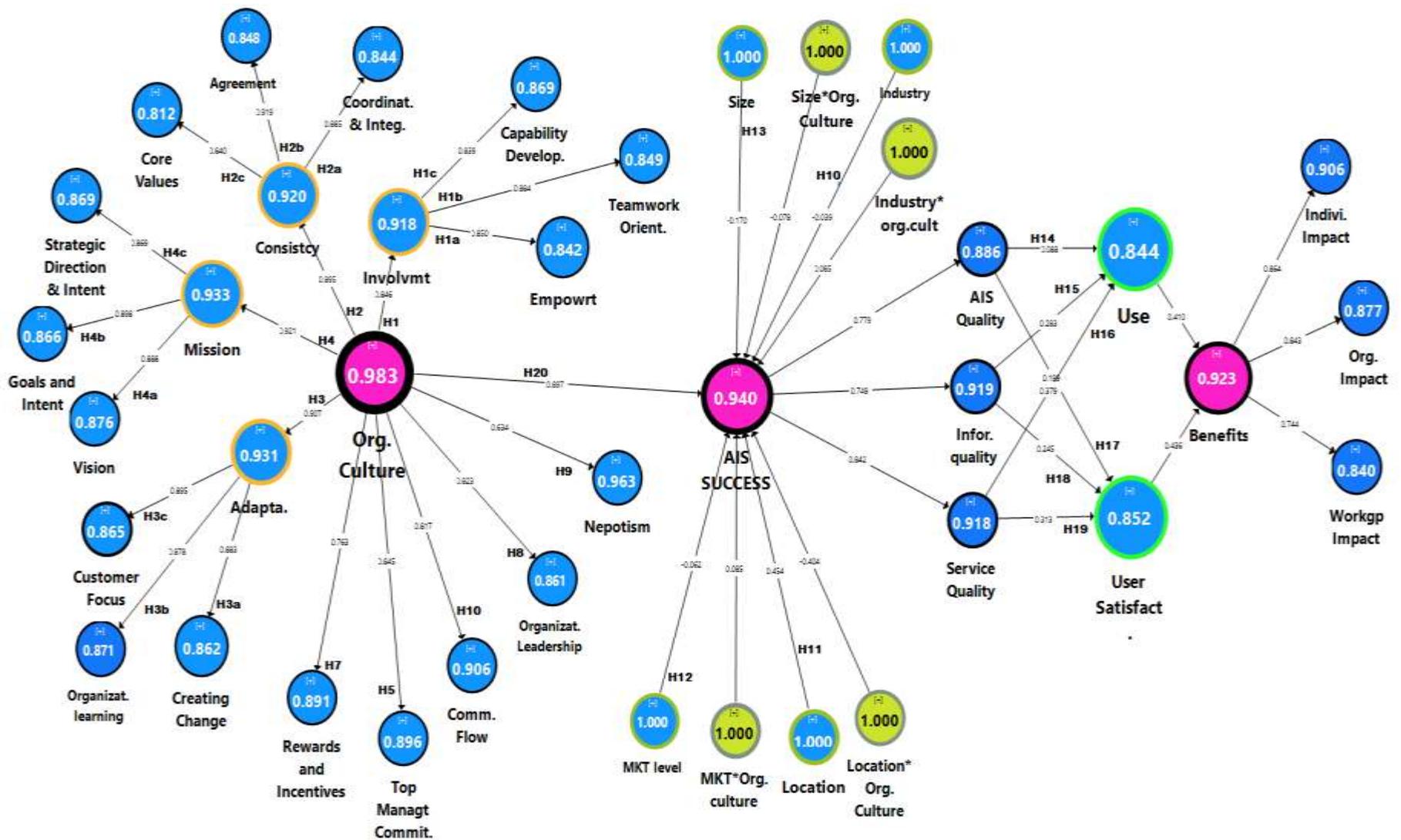


Figure 5.2 The measurement model showing study constructs with hypotheses

In the above figure, the measurement model is depicted showing the impact of organizational culture (*independent variable*) on AIS success (*dependent variable*). In addition, the moderating variables and mediating variables are described. The organizational culture is manifested by 17 first order constructs. 12 of these constructs are grouped into 4 second order constructs that are adaptability, mission, consistency and involvement that manifest the third order construct, organizational culture. The arrow between the two main constructs, organizational culture and AIS success, represents the relationship between both variables. While the above figure represents the study measurement model, the following Table 5.12 depicts the reliability and validity assessment of the measurement model for the first order constructs.

Table 5.12 Reliability and validity assessment of the measurement model (First order constructs)

| Construct | Items | Loading | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|------------------------------|--------------|----------------|-------------------------|--------------|------------------------------|---|
| Agreement | Q21-1 | 0.713 | 0.846 | 0.847 | 0.891 | 0.621 |
| | Q21-2 | 0.792 | | | | |
| | Q21-3 | 0.825 | | | | |
| | Q21-4 | 0.830 | | | | |
| | Q21-5 | 0.774 | | | | |
| Capability Development | Q19-1 | 0.770 | 0.866 | 0.868 | 0.904 | 0.653 |
| | Q19-2 | 0.804 | | | | |
| | Q19-3 | 0.870 | | | | |
| | Q19-4 | 0.833 | | | | |
| | Q19-5 | 0.756 | | | | |
| Communication Flow | Q30-1 | 0.708 | 0.901 | 0.905 | 0.924 | 0.671 |
| | Q30-2 | 0.789 | | | | |
| | Q30-3 | 0.825 | | | | |
| | Q30-4 | 0.848 | | | | |
| | Q30-5 | 0.880 | | | | |
| | Q30-6 | 0.854 | | | | |
| Coordination and Integration | Q20-1 | 0.772 | 0.843 | 0.843 | 0.889 | 0.616 |
| | Q20-2 | 0.822 | | | | |
| | Q20-3 | 0.816 | | | | |
| | Q20-4 | 0.790 | | | | |
| | Q20-5 | 0.719 | | | | |
| Core Values | Q22-1 | 0.716 | 0.811 | 0.816 | 0.876 | 0.640 |
| | Q22-2 | 0.828 | | | | |
| | Q22-3 | 0.837 | | | | |
| | Q22-4 | 0.814 | | | | |

| | | | | | | |
|------------------|-------|-------|-------|-------|-------|-------|
| Creating Change | Q23-1 | 0.732 | 0.86 | 0.863 | 0.899 | 0.642 |
| | Q23-2 | 0.809 | | | | |
| | Q23-3 | 0.824 | | | | |
| | Q23-4 | 0.800 | | | | |
| | Q23-5 | 0.836 | | | | |
| Customer Focus | Q24-1 | 0.741 | 0.864 | 0.868 | 0.902 | 0.648 |
| | Q24-2 | 0.806 | | | | |
| | Q24-3 | 0.847 | | | | |
| | Q24-4 | 0.840 | | | | |
| | Q24-5 | 0.785 | | | | |
| Empowerment | Q17-1 | 0.767 | 0.841 | 0.845 | 0.887 | 0.611 |
| | Q17-2 | 0.833 | | | | |
| | Q17-3 | 0.789 | | | | |
| | Q17-4 | 0.789 | | | | |
| | Q17-5 | 0.727 | | | | |
| Goals and Intent | Q27-1 | 0.795 | 0.866 | 0.866 | 0.903 | 0.652 |
| | Q27-2 | 0.822 | | | | |
| | Q27-3 | 0.812 | | | | |
| | Q27-4 | 0.832 | | | | |
| | Q27-5 | 0.775 | | | | |
| Vision | Q28-1 | 0.797 | 0.877 | 0.877 | 0.910 | 0.668 |
| | Q28-2 | 0.826 | | | | |
| | Q28-3 | 0.832 | | | | |
| | Q28-4 | 0.850 | | | | |
| | Q28-5 | 0.786 | | | | |
| Nepotism | Q33-1 | 0.897 | 0.963 | 0.963 | 0.970 | 0.843 |
| | Q33-2 | 0.915 | | | | |
| | Q33-3 | 0.943 | | | | |

| | | | | | | |
|------------------------------|-------|-------|-------|-------|-------|-------|
| | Q33-4 | 0.942 | | | | |
| | Q33-5 | 0.924 | | | | |
| | Q33-6 | 0.889 | | | | |
| Organizational Leadership | Q31-1 | 0.814 | 0.86 | 0.861 | 0.905 | 0.705 |
| | Q31-2 | 0.828 | | | | |
| | Q31-3 | 0.888 | | | | |
| | Q31-4 | 0.827 | | | | |
| Organizational Learning | Q25-1 | 0.768 | 0.87 | 0.872 | 0.906 | 0.658 |
| | Q25-2 | 0.833 | | | | |
| | Q25-3 | 0.818 | | | | |
| | Q25-4 | 0.851 | | | | |
| | Q25-5 | 0.783 | | | | |
| Rewards and Incentives | Q32-1 | 0.765 | 0.885 | 0.891 | 0.916 | 0.685 |
| | Q32-2 | 0.811 | | | | |
| | Q32-3 | 0.845 | | | | |
| | Q32-4 | 0.864 | | | | |
| | Q32-5 | 0.850 | | | | |
| Strategic Direction & Intent | Q26-1 | 0.752 | 0.866 | 0.87 | 0.903 | 0.651 |
| | Q26-2 | 0.826 | | | | |
| | Q26-3 | 0.793 | | | | |
| | Q26-4 | 0.836 | | | | |
| | Q26-5 | 0.824 | | | | |
| Teamwork Orientation | Q18-1 | 0.729 | 0.847 | 0.849 | 0.891 | 0.622 |
| | Q18-2 | 0.807 | | | | |
| | Q18-3 | 0.856 | | | | |
| | Q18-4 | 0.768 | | | | |
| | Q18-5 | 0.776 | | | | |
| Top Management Commitment | Q29-1 | 0.745 | 0.895 | 0.897 | 0.920 | 0.657 |

| | | | | | | |
|-------------------|-------|-------|-------|-------|-------|-------|
| | Q29-2 | 0.794 | | | | |
| | Q29-3 | 0.843 | | | | |
| | Q29-4 | 0.850 | | | | |
| | Q29-5 | 0.822 | | | | |
| | Q29-6 | 0.805 | | | | |
| Use | Q15-2 | 0.720 | 0.839 | 0.844 | 0.886 | 0.610 |
| | Q15-3 | 0.769 | | | | |
| | Q15-4 | 0.764 | | | | |
| | Q15-5 | 0.846 | | | | |
| | Q15-6 | 0.800 | | | | |
| User Satisfaction | Q16-1 | 0.753 | 0.850 | 0.852 | 0.893 | 0.625 |
| | Q16-2 | 0.819 | | | | |
| | Q16-3 | 0.793 | | | | |
| | Q16-4 | 0.817 | | | | |
| | Q16-5 | 0.769 | | | | |
| AIS Quality | Q9-2 | 0.765 | 0.882 | 0.885 | 0.910 | 0.629 |
| | Q9-3 | 0.829 | | | | |
| | Q9-4 | 0.816 | | | | |
| | Q9-5 | 0.804 | | | | |
| | Q9-6 | 0.825 | | | | |
| | Q9-7 | 0.714 | | | | |
| Workgroup Impact | Q14-1 | 0.703 | 0.838 | 0.844 | 0.885 | 0.607 |
| | Q14-2 | 0.762 | | | | |
| | Q14-3 | 0.815 | | | | |
| | Q14-4 | 0.826 | | | | |
| | Q14-5 | 0.785 | | | | |
| Individual Impact | Q12-3 | 0.754 | 0.906 | 0.907 | 0.924 | 0.605 |
| | Q12-4 | 0.790 | | | | |
| | Q12-5 | 0.764 | | | | |
| | Q12-6 | 0.830 | | | | |

| | | | | | | |
|-----------------------|-------|-------|-------|-------|-------|-------|
| | Q12-7 | 0.826 | | | | |
| | Q12-8 | 0.783 | | | | |
| | Q12-9 | 0.771 | | | | |
| Information quality | Q10-3 | 0.726 | 0.916 | 0.920 | 0.933 | 0.665 |
| | Q10-4 | 0.787 | | | | |
| | Q10-5 | 0.796 | | | | |
| | Q10-6 | 0.860 | | | | |
| | Q10-7 | 0.838 | | | | |
| | Q10-8 | 0.870 | | | | |
| | Q10-9 | 0.822 | | | | |
| Service Quality | Q11-3 | 0.709 | 0.918 | 0.920 | 0.933 | 0.637 |
| | Q11-4 | 0.798 | | | | |
| | Q11-5 | 0.842 | | | | |
| | Q11-6 | 0.869 | | | | |
| | Q11-7 | 0.863 | | | | |
| | Q11-8 | 0.839 | | | | |
| | Q11-9 | 0.794 | | | | |
| Organizational Impact | Q13-2 | 0.746 | 0.875 | 0.877 | 0.904 | 0.573 |
| | Q13-3 | 0.810 | | | | |
| | Q13-4 | 0.761 | | | | |
| | Q13-5 | 0.829 | | | | |
| | Q13-6 | 0.792 | | | | |
| | Q13-7 | 0.710 | | | | |

Tables 5.13-5.14 below show the reliability and validity assessments of the measurement model for the 2nd order constructs.

Table 5.13 Reliability and validity assessment of the measurement model (2nd order constructs)

| Involvement | Std loading | Std loading squared | Error variance = 1-loadings square |
|----------------------------------|--------------------|----------------------------|---|
| - Empowerment | 0.85 | 0.7225 | 0.2775 |
| - Teamwork | 0.884 | 0.781456 | 0.218544 |
| - Capability development | 0.839 | 0.703921 | 0.296079 |
| Total loadings | 2.573 | 2.207877 | 0.792123 |
| Total loadings square | 6.620329 | | 7.412452 |
| | AVE | 0.857666667 | |
| | CR | 0.893136171 | |
| Consistency | | | |
| - Coordination and Integration | 0.885 | 0.783225 | 0.216775 |
| - Agreement | 0.919 | 0.844561 | 0.155439 |
| - Core values | 0.84 | 0.7056 | 0.2944 |
| Total loadings | 2.644 | 2.333386 | 0.666614 |
| Total loadings square | 6.990736 | | 9.634736 |
| | AVE | 0.881333333 | |
| | CR | 0.72557629 | |
| Mission | | | |
| - Strategic direction and intent | 0.869 | 0.755161 | 0.244839 |
| - Goals and intent | 0.898 | 0.806404 | 0.193596 |
| - Vision | 0.888 | 0.788544 | 0.211456 |
| Total loadings | 2.655 | 2.350109 | 0.649891 |
| Total loadings square | 7.049025 | | 9.704025 |
| | AVE | 0.885 | |
| | CR | 0.726402189 | |
| Adaptation | | | |
| - Coordination and Integration | 0.895 | 0.801025 | 0.198975 |

| | | | |
|-----------------------|------------|--------------------|----------|
| - Agreement | 0.878 | 0.770884 | 0.229116 |
| - Core values | 0.883 | 0.779689 | 0.220311 |
| Total loadings | 2.656 | 2.351598 | 0.648402 |
| Total loadings square | 7.054336 | | 9.710336 |
| | AVE | 0.885333333 | |
| | CR | 0.726477024 | |

AIS Success

| | | | |
|-----------------------|------------|--------------------|----------|
| - AIS quality | 0.846 | 0.715716 | 0.284284 |
| - Information quality | 0.895 | 0.801025 | 0.198975 |
| - Service quality | 0.921 | 0.848241 | 0.151759 |
| Total loadings | 2.662 | 2.364982 | 0.635018 |
| Total loadings square | 7.086244 | | 7.721262 |
| | AVE | 0.887333333 | |
| | CR | 0.917757227 | |

AIS Benefits

| | | | |
|-------------------------|------------|--------------------|----------|
| - Individual impact | 0.864 | 0.746496 | 0.253504 |
| - Organizational impact | 0.843 | 0.710649 | 0.289351 |
| - Workgroup impact | 0.744 | 0.553536 | 0.446464 |
| Total loadings | 2.451 | 2.010681 | 0.989319 |
| Total loadings square | 6.007401 | | 6.99672 |
| | AVE | 0.817 | |
| | CR | 0.858602459 | |

In the above, the reliability and validity assessments of the measurement model of the 2nd order constructs are presented. Table 5.14 below shows the reliability and validity assessments of the measurement model for the 3rd order constructs.

Table 5.14 Reliability and validity assessment of the measurement model (3rd order constructs)

| Organizational culture | Std loading | Std loading squared | Error variance = 1-loadings square |
|-------------------------------|--------------------|----------------------------|---|
| Involvement | 0.846 | 0.715716 | 0.284284 |
| Consistency | 0.895 | 0.801025 | 0.198975 |
| Mission | 0.921 | 0.848241 | 0.151759 |
| Adaptation | 0.907 | 0.822649 | 0.177351 |
| Rewards and Incentives | 0.763 | 0.582169 | 0.417831 |
| Top management Commit | 0.845 | 0.714025 | 0.285975 |
| Comm. Flow | 0.817 | 0.667489 | 0.332511 |
| Organizational Leadership | 0.823 | 0.677329 | 0.322671 |
| Nepotism | 0.634 | 0.401956 | 0.598044 |
| Total loadings | 7.451 | 6.230599 | 2.769401 |
| Total loadings square | 55.517401 | | 58.286802 |
| | AVE | 0.82788889 | |
| | CR | 0.952486654 | |

This study adopted the Nunnally (1978) guidelines of 0.7. Hulland (1999) in this respect, explains that a loading of 0.7 indicates that the shared variance between the construct and its measuring items is more than the error variance which explains that more than 50% of the variance is accounted for by the concerned construct. Therefore, all items with loadings lower than 0.7 are dropped as shown in the following Table 5.15.

Table 5.15 Items dropped from the measurement model

| Respective Construct | Dropped Item/s |
|-----------------------------|-----------------------|
| AIS Quality | Q9-1 Q9-8 Q9-9 |
| Information Quality | Q10-1 Q10-2 |
| Service Quality | Q11-1 Q11-2 |
| Individual Impact | Q12-1 Q12-2 |

| | |
|-----------------------|-------|
| Organizational Impact | Q13-1 |
| Use | Q15-1 |

The results of the analysis conducted show that there is convergent validity and reliable internal consistency in the measurement model. The acceptable cut-off point of the composite reliability is 0.7. AVE is greater than 0.5. Cronbach's Alpha and rho_A minimum accepted point is 0.7. The analysis demonstrate that the values of the measurement model meet the minimum cut-off points for all constructs and thus, suggest good internal consistency and reliability (Fornell & Larcker 1981; Nunally, 1978). As data analysis progresses, the following Table 5.16 presents a legend that defines the abbreviations and notations used for the study dimensions/variables.

Table 5.16 Legend

| | | | |
|----------------|------------------------------|----------------|--|
| AISQ | AIS system quality | OI | Organization impact |
| AG | Agreement | OLD | organizational leadership |
| CD | Capability Development | OLE | Organizational Learning |
| COF | Communication Flow | R&I | Rewards and Incentives |
| C&I | Coordination and Integration | SQ | Service Quality |
| CV | Core Values | SDI | Strategic Direction & Intent |
| CC | Creating change | TW | Teamwork Orientation |
| CF | Customer focus | TM | Top Management Commitment |
| CON | Consistency | ADA | Adaptability |
| INV | Involvement | MIS | Mission |
| EM | Empowerment | USE | Use |
| G&I | Goals and Intent | USS | User Satisfaction |
| II | Individual Impact | V | Vision |
| IQ | information Quality | WI | Workgroup Impact |
| OC | ORGANIZATIONAL CULTURE | AISS | AIS SUCCESS |
| NP | Nepotism | O | Moderators: Market Level (ML), Organization Size (OS), Location (LC) and Industry category (IC) |

Thus, while in the preceding Tables 5.13-5.14, the study sheds light on the validity and reliability assessments of the measurement model, the following Tables 5.17-5.19 address the discriminant validity assessment of the model using three types of measures that are cross loadings, Fornell and Larcker criterion and Heterotrait-Monotrait (HTMT) focusing on the first order constructs.

Table 5.17 Indicator item cross loadings

| Items | AISQ | IQ | SQ | II | OI | WI | Use | US | EMP | TW | CD | C&I | AG | CV | CC | CF | OL | SD&I | G&I | V | TM | CF | OL | R&I | NP |
|-------|--------------|--------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Q9_2 | 0.764 | 0.256 | 0.431 | 0.380 | 0.427 | 0.385 | 0.312 | 0.382 | 0.294 | 0.257 | 0.248 | 0.305 | 0.311 | 0.226 | 0.264 | 0.285 | 0.244 | 0.291 | 0.313 | 0.281 | 0.317 | 0.265 | 0.288 | 0.122 | 0.093 |
| Q9_3 | 0.829 | 0.343 | 0.459 | 0.439 | 0.465 | 0.416 | 0.397 | 0.424 | 0.219 | 0.283 | 0.218 | 0.326 | 0.340 | 0.261 | 0.333 | 0.345 | 0.289 | 0.337 | 0.269 | 0.305 | 0.350 | 0.308 | 0.335 | 0.145 | 0.060 |
| Q9_4 | 0.815 | 0.249 | 0.395 | 0.332 | 0.380 | 0.320 | 0.256 | 0.342 | 0.123 | 0.208 | 0.148 | 0.313 | 0.258 | 0.206 | 0.250 | 0.237 | 0.155 | 0.245 | 0.247 | 0.261 | 0.277 | 0.228 | 0.254 | 0.100 | 0.124 |
| Q9_5 | 0.804 | 0.303 | 0.447 | 0.406 | 0.387 | 0.346 | 0.304 | 0.392 | 0.251 | 0.252 | 0.212 | 0.334 | 0.334 | 0.269 | 0.234 | 0.248 | 0.221 | 0.315 | 0.270 | 0.283 | 0.253 | 0.270 | 0.266 | 0.138 | 0.087 |
| Q9_6 | 0.825 | 0.359 | 0.412 | 0.393 | 0.437 | 0.320 | 0.357 | 0.380 | 0.181 | 0.232 | 0.183 | 0.344 | 0.321 | 0.303 | 0.314 | 0.259 | 0.209 | 0.244 | 0.308 | 0.302 | 0.264 | 0.255 | 0.288 | 0.110 | 0.091 |
| Q9_7 | 0.714 | 0.323 | 0.338 | 0.290 | 0.362 | 0.312 | 0.305 | 0.285 | 0.174 | 0.248 | 0.228 | 0.341 | 0.337 | 0.289 | 0.295 | 0.323 | 0.214 | 0.228 | 0.250 | 0.234 | 0.227 | 0.266 | 0.283 | 0.089 | 0.035 |
| Q10_3 | 0.273 | 0.727 | 0.303 | 0.371 | 0.403 | 0.344 | 0.409 | 0.373 | 0.215 | 0.250 | 0.290 | 0.285 | 0.285 | 0.373 | 0.272 | 0.215 | 0.313 | 0.289 | 0.331 | 0.280 | 0.287 | 0.282 | 0.325 | 0.276 | 0.199 |
| Q10_4 | 0.233 | 0.788 | 0.252 | 0.371 | 0.413 | 0.312 | 0.350 | 0.352 | 0.247 | 0.265 | 0.290 | 0.257 | 0.284 | 0.338 | 0.257 | 0.235 | 0.324 | 0.327 | 0.314 | 0.284 | 0.319 | 0.291 | 0.339 | 0.324 | 0.185 |
| Q10_5 | 0.263 | 0.797 | 0.324 | 0.368 | 0.401 | 0.320 | 0.325 | 0.351 | 0.263 | 0.234 | 0.201 | 0.195 | 0.300 | 0.287 | 0.212 | 0.225 | 0.224 | 0.273 | 0.257 | 0.224 | 0.264 | 0.260 | 0.324 | 0.263 | 0.126 |
| Q10_6 | 0.351 | 0.860 | 0.309 | 0.372 | 0.413 | 0.329 | 0.364 | 0.335 | 0.265 | 0.266 | 0.247 | 0.271 | 0.315 | 0.329 | 0.236 | 0.270 | 0.274 | 0.317 | 0.319 | 0.283 | 0.306 | 0.303 | 0.312 | 0.302 | 0.157 |
| Q10_7 | 0.385 | 0.837 | 0.444 | 0.422 | 0.481 | 0.386 | 0.425 | 0.384 | 0.263 | 0.254 | 0.252 | 0.251 | 0.337 | 0.360 | 0.238 | 0.256 | 0.261 | 0.287 | 0.293 | 0.242 | 0.287 | 0.352 | 0.311 | 0.264 | 0.131 |
| Q10_8 | 0.362 | 0.869 | 0.422 | 0.446 | 0.455 | 0.350 | 0.435 | 0.410 | 0.269 | 0.323 | 0.285 | 0.283 | 0.319 | 0.392 | 0.260 | 0.291 | 0.322 | 0.314 | 0.341 | 0.306 | 0.318 | 0.343 | 0.347 | 0.274 | 0.147 |
| Q10_9 | 0.360 | 0.821 | 0.408 | 0.396 | 0.463 | 0.419 | 0.441 | 0.415 | 0.259 | 0.309 | 0.248 | 0.294 | 0.336 | 0.376 | 0.319 | 0.275 | 0.300 | 0.304 | 0.344 | 0.317 | 0.334 | 0.340 | 0.317 | 0.276 | 0.238 |
| Q11_3 | 0.383 | 0.302 | 0.709 | 0.462 | 0.469 | 0.407 | 0.440 | 0.422 | 0.385 | 0.377 | 0.385 | 0.382 | 0.444 | 0.422 | 0.332 | 0.400 | 0.321 | 0.347 | 0.350 | 0.342 | 0.410 | 0.361 | 0.340 | 0.285 | 0.218 |
| Q11_4 | 0.457 | 0.313 | 0.798 | 0.509 | 0.501 | 0.389 | 0.471 | 0.481 | 0.320 | 0.359 | 0.314 | 0.378 | 0.414 | 0.401 | 0.397 | 0.372 | 0.379 | 0.354 | 0.429 | 0.401 | 0.442 | 0.357 | 0.380 | 0.288 | 0.266 |
| Q11_5 | 0.462 | 0.332 | 0.842 | 0.507 | 0.503 | 0.358 | 0.479 | 0.455 | 0.327 | 0.402 | 0.331 | 0.382 | 0.427 | 0.392 | 0.378 | 0.390 | 0.401 | 0.391 | 0.398 | 0.358 | 0.412 | 0.347 | 0.395 | 0.268 | 0.227 |
| Q11_6 | 0.444 | 0.352 | 0.859 | 0.503 | 0.509 | 0.410 | 0.462 | 0.404 | 0.310 | 0.384 | 0.298 | 0.394 | 0.469 | 0.403 | 0.394 | 0.355 | 0.394 | 0.394 | 0.386 | 0.383 | 0.410 | 0.337 | 0.377 | 0.248 | 0.157 |
| Q11_7 | 0.433 | 0.362 | 0.853 | 0.501 | 0.510 | 0.429 | 0.443 | 0.395 | 0.295 | 0.369 | 0.292 | 0.377 | 0.453 | 0.413 | 0.383 | 0.378 | 0.398 | 0.404 | 0.406 | 0.322 | 0.388 | 0.358 | 0.403 | 0.304 | 0.191 |
| Q11_8 | 0.444 | 0.435 | 0.839 | 0.490 | 0.507 | 0.387 | 0.440 | 0.432 | 0.270 | 0.335 | 0.268 | 0.325 | 0.407 | 0.389 | 0.363 | 0.345 | 0.339 | 0.391 | 0.386 | 0.279 | 0.361 | 0.314 | 0.375 | 0.246 | 0.173 |
| Q11_9 | 0.439 | 0.371 | 0.794 | 0.472 | 0.491 | 0.379 | 0.426 | 0.421 | 0.271 | 0.312 | 0.316 | 0.332 | 0.392 | 0.391 | 0.380 | 0.377 | 0.382 | 0.430 | 0.417 | 0.316 | 0.424 | 0.322 | 0.421 | 0.274 | 0.195 |
| Q12_3 | 0.380 | 0.402 | 0.433 | 0.723 | 0.425 | 0.349 | 0.419 | 0.468 | 0.289 | 0.346 | 0.317 | 0.378 | 0.409 | 0.342 | 0.336 | 0.355 | 0.358 | 0.364 | 0.399 | 0.356 | 0.384 | 0.345 | 0.356 | 0.310 | 0.263 |
| Q12_4 | 0.402 | 0.365 | 0.435 | 0.786 | 0.384 | 0.356 | 0.377 | 0.461 | 0.379 | 0.359 | 0.338 | 0.385 | 0.399 | 0.354 | 0.332 | 0.335 | 0.366 | 0.384 | 0.414 | 0.355 | 0.390 | 0.369 | 0.381 | 0.315 | 0.194 |
| Q12_5 | 0.369 | 0.370 | 0.415 | 0.779 | 0.459 | 0.352 | 0.392 | 0.472 | 0.341 | 0.362 | 0.322 | 0.414 | 0.392 | 0.418 | 0.390 | 0.278 | 0.343 | 0.327 | 0.378 | 0.407 | 0.378 | 0.343 | 0.375 | 0.337 | 0.247 |
| Q12_6 | 0.405 | 0.354 | 0.431 | 0.848 | 0.381 | 0.383 | 0.400 | 0.458 | 0.330 | 0.364 | 0.272 | 0.368 | 0.412 | 0.411 | 0.356 | 0.332 | 0.320 | 0.305 | 0.352 | 0.380 | 0.351 | 0.397 | 0.346 | 0.295 | 0.160 |
| Q12_7 | 0.354 | 0.344 | 0.459 | 0.848 | 0.423 | 0.352 | 0.401 | 0.471 | 0.305 | 0.302 | 0.273 | 0.364 | 0.364 | 0.409 | 0.333 | 0.289 | 0.298 | 0.308 | 0.359 | 0.352 | 0.352 | 0.356 | 0.309 | 0.292 | 0.138 |
| Q12_8 | 0.352 | 0.422 | 0.433 | 0.792 | 0.423 | 0.350 | 0.417 | 0.463 | 0.250 | 0.354 | 0.318 | 0.364 | 0.395 | 0.421 | 0.356 | 0.355 | 0.362 | 0.355 | 0.388 | 0.342 | 0.387 | 0.369 | 0.314 | 0.323 | 0.163 |
| Q12_9 | 0.375 | 0.424 | 0.517 | 0.781 | 0.467 | 0.384 | 0.436 | 0.474 | 0.351 | 0.366 | 0.268 | 0.398 | 0.450 | 0.489 | 0.405 | 0.381 | 0.359 | 0.367 | 0.393 | 0.355 | 0.413 | 0.370 | 0.317 | 0.313 | 0.098 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|--------------|--------------|--------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Q13_2 | 0.404 | 0.451 | 0.482 | 0.421 | 0.746 | 0.352 | 0.433 | 0.423 | 0.284 | 0.227 | 0.271 | 0.297 | 0.308 | 0.367 | 0.252 | 0.333 | 0.325 | 0.337 | 0.325 | 0.288 | 0.310 | 0.289 | 0.350 | 0.295 | 0.188 |
| Q13_3 | 0.402 | 0.407 | 0.459 | 0.462 | 0.810 | 0.379 | 0.447 | 0.435 | 0.304 | 0.320 | 0.257 | 0.319 | 0.336 | 0.351 | 0.349 | 0.340 | 0.345 | 0.321 | 0.321 | 0.315 | 0.330 | 0.315 | 0.349 | 0.262 | 0.190 |
| Q13_4 | 0.326 | 0.348 | 0.351 | 0.453 | 0.761 | 0.320 | 0.391 | 0.384 | 0.350 | 0.329 | 0.227 | 0.282 | 0.347 | 0.364 | 0.362 | 0.350 | 0.327 | 0.323 | 0.332 | 0.375 | 0.363 | 0.400 | 0.344 | 0.255 | 0.215 |
| Q13_5 | 0.439 | 0.445 | 0.504 | 0.439 | 0.829 | 0.382 | 0.450 | 0.439 | 0.337 | 0.350 | 0.244 | 0.297 | 0.365 | 0.407 | 0.306 | 0.306 | 0.353 | 0.375 | 0.360 | 0.287 | 0.342 | 0.312 | 0.337 | 0.297 | 0.190 |
| Q13_6 | 0.428 | 0.409 | 0.463 | 0.353 | 0.792 | 0.427 | 0.422 | 0.383 | 0.351 | 0.341 | 0.353 | 0.352 | 0.401 | 0.365 | 0.332 | 0.370 | 0.335 | 0.370 | 0.357 | 0.357 | 0.372 | 0.321 | 0.339 | 0.254 | 0.205 |
| Q13_7 | 0.410 | 0.413 | 0.453 | 0.362 | 0.710 | 0.421 | 0.401 | 0.354 | 0.335 | 0.370 | 0.326 | 0.327 | 0.404 | 0.315 | 0.323 | 0.308 | 0.356 | 0.332 | 0.323 | 0.272 | 0.323 | 0.323 | 0.327 | 0.260 | 0.174 |
| Q14_1 | 0.311 | 0.255 | 0.258 | 0.286 | 0.385 | 0.701 | 0.354 | 0.369 | 0.259 | 0.252 | 0.206 | 0.297 | 0.244 | 0.272 | 0.254 | 0.234 | 0.207 | 0.238 | 0.273 | 0.285 | 0.264 | 0.196 | 0.217 | 0.170 | 0.162 |
| Q14_2 | 0.312 | 0.320 | 0.317 | 0.336 | 0.358 | 0.760 | 0.466 | 0.390 | 0.326 | 0.346 | 0.238 | 0.305 | 0.362 | 0.371 | 0.352 | 0.352 | 0.311 | 0.332 | 0.350 | 0.364 | 0.314 | 0.300 | 0.338 | 0.250 | 0.184 |
| Q14_3 | 0.353 | 0.300 | 0.367 | 0.380 | 0.357 | 0.816 | 0.442 | 0.415 | 0.316 | 0.338 | 0.290 | 0.334 | 0.370 | 0.282 | 0.335 | 0.332 | 0.320 | 0.266 | 0.291 | 0.291 | 0.278 | 0.272 | 0.337 | 0.201 | 0.115 |
| Q14_4 | 0.351 | 0.377 | 0.416 | 0.381 | 0.380 | 0.827 | 0.479 | 0.421 | 0.250 | 0.311 | 0.239 | 0.328 | 0.373 | 0.395 | 0.372 | 0.315 | 0.319 | 0.335 | 0.315 | 0.352 | 0.371 | 0.327 | 0.355 | 0.296 | 0.151 |
| Q14_5 | 0.391 | 0.441 | 0.456 | 0.426 | 0.427 | 0.786 | 0.465 | 0.475 | 0.272 | 0.299 | 0.290 | 0.375 | 0.388 | 0.405 | 0.334 | 0.288 | 0.326 | 0.320 | 0.315 | 0.312 | 0.325 | 0.291 | 0.376 | 0.303 | 0.148 |
| Q15_2 | 0.230 | 0.299 | 0.359 | 0.355 | 0.446 | 0.456 | 0.720 | 0.420 | 0.349 | 0.314 | 0.322 | 0.378 | 0.414 | 0.372 | 0.326 | 0.346 | 0.339 | 0.381 | 0.375 | 0.342 | 0.388 | 0.336 | 0.376 | 0.353 | 0.262 |
| Q15_3 | 0.279 | 0.374 | 0.448 | 0.404 | 0.434 | 0.461 | 0.769 | 0.423 | 0.327 | 0.297 | 0.274 | 0.297 | 0.372 | 0.375 | 0.309 | 0.339 | 0.392 | 0.371 | 0.393 | 0.335 | 0.368 | 0.307 | 0.347 | 0.349 | 0.203 |
| Q15_4 | 0.288 | 0.370 | 0.437 | 0.349 | 0.392 | 0.380 | 0.764 | 0.422 | 0.273 | 0.361 | 0.293 | 0.285 | 0.375 | 0.333 | 0.338 | 0.329 | 0.334 | 0.353 | 0.340 | 0.313 | 0.332 | 0.265 | 0.336 | 0.347 | 0.142 |
| Q15_5 | 0.389 | 0.435 | 0.456 | 0.437 | 0.438 | 0.467 | 0.846 | 0.483 | 0.251 | 0.350 | 0.274 | 0.322 | 0.364 | 0.395 | 0.378 | 0.320 | 0.351 | 0.320 | 0.370 | 0.321 | 0.350 | 0.271 | 0.338 | 0.282 | 0.139 |
| Q15_6 | 0.393 | 0.401 | 0.450 | 0.443 | 0.433 | 0.457 | 0.800 | 0.491 | 0.317 | 0.363 | 0.323 | 0.371 | 0.360 | 0.425 | 0.357 | 0.343 | 0.332 | 0.353 | 0.381 | 0.385 | 0.356 | 0.351 | 0.392 | 0.274 | 0.215 |
| Q16_1 | 0.363 | 0.293 | 0.426 | 0.427 | 0.398 | 0.382 | 0.444 | 0.753 | 0.257 | 0.311 | 0.235 | 0.311 | 0.348 | 0.314 | 0.348 | 0.365 | 0.332 | 0.374 | 0.316 | 0.353 | 0.327 | 0.285 | 0.346 | 0.305 | 0.179 |
| Q16_2 | 0.355 | 0.355 | 0.438 | 0.450 | 0.438 | 0.440 | 0.463 | 0.819 | 0.269 | 0.265 | 0.291 | 0.374 | 0.350 | 0.365 | 0.355 | 0.360 | 0.353 | 0.382 | 0.358 | 0.370 | 0.419 | 0.311 | 0.340 | 0.357 | 0.223 |
| Q16_3 | 0.352 | 0.311 | 0.387 | 0.457 | 0.398 | 0.393 | 0.473 | 0.793 | 0.363 | 0.354 | 0.354 | 0.358 | 0.405 | 0.362 | 0.358 | 0.372 | 0.343 | 0.364 | 0.371 | 0.413 | 0.358 | 0.341 | 0.345 | 0.370 | 0.277 |
| Q16_4 | 0.404 | 0.453 | 0.432 | 0.526 | 0.407 | 0.461 | 0.481 | 0.817 | 0.346 | 0.315 | 0.354 | 0.382 | 0.396 | 0.393 | 0.415 | 0.362 | 0.375 | 0.358 | 0.390 | 0.373 | 0.435 | 0.394 | 0.415 | 0.377 | 0.156 |
| Q16_5 | 0.367 | 0.399 | 0.357 | 0.459 | 0.420 | 0.433 | 0.411 | 0.769 | 0.340 | 0.356 | 0.350 | 0.376 | 0.388 | 0.407 | 0.402 | 0.388 | 0.358 | 0.337 | 0.370 | 0.331 | 0.370 | 0.363 | 0.330 | 0.333 | 0.225 |
| Q17_1 | 0.142 | 0.177 | 0.246 | 0.251 | 0.302 | 0.228 | 0.230 | 0.304 | 0.767 | 0.508 | 0.414 | 0.354 | 0.446 | 0.380 | 0.340 | 0.382 | 0.414 | 0.372 | 0.423 | 0.373 | 0.355 | 0.398 | 0.457 | 0.410 | 0.307 |
| Q17_2 | 0.209 | 0.207 | 0.259 | 0.285 | 0.355 | 0.255 | 0.254 | 0.315 | 0.833 | 0.553 | 0.430 | 0.473 | 0.501 | 0.463 | 0.445 | 0.469 | 0.473 | 0.503 | 0.483 | 0.462 | 0.473 | 0.481 | 0.459 | 0.455 | 0.403 |
| Q17_3 | 0.210 | 0.215 | 0.243 | 0.300 | 0.313 | 0.300 | 0.333 | 0.310 | 0.789 | 0.459 | 0.332 | 0.347 | 0.399 | 0.391 | 0.304 | 0.349 | 0.401 | 0.410 | 0.393 | 0.361 | 0.370 | 0.381 | 0.403 | 0.339 | 0.372 |
| Q17_4 | 0.222 | 0.311 | 0.344 | 0.355 | 0.375 | 0.322 | 0.359 | 0.321 | 0.789 | 0.519 | 0.423 | 0.386 | 0.397 | 0.430 | 0.375 | 0.381 | 0.395 | 0.419 | 0.354 | 0.365 | 0.373 | 0.406 | 0.350 | 0.363 | 0.221 |
| Q17_5 | 0.249 | 0.325 | 0.350 | 0.393 | 0.330 | 0.324 | 0.344 | 0.345 | 0.727 | 0.544 | 0.420 | 0.437 | 0.439 | 0.449 | 0.388 | 0.423 | 0.409 | 0.420 | 0.379 | 0.415 | 0.407 | 0.416 | 0.404 | 0.404 | 0.259 |

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|--------------|--------------|--------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Q18_1 | 0.233 | 0.209 | 0.308 | 0.322 | 0.305 | 0.274 | 0.325 | 0.269 | 0.531 | 0.729 | 0.443 | 0.431 | 0.467 | 0.435 | 0.397 | 0.419 | 0.459 | 0.450 | 0.453 | 0.442 | 0.417 | 0.420 | 0.472 | 0.403 | 0.319 |
| Q18_2 | 0.267 | 0.176 | 0.316 | 0.317 | 0.323 | 0.331 | 0.320 | 0.303 | 0.550 | 0.807 | 0.480 | 0.480 | 0.516 | 0.449 | 0.450 | 0.438 | 0.474 | 0.512 | 0.421 | 0.435 | 0.433 | 0.459 | 0.501 | 0.426 | 0.357 |
| Q18_3 | 0.277 | 0.258 | 0.400 | 0.396 | 0.369 | 0.328 | 0.362 | 0.325 | 0.515 | 0.856 | 0.502 | 0.466 | 0.538 | 0.494 | 0.472 | 0.451 | 0.473 | 0.501 | 0.474 | 0.409 | 0.485 | 0.463 | 0.491 | 0.462 | 0.298 |
| Q18_4 | 0.253 | 0.344 | 0.335 | 0.353 | 0.301 | 0.327 | 0.362 | 0.325 | 0.493 | 0.768 | 0.463 | 0.436 | 0.482 | 0.450 | 0.455 | 0.392 | 0.376 | 0.388 | 0.409 | 0.415 | 0.434 | 0.393 | 0.375 | 0.393 | 0.204 |
| Q18_5 | 0.265 | 0.353 | 0.335 | 0.379 | 0.335 | 0.304 | 0.335 | 0.367 | 0.517 | 0.776 | 0.503 | 0.463 | 0.501 | 0.512 | 0.479 | 0.437 | 0.460 | 0.454 | 0.461 | 0.461 | 0.491 | 0.471 | 0.421 | 0.416 | 0.260 |
| Q19_1 | 0.204 | 0.245 | 0.328 | 0.213 | 0.295 | 0.221 | 0.282 | 0.306 | 0.430 | 0.512 | 0.770 | 0.480 | 0.468 | 0.401 | 0.393 | 0.460 | 0.430 | 0.435 | 0.432 | 0.416 | 0.425 | 0.442 | 0.419 | 0.436 | 0.348 |
| Q19_2 | 0.222 | 0.219 | 0.239 | 0.325 | 0.265 | 0.275 | 0.288 | 0.335 | 0.443 | 0.503 | 0.804 | 0.465 | 0.489 | 0.423 | 0.397 | 0.440 | 0.458 | 0.419 | 0.420 | 0.439 | 0.447 | 0.466 | 0.431 | 0.433 | 0.373 |
| Q19_3 | 0.265 | 0.281 | 0.342 | 0.340 | 0.320 | 0.308 | 0.329 | 0.370 | 0.471 | 0.522 | 0.870 | 0.561 | 0.558 | 0.514 | 0.453 | 0.501 | 0.493 | 0.475 | 0.447 | 0.411 | 0.469 | 0.502 | 0.462 | 0.464 | 0.353 |
| Q19_4 | 0.187 | 0.272 | 0.292 | 0.314 | 0.291 | 0.285 | 0.300 | 0.316 | 0.430 | 0.487 | 0.833 | 0.511 | 0.526 | 0.443 | 0.414 | 0.432 | 0.477 | 0.466 | 0.439 | 0.398 | 0.390 | 0.507 | 0.423 | 0.485 | 0.385 |
| Q19_5 | 0.169 | 0.263 | 0.297 | 0.335 | 0.281 | 0.273 | 0.330 | 0.373 | 0.424 | 0.429 | 0.756 | 0.495 | 0.491 | 0.480 | 0.460 | 0.441 | 0.449 | 0.450 | 0.443 | 0.405 | 0.388 | 0.483 | 0.384 | 0.446 | 0.417 |
| Q20_1 | 0.237 | 0.233 | 0.346 | 0.305 | 0.304 | 0.324 | 0.287 | 0.315 | 0.397 | 0.423 | 0.458 | 0.772 | 0.526 | 0.476 | 0.458 | 0.425 | 0.489 | 0.419 | 0.482 | 0.470 | 0.435 | 0.406 | 0.449 | 0.395 | 0.340 |
| Q20_2 | 0.273 | 0.218 | 0.331 | 0.395 | 0.281 | 0.317 | 0.278 | 0.330 | 0.389 | 0.422 | 0.443 | 0.822 | 0.574 | 0.449 | 0.495 | 0.445 | 0.466 | 0.435 | 0.471 | 0.494 | 0.437 | 0.435 | 0.466 | 0.433 | 0.319 |
| Q20_3 | 0.310 | 0.214 | 0.329 | 0.363 | 0.280 | 0.321 | 0.301 | 0.350 | 0.371 | 0.453 | 0.494 | 0.816 | 0.559 | 0.422 | 0.490 | 0.502 | 0.447 | 0.424 | 0.447 | 0.476 | 0.394 | 0.390 | 0.484 | 0.410 | 0.285 |
| Q20_4 | 0.360 | 0.257 | 0.359 | 0.419 | 0.304 | 0.329 | 0.360 | 0.383 | 0.415 | 0.503 | 0.527 | 0.790 | 0.608 | 0.461 | 0.477 | 0.465 | 0.433 | 0.468 | 0.464 | 0.460 | 0.436 | 0.416 | 0.436 | 0.482 | 0.313 |
| Q20_5 | 0.425 | 0.259 | 0.382 | 0.399 | 0.403 | 0.367 | 0.423 | 0.405 | 0.439 | 0.460 | 0.515 | 0.719 | 0.564 | 0.540 | 0.559 | 0.544 | 0.492 | 0.455 | 0.474 | 0.461 | 0.450 | 0.470 | 0.454 | 0.441 | 0.383 |
| Q21_1 | 0.261 | 0.233 | 0.320 | 0.371 | 0.267 | 0.262 | 0.295 | 0.373 | 0.425 | 0.469 | 0.498 | 0.602 | 0.713 | 0.471 | 0.493 | 0.486 | 0.497 | 0.490 | 0.448 | 0.497 | 0.528 | 0.473 | 0.524 | 0.502 | 0.357 |
| Q21_2 | 0.321 | 0.244 | 0.345 | 0.370 | 0.320 | 0.312 | 0.321 | 0.344 | 0.457 | 0.524 | 0.467 | 0.565 | 0.792 | 0.496 | 0.494 | 0.527 | 0.511 | 0.515 | 0.495 | 0.521 | 0.579 | 0.485 | 0.492 | 0.475 | 0.349 |
| Q21_3 | 0.310 | 0.332 | 0.410 | 0.406 | 0.355 | 0.389 | 0.405 | 0.368 | 0.489 | 0.526 | 0.513 | 0.582 | 0.825 | 0.503 | 0.503 | 0.501 | 0.510 | 0.539 | 0.475 | 0.502 | 0.494 | 0.552 | 0.538 | 0.465 | 0.319 |
| Q21_4 | 0.352 | 0.353 | 0.433 | 0.413 | 0.445 | 0.397 | 0.436 | 0.394 | 0.440 | 0.513 | 0.497 | 0.554 | 0.830 | 0.586 | 0.524 | 0.534 | 0.524 | 0.552 | 0.479 | 0.488 | 0.505 | 0.541 | 0.535 | 0.433 | 0.289 |
| Q21_5 | 0.329 | 0.342 | 0.504 | 0.437 | 0.434 | 0.409 | 0.429 | 0.402 | 0.399 | 0.472 | 0.497 | 0.544 | 0.774 | 0.624 | 0.546 | 0.523 | 0.539 | 0.537 | 0.514 | 0.479 | 0.493 | 0.527 | 0.558 | 0.495 | 0.351 |
| Q22_1 | 0.260 | 0.340 | 0.394 | 0.331 | 0.399 | 0.355 | 0.357 | 0.312 | 0.367 | 0.420 | 0.359 | 0.476 | 0.514 | 0.716 | 0.404 | 0.393 | 0.406 | 0.447 | 0.517 | 0.504 | 0.466 | 0.445 | 0.483 | 0.395 | 0.303 |
| Q22_2 | 0.323 | 0.258 | 0.339 | 0.419 | 0.407 | 0.361 | 0.389 | 0.375 | 0.467 | 0.474 | 0.425 | 0.463 | 0.516 | 0.828 | 0.534 | 0.488 | 0.476 | 0.481 | 0.525 | 0.515 | 0.512 | 0.457 | 0.457 | 0.407 | 0.389 |
| Q22_3 | 0.269 | 0.409 | 0.352 | 0.439 | 0.350 | 0.362 | 0.399 | 0.398 | 0.421 | 0.485 | 0.457 | 0.463 | 0.559 | 0.837 | 0.508 | 0.405 | 0.458 | 0.471 | 0.526 | 0.497 | 0.525 | 0.461 | 0.454 | 0.474 | 0.314 |
| Q22_4 | 0.195 | 0.335 | 0.423 | 0.443 | 0.344 | 0.355 | 0.418 | 0.402 | 0.475 | 0.516 | 0.539 | 0.518 | 0.588 | 0.814 | 0.603 | 0.532 | 0.570 | 0.507 | 0.575 | 0.515 | 0.545 | 0.511 | 0.483 | 0.499 | 0.387 |
| Q23_1 | 0.205 | 0.234 | 0.290 | 0.275 | 0.264 | 0.288 | 0.290 | 0.310 | 0.355 | 0.416 | 0.357 | 0.444 | 0.436 | 0.483 | 0.732 | 0.530 | 0.478 | 0.412 | 0.440 | 0.518 | 0.471 | 0.378 | 0.461 | 0.446 | 0.362 |
| Q23_2 | 0.261 | 0.227 | 0.340 | 0.303 | 0.299 | 0.322 | 0.314 | 0.403 | 0.350 | 0.457 | 0.386 | 0.498 | 0.514 | 0.521 | 0.809 | 0.548 | 0.531 | 0.486 | 0.509 | 0.521 | 0.525 | 0.494 | 0.534 | 0.492 | 0.363 |
| Q23_3 | 0.319 | 0.223 | 0.350 | 0.360 | 0.327 | 0.364 | 0.369 | 0.385 | 0.385 | 0.450 | 0.454 | 0.541 | 0.511 | 0.509 | 0.824 | 0.544 | 0.520 | 0.537 | 0.557 | 0.556 | 0.503 | 0.516 | 0.508 | 0.441 | 0.397 |
| Q23_4 | 0.323 | 0.287 | 0.412 | 0.438 | 0.395 | 0.386 | 0.431 | 0.447 | 0.395 | 0.415 | 0.429 | 0.508 | 0.516 | 0.518 | 0.800 | 0.567 | 0.494 | 0.485 | 0.502 | 0.492 | 0.496 | 0.504 | 0.482 | 0.403 | 0.422 |
| Q23_5 | 0.309 | 0.289 | 0.430 | 0.423 | 0.392 | 0.338 | 0.389 | 0.398 | 0.424 | 0.507 | 0.468 | 0.544 | 0.618 | 0.552 | 0.836 | 0.618 | 0.574 | 0.535 | 0.550 | 0.528 | 0.524 | 0.545 | 0.552 | 0.422 | 0.312 |

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| Q24_1 | 0.267 | 0.169 | 0.321 | 0.302 | 0.316 | 0.305 | 0.343 | 0.364 | 0.424 | 0.420 | 0.354 | 0.428 | 0.464 | 0.385 | 0.522 | 0.741 | 0.480 | 0.456 | 0.423 | 0.432 | 0.469 | 0.432 | 0.455 | 0.316 | 0.274 |
| Q24_2 | 0.265 | 0.198 | 0.306 | 0.280 | 0.326 | 0.258 | 0.274 | 0.333 | 0.402 | 0.387 | 0.419 | 0.498 | 0.521 | 0.403 | 0.545 | 0.806 | 0.514 | 0.506 | 0.468 | 0.502 | 0.489 | 0.450 | 0.480 | 0.434 | 0.374 |
| Q24_3 | 0.293 | 0.265 | 0.405 | 0.347 | 0.362 | 0.316 | 0.349 | 0.375 | 0.419 | 0.427 | 0.473 | 0.451 | 0.497 | 0.431 | 0.545 | 0.847 | 0.551 | 0.541 | 0.465 | 0.485 | 0.480 | 0.512 | 0.514 | 0.427 | 0.325 |
| Q24_4 | 0.332 | 0.288 | 0.423 | 0.429 | 0.377 | 0.373 | 0.413 | 0.432 | 0.433 | 0.503 | 0.514 | 0.541 | 0.592 | 0.561 | 0.618 | 0.840 | 0.597 | 0.554 | 0.506 | 0.534 | 0.565 | 0.552 | 0.530 | 0.448 | 0.402 |
| Q24_5 | 0.280 | 0.322 | 0.379 | 0.321 | 0.348 | 0.315 | 0.340 | 0.369 | 0.401 | 0.440 | 0.492 | 0.528 | 0.544 | 0.500 | 0.585 | 0.785 | 0.573 | 0.547 | 0.462 | 0.507 | 0.536 | 0.492 | 0.539 | 0.489 | 0.379 |
| Q25_1 | 0.242 | 0.244 | 0.362 | 0.291 | 0.303 | 0.266 | 0.313 | 0.319 | 0.432 | 0.445 | 0.454 | 0.448 | 0.499 | 0.441 | 0.452 | 0.517 | 0.768 | 0.539 | 0.496 | 0.502 | 0.502 | 0.525 | 0.577 | 0.493 | 0.350 |
| Q25_2 | 0.285 | 0.311 | 0.388 | 0.351 | 0.381 | 0.325 | 0.372 | 0.376 | 0.511 | 0.495 | 0.515 | 0.500 | 0.571 | 0.533 | 0.507 | 0.578 | 0.833 | 0.602 | 0.552 | 0.544 | 0.594 | 0.572 | 0.627 | 0.567 | 0.386 |
| Q25_3 | 0.204 | 0.317 | 0.376 | 0.409 | 0.373 | 0.367 | 0.410 | 0.356 | 0.437 | 0.445 | 0.418 | 0.456 | 0.503 | 0.463 | 0.502 | 0.546 | 0.818 | 0.566 | 0.460 | 0.504 | 0.508 | 0.453 | 0.543 | 0.468 | 0.347 |
| Q25_4 | 0.236 | 0.298 | 0.384 | 0.383 | 0.376 | 0.325 | 0.420 | 0.410 | 0.402 | 0.477 | 0.453 | 0.515 | 0.563 | 0.505 | 0.586 | 0.559 | 0.851 | 0.635 | 0.539 | 0.560 | 0.593 | 0.523 | 0.588 | 0.529 | 0.353 |
| Q25_5 | 0.174 | 0.260 | 0.342 | 0.321 | 0.344 | 0.274 | 0.352 | 0.354 | 0.396 | 0.446 | 0.474 | 0.488 | 0.517 | 0.490 | 0.584 | 0.545 | 0.783 | 0.607 | 0.491 | 0.486 | 0.526 | 0.502 | 0.507 | 0.509 | 0.348 |
| Q26_1 | 0.241 | 0.264 | 0.326 | 0.308 | 0.304 | 0.272 | 0.342 | 0.280 | 0.443 | 0.494 | 0.438 | 0.416 | 0.526 | 0.488 | 0.449 | 0.485 | 0.581 | 0.752 | 0.494 | 0.491 | 0.544 | 0.512 | 0.510 | 0.467 | 0.355 |
| Q26_2 | 0.251 | 0.292 | 0.320 | 0.306 | 0.355 | 0.301 | 0.321 | 0.344 | 0.490 | 0.509 | 0.444 | 0.423 | 0.513 | 0.461 | 0.446 | 0.521 | 0.547 | 0.826 | 0.502 | 0.519 | 0.573 | 0.494 | 0.518 | 0.513 | 0.400 |
| Q26_3 | 0.295 | 0.295 | 0.353 | 0.285 | 0.256 | 0.290 | 0.328 | 0.334 | 0.360 | 0.362 | 0.377 | 0.390 | 0.483 | 0.379 | 0.458 | 0.484 | 0.507 | 0.793 | 0.476 | 0.438 | 0.492 | 0.435 | 0.502 | 0.487 | 0.371 |
| Q26_4 | 0.317 | 0.306 | 0.424 | 0.418 | 0.421 | 0.338 | 0.400 | 0.417 | 0.433 | 0.480 | 0.447 | 0.492 | 0.559 | 0.519 | 0.513 | 0.521 | 0.593 | 0.836 | 0.573 | 0.553 | 0.575 | 0.530 | 0.556 | 0.506 | 0.345 |
| Q26_5 | 0.309 | 0.328 | 0.472 | 0.414 | 0.356 | 0.344 | 0.424 | 0.458 | 0.469 | 0.509 | 0.523 | 0.532 | 0.604 | 0.542 | 0.596 | 0.595 | 0.689 | 0.824 | 0.655 | 0.575 | 0.622 | 0.570 | 0.620 | 0.559 | 0.425 |
| Q27_1 | 0.337 | 0.291 | 0.421 | 0.402 | 0.361 | 0.343 | 0.424 | 0.381 | 0.459 | 0.470 | 0.423 | 0.493 | 0.544 | 0.508 | 0.495 | 0.447 | 0.519 | 0.522 | 0.795 | 0.542 | 0.582 | 0.525 | 0.545 | 0.470 | 0.334 |
| Q27_2 | 0.279 | 0.317 | 0.378 | 0.393 | 0.370 | 0.285 | 0.369 | 0.370 | 0.445 | 0.446 | 0.439 | 0.516 | 0.510 | 0.549 | 0.499 | 0.442 | 0.490 | 0.521 | 0.822 | 0.538 | 0.586 | 0.476 | 0.526 | 0.479 | 0.369 |
| Q27_3 | 0.250 | 0.267 | 0.370 | 0.351 | 0.308 | 0.294 | 0.350 | 0.339 | 0.417 | 0.450 | 0.448 | 0.474 | 0.484 | 0.486 | 0.515 | 0.485 | 0.484 | 0.558 | 0.812 | 0.606 | 0.582 | 0.496 | 0.515 | 0.510 | 0.396 |
| Q27_4 | 0.297 | 0.373 | 0.436 | 0.417 | 0.354 | 0.347 | 0.416 | 0.390 | 0.405 | 0.455 | 0.418 | 0.471 | 0.469 | 0.595 | 0.548 | 0.482 | 0.529 | 0.565 | 0.832 | 0.588 | 0.549 | 0.513 | 0.533 | 0.486 | 0.387 |
| Q27_5 | 0.245 | 0.307 | 0.351 | 0.384 | 0.317 | 0.330 | 0.361 | 0.366 | 0.387 | 0.453 | 0.451 | 0.457 | 0.467 | 0.569 | 0.527 | 0.480 | 0.510 | 0.559 | 0.775 | 0.583 | 0.551 | 0.527 | 0.516 | 0.470 | 0.428 |
| Q28_1 | 0.203 | 0.277 | 0.281 | 0.311 | 0.309 | 0.354 | 0.326 | 0.354 | 0.440 | 0.442 | 0.469 | 0.469 | 0.496 | 0.512 | 0.523 | 0.489 | 0.501 | 0.499 | 0.562 | 0.797 | 0.573 | 0.497 | 0.557 | 0.486 | 0.389 |
| Q28_2 | 0.193 | 0.261 | 0.316 | 0.362 | 0.256 | 0.329 | 0.326 | 0.354 | 0.416 | 0.457 | 0.437 | 0.470 | 0.490 | 0.504 | 0.518 | 0.482 | 0.532 | 0.518 | 0.588 | 0.826 | 0.548 | 0.506 | 0.545 | 0.475 | 0.364 |
| Q28_3 | 0.350 | 0.296 | 0.361 | 0.419 | 0.344 | 0.398 | 0.409 | 0.389 | 0.388 | 0.437 | 0.393 | 0.496 | 0.486 | 0.491 | 0.554 | 0.499 | 0.477 | 0.495 | 0.547 | 0.832 | 0.543 | 0.520 | 0.501 | 0.392 | 0.438 |
| Q28_4 | 0.363 | 0.273 | 0.374 | 0.386 | 0.342 | 0.309 | 0.357 | 0.384 | 0.401 | 0.441 | 0.382 | 0.501 | 0.546 | 0.540 | 0.550 | 0.495 | 0.542 | 0.539 | 0.599 | 0.850 | 0.597 | 0.550 | 0.544 | 0.472 | 0.392 |
| Q28_5 | 0.326 | 0.283 | 0.380 | 0.395 | 0.366 | 0.297 | 0.365 | 0.425 | 0.439 | 0.466 | 0.414 | 0.528 | 0.561 | 0.545 | 0.525 | 0.541 | 0.566 | 0.574 | 0.598 | 0.786 | 0.648 | 0.550 | 0.532 | 0.505 | 0.375 |

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| Q29_1 | 0.261 | 0.277 | 0.385 | 0.347 | 0.353 | 0.301 | 0.324 | 0.368 | 0.322 | 0.406 | 0.399 | 0.488 | 0.530 | 0.485 | 0.512 | 0.499 | 0.510 | 0.503 | 0.521 | 0.583 | 0.745 | 0.491 | 0.553 | 0.462 | 0.418 |
| Q29_2 | 0.294 | 0.256 | 0.337 | 0.355 | 0.312 | 0.331 | 0.361 | 0.377 | 0.391 | 0.473 | 0.385 | 0.398 | 0.506 | 0.470 | 0.513 | 0.545 | 0.535 | 0.501 | 0.517 | 0.549 | 0.794 | 0.524 | 0.578 | 0.479 | 0.446 |
| Q29_3 | 0.317 | 0.289 | 0.433 | 0.391 | 0.337 | 0.326 | 0.379 | 0.404 | 0.448 | 0.503 | 0.440 | 0.455 | 0.539 | 0.500 | 0.517 | 0.516 | 0.545 | 0.570 | 0.598 | 0.555 | 0.843 | 0.574 | 0.624 | 0.497 | 0.474 |
| Q29_4 | 0.277 | 0.266 | 0.384 | 0.373 | 0.356 | 0.342 | 0.393 | 0.407 | 0.458 | 0.465 | 0.447 | 0.429 | 0.531 | 0.529 | 0.488 | 0.533 | 0.591 | 0.615 | 0.622 | 0.579 | 0.850 | 0.597 | 0.594 | 0.540 | 0.421 |
| Q29_5 | 0.262 | 0.332 | 0.426 | 0.423 | 0.354 | 0.301 | 0.363 | 0.408 | 0.466 | 0.478 | 0.443 | 0.439 | 0.543 | 0.543 | 0.493 | 0.476 | 0.535 | 0.599 | 0.589 | 0.577 | 0.822 | 0.596 | 0.569 | 0.533 | 0.403 |
| Q29_6 | 0.325 | 0.379 | 0.447 | 0.430 | 0.373 | 0.345 | 0.404 | 0.438 | 0.434 | 0.465 | 0.438 | 0.469 | 0.558 | 0.590 | 0.536 | 0.509 | 0.555 | 0.603 | 0.581 | 0.621 | 0.805 | 0.643 | 0.613 | 0.535 | 0.372 |
| Q30_1 | 0.256 | 0.313 | 0.277 | 0.291 | 0.377 | 0.300 | 0.297 | 0.329 | 0.367 | 0.432 | 0.407 | 0.349 | 0.448 | 0.399 | 0.423 | 0.446 | 0.461 | 0.425 | 0.440 | 0.407 | 0.518 | 0.708 | 0.510 | 0.446 | 0.365 |
| Q30_2 | 0.250 | 0.326 | 0.289 | 0.352 | 0.348 | 0.301 | 0.241 | 0.301 | 0.388 | 0.444 | 0.473 | 0.472 | 0.512 | 0.474 | 0.485 | 0.453 | 0.483 | 0.477 | 0.480 | 0.497 | 0.558 | 0.789 | 0.542 | 0.450 | 0.448 |
| Q30_3 | 0.329 | 0.338 | 0.373 | 0.398 | 0.327 | 0.325 | 0.320 | 0.349 | 0.441 | 0.467 | 0.474 | 0.458 | 0.583 | 0.513 | 0.537 | 0.526 | 0.557 | 0.546 | 0.542 | 0.565 | 0.587 | 0.825 | 0.567 | 0.471 | 0.421 |
| Q30_4 | 0.299 | 0.323 | 0.360 | 0.392 | 0.335 | 0.267 | 0.311 | 0.368 | 0.497 | 0.473 | 0.507 | 0.425 | 0.551 | 0.481 | 0.466 | 0.501 | 0.500 | 0.548 | 0.526 | 0.527 | 0.575 | 0.848 | 0.548 | 0.476 | 0.449 |
| Q30_5 | 0.260 | 0.291 | 0.362 | 0.399 | 0.331 | 0.267 | 0.354 | 0.361 | 0.464 | 0.474 | 0.529 | 0.451 | 0.538 | 0.462 | 0.525 | 0.526 | 0.554 | 0.560 | 0.523 | 0.547 | 0.605 | 0.880 | 0.588 | 0.512 | 0.414 |
| Q30_6 | 0.257 | 0.296 | 0.383 | 0.411 | 0.355 | 0.308 | 0.390 | 0.401 | 0.464 | 0.468 | 0.525 | 0.497 | 0.577 | 0.544 | 0.557 | 0.533 | 0.565 | 0.547 | 0.568 | 0.592 | 0.621 | 0.854 | 0.611 | 0.566 | 0.424 |
| Q31_1 | 0.280 | 0.326 | 0.390 | 0.342 | 0.364 | 0.373 | 0.365 | 0.388 | 0.425 | 0.487 | 0.389 | 0.449 | 0.556 | 0.448 | 0.549 | 0.550 | 0.584 | 0.550 | 0.533 | 0.528 | 0.569 | 0.550 | 0.814 | 0.472 | 0.358 |
| Q31_2 | 0.313 | 0.318 | 0.394 | 0.354 | 0.364 | 0.372 | 0.390 | 0.356 | 0.448 | 0.498 | 0.450 | 0.561 | 0.577 | 0.422 | 0.526 | 0.518 | 0.573 | 0.498 | 0.518 | 0.537 | 0.577 | 0.581 | 0.828 | 0.460 | 0.406 |
| Q31_3 | 0.329 | 0.365 | 0.407 | 0.371 | 0.364 | 0.361 | 0.384 | 0.407 | 0.431 | 0.418 | 0.431 | 0.476 | 0.549 | 0.509 | 0.542 | 0.511 | 0.595 | 0.615 | 0.553 | 0.548 | 0.634 | 0.569 | 0.888 | 0.548 | 0.416 |
| Q31_4 | 0.291 | 0.326 | 0.389 | 0.380 | 0.383 | 0.313 | 0.395 | 0.401 | 0.488 | 0.528 | 0.491 | 0.476 | 0.575 | 0.581 | 0.515 | 0.529 | 0.604 | 0.597 | 0.586 | 0.583 | 0.654 | 0.601 | 0.827 | 0.577 | 0.424 |
| Q32_1 | 0.144 | 0.250 | 0.232 | 0.241 | 0.278 | 0.222 | 0.247 | 0.285 | 0.372 | 0.405 | 0.389 | 0.404 | 0.445 | 0.418 | 0.407 | 0.380 | 0.428 | 0.434 | 0.406 | 0.414 | 0.434 | 0.447 | 0.500 | 0.765 | 0.360 |
| Q32_2 | 0.082 | 0.249 | 0.237 | 0.259 | 0.236 | 0.229 | 0.332 | 0.308 | 0.376 | 0.378 | 0.398 | 0.394 | 0.418 | 0.361 | 0.403 | 0.449 | 0.492 | 0.493 | 0.470 | 0.429 | 0.485 | 0.416 | 0.466 | 0.811 | 0.349 |
| Q32_3 | 0.156 | 0.319 | 0.322 | 0.397 | 0.253 | 0.275 | 0.361 | 0.423 | 0.442 | 0.440 | 0.493 | 0.479 | 0.515 | 0.489 | 0.476 | 0.405 | 0.532 | 0.533 | 0.522 | 0.508 | 0.542 | 0.510 | 0.490 | 0.845 | 0.407 |
| Q32_4 | 0.109 | 0.291 | 0.256 | 0.342 | 0.281 | 0.249 | 0.344 | 0.408 | 0.411 | 0.455 | 0.487 | 0.467 | 0.500 | 0.470 | 0.476 | 0.450 | 0.530 | 0.515 | 0.499 | 0.472 | 0.525 | 0.474 | 0.528 | 0.864 | 0.365 |
| Q32_5 | 0.125 | 0.310 | 0.320 | 0.367 | 0.347 | 0.328 | 0.385 | 0.387 | 0.484 | 0.515 | 0.534 | 0.525 | 0.591 | 0.545 | 0.498 | 0.498 | 0.620 | 0.611 | 0.563 | 0.524 | 0.592 | 0.598 | 0.553 | 0.850 | 0.427 |
| Q33_1 | 0.034 | 0.181 | 0.198 | 0.197 | 0.178 | 0.184 | 0.220 | 0.218 | 0.368 | 0.339 | 0.436 | 0.390 | 0.388 | 0.392 | 0.431 | 0.394 | 0.421 | 0.413 | 0.411 | 0.418 | 0.480 | 0.475 | 0.444 | 0.456 | 0.897 |
| Q33_2 | 0.087 | 0.190 | 0.196 | 0.199 | 0.193 | 0.166 | 0.205 | 0.220 | 0.361 | 0.334 | 0.410 | 0.415 | 0.390 | 0.398 | 0.420 | 0.414 | 0.393 | 0.445 | 0.429 | 0.425 | 0.478 | 0.457 | 0.436 | 0.444 | 0.915 |
| Q33_3 | 0.096 | 0.209 | 0.234 | 0.216 | 0.238 | 0.147 | 0.233 | 0.265 | 0.384 | 0.368 | 0.419 | 0.409 | 0.408 | 0.400 | 0.459 | 0.407 | 0.414 | 0.455 | 0.450 | 0.455 | 0.498 | 0.499 | 0.454 | 0.455 | 0.943 |
| Q33_4 | 0.133 | 0.203 | 0.275 | 0.194 | 0.273 | 0.191 | 0.246 | 0.247 | 0.388 | 0.347 | 0.440 | 0.402 | 0.411 | 0.410 | 0.423 | 0.413 | 0.411 | 0.451 | 0.446 | 0.445 | 0.496 | 0.487 | 0.464 | 0.395 | 0.942 |
| Q33_5 | 0.142 | 0.189 | 0.266 | 0.223 | 0.264 | 0.193 | 0.234 | 0.272 | 0.368 | 0.321 | 0.417 | 0.348 | 0.382 | 0.414 | 0.412 | 0.402 | 0.397 | 0.424 | 0.447 | 0.464 | 0.461 | 0.455 | 0.438 | 0.370 | 0.924 |
| Q33_6 | 0.073 | 0.165 | 0.200 | 0.217 | 0.225 | 0.188 | 0.204 | 0.246 | 0.353 | 0.309 | 0.436 | 0.345 | 0.346 | 0.398 | 0.399 | 0.388 | 0.388 | 0.407 | 0.432 | 0.430 | 0.452 | 0.453 | 0.397 | 0.430 | 0.889 |

Table 5.18 Fornell-Larcker criterion results

| Construct | AISQ | AG | CD | CF | C&I | CV | CC | CF | EM | G&I | II | IQ | NP | OI | OLD | OLE | R&I | SQ | SD&I | TW | TM | USE | US | V | WI |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AIS Quality_ | 0.793 | | | | | | | | | | | | | | | | | | | | | | | | |
| Agreement | 0.400 | 0.788 | | | | | | | | | | | | | | | | | | | | | | | |
| Capability Development | 0.260 | 0.628 | 0.808 | | | | | | | | | | | | | | | | | | | | | | |
| Communication Flow | 0.336 | 0.655 | 0.595 | 0.819 | | | | | | | | | | | | | | | | | | | | | |
| Coordination and Integration | 0.412 | 0.723 | 0.623 | 0.542 | 0.785 | | | | | | | | | | | | | | | | | | | | |
| Core Values | 0.327 | 0.682 | 0.561 | 0.537 | 0.501 | 0.800 | | | | | | | | | | | | | | | | | | | |
| Creating Change | 0.356 | 0.650 | 0.525 | 0.611 | 0.534 | 0.646 | 0.801 | | | | | | | | | | | | | | | | | | |
| Customer Focus | 0.358 | 0.653 | 0.564 | 0.609 | 0.511 | 0.572 | 0.701 | 0.805 | | | | | | | | | | | | | | | | | |
| Empowerment | 0.264 | 0.561 | 0.545 | 0.535 | 0.514 | 0.544 | 0.478 | 0.516 | 0.782 | | | | | | | | | | | | | | | | |
| Goals and Intent | 0.349 | 0.613 | 0.540 | 0.629 | 0.597 | 0.671 | 0.640 | 0.579 | 0.523 | 0.807 | | | | | | | | | | | | | | | |
| Individual Impact | 0.475 | 0.508 | 0.379 | 0.459 | 0.481 | 0.513 | 0.452 | 0.420 | 0.404 | 0.483 | 0.795 | | | | | | | | | | | | | | |
| Information quality | 0.395 | 0.382 | 0.317 | 0.333 | 0.323 | 0.431 | 0.315 | 0.312 | 0.315 | 0.386 | 0.483 | 0.816 | | | | | | | | | | | | | |
| Nepotism | 0.103 | 0.423 | 0.464 | 0.513 | 0.420 | 0.438 | 0.462 | 0.439 | 0.403 | 0.475 | 0.226 | 0.207 | 0.918 | | | | | | | | | | | | |
| Organizational Impact | 0.519 | 0.464 | 0.360 | 0.419 | 0.403 | 0.467 | 0.421 | 0.431 | 0.429 | 0.434 | 0.535 | 0.533 | 0.249 | 0.776 | | | | | | | | | | | |
| Organizational Leadership | 0.361 | 0.672 | 0.525 | 0.636 | 0.584 | 0.586 | 0.634 | 0.627 | 0.535 | 0.653 | 0.431 | 0.398 | 0.478 | 0.440 | 0.840 | | | | | | | | | | |
| Organizational Learning | 0.282 | 0.656 | 0.572 | 0.636 | 0.594 | 0.601 | 0.649 | 0.678 | 0.538 | 0.627 | 0.433 | 0.353 | 0.440 | 0.439 | 0.702 | 0.811 | | | | | | | | | |
| Rewards and Incentives | 0.149 | 0.602 | 0.561 | 0.596 | 0.552 | 0.557 | 0.549 | 0.529 | 0.507 | 0.599 | 0.393 | 0.345 | 0.463 | 0.349 | 0.614 | 0.634 | 0.828 | | | | | | | | |
| Service Quality | 0.536 | 0.525 | 0.384 | 0.418 | 0.449 | 0.490 | 0.459 | 0.458 | 0.379 | 0.485 | 0.602 | 0.439 | 0.249 | 0.610 | 0.470 | 0.457 | 0.334 | 0.818 | | | | | | | |
| Strategic Direction & Intent | 0.351 | 0.669 | 0.556 | 0.634 | 0.563 | 0.597 | 0.615 | 0.649 | 0.547 | 0.675 | 0.434 | 0.369 | 0.471 | 0.443 | 0.674 | 0.728 | 0.630 | 0.474 | 0.807 | | | | | | |
| Teamwork Orientation | 0.329 | 0.636 | 0.608 | 0.551 | 0.578 | 0.594 | 0.572 | 0.543 | 0.653 | 0.563 | 0.449 | 0.349 | 0.367 | 0.416 | 0.575 | 0.570 | 0.534 | 0.443 | 0.587 | 0.788 | | | | | |
| Top Management Commitment | 0.357 | 0.660 | 0.525 | 0.706 | 0.550 | 0.642 | 0.629 | 0.633 | 0.520 | 0.706 | 0.478 | 0.371 | 0.520 | 0.437 | 0.726 | 0.673 | 0.627 | 0.497 | 0.599 | 0.574 | 0.811 | | | | |
| Use | 0.409 | 0.480 | 0.379 | 0.391 | 0.423 | 0.490 | 0.449 | 0.428 | 0.386 | 0.476 | 0.512 | 0.485 | 0.244 | 0.548 | 0.457 | 0.461 | 0.407 | 0.552 | 0.453 | 0.432 | 0.458 | 0.781 | | | |
| User Satisfaction | 0.467 | 0.478 | 0.421 | 0.430 | 0.456 | 0.468 | 0.486 | 0.467 | 0.408 | 0.457 | 0.588 | 0.461 | 0.265 | 0.521 | 0.463 | 0.448 | 0.442 | 0.525 | 0.459 | 0.404 | 0.495 | 0.575 | 0.791 | | |
| Vision | 0.352 | 0.632 | 0.512 | 0.642 | 0.503 | 0.634 | 0.653 | 0.613 | 0.510 | 0.708 | 0.458 | 0.340 | 0.478 | 0.406 | 0.655 | 0.641 | 0.571 | 0.419 | 0.543 | 0.548 | 0.712 | 0.436 | 0.457 | 0.819 | |
| Workgroup Impact | 0.443 | 0.450 | 0.338 | 0.359 | 0.424 | 0.447 | 0.425 | 0.391 | 0.354 | 0.396 | 0.469 | 0.441 | 0.194 | 0.490 | 0.422 | 0.384 | 0.318 | 0.482 | 0.385 | 0.397 | 0.400 | 0.569 | 0.535 | 0.411 | 0.779 |

Table 5.19 Heterotrait-montrait (HTMT) results

| Construct | AISQ | AG | CD | CF | C&I | CV | CC | CF | EM | G&I | II | IQ | NP | OI | OLD | OLE | R&I | SQ | SO&I | TW | TM | USE | US | V | WI | |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|--|
| AIS Quality | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agreement | 0.463 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capability Development | 0.297 | 0.733 | | | | | | | | | | | | | | | | | | | | | | | | |
| Communication Flow | 0.377 | 0.749 | 0.673 | | | | | | | | | | | | | | | | | | | | | | | |
| Coordination and Integration | 0.476 | 0.856 | 0.727 | 0.618 | | | | | | | | | | | | | | | | | | | | | | |
| Core Values | 0.390 | 0.822 | 0.664 | 0.684 | 0.724 | | | | | | | | | | | | | | | | | | | | | |
| Creating Change | 0.406 | 0.760 | 0.606 | 0.690 | 0.742 | 0.768 | | | | | | | | | | | | | | | | | | | | |
| Customer Focus | 0.409 | 0.762 | 0.647 | 0.687 | 0.711 | 0.674 | 0.812 | | | | | | | | | | | | | | | | | | | |
| Empowerment | 0.305 | 0.662 | 0.636 | 0.611 | 0.605 | 0.654 | 0.557 | 0.603 | | | | | | | | | | | | | | | | | | |
| Goals and Intent | 0.399 | 0.716 | 0.624 | 0.710 | 0.698 | 0.800 | 0.740 | 0.668 | 0.610 | | | | | | | | | | | | | | | | | |
| Individual Impact | 0.528 | 0.581 | 0.429 | 0.507 | 0.550 | 0.596 | 0.510 | 0.473 | 0.466 | 0.546 | | | | | | | | | | | | | | | | |
| Information quality | 0.434 | 0.433 | 0.357 | 0.421 | 0.366 | 0.501 | 0.354 | 0.346 | 0.361 | 0.433 | 0.529 | | | | | | | | | | | | | | | |
| Nepotism | 0.113 | 0.468 | 0.510 | 0.551 | 0.464 | 0.493 | 0.509 | 0.478 | 0.445 | 0.520 | 0.244 | 0.221 | | | | | | | | | | | | | | |
| Organizational Impact | 0.590 | 0.542 | 0.417 | 0.480 | 0.470 | 0.560 | 0.487 | 0.498 | 0.504 | 0.501 | 0.605 | 0.595 | 0.273 | | | | | | | | | | | | | |
| Organizational Leadership | 0.414 | 0.788 | 0.607 | 0.779 | 0.685 | 0.700 | 0.737 | 0.726 | 0.626 | 0.755 | 0.489 | 0.449 | 0.524 | 0.509 | | | | | | | | | | | | |
| Organizational Learning | 0.319 | 0.763 | 0.658 | 0.717 | 0.692 | 0.710 | 0.750 | 0.779 | 0.626 | 0.722 | 0.489 | 0.396 | 0.481 | 0.505 | 0.810 | | | | | | | | | | | |
| Rewards and Incentives | 0.167 | 0.690 | 0.635 | 0.661 | 0.633 | 0.649 | 0.628 | 0.599 | 0.581 | 0.679 | 0.434 | 0.383 | 0.499 | 0.396 | 0.701 | 0.715 | | | | | | | | | | |
| Service Quality | 0.595 | 0.596 | 0.433 | 0.460 | 0.511 | 0.570 | 0.516 | 0.514 | 0.434 | 0.544 | 0.662 | 0.473 | 0.266 | 0.684 | 0.530 | 0.512 | 0.368 | | | | | | | | | |
| Strategic Direction & Intent | 0.399 | 0.778 | 0.638 | 0.712 | 0.652 | 0.706 | 0.706 | 0.745 | 0.635 | 0.773 | 0.486 | 0.415 | 0.515 | 0.507 | 0.776 | 0.833 | 0.712 | 0.528 | | | | | | | | |
| Teamwork Orientation | 0.380 | 0.751 | 0.710 | 0.643 | 0.683 | 0.715 | 0.669 | 0.633 | 0.785 | 0.658 | 0.513 | 0.396 | 0.404 | 0.486 | 0.672 | 0.663 | 0.612 | 0.504 | 0.680 | | | | | | | |
| Top Management Commitment | 0.400 | 0.759 | 0.596 | 0.785 | 0.633 | 0.751 | 0.718 | 0.719 | 0.594 | 0.801 | 0.531 | 0.409 | 0.561 | 0.498 | 0.826 | 0.761 | 0.699 | 0.549 | 0.789 | 0.659 | | | | | | |
| Use | 0.467 | 0.573 | 0.447 | 0.450 | 0.501 | 0.592 | 0.527 | 0.504 | 0.467 | 0.559 | 0.585 | 0.547 | 0.274 | 0.643 | 0.539 | 0.540 | 0.473 | 0.629 | 0.532 | 0.513 | 0.530 | | | | | |
| User Satisfaction | 0.535 | 0.564 | 0.491 | 0.490 | 0.537 | 0.561 | 0.567 | 0.544 | 0.484 | 0.532 | 0.670 | 0.518 | 0.296 | 0.607 | 0.540 | 0.520 | 0.504 | 0.598 | 0.531 | 0.478 | 0.565 | 0.680 | | | | |
| Vision | 0.397 | 0.732 | 0.589 | 0.719 | 0.700 | 0.752 | 0.752 | 0.702 | 0.590 | 0.811 | 0.515 | 0.379 | 0.521 | 0.467 | 0.753 | 0.732 | 0.643 | 0.468 | 0.732 | 0.637 | 0.803 | 0.509 | 0.540 | | | |
| Workgroup Impact | 0.511 | 0.529 | 0.395 | 0.411 | 0.501 | 0.538 | 0.498 | 0.458 | 0.438 | 0.465 | 0.534 | 0.493 | 0.218 | 0.575 | 0.492 | 0.446 | 0.360 | 0.544 | 0.447 | 0.471 | 0.460 | 0.676 | 0.629 | 0.481 | | |

In the above Tables 5.17-5.19, the discriminant validity results for the first order constructs are presented. In the following Tables 5.20-5.21, the same is presented for the second and third order constructs.

Table 5.20 Discriminant validity (2nd and 3rd order construct; independent variable)

| | ADA | CON | INV | MIS | OC | AIS |
|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----|
| ADA | | | | | | |
| CON | 0.859 [0.814; 0.895] | | | | | |
| INV | 0.770 [0.690; 0.828] | 0.835 [0.771; 0.886] | | | | |
| MIS | 0.874 [0.823; 0.911] | 0.852 [0.802; 0.893] | 0.770 [0.701; 0.829] | | | |
| OC | 0.947 [0.927; 0.962] | 0.944 [0.912; 0.965] | 0.899 [0.863; 0.929] | 0.960 [0.941; 0.975] | | |
| AISS | 0.573 [0.500; 0.646] | 0.650 [0.570; 0.717] | 0.551 [0.462; 0.639] | 0.598 [0.524; 0.669] | 0.617 [0.550; 0.678] | |

The results in the above table indicate discriminant validity among ADA, CON, INV, MIS, since the HTMT value is lower than 0.90 as indicated by Henseler et al. (2015). Furthermore, the correspondent bootstrap confidence interval does not include the value 1. Therefore, as we establish discriminant validity among the independent variable second order constructs, we do as well establish validity among these constructs and the reflectively measured construct AISS. However, as expected, we cannot establish discriminant validity between ADA, CON, INV, MIS and their HOC which is OC, as the measurement model of the HOC repeated the indicators of its LOCs.

Note that the values in brackets represent the 95% bias-corrected and accelerated confidence interval of the HTMT values obtained by running the bootstrapping routine with 1200 samples in SmartPLS. The Table 5.21 below presents the 2nd and 3rd order constructs' discriminant validity.

Table 5.21 Discriminant validity (2nd and 3rd order construct; dependent variable)

| | AISQ | IQ | SQ | II | OI | WI | BE |
|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----------|
| AISQ | | 0.428 [0.328; 0.532] | 0.594 [0.488; 0.675] | | | | |
| IQ | | | 0.475 [0.339; 0.581] | | | | |
| SQ | | | | | | | |
| II | | | | | | 0.534 [0.408; 0.647] | |
| OI | | | | | | 0.605 [0.489; 0.704] | |
| WI | | | | | | | |
| AISS | 0.852 [0.799; 0.892] | 0.817 [0.763; 0.856] | 0.886 [0.845; 0.915] | | | | |
| BE | | | | 0.941 [0.910; 0.969] | 0.940 [0.907; 0.965] | 0.851 [0.789; 0.902] | |

The results in the above table indicate discriminant validity among AISQ, IQ and II since the HTMT value is lower than 0.90 as indicated by Henseler et al. (2015). Furthermore, the correspondent bootstrap confidence interval does not include the value 1. Furthermore, the results in the above table indicated as well a discriminant validity among OI, WI, and II since the HTMT

value are lower than 0.90 (Henseler et al., 2015). Note that the values in brackets represent the 95% bias-corrected and accelerated confidence interval of the HTMT values obtained by running the bootstrapping routine with 1200 samples in SmartPLS.

In summary, the analysis of the cross-loadings reveal that all items load higher on the respective constructs in comparison to their cross-loadings on other constructs. A block of items is to load higher on its respective constructs in comparison with cross loading on other constructs (Barclay et al., 1995; Chin 1998). The results are presented in the preceding Table 5.12 which shows the AVE measured as shared between a construct and its measures as suggested by Fornell and Larcker (1981). In order to indicate acceptable discriminant validity, the diagonal elements must be higher than the off-diagonal elements in the corresponding columns and rows (Barclay et al, 1995; Hulland, 1999). Considering the results presented in the preceding Table 5.19, the Heterotrait-montrait (HTMT) values meet the threshold being lower than 0.90 (Henseler et al., 2015). HTMT is explained as the mean value of the indicator correlations across constructs in relation with the geometric mean of the average correlations for the indicators measuring the same constructs. HTMT values above 0.90 indicate discriminant validity problems. Therefore, examining cross loadings, Fornell and Larcker criterion and HTMT ratio of correlations, it is evident that the measurement model meets the discriminant validity requirements. That was the case for the measurement model. Yet, the structural model assessment shows further investigations as presented in the following section 5.4.2.

5.4.2 Structural Model Assessment

The assessment of the measurement model indicated satisfactory quality of internal consistency reliability, composite, convergent, and discriminant reliability and validity. This section provides an assessment of the structural model by following 5 steps as suggested by Hair et al. (2011). These five steps are:

1. Assess model for collinearity issues
2. Assess the path co-efficient
3. Assess the level of R^2
4. Assess the effect size f^2

5. Assess the predictive relevance Q^2

5.4.2.1 Step One: Assess model for collinearity issues

In both reflective and formative types of structural models using SmartPLS, there is a potential of multi-collinearity issues. Multi-collinearity exists when two or more constructs are inter-correlated. This issue inflates the standard errors and creates reliability problems preventing researcher from assessing the relative significance of one independent variable in comparison with other variables (Garson, 2016). The analysis starts with examining the Variance Inflation Factor (VIF) values of all the sets of the predictor constructs in the structural model. The VIF values of the inner model are all below the threshold of 5 as shown in the brief Table 5.22 below. As a result, it is concluded that collinearity is not a critical issue.

Table 5.22 Inner VIF values

| Constructs | AISQ | ADA | AG | CD | COF | C&I | CV | CF | G&I |
|-----------------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| AISS | 1.000 | | | | | | | | |
| Industry | 1.394 | | | | | | | | |
| Industry*Org. Cult | 1.510 | | | | | | | | |
| Location | 1.465 | | | | | | | | |
| Location*Org. Culture | 1.290 | | | | | | | | |
| MKT level | 2.323 | | | | | | | | |
| MKT*Org. culture | 3.421 | | | | | | | | |
| Org. Culture | 1.431 | 1.000 | | | 1.000 | | | | |
| Size | 2.118 | | | | | | | | |
| Size*Org. Culture | 2.828 | | | | | | | | |
| CON | | | 1.000 | | | 1.000 | 1.000 | | |
| INV | | | | 1.000 | | | | | |
| MIS | | | | | | | | | 1.000 |
| ADA | | | | | | | | 1.000 | |

5.4.2.2 Step Two: Assess model path co-efficient: Hypothesis Testing

In this step, the path coefficients (Beta) along with the statistical significance values (*t-value*) are examined. These values are retrieved after running the bootstrapping function in

SmartPLS using a set of 1200 sub-samples assembled automatically from the dataset. The following figures illustrate the path coefficients for every path between the exogenous construct (*organizational culture*) and the endogenous construct (*AIS implementation success*). Further, the figure shows the path coefficients and T-values for the second order constructs. The path coefficients between the endogenous and exogenous constructs show positive values which support the study main question or hypothesis. Furthermore, the path coefficients between the second order and first order constructs show positive values which support the overall hypotheses of the study. The following two Figures 5.3 and 5.4 show the path coefficients and T-values among the second order constructs as well as the second order and first order constructs.

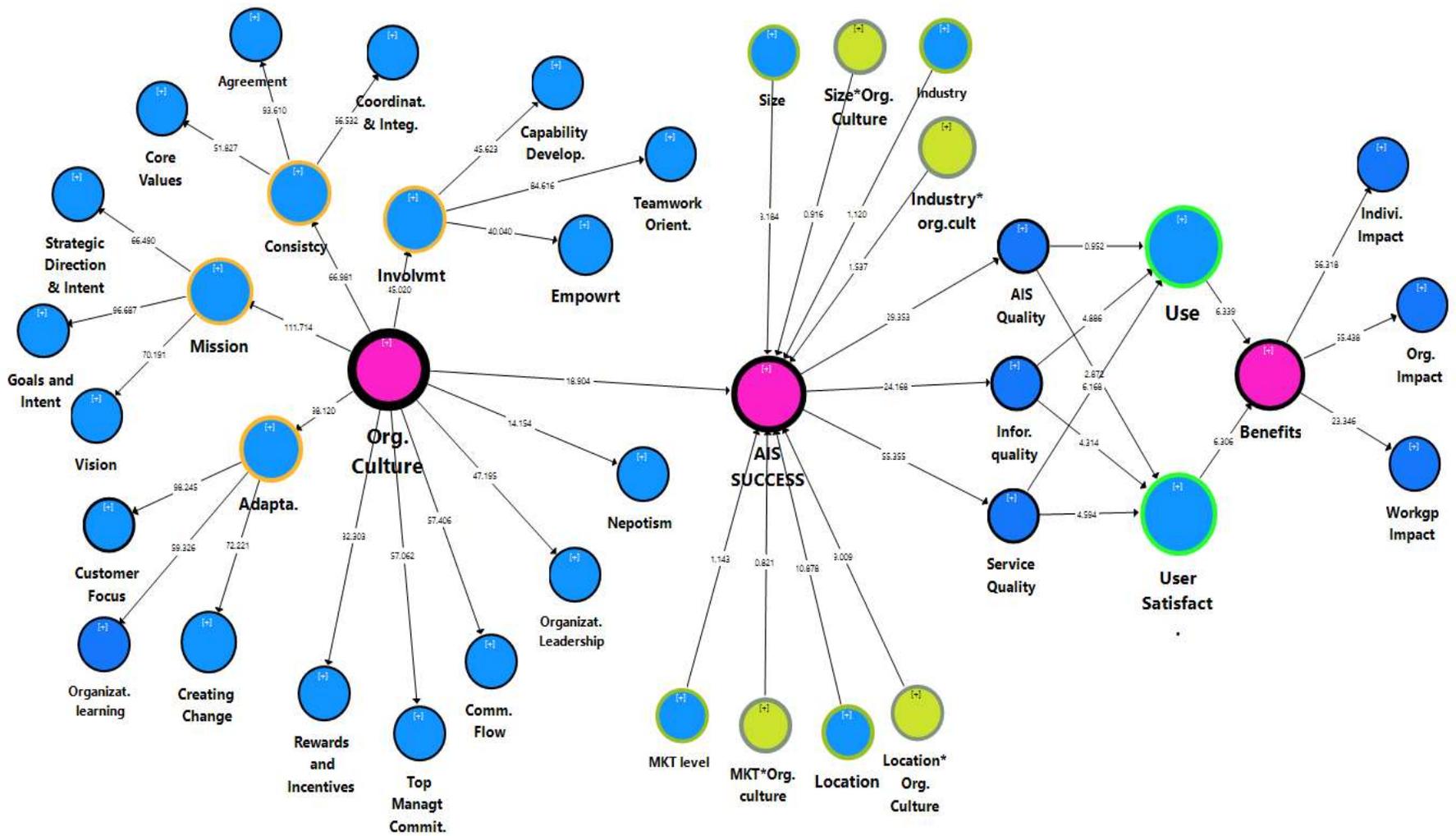


Figure 5.4 T-values

The following Table 5.23 provides a detailed tabulation for the coefficient relationship between the second order constructs as well as between the second and first order constructs. The first order constructs of the exogenous variable are not interpreted due to their non-relevance to the hypotheses of the study. Furthermore, the following Figures 5.5, 5.6 and 5.7 present the coefficient value of the 1st order constructs pertaining to 2nd and 3rd order constructs. Besides, in Table 5.23 below, R^2 , f^2 , p-values and different levels of confidence intervals are listed. The effect of organizational culture on AIS implementation success is presented with a beta level of 0.943, T-value of 18.904 and p-value of 0.000 as shown in the above Figures 5.3-5.4. This indicates that the influence of organizational culture on AIS implementation success in Lebanon and Canada is very significant which supports the study main objective (hypothesis H₂₀). Thus, Table 5.24 provides a comprehensive testing for the study hypotheses. The analysis of the results supports the study hypotheses at high significance levels.

Table 5.23 The coefficient value of the 1st order constructs pertaining to 2nd and 3rd order constructs

| 1st Order Construct | Beta | 2 nd Order | +/- | Interpretation |
|------------------------------|-------|------------------------|-----|---|
| Empowerment | 0.768 | Involvement (0.891) | + | Every one-unit increase in empowerment leads to 0.768 partial effect increase in the impact of involvement on the organizational culture impact on AIS success at a level 0.891 for every unit increase in involvement holding other variables as constant at 0.05 level of significance. |
| Teamwork Orientation | 0.821 | | + | Every one-unit increase in teamwork leads to 0.821 partial effect increase in the impact of involvement on the organizational culture impact on AIS success at a level 0.891 for every unit increase in involvement holding other variables as constant at 0.05 level of significance. |
| Capability development | 0.802 | | + | Every one-unit increase in capability development leads to 0.802 partial effect increase in the impact of involvement on the organizational culture impact on AIS success at a level 0.891 for every unit increase in involvement holding other variables as constant at 0.05 level of significance. |
| Coordination and integration | 0.844 | | + | Every one-unit increase in coordination and integration in surveyed organizations leads to 0.844 partial effect increase in the impact of consistency on the organizational culture impact on AIS success at a level of 0.942 for every unit increase in consistency holding other variables as constant at 0.05 level of significance. |
| Agreement | 0.912 | | + | Every one-unit increase in agreement in surveyed organizations leads to 0.912 partial effect increase in the impact of consistency on the organizational culture impact on |

| | | | | |
|--------------------------------|-------|-------------------------|---|--|
| | | Consistency (0.942) | | AIS success at a level of 0.942 for every unit increase in consistency holding other variables as constant at 0.05 level of significance. |
| Core values | 0.874 | | + | Every one-unit increase in core values in surveyed organizations leads to 0.874 partial effect increase in the impact of consistency on the organizational culture impact on AIS success at a level of 0.942 for every unit increase in consistency holding other variables as constant at 0.05 level of significance. |
| Creating change | 0.868 | Adaptability (0.948) | + | Every one-unit increase in creating change leads to 0.868 partial effect increase in the impact of adaptability on the organizational culture impact on AIS success at a level 0.948 for every unit increase in adaptation holding other variables as constant at 0.05 level of significance. |
| Customer focus | 0.856 | | + | Every one-unit increase in customer focus leads to 0.856 partial effect increase in the impact of adaptability on the organizational culture impact on AIS success at a level 0.948 for every unit increase in adaptability holding other variables as constant at 0.05 level of significance. |
| Organizational learning | 0.889 | | + | Every one-unit increase in organizational learning leads to 0.889 partial effect increase in the impact of adaptability on the organizational culture impact on AIS success at a level 0.948 for every unit increase in adaptability holding other variables as constant at 0.05 level of significance. |
| Strategic direction and intent | 0.892 | | + | Every one-unit increase in strategic direction and intent leads to 0.892 partial effect increase in the impact of mission on the organizational culture impact on AIS success at a level 0.962 for every unit increase in mission holding other variables as constant at 0.05 level of significance. |

| | | | | |
|---------------------------|-------|--------------------|---|--|
| Goals and intent | 0.882 | Mission (0.962) | + | Every one-unit increase in goals and intent leads to 0.882 partial effect increase in the impact of mission on the organizational culture impact on AIS success at a level 0.962 for every unit increase in mission holding other variables as constant at 0.05 level of significance. |
| Vision | 0.875 | | + | Every one-unit increase in vision leads to 0.8752 partial effect increase in the impact of mission on the organizational culture impact on AIS success at a level 0.962 for every unit increase in mission holding other variables as constant at 0.05 level of significance. |
| Top management commitment | 0.900 | N/A | + | Every one-unit increase in top management commitment in surveyed organizations leads to 0.900 partial effect increase in the impact of organizational culture on AIS success holding other variables as constant at 0.05 level of significance. |
| Communication flow | 0.866 | N/A | + | Every one-unit increase in communication flow in surveyed organizations leads to 0.866 partial effect increase in the impact of organizational culture on AIS success holding other variables as constant at 0.05 level of significance. |
| Organizational leadership | 0.893 | N/A | + | Every one-unit increase in organizational leadership in surveyed organizations leads to 0.893 partial effect increase in the impact of organizational culture on AIS success holding other variables as constant at 0.05 level of significance. |
| Rewards and incentives | 0.815 | N/A | + | Every one-unit increase in rewards and incentives in surveyed organizations leads to 0.815 partial effect increase in the impact of organizational culture on AIS success holding other variables as constant at 0.05 level of significance. |

| | | | | |
|---------------------|-------|-----|---|--|
| Corruption/Nepotism | 0.652 | N/A | + | Every one-unit increase in nepotism in surveyed organizations leads to 0.652 partial effect increase in the impact of organizational culture on AIS success holding other variables as constant at 0.05 level of significance. |
|---------------------|-------|-----|---|--|



Figure 5.5 First order constructs beta values

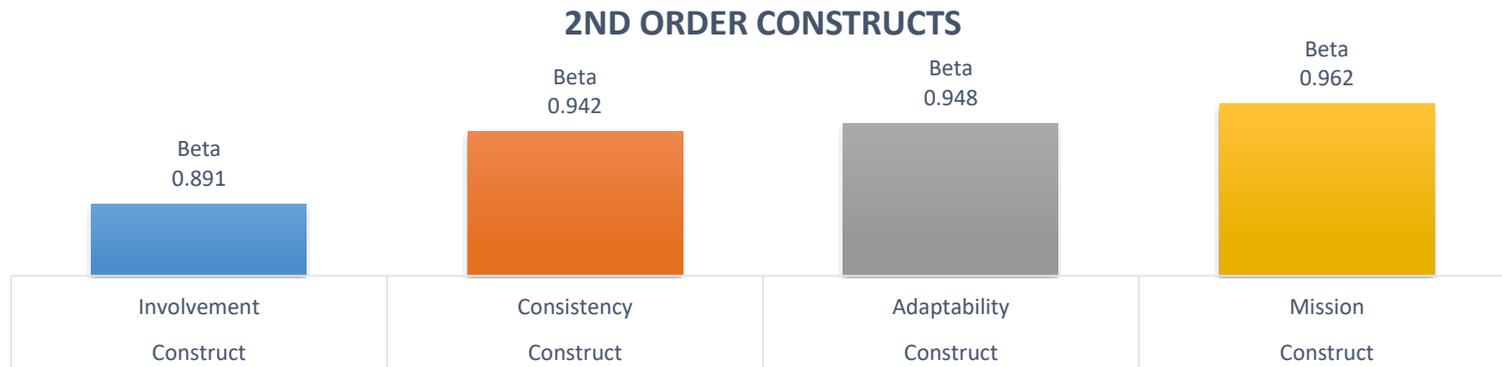


Figure 5.6 Second order construct's beta values

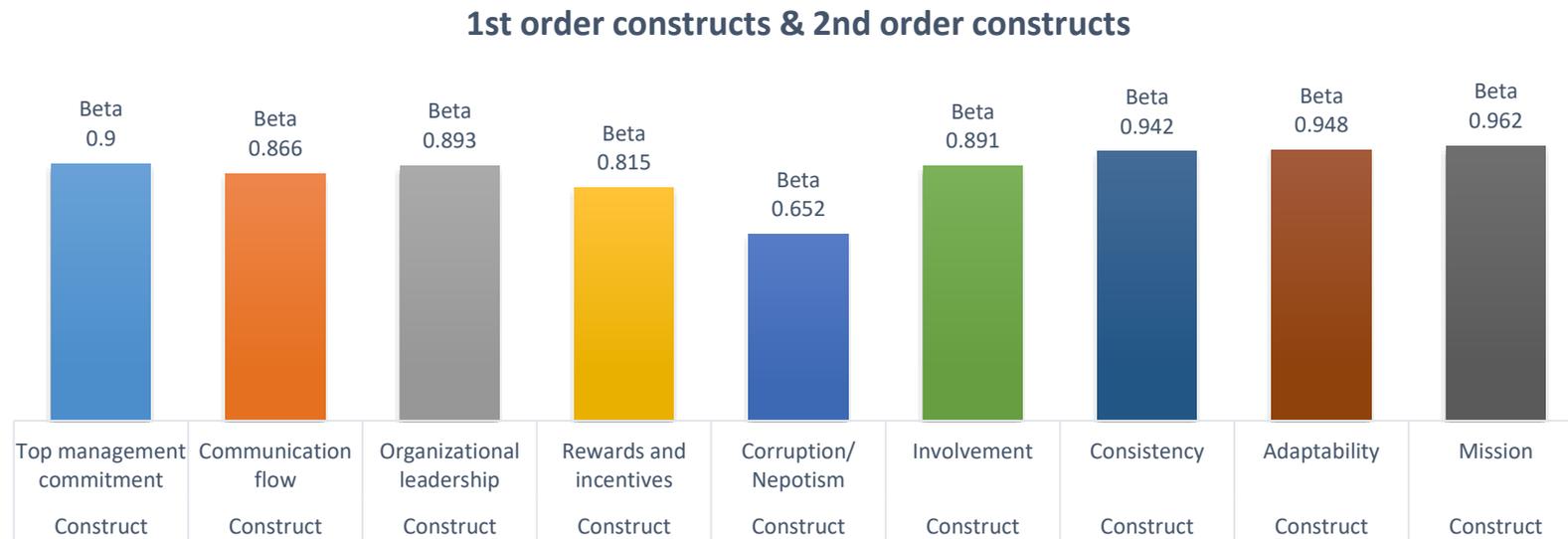


Figure 5.7 First and second order constructs' beta values

Table 5.24 Hypothesis testing for 1st and 2nd order constructs

| HP | Constructs Relationship | Beta | St. Error | T-Value | P Values | 2.50% | 97.50% | Decision |
|-----------------|---|-------|-----------|---------|----------|-------|--------|------------------|
| H ₁ | Org._Culture -> Involvement | 0.891 | 0.019 | 46.365 | 0.000 | 0.85 | 0.927 | Supported |
| H _{1a} | Organizational Culture -> Empowerment->AIS system Success | 0.768 | 0.041 | 18.938 | 0.000 | 0.683 | 0.839 | Supported |
| H _{1b} | Organizational Culture -> Teamwork Orientation->AIS system Success | 0.821 | 0.029 | 28.220 | 0.000 | 0.758 | 0.877 | Supported |
| H _{1c} | Organizational Culture -> Capability Development->AIS system Success | 0.802 | 0.029 | 27.408 | 0.000 | 0.742 | 0.855 | Supported |
| H ₂ | Org._Culture -> Consistency | 0.942 | 0.014 | 66.166 | 0.000 | 0.912 | 0.967 | Supported |
| H _{2a} | Organizational Culture -> Coordination and Integration->AIS Success | 0.844 | 0.026 | 32.340 | 0.000 | 0.788 | 0.892 | Supported |
| H _{2b} | Organizational Culture -> Agreement->AIS system Success | 0.912 | 0.017 | 53.031 | 0.000 | 0.877 | 0.946 | Supported |
| H _{2c} | Organizational Culture -> Core Values->AIS system Success | 0.874 | 0.022 | 39.404 | 0.000 | 0.829 | 0.918 | Supported |
| H ₃ | Org._Culture -> Adaptability | 0.948 | 0.010 | 97.791 | 0.000 | 0.928 | 0.966 | Supported |
| H _{3a} | Organizational Culture -> Creating Change->AIS system Success | 0.868 | 0.024 | 35.862 | 0.000 | 0.816 | 0.911 | Supported |
| H _{3b} | Organizational Culture -> Customer Focus->AIS system Success | 0.856 | 0.021 | 40.063 | 0.000 | 0.811 | 0.895 | Supported |
| H _{3c} | Organizational Culture -> Organizational Learning->AIS system Success | 0.889 | 0.019 | 47.947 | 0.000 | 0.850 | 0.924 | Supported |
| H ₄ | Org._Culture -> Mission | 0.962 | 0.009 | 109.104 | 0.000 | 0.943 | 0.979 | Supported |
| H _{4a} | Organizational Culture -> Strategic Direction & Intent->AIS Success | 0.892 | 0.018 | 49.799 | 0.000 | 0.856 | 0.926 | Supported |
| H _{4b} | Organizational Culture -> Goals and Intent->AIS system Success | 0.882 | 0.018 | 49.569 | 0.000 | 0.846 | 0.915 | Supported |
| H _{4c} | Organizational Culture -> Vision->AIS system Success | 0.875 | 0.026 | 33.368 | 0.000 | 0.819 | 0.921 | Supported |

| Organizational Culture -> Top Management Commitment->AIS | | | | | | | | |
|---|---|-------|-------|--------|-------|-------|-------|------------------|
| H ₅ | Success | 0.899 | 0.016 | 55.305 | 0.000 | 0.866 | 0.929 | Supported |
| H ₆ | Organizational Culture -> Communication Flow->AIS system Success | 0.866 | 0.016 | 54.168 | 0.000 | 0.833 | 0.896 | Supported |
| Organizational Culture -> Rewards and Incentives->AIS system | | | | | | | | |
| H ₇ | Success | 0.814 | 0.024 | 33.625 | 0.000 | 0.764 | 0.859 | Supported |
| Organizational Culture -> Organizational Leadership->AIS system | | | | | | | | |
| H ₈ | Success | 0.893 | 0.020 | 44.106 | 0.000 | 0.851 | 0.930 | Supported |
| H ₉ | Organizational Culture -> Corruption/Nepotism->AIS system Success | 0.648 | 0.046 | 13.949 | 0.000 | 0.549 | 0.735 | Supported |

5.4.2.3 Step Three: Assess the level of R²

After examining collinearity and path relationships, assessment moves to examining R² value of the endogenous constructs. R² value ranges from 0-1 (Hair et al., 2010). It is a measure of the model's explanatory power and it identifies the variance which is explained in each of the exogenous constructs as a result of the effect of the endogenous constructs. The higher value of R² proves a higher explanatory power in the model (Hair et al., 2010). A value of 0.75 is considered substantial. Values of 0.5 and 0.25 are considered moderate to weak respectively. Furthermore, R² is a function of the number of the predictor constructs in the study. A larger number of predictor constructs may lead to a higher value of R². Therefore, the interpretation of the values of R² can be different from one context of a study to another (Hair et al., 2010). In this study, and due to the nature of SEM model, one second order exogenous construct is predicting another second order endogenous construct. R² value falls at a level of 0.614 (60.14%) which is considered moderate. The nature of hierarchical component model applied in this study does not require considering the R² value of the lower order constructs as it does not reflect any meaning since, they are just manifestations of the second order constructs and their measurement indicators are a part of the measurement indicators of the second order construct (Hair et al., 2010). The following Figure 5.8 presents the level of R² in the study model.

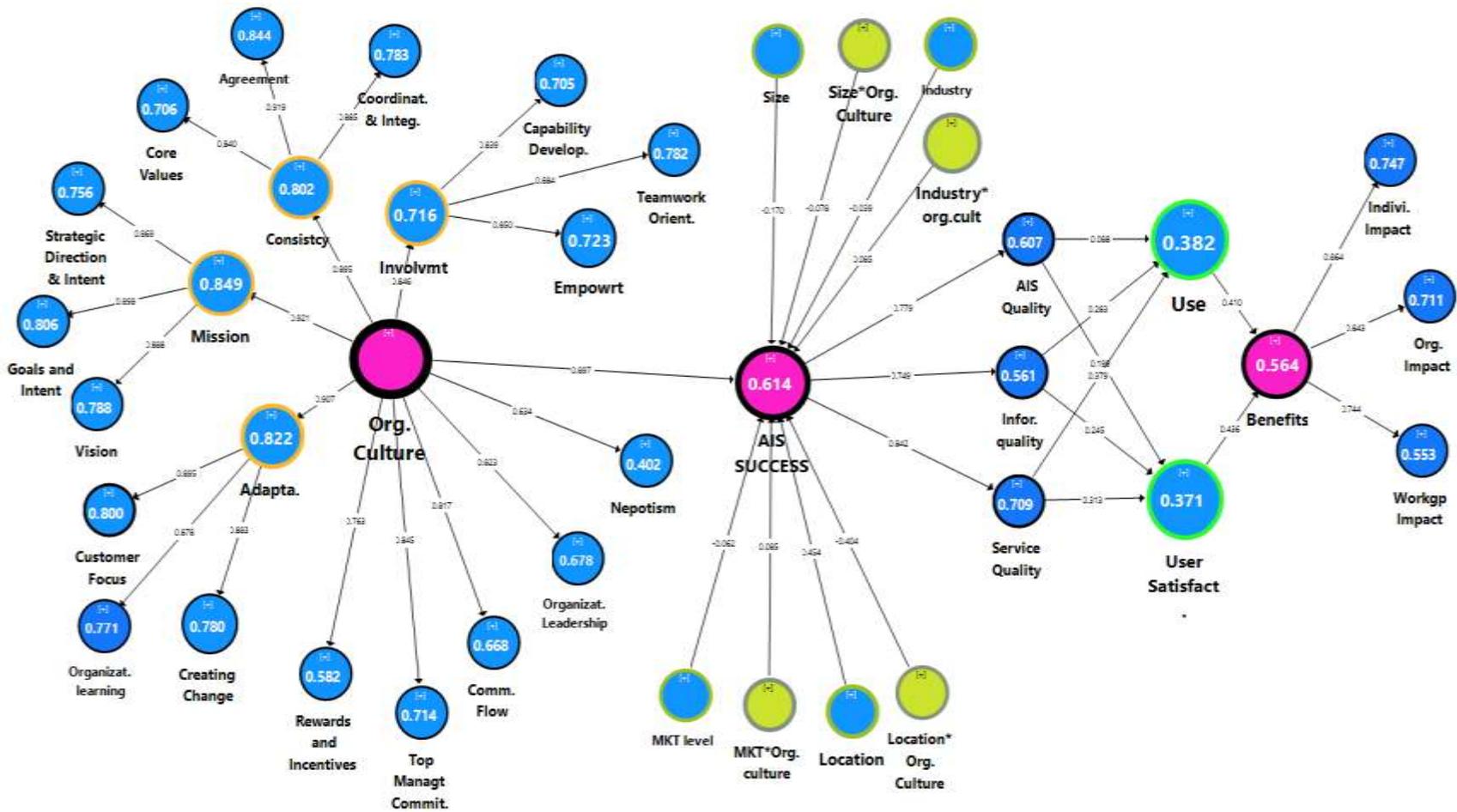


Figure 5.8 The study R²

5.4.2.4 Steps Four-Five: Assessing the levels of f^2 and Q^2 :

The following Figures 5.9 and 5.10 present accepted measures for f^2 and Q^2 . (Cohen, 1998, Hair et al., 2014, Fornell & Cha, 1994). The effect size f^2 follows Cohen (1998) guidelines which are 0.02, 0.15 and 0.35 indicating small, medium and large effect size respectively for exogenous constructs in the model. The results shown in Figure 5.9 below indicate large effects of the exogenous constructs in the study model as indicated by (Cohen, 1988). For Q^2 , values of 0.02, 0.15 and 0.35 indicate small, medium and large predictive relevance respectively for exogenous constructs in the model (Hair et al., 2014, Fornell & Cha, 1994). The results shown in figure 5.10 below indicate large predictive relevance of the exogenous constructs in the study model as indicated by (Hair et al., 2014, Fornell & Cha, 1994).

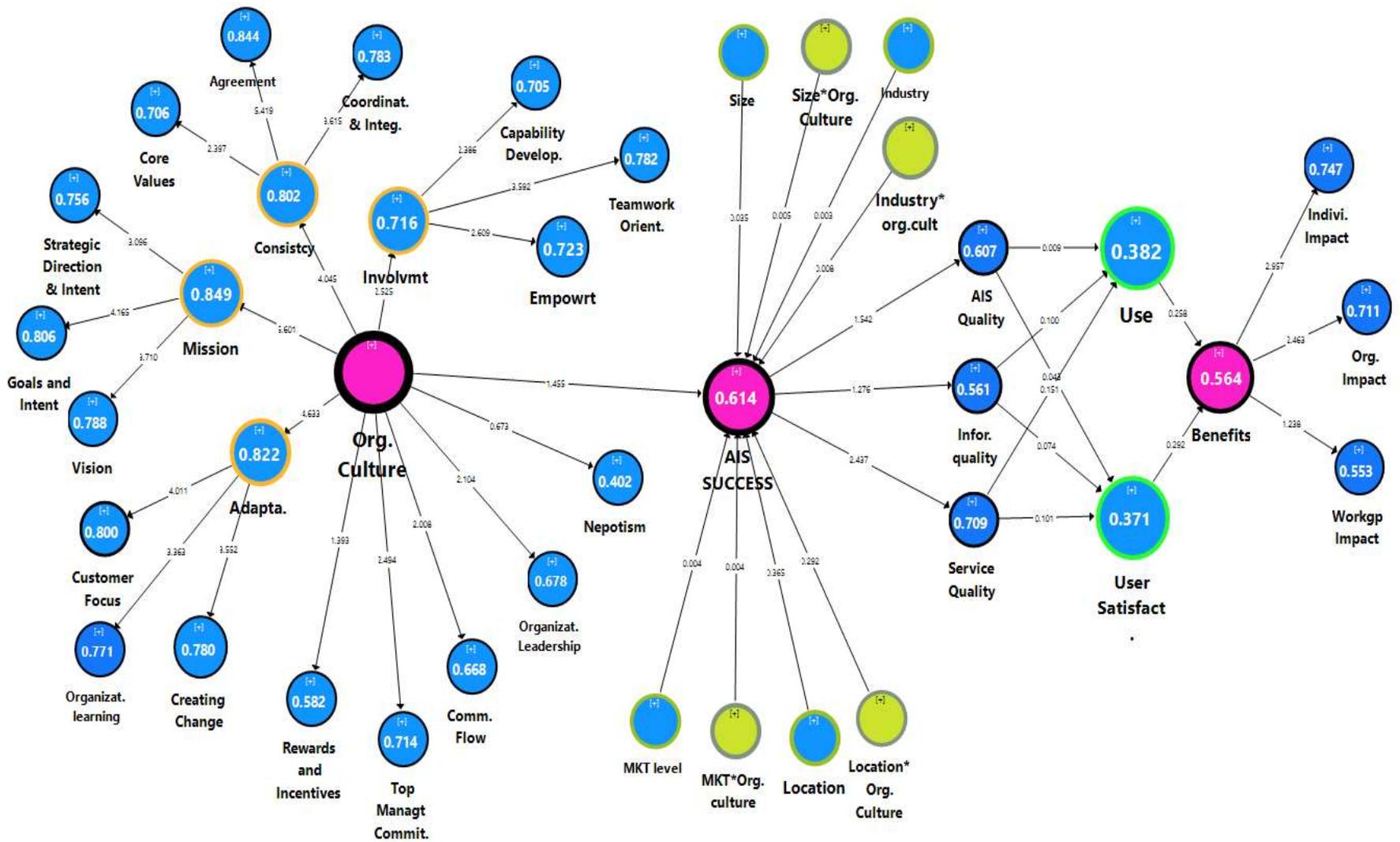


Figure 5.9 The study model effect size (f^2)

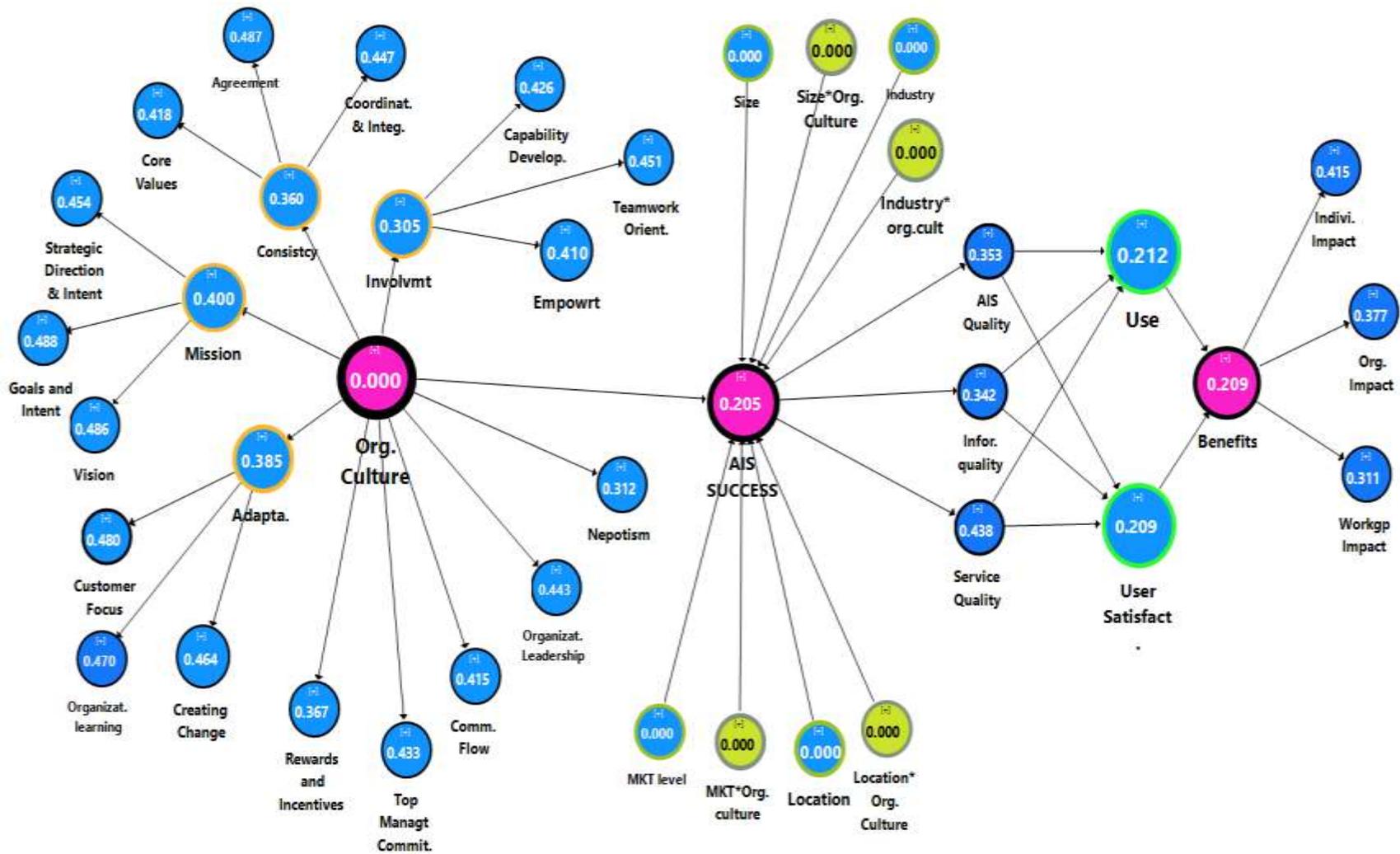


Figure 5.10 The study model predictive value (Q²)

After completing the structural model assessment, the analysis will focus in the following part on assessing the impacts of the moderating and mediating variables on the relationship between the endogenous and exogenous constructs.

5.5 ASSESSMENT OF THE MODERATING AND MEDIATING EFFECTS

Moderator variables intervene between the independent and dependent variables moderating the relationship between both variables. Mediating variables cause the impact of independent on the dependent variables. The model of this study considers four moderator variables besides two mediating relationships.

5.5.1 Moderating Effects

A moderating variable is a type of a variable that affects the strength or direction of the relationship between the dependent and independent variable (Rayees & Vij, 2017). Further, a moderating variable can be qualitative; race or sex and can also be quantitative; weight, age, among others (Rayees & Vij, 2017). Aguinis, Edwards, and Bradley (2016), argue that moderators are used to specifying when the relationship will hold. An example can be seen in a study to determine the effect of stress on the health condition of a population. When carrying out this type of study, one can determine that stress has a more serious impact on men than women. As such, sex or gender can be used as a moderating variable in this study to determine the effect of stress on the health status of a population. Further studies have indicated that a moderating variable is very important as it determines the direction of the study and whether specific relationships exist (Aguinis et al., 2016).

A moderating variable is a variable that has been used in research for a long time and has been seen to affect the strength or direction of the relationship between the dependent and independent variable (Santhanamery & Ramayah, 2015). It has been revealed that for successful adoption and implementation of an information system, there are central factors that affect the relationship between dependent and independent variables. A moderator variable such as the firm size is a variable that can affect the strength or even the direction of the relationship between the independent variable (*organizational culture*) and the dependent variable (*AIS success*) (Rayees & Vij, 2017). It has been shown that when the firm is large, the success rate of an information system is low since so many employees must be convinced to accept the system as compared to small

firms. This means, therefore, that the size of the firm is a variable that will affect the strength of the relationship between the study dependent and independent variables (Rayees & Vij, 2017).

Additionally, research has revealed that some types of industries are more capable and willing to accept technology than others (Rayees & Vij, 2017). Industries such as ICT and media, finance and insurance, education, and real estate are some of the sectors that have been seen to adopt and implement information systems more easily. As such, when industry type is used as a moderator, it affects the relationship between the predictor variables and the dependent variable (*AIS success*) (Rayees & Vij, 2017). This means it is more likely to have a successful implementation of IS in some organizations than others considering the type of industry they operate in. As such, the relationship between the dependent variable (*AIS Success*) and predicting variable (*organizational culture*) in industries such as media and ICT is stronger compared to the same relationship in other industries such as construction.

Firm location has also been a core factor in the successful adoption and implementation of information systems (Hung et al., 2019). Location is a factor that affects the relationship between successful implementations of IS and the predicting variables (Hung et al., 2019). In this case, it has been revealed that location matters in that some regions are more developed technology-wise as compared to others. It is a fact that firms in the Western countries and the US are more likely to adopt and implement technology as compared to companies in Africa and other regions such as the Middle-East (Awa et al., 2015). Some regions of the world are more aware of the importance of technologies than others. Therefore, when the location is used as a variable, it is claimed to affect the strength of the relationship between the dependent variable (IS success) and the predicting variables. The level of AIS success as a result varies, depending on the location of the firm.

Age is another factor that can affect IS success in a firm. It has been revealed that the younger the employees, the more curious they are to try new things (Awa et al., 2015). As such, a firm that has a majority of young employees is more likely to adopt and implement IS successfully. On the other hand, the aging employees may be more resistant to change and therefore, leading to AIS implementation failure (Awa et al., 2015). Such employees fear being replaced by technology and therefore, would resist any successful implementation of IS. As such, age may be instrumental in that an organization with younger employees as the majority is more likely to implement IS

successfully, while that which has a majority of aging employees will face resistance. Due to the unavailability of data in regards to the age of employees in surveyed organizations in both countries, this variable was not considered for this study. However, it can be a possible moderating variable in relevant future studies.

Furthermore, market level, international, local, or regional markets, when used as a moderating variable can moderate the relationship between AIS success and its predictors. Organizations operating in an international market or regional market are likely to adopt an information system as opposed to the one operating in a local market. Market challenges in the international and regional markets will likely push the organizations to adopt AIS or any other IS, influencing the relationship between AIS success and its predictor variables (organizational culture). Prior studies have identified geographical differences and national attributes as moderating variables impacting technology adoption and other dependent variables in varying business contexts (Swart & Roodt, 2015; Haapaniemi & Makinen, 2008).

Therefore, in order to formulate a more comprehensive, meaningful and contributory SEM, it was important to add some moderating variables to assess how they can impact the relationship between the independent and dependent variables. The literature identified industry category, organization size, market location and market levels as possible moderating variables, studying the impact on IS success. Therefore, four moderating variables were added to the model to moderate the relationship between organizational culture and AIS success. The results of the study showed no significant impact of three of the moderating variables on the relationship between organizational culture and AIS success. Specifically, organization size, market level, and industry moderators had no significant moderating impact. The location had a significant impact on the relationship between organizational culture and AIS success. This result indicates that organizational culture differs across cities and nations, and thus, its impact differs accordingly. The results and hypotheses tests for the moderating variables are listed in the following Table 5.25. Hypotheses 10, 12 and 13 are not supported. Hypothesis 11 which stated that location has a moderating impact on the relationship between the organizational culture and AIS success is supported.

Table 5.25 Thesis moderation results

| Hypothesis | Relationship | Beta | St. Dev. | t-value | P Values | 97.5% LL | 97.5% UL | Decision |
|----------------------|--|--------------|--------------|--------------|----------|---------------|---------------|------------------|
| Hypothesis 10 | Industry -> AIS SUCCESS | -0.046 | 0.042 | 1.104 | 0.27 | -0.124 | 0.036 | |
| | Industry*org.cult -> AIS SUCCESS | 0.091 | 0.063 | 1.448 | 0.148 | -0.028 | 0.216 | Not Supported |
| | Location -> AIS SUCCESS | 0.481 | 0.046 | 10.433 | 0 | 0.395 | 0.576 | |
| Hypothesis 11 | Location*Org. Culture -> AIS SUCCESS | -0.43 | 0.048 | 9.028 | 0 | -0.524 | -0.338 | Supported |
| Hypothesis 12 | MKT level -> AIS SUCCESS | -0.064 | 0.056 | 1.13 | 0.259 | -0.19 | 0.031 | |
| | MKT*Org. culture -> AIS SUCCESS | 0.093 | 0.105 | 0.88 | 0.379 | -0.076 | 0.34 | |
| Hypothesis 13 | Org. Culture -> AIS SUCCESS | 0.943 | 0.051 | 18.545 | 0 | 0.844 | 1.043 | Not Supported |
| | Size -> AIS SUCCESS | -0.182 | 0.057 | 3.194 | 0.001 | -0.283 | -0.056 | |
| | Size*Org. Culture -> AIS SUCCESS | -0.085 | 0.092 | 0.928 | 0.353 | -0.291 | 0.071 | Not Supported |

Furthermore, in the following Figure 5.11 we can notice the difference in the impact of organizational culture on AIS success across both cities of Beirut, Lebanon and Halifax, Canada. The slope of the line pertaining to the city of Beirut is steeper which indicates that a minor difference in organizational culture can impact highly on AIS implementation success. The case for the city of Halifax is different as the slope of the line representing the relationship between AIS success (*dependent variable*) and organizational culture (*independent variable*) is relatively less steep; which means that an impact of a change in organizational culture has relatively less of an impact on AIS implementation success.

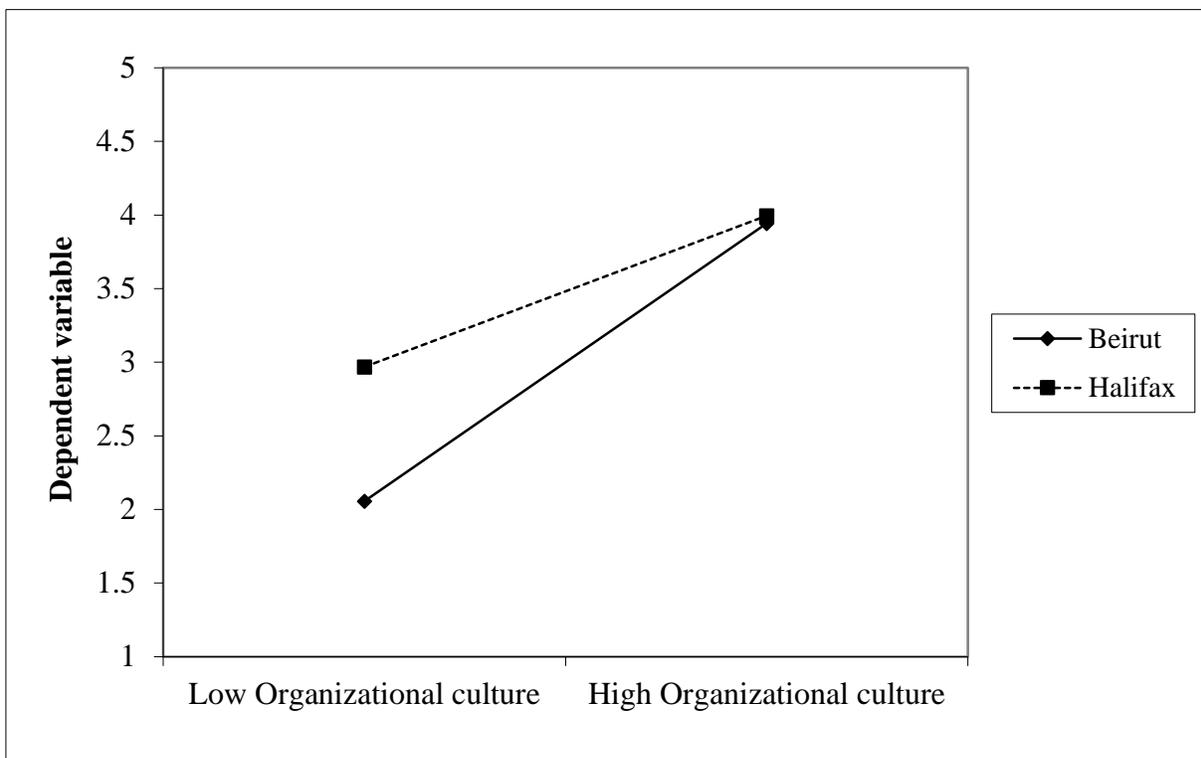


Figure 5.11 Location moderator interaction effects

Overall, moderator variable can play a significant role influencing the relationship between organizational culture and AIS success. These variables may be numerous. Future studies may address a variety of such moderating variables, namely, but not limited to age of organizations, age of employees, job descriptions, roles, etc. However, not only moderator variables can impact the study relationships but also mediating variables. Therefore, after addressing the moderating effects in the above discussion, let us discuss the mediating impacts in the following section 5.5.2.

5.5.2 Mediating Effects

Mediating variables help explaining the relationship between the independent and dependent variables (Aguinis et al., 2016). A mediating variable is used in structural equation modeling to explain the how or why of a relationship (Aguinis et al., 2016). Thus, in a model where a mediating variable exists, an independent variable cannot directly influence the dependent variable without the help of a mediator. According to Aguinis et al. (2016), there are two types of mediations; full and partial. On one hand, it has been observed that full mediation occurs in instances where the mediating variable conveys the entire relationship between the dependent and independent variable and without which the relationship ceases to exist. On the other hand, partial mediation occurs as the mediating variable influences only a part of the relationship between the independent and dependent variable (Aguinis et al., 2016). Thus, in case the mediating variable is eliminated, the relationship still exists, but not as strong as when it is present.

AIS use explains AIS success in many ways (Namazi & Namazi, 2016). AIS is used in the organizational decision making process and regarded important for relevant stakeholders. Therefore, *AIS use* may explain the relationship between the dependent variable (AIS success) and the predictor variables (organizational culture). Considering the types of mediations, *AIS use* variable is a full mediation type because, without it, there would be no need for implementing AIS, and therefore, the relationship between the independent variable and dependent variable ceases to exist if this mediator is removed.

User satisfaction is another mediating variable that can be used to explain the relationship between the dependent variable (AIS Success) and the predictor variables (Milin & Hadžić, 2011). Research has revealed that for an information system to be adopted and implemented successfully, the level of user satisfaction should be high (Santhanamery & Ramayah, 2015). As such, when an IS is implemented, its success depends on many factors, and one of them is user satisfaction.

Further, system quality is another mediating variable that may significantly elaborate on the relationship between the study independent and dependent variables (Milin & Hadžić, 2011). System quality can be measured in terms of complexity, flexibility, ease of use, and response time, among others (Petter et al., 2008). Such a variable, when used as a moderator, may explain the relationship between the dependent variable and independent variable. System quality is

paramount and is central to the success of AISs. As such, when the system is perceived to be of high quality, the relationship between independent and independent variables may be influenced positively. Therefore, such a system will likely be implemented successfully (Petter et al., 2008). Yet, if the quality of the system is perceived to be low, the implementation of such a system may fail.

Additionally, information and service quality are other mediating variables that can significantly affect the relationship between AIS success and its predictor variable (Petter et al., 2008). Research has shown that information quality can be viewed in terms of the output of a system. Such output could be reports and one, therefore, would look at the relevance of the information in those reports, their accuracy, and completeness, among others (Petter et al., 2008). When information quality is used as a mediating variable, it can explain the positive or negative relationship between the independent and dependent variables. In case the information quality is perceived as high, the relationship will be affected positively, and AIS success is more likely. Further, service quality can also be used as a mediating variable. It can be viewed in terms of responsiveness and accuracy of the system (Petter et al., 2008; Santhanamery & Ramayah, 2015). When an AIS is viewed as providing high-quality service and information, its implementation is more likely to be successful.

The mediating variables mediate the relationship between the independent and the dependent variables. In this study, the variables of *Use* and *User satisfaction* mediate the impact on AIS benefits that reflect the success impact of AIS on the group, individual and organizational levels through AIS quality, information quality and service quality in the surveyed organizations. In this regards, several hypotheses were tested and the results presented in the following Table 5.26. H₁₄ is not supported while hypotheses H₁₅ through H₁₉ are supported.

Table 5.26 Indirect relationship for hypothesis testing

| HP | Relationship | Beta | St. Dev. | t-value | p-value | 97.5% LL | 97.5% CL | Decision |
|-----------------|--|--------------|--------------|--------------|--------------|--------------|--------------|------------------|
| | | | | | | | | Not |
| H ₁₄ | Org._Culture -> AIS SUCCESS -> AIS Quality_ -> Use -> Benefits | 0.025 | 0.028 | 0.904 | 0.366 | -0.02 | 0.083 | Supported |
| H ₁₅ | Org._Culture -> AIS SUCCESS -> Infor. Quality -> Use -> Benefits | 0.103 | 0.031 | 3.345 | 0.001 | 0.023 | 0.132 | Supported |
| H ₁₆ | Org._Culture -> AIS SUCCESS -> Service Quality -> Use -> Benefits | 0.161 | 0.038 | 4.262 | 0 | 0.043 | 0.186 | Supported |
| | Org._Culture -> AIS SUCCESS -> AIS Quality_ -> User Satisfact. -> | | | | | | | |
| H ₁₇ | Benefits | 0.08 | 0.034 | 2.369 | 0.018 | 0.04 | 0.159 | Supported |
| | Org._Culture -> AIS SUCCESS -> Infor. Quality -> User Satisfact. -> | | | | | | | |
| H ₁₈ | Benefits | 0.093 | 0.029 | 3.178 | 0.002 | 0.095 | 0.222 | Supported |
| | Org._Culture -> AIS SUCCESS -> Service Quality -> User Satisfact. -> | | | | | | | |
| H ₁₉ | Benefits | 0.136 | 0.038 | 3.58 | 0 | 0.056 | 0.211 | Supported |

5.6 CMV ANALYSIS: HARMAN’S SINGLE FACTOR TEST

In order to ensure that CMV is not an issue in the data collected, Harman’s single factor test is run and the results are as shown in the Table 5.27 below.

Table 5.27 CMV analysis results

| Total Variance Explained | | | | | | |
|--------------------------|--------|---------------|--------------|-------------------------------------|---------------|--------------|
| Initial Eigenvalues | | | | Extraction Sums of Squared Loadings | | |
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 47.318 | 32.189 | 32.189 | 46.659 | 31.741 | 31.741 |

The results indicate that the un-rotated single latent factor is 31.741% which meets the threshold of being less than 50% as identified by (Podsakoff and Organ, 1983). Therefore, CMV is not a problem in the study.

5.7 PLS MULTI-GROUP ANALYSIS (MGA) AND MODEL FIT

To test the difference in the constructs relationships in both cities, in countries studied, the Multi-Group analysis (MGA) function is applied. For this purpose, an additional variable is added to the dataset to group the data into two main groups, Beirut City and Halifax City. 151 cases for the city of Beirut and 149 cases for the city of Halifax are chosen for this analysis. The main objective of this analysis is to detect significant differences in the group specific PLS path coefficients for the selected relationship. The results of the analysis showed significant differences in the PLS path coefficients for the second order constructs of the study and thus, support the study insights that national culture can have an influence on the organizational culture and thus, impact AIS success. A p -value < 0.05 for path coefficients for selected relationships indicates a significant difference (Hensler, 2007). Analysis results are presented in the following Table 5.28.

Table 5.28 MGM analysis

| Relationships | Path Coefficients-diff (Beirut City - Halifax City) | t-Value(Beirut City vs Halifax City) | p-Value(Beirut City vs Halifax City) |
|--|---|---|---|
| AIS System Success -> AIS Quality_ | 0.487 | 5.418 | 0 |
| AIS System Success -> Organizat. Impact | 0.21 | 3.339 | 0.001 |
| AIS System Success -> Service Quality | 0.149 | 2.8 | 0.005 |
| Organizat._Culture -> AIS System Success | 0.23 | 5.517 | 0 |
| Organizat._Culture -> Rewards and Incentives | 0.109 | 2.187 | 0.03 |

Further, pertaining model fit, the Standardized Root Mean Square Residual (SRMR) denotes the difference between the observed correlation and the model implied correlation matrix. In this respect, the SRMR allows the assessment of the average magnitude of the differences between the observed and the expected correlations as an absolute measure of the model fit. A value of less than 0.10 indicates a good model fit (Hu & Bentler, 1999). Literature is not very clear about reporting the SRMR under the saturated or estimated model choice. In both cases, SRMR indicates good model fit. The support for having a good model fit is indicated by RMS_theta values that fall at a level of 0.108 as presented in the Table 5.29 below. RMS_theta values that fall below the level of 0.12 indicate a well-fitting model (Henseler et al., 2014). Besides, as presented in the following Table 5.30, the model GOF (Goodness-of-Fit) value lies at 0.557 which indicates a global validation of the path model. GOF values lie between 0 and 1 where values of 0.10, 0.25 and 0.36 are considered small, medium and large respectively (Henseler et al., 2016).

Table 5.29 Model fit

| Fit-Summary Criteria | Saturated Model | Estimated Model |
|----------------------|-----------------|-----------------|
| SRMR | 0.074 | 0.10 |
| d_ULS | 300.413 | 551.965 |
| rms Theta | .108 | |

Table 5.30 Goodness-of-Fit index calculations

| Construct | AVE | R ² |
|------------------------------|---------------|----------------|
| Agreement | 0.621 | |
| Capability development | 0.653 | |
| Communication flow | 0.671 | |
| Coordination and integration | 0.616 | |
| Core values | 0.640 | |
| Creating change | 0.642 | |
| Customer focus | 0.648 | |
| Empowerment | 0.611 | |
| Goals and intent | 0.652 | |
| Vision | 0.668 | |
| Nepotism | 0.843 | |
| Organizational leadership | 0.705 | |
| Organizational learning | 0.658 | |
| Rewards and incentives | 0.685 | |
| Strategic direction & Intent | 0.651 | |
| Teamwork orientation | 0.622 | |
| Top management commitment | 0.657 | |
| Use | 0.610 | |
| User satisfaction | 0.625 | |
| AIS quality | 0.629 | |
| Workgroup impact | 0.607 | |
| Individual impact | 0.605 | |
| Information quality | 0.667 | |
| Service quality | 0.637 | |
| Organizational impact | 0.573 | |
| Total values | 16.196 | 0.614 |
| Average values | 0.648 | 0.614 |

| | |
|-------------------------------|---------------|
| $AVE \times R^2$ | 0.397 |
| $GOF = \sqrt{AVE \times R^2}$ | 0.6300 |

Sections 5.4-5.7 presented the quantitative data analysis results. Further, the chapter discussed an assessment of both measurement and structural models besides assessing the mediating and moderating effects in the model. Further, sections 5.6 and 5.7 elaborated on CMV analysis, PLS-MGA and the study model fit. In the following section 5.8, the study qualitative data results are addressed.

5.8 QUALITATIVE DATA ANALYSIS: INTERVIEWS

In order to get richer and deeper information, some of the surveys were filled using face to face interviews. These interviews allowed participants to fill in surveys and discuss the questions further and provide recommendations and general point of views in regards to the study focus. This collected information provide a more comprehensive context for quantitative data. These interviews were conducted in Beirut, Lebanon and Halifax Canada. The data collected from the interviews were supplementary, providing additional corroboration to the conclusions of the surveys. Residing in Beirut, Lebanon, the author was able to organize five interviews in contrast to just two interviews in Halifax, Canada. The findings of the interviews, as presented below, support the quantitative results of the study. The thesis approach is mainly quantitative and these interviews do not in any way impinge upon the quantitative data collected and analysed from the surveys.

5.8.1 Lebanon

5.8.1.1 Interview one: Ayoub for Certified Accounting Services

This interview was conducted with the owner and general manager for a chartered accounting firm in Lebanon. He is a sworn and licensed accountant practising in Lebanon for the last 30 years. The owner and general manager for this chartered accounting firm has provided several useful insights that constituted an important contribution to the study. He has focused on corruption and nepotism and how a culture of corruption and nepotism can impact the use and implementation of AISs. He said AISs are developed and designed to accept standard and legal transactions and financial operations. However, the case in Beirut is different. How can we input a container that is brought from Syria without the knowledge of the Lebanese government into our

accounting systems? The systems cannot acknowledge such containers because if so, happens, the traders will be penalized by the government. Therefore, the use of AIS is ignored or at least bypassed for numerous transactions. In addition, when it comes to using AIS for payroll records, the system is not used to represent the reality of financial information in the companies but rather a part of that reality. For many companies that the interviewee works for, the accounting information system only identifies a fraction of the employees that are employed by the firm. This behaviour is adopted in order to evade governmental taxes (A. Ayoub, personal communication, May 17, 2019).

The interviewee has given great importance for the accounting software in the organization he works for. For him, the accounting software is the pillar software or component of any other information system in the company. For the interviewee, the records journey or the data or information journey in the firms he works for and other firms, as he suggested, starts with the accounting software component. He mentioned that the accounting records form the basic records and information for any other accounting software. When I asked how would that happened. He explained as follows; the interviewee stated that let us take Ascoware company as an example. This is a trading company. He mentioned that this company imports goods from China to be sold in the Lebanese market. For him, data entry starts with inventory records when all the stocks are entered in the accounting system or the information system used by the firm. These records are entered mainly for the sake of doing the accounting processes to report to the local government as taxes become due. Therefore, these records initiate the accounting records journey. Besides using these records for stock management, these records will establish the foundation for financial and other reports. The financial and non-financial reports are used by other parties inside and outside the firm. These parties can be any stakeholders that are interested in knowing about the firm or taking other decisions for other purposes. For instance, considering the marketing department, the decisions of promotions and advertising budgets are based on the financial reports retrieved from the accounting portion of the information system used by the firm. Furthermore, management retrieves all financial reports needed for managerial decisions. Investors make their decisions to invest or avoid the firm after viewing the financial reports issued by the accounting system used. Therefore, the accounting information component of the information systems is considered the primary input for other departments in the organization. Therefore, the success AIS will establish

or build the foundation for the success of other software in the firm. It is essential to have a successful implementation of AIS to pave the way into the success of general information or ERP systems inside the organization (A. Ayoub, personal communication, May 17, 2019).

Progressing with the interview with the owner and general manager for a chartered accounting firm operating in Lebanon, I asked questions intending to measure the accounting information success in the firms, namely AIS quality, information quality, service quality, individual impact, organizational impact, workgroup impact, use and user satisfaction. The interviewee was positive in regards to all these characteristics of AISs stating that the system will do its operations for management and administrative purposes. However, one main aspect that has to be considered is the reliability of the information retrieved from the accounting information system or the general information system of the firms. I was actually puzzled with this information. I asked the interviewee to clarify. He stated that the accounting information system works perfectly inside the organization considering a reliable input data. However, the problem is in the input data. How? I asked. The interviewee stated that, in Lebanon, there is a widely dominating culture of nepotism and corruption. Most of the companies evade taxes and work for serving family relationships or group belongings. He gave me an example by referring to a variety of companies, namely but not limited to, Ascoware company, Elias Najem, Mondo Mozar companies, etc. He stated that as an accountant, I am supposed to know all information pertaining purchased goods and services or any financial transactions in the firms. However, the reality is totally different. The interviewee stated that many of these companies purchase goods from overseas markets such as China and Europe and get them into Lebanon bypassing the national customs. They simply get these merchandizes shipped to Syrian ports and then, get the purchased goods shipped by trucks from Syria into Lebanon without passing by the regular customs. Connections with military staff and people of political positions allow these goods to enter Lebanon without any taxes. Therefore, all these goods that account for the majority of the goods sold by the specified firms are not considered for accounting records, and thus, they are not recorded in the accounting information system. The input of such records will allow the taxation office to report them back to customs, and thus, companies will get penalized. Therefore, AIS does not reflect all financial information of the firms, and thus, the taxation offices, sometimes, do not trust the financial reporting of firms in Lebanon. Accountants are not informed about such illegal transactions or unethical and corrupt

behaviours conducted by their clients. The interviewee advised as well that he works for a company that sells electrical goods. The manager of the company was able to hide a major real estate investment, and the accountant was not aware of it for years. Therefore, AIS fails to serve its purpose very often and becomes just a functional tool for administrative purposes only. In addition, corrupt organizational cultures dominated by a national culture of corruption and nepotism, as advised by the interviewee, encourages and allows responsible individuals in firms to be innovative and creative in evading taxes and reporting untruthful accounting information. For instance, in some Lebanese car trading firms, managers import cars using the names of family members or friends on titles in order to evade taxes. Such imports are not reported in the AIS of firms, and thus, they are not presented to taxation authorities. Such behaviours lead to invalid and incorrect financial reports and thus, causing the general purpose of AIS to fail. Fabrications of accounting records by accountants is also a common practice in the Lebanese market and this is done to evade taxes (A. Ayoub, personal communication, May 17, 2019).

In the same perspective, the interviewee added that companies that have hundreds of employees report only tens and those that have thousands of employees report only a few hundreds. AISs do not report the real number of employees. Such behaviour is adopted to evade taxes and payments of employee benefits. Furthermore, AISs are manipulated to allow the entry of two pricing systems, one that reports to the government agencies and local taxation offices and another to report records to internal and external users. Furthermore, AISs are altered to deal with two bank accounts and report two budgets and financial reports, one that goes to the taxation office and another that goes to banks and external investors. This manipulation makes AIS just unreliable. This is caused by a national and organizational culture of corruption, and that is the case in several developing Arab nations as advised by the interviewee (A. Ayoub, personal communication, May 17, 2019).

In addition, the interviewee added that the Chinese government advised that exports to Lebanon average US\$ 29 billion per year. However, the Lebanese authorities only report US\$ 12 billion. The major difference goes unreported and not recorded in AISs that are made only to serve administrative purposes inside the firms only. Thus, the purpose of AIS to serve internal and

external stakeholders fails in this context. Money transfers to China go from multiple names and through multiple methods in order to disallow tracing of transactions and thus evade taxes.

The interviewee adds that when such illegal or unethical financial transactions go large and very frequent, companies tend to computerize and record such transactions. However, the records of such transactions do not go into regular reporting to the taxation offices. In Beirut, and major Lebanese cities, such companies ask software development companies to update their systems to serve the purpose of evading taxes, and most of the software companies are cooperative in this regards. Software companies add functions to the accounting systems being used and thus, with one click, accountants can hide all illegal and unethical transactions and report only those transactions that they see fair to be reported to the local taxation offices. Thus, management of these companies report taxes at their own discretion. Such added functions allow accountants and individuals that run AISs to hide any transactions they wish to hide fast in case they get subject to any sudden audits by the Lebanese custom authorities. Some other companies tend to have two reporting AISs. One system is used for legal transactions that are reported to the government, and another system is used for internal functionalities and administrative purposes only. The interviewee stated that at many occasions, companies and accountants resort to formatting their computers or even, throwing their computers out of their windows when they face sudden audit visits by the Lebanese custom authorities. The dual nature of AISs leads most often to their failures as they will fail to provide factual accounting information to stakeholders (A. Ayoub, personal communication, May 17, 2019).

Currently, the Lebanese government is taking legal actions to enforce penalties on any unapproved updates of AISs. Every company has to apply for approvals before updating its AISs or adding any new functions to the systems. Software companies are going to be subject to major penalties if they cooperate with any system update requests without the proper governmental approvals. In addition, only licensed companies in Lebanon will have permission to sell AISs. The industry will be controlled with new rules and regulations. Accountants are being held more responsible and accountable for their actions. They are not allowed to accept any doubtful accounts, and any cooperation with dual systems reporting will be subject to strict penalties.

However, still, a corrupt national culture impacts the organizational culture of organizations and thus, impacts the success of AISs. The city of Beirut, Lebanon can be considered a sample city of developing nations where a culture of corruption and nepotism is nurtured. In such nations, and where corruption and nepotism are prevalent, the success of AISs faces significant obstacles. Corruption and nepotism are common at all levels starting from regular individual employees to accountants and companies' managers to taxation and customs authorities. Therefore, the people component of AIS fails, and people make a basic pillar of the AISs, and when this pillar falls, the whole accounting information system fails. In Lebanon, the interviewee adds. The government officials do not trust AISs reports provided to the taxation offices. Most of the companies are subject to audits where the AIS system records and reports are bypassed, and a specific tax quota is levied after a judgemental assessment of the tax auditors. The culture of nepotism and corruption is well-nurtured in Lebanon, where all parties involved in the use of AISs are involved in corrupt behaviors sometimes including banks, accountants, government officials, customs officials, company managers and low-level employees. Such cooperation makes the system just a tool that runs administrative calculations and records and thus it fails to serve its purpose by providing timely and factual records and reports to internal and external users (A. Ayoub, personal communication, May 17, 2019).

From another perspective, the interviewee pulled my attention to an important cultural feature. When asking the interviewee about creating change in the organizations, he works for; he advised that change creation in Lebanon is well adopted and nurtured in organizations. He stated that international markets and international cultures influence the actions and plans of Lebanese organizations' managers. For instance, he works for a real estate company whose owner has lived most of his life in western countries. His decisions, the interviewee, stated, are creative and unusual to the local business culture in Lebanon. International cultures will influence the company, he stated. Furthermore, he added that Lebanon is a small nation, that is open to the rest of the world where the majority of its citizens are well established in foreign countries. The international cultures have their influential roots in the Lebanese businesses.

The interviewee advised that teamwork and empowerment are not common in Lebanese organizations. Most of the organizations are family businesses and empowerment is merely

exclusive to the managers and owners of the organizations. Teamwork is not yet developed in Lebanese organizations or at least the companies that the interviewee works for as an accountant. In regards to nepotism and specifically to the question pertaining to the employment of relatives, the interviewee advised that relatives are to be avoided when making employment decisions. He prefers to employ non-relatives (A. Ayoub, personal communication, May 17, 2019).

Concluding, this interview has reinforced my hypotheses in regards to the impact of organizational culture on the implementation success of AISs. In addition, we cannot ignore the significant insights given in regards to the impact of national culture on the organizational culture and how the international culture can influence the national culture as well. From my own perspective, one can see organizational culture as the environment in which the AIS nurtures and survives and thus, the AIS adapts to its environment either positively or negatively. Fabrication of accounting records by people in a specific organizational culture lead to failure of AIS. Thus, H₉ addressing the impact of nepotism and corruption on AIS implementation success in the city of Lebanese is well supported (A. Ayoub, personal communication, May 17, 2019).

5.8.1.2 Interview Two: Naim Electrics

The second interview was conducted with the owner and general director of a major electric goods trading firm in the southern part of the city of Beirut. The interview was conducted face to face with the director while his employees were filling other distributed surveys. Overall, the interviewee was very satisfied with the information system being used by the firm. The adopted system is nationally developed but converted from English to Arabic. The interviewee reported some drawbacks for language conversions as some of the reports are not fully enabled in the national Arabic language. The interviewee was very satisfied with the performance of the system and the service of the providing developer. Any updates needed are provided immediately by the serving developing company, he mentioned. The nature of his business requires close management and follow up for hundreds of thousands of electrical major and minor items, and without an information system, this endeavour becomes impossible. From a functional perspective, the information system adopted by the firm is very effective. However, when asked in regards to the accounting information system component of the system applied, the interviewee advised that the firm's accountant deals with this portion of the system. He stated that they had to do some updates

to the system to go by the directions and instructions of the ministry of finance. The interviewee was not very open talking about the accounting parts of the system. He described this part as private information that he cannot disclose. However, overall, the system was reported to be very successful and effective pertaining to all levels, accounting, marketing, inventory, management and logistics (M. Naim, personal communication, May 12, 2019).

When asked in regards to the organizational culture dimensions, the interviewee focused in the entirety of his discussions on the impact of national culture on organizational culture. He stated that Lebanon is characterized by instability. He said, we cannot tell what is going to happen tomorrow, and this feeling reflects on our behaviour and our success. He stated, look at the employees, see them. They are not motivated to work because we live in an unstable nation in which we cannot expect what will happen next. Instability dominates on the organizational culture in the firm. It impacts consistency, adaptability, capability development, strategic directions and intent, goals and intent, etc.

Furthermore, the interviewee has referred to the problem of corruption and nepotism substantially. For him, organizations in Lebanon live in a culture of corruption where ends justify the means and thus, AISs rules and functions are ignored when they fail to serve the desired ends. Corruption is everywhere in the country he said, and the culture of corruption forces the company to manipulate records, he stated. Moreover, instability for him was an important national cultural dimension that impacts the organizational behaviours and conducts. We cannot plan, and we face difficulty expecting what will happen tomorrow, he stated. For nepotism, he advised that it is available in his firm and most of the Lebanese family businesses. However, in regards to the employment of relatives, it happens in the firm because relatives are trusted more than non-relatives, and thus, they are more likely to be employed (M. Naim, personal communication, May 12, 2019). Teamwork and empowerment are not nurtured in the firm, and he referred to instability as a reason for failing to promote empowerment and teamwork. The interviewee has blamed the national culture for issues going in his organization. He placed significant emphasis on the national culture impact on organizational success. Thus, H₉ addressing the impact of nepotism and corruption on AIS implementation success in the city of Lebanese is well supported.

5.8.1.3 Interview Three: Safa Computers

This interview is conducted with the owner of Safa Computers. It is a firm that imports and sells computer software, hardware and accessories in the city of Beirut, Lebanon. The information systems used by the company is BRAIN. The owner and general director was very satisfied with the AIS quality, information quality, service quality, individual, organization, workgroup impact and use of the IS. As for organizational culture, his company did not support empowerment to the full extent. He stated that employees could make decisions in regards to only limited aspects of the operations. As for teamwork, the interviewee was very neutral. He stated, his firm is a mid-size organization, and still, teamwork is not yet promoted or encouraged. “Rewards and incentives” are a good way to encourage employees, he stated, but no rewards system is yet applied or adopted by the organization. In regards to capability development, the interviewee advised that training sessions and courses are provided to employees on usual basis. However, yet, capability development needs to be reinforced by the organization (S. Safa, personal communication, May 15, 2019). The interviewee did not report any sort of nepotism to practise in the firm. He stated that the employment of relatives is preferred inside the organization, for reasons related to honesty, trustworthiness and reliability. For him, relatives are more honest, trustworthy and reliable than non-relatives in the firm.

5.8.1.4 Interview Four: Saniware Company

This interview was conducted with the owner and the general manager of Saniware company. Saniware sells plumbing, electrical and related products in the city of Beirut, Lebanon. Overall, the interviewee was satisfied with the performance of AIS adopted by the firm except reporting a problem of losing data and errors in case of unsupported power disconnection that happens frequently in Lebanon throughout the day. The firm uses the Engineering Design and Manufacturing (EDM) system. Empowerment is promoted in the organization except for pricing, where there is a set policy for everyone to follow inside the organization. Capability development and organizational learning are not yet developed in the organization. As for the strategic planning and goals, the company does not have any strategic plans in place, and the reason is the unstable political and economic situation in the country as advised by the interviewee. He stated that the general national, political and economic environments impact the planning and long-term goals of the company. The company does not adopt any form of incentives and rewards system. In regards

to nepotism, the interviewee advised that the company is free from any sort of nepotism practices and the employment of relatives is preferred in the firm because relatives are more reliable, honest and trustworthy compared with non-relatives (S. Kaik, personal communication, May 3, 2019).

5.8.1.5 Interview Five: Bank of Beirut:

This interview was conducted with a branch manager for Bank of Beirut, a weighty operator in the Lebanese banking industry. The Lebanese banking industry is one of the most successful industries in the country. It applies international operating standards. Most of the Lebanese banks have diversified operations and expanded to operate in a variety of international markets. The interview conducted with the interviewee provided a different insight into the banking operations in the Lebanese market. As if, the Lebanese banking sector operates in a specific niche or has its own environment within the Lebanese market. The interviewee advised that the information system adopted by the bank, including the AIS component of the system, work perfectly. He advised that before adopting a specific system, bank management tests the system for a very long period of time that could be 2-3 years. The success of the information system that the bank uses to operate is very crucial. After being tested, it is applied in specific branches before being adopted as a conventional system by the bank. As for the organizational culture dimensions, they are perfectly practiced in the bank (W. Hammood, personal communication, May 20, 2019). Despite that other interviewees blamed the national economic and political situation for planning failures and other operational and strategic problems, the bank has no issue in regards to the national economic or political situation as if banks operate in their own made-up niches in the Lebanese market. They plan for 15 years, and they have been very successful despite the political and economic turbulence that usually occur in Lebanon. Their information systems are successfully adopted and operated as advised by the interviewee.

5.8.2 Canada

5.8.2.1 Interview one: Jazz Aviation and Worri Education Co.

This interview was conducted with an employee at Jazz Aviation, in the city of Halifax, Canada. The interviewee stated that the company AIS is robust and serves its purpose perfectly with very minor flaws that can be reported in regards to information reliability and AIS quality. As for the organizational culture dimensions, the interviewee was negative about some aspects of

the organizational culture as they are not well supported in the organization. In specific, the interviewee stated that the company has no overall agreement among its structures with moderate customer focus and organizational learning efforts. Furthermore, the communication flow inside the firm is limited as well, and the company does not support an effective rewards and incentives system. Nepotism practices are not supported in the organization.

In regards to Worri Education Co, the interview with the employee presented a positive evaluation of AIS in the company influenced by a positive evaluation of the organizational culture in the firm. Overall, the interviewee agreed that the company has a healthy organizational culture and supported all its tested elements. However, when asked about the nepotism practice inside the firm, the interviewee reported that the company has nepotism practices. It is one negative aspect that impacts the operations inside the organization, the interviewee stated (S. Alhammad, personal communication, June 2, 2019).

5.8.2.2 Interview Two: CIBC Bank

The interview was conducted with an employee who works at CIBC bank, of the major banks in the city of Halifax, Canada. The interviewee was very satisfied to neutral in regards to the operations of the information system used by the bank. Pertaining, organizational culture dimensions, the interviewee presented an organizational culture that supports teamwork, strategic planning, capability development, rewards and incentives besides strong core values, long term goals and strategic intentions (J. Creaghan, personal communication, June 5, 2019). Overall, the organizational culture of the bank is very healthy, surviving within a healthy national culture that is administered by the rule of Canadian law. Nepotism does not exist in the bank. Actually, the bank employs only skilled individuals who meet a specific educational and experience threshold. The interviewee presented very healthy dimensions of the dominant organizational culture in the bank. However, in regards to nepotism, the interviewee was neutral about the practice of nepotism.

5.9 CHAPTER SUMMARY

In this chapter, the data analysis techniques are presented with a specific focus on SmartPLS algorithms analysis. The results of the analysis are presented and explained. Specifically, SEM measurement, as well as structural models, are carefully assessed after discussing non-response bias, common values analysis, as well as the common methods bias. The

respondents' information is presented before moving to the presentation of the results. Both quantitative and qualitative research are conducted. Before presenting the results of the quantitative data; the variance-based SmartPLS SEM technique is introduced and detailed before addressing the measurement and the structural assessments of the study model.

The assessment of the measurement model was organized into four steps. In the first step, the indicator loadings were examined to ensure a minimum level of 0.7, where some indicators were dropped due to failing to meet the identified threshold. In the second and third steps, the consistency and convergent reliabilities were assessed. Results showed a high level of both reliability measures. The last step assessed the discriminant reliability of the model using three criteria that are cross-loadings, Fornell-Larcker criterion and Heterotrait-montrait (HTMT) criterion. The three measures showed a high level of discriminant validity of the model constructs and indicators. The assessment of the structural model indicated that 60.14% of the variance was explained by the exogenous construct (organizational culture) on the endogenous construct (AIS Success). This level of explanatory power meets the acceptance criteria (Chin 1998, Cohen, 1998, Falk and Miller, 1992, Hair et al., 2010). Besides, the assessment of the structural model showed no multi-collinearity issues in the model. Path significance between third order, second-order and first-order constructs were assessed. Main study hypothesis (H₂₀) was supported with a path coefficient value of 0.943 and p-value of 0.000. Predictive values (Q²) and effect size (f²) assessments showed higher than the minimum acceptable levels.

Furthermore, the Harmon test was applied to assess the common method bias in the study. The results indicated an acceptable level of the un-rotated single latent factor at 31.741% (Podsakoff and Organ, 1983). Since the study focused on two cities, the SmartPLS multi-group analysis tool was applied. Results showed some significant differences in the path coefficients for the primary constructs of the study in both cities, which supports the hypotheses that national culture can impact organizational culture influence on accounting information success.

Qualitative data results from 7 conducted interviews were presented. Results supported the study hypotheses. In the following chapter, the findings of the study are explained in details with reference to a prior study present in the relevant literature. The following chapter 6 provides a thorough discussion of the findings in relevance to the prior studies in the literature.

Chapter Six: Findings and Discussions

“Most advances in science come when a person for one reason or another is forced to change fields.” - Peter Borden

“You have to know how to accept rejection and reject acceptance.” - Ray Bradbury

6.1 CHAPTER OVERVIEW

In this chapter, the results of both qualitative and quantitative analysis are discussed in relation to adopted foundational theories and the prior relevant studies in the literature. First, this chapter studies the relationship between the first order, second and third-order constructs and the significance level in this context. Second, three groups of hypotheses are tested through study results and in relevance to prior literature (major study hypotheses, moderating and mediating effects related hypotheses). Third, the chapter presents the research model outcomes and highlights its uniqueness before it is summarized.

This chapter is divided into various sections. In section 6.2, the discussion will start by tabulating the results of the study with reference to prior literature stating, whether study hypotheses were supported or not in the current study and how prior studies are different from our study by focus and geography. Then, SmartPLS results for the significance of relationships among studied variables are reported to support the discussion of the findings. The chapter, then, continues discussing the results of every individual hypothesis, including the moderating and mediating ones, and end with evaluating the overall model outcomes in section 6.3. Section 6.4 wraps up the findings and summarizes the chapter.

6.2 RESULTS OF HYPOTHESIS TESTING

Conducting a systematic review of the literature with specific focus on a combination of relevant theories, 19 hypotheses were formulated, excluding the main study objective (H₂₀). To test stated hypotheses, this chapter analyzed qualitative data collected from the interviews conducted. Besides, further, the variance-based PLS model provided further investigation with a specific focus on coefficient analysis, t-values, p-values, and R². The findings were consistent with prior studies. However, it has to be noted that prior studies are just partial, as they may cover only a few organizational culture dimensions. Prior studies do not focus on AISs but, rather, ERP systems, and they are done in different national contexts. Besides, the success definition and measurements in the prior studies vary from those listed in this unique study.

In the following Table 6.1, study hypotheses are listed. The study findings supported all stated hypotheses. **Organizational culture explains 60.14%** of the variances in AIS implementation success in Lebanon and Canada. Therefore, the results are significant, indicating that the model has a strong explanatory power in predicting AISs implementation success in surveyed countries.

Table 6.1 General hypotheses testing with relevance to prior literature

| HP | Exogenous Variable | Endogenous Variable | Current Study | Prior Studies |
|-----------------|--------------------|---------------------|---------------|--|
| H ₁ | Involvement | AIS Success | Supported | <ol style="list-style-type: none"> 1. Hossain et al. (2011) Supported, Not country-specific, ERP specific 2. Panizzon (2016) Supported, Brazil, ERP specific 3. Abduljalil & Zainuddin (2015) Supported Libya, AIS specific 4. Rabaai (2009) Supported, Jordan, ERP specific 5. Arifin & Frmanzah (2015) Supported, Not country-specific, technology-specific |
| H _{1a} | EM | AIS Success | Supported | <ol style="list-style-type: none"> 1. Hossain et al. (2011) Supported, Not country-specific, ERP specific |
| H _{1b} | TW | AIS Success | Supported | <ol style="list-style-type: none"> 1. Panizzon (2016) Supported, Brazil, ERP specific 2. Abduljalil & Zainuddin (2015) Supported Libya, AIS specific 3. Rabaai (2009) Supported, Jordan, ERP specific |
| H _{1c} | CD | AIS Success | Supported | <ol style="list-style-type: none"> 1. Arifin & Frmanzah (2015) Supported, Not country-specific, technology-specific |
| H ₂ | Consistency | AIS Success | Supported | <ol style="list-style-type: none"> 1. Li (2012) Supported, Not country-specific, ERP specific 2. Pishdad et al. (2012) Supported, Not country-specific, ERP specific 3. Guo and Wang (2015) Supported, Not country-specific, ERP specific 4. Stuart (2013) Supported, Not country-specific, ERP specific 5. Tartaraj & Hoxha (2014). Supported, Albania, AIS specific 6. Azhar et al. (2016). Supported Bangladesh, AIS specific 7. Nur et al. (2015). Supported, Indonesia, AIS specific 8. Tarhini et al. (2015). Supported, Not country-specific, ERP specific 9. Ahmady et al. (2016). Supported, Not country-specific, Knowledge management specific |
| H _{2a} | C&I | AIS Success | Supported | <ol style="list-style-type: none"> 1. Li (2012) Supported, Not country-specific, ERP specific |

| | | | | |
|-----------------|---------------------|-------------|-----------|--|
| | | | | <ol style="list-style-type: none"> 2. Pishdad et al. (2012). Supported, Not country-specific, ERP specific 3. Guo & Wang (2015). Supported, Not country-specific, ERP specific 4. Stuart (2013). Supported, Not country-specific, ERP specific 5. Tartaraj & Hoxha (2014). Supported, Albania, AIS specific 6. Azhar et al. (2016). Supported Bangladesh, AIS specific 7. Nur et al. (2015). Supported, Indonesia, AIS specific 8. Tarhini et al. (2015). Supported, Not country-specific, ERP specific |
| H _{2b} | AG | AIS Success | Supported | 1. Ahmady et al. (2016). Supported, Not country-specific, knowledge management specific |
| H _{2c} | CV | AIS Success | Supported | N/A |
| H ₃ | Adaptability | AIS Success | Supported | 1. Choe, et al. (2004). Supported, Not country specific, ERP specific |
| H _{3a} | CC | AIS Success | Supported | N/A |
| H _{3b} | CF | AIS Success | Supported | N/A |
| H _{3c} | OLE | AIS Success | Supported | 1. Choe et al. (2004). Supported, Not country specific, ERP specific |
| H ₄ | Mission | AIS Success | Supported | <ol style="list-style-type: none"> 1. Kouki et al. (2008). Supported, Tunisia, ERP specific 2. Shatat (2015). Supported, Oman, ERP specific |
| H _{4a} | SDI | AIS Success | Supported | <ol style="list-style-type: none"> 1. Kouki et al. (2008). Supported, Tunisia, ERP specific 2. Shatat (2015). Supported, Oman, ERP specific |
| H _{4b} | G&I | AIS Success | Supported | N/A |
| H _{4c} | V | AIS Success | Supported | N/A |

| | | | | |
|----|-----|-------------|-----------|--|
| H5 | TMC | AIS Success | Supported | <ol style="list-style-type: none"> 2. Akkermans & van Helden (2002) 3. Al-Mashari & Al-Mudimigh (2003). ERP, Not country-specific 4. Zairi (2003) 5. Dezdar & Sulaiman (2009). ERP, Not country-specific 6. Esteves & Pastor (2000), ERP; Portugal 7. Finney & Corbett (2007) 8. Nah et al. (2001), ERP, Not country-specific 9. Nah et al. (2003), ERP, Not country-specific 10. Somers & Nelson (2001) 11. Kouki et al. (2008) 12. Bagranof (2010). Technology, Not country-specific 13. Sheth (2010). Technology, Not country-specific 14. Stair & Reynolds (2012); Pearlson (2010) 15. Armstrong & Taylor (2014) 16. Al-Hiyari et al. (2013) 17. Shatat (2015). ERP, Oman 18. Shanks (2000). ERP, China and Australia 19. Nusa (2016). AIS, Not country-specific 20. Chatterjee (2000) 21. Hwang & Xu (2007). ERP, USA 22. Kamhawi (2007). ERP, Bahrain 23. Nah et al. (2003). ERP, USA 24. Nah et al. (2007). ERP, Malaysia 25. Ragu-Nathan et al. (2004). ERP, USA 26. Ramayah et al. (2007). ERP, Malaysia |
|----|-----|-------------|-----------|--|

| | | | | |
|----------------|-----|-------------|-----------|--|
| | | | | <p>27. Sarker & Lee (2003). ERP; USA</p> <p>28. Sawah et al. (2008). ERP, Egypt</p> <p>29. Wang & Liu (2006). ERP, China</p> |
| H ₆ | COF | AIS Success | Supported | <ol style="list-style-type: none"> 1. Vadivelu & Klein (2011) Supported, Not country-specific, ERP specific 2. Chtorourou et al. (2008) Supported, Not country-specific, ERP specific 3. Kanagaretnam, et al. (2013). Supported, Not country-specific, AIS specific, Banking industry specific 4. Laksana et al. (2017). Supported, Not country-specific, AIS specific 5. Dezdar & Ainin (2012) 6. Jewels (2011) 7. Alhirz & Sajeev (2015) 8. Choic (2013) 9. Gupta et al. (2014) 10. Ashrafi & Afshari (2013) 11. Ke & Wei (2008) 12. Rouhani et al. (2013) 13. Karamatova (2017) 14. Zaglago et al. (2013) 15. Van Der Meijden et al. (2003) 16. Ramayah et al. (2007). Malaysia 17. Ravesteyn & Batenburg (2010). ERP, Netherlands 18. Dezdar & Sulaiman (2011b). ERP, Iran 19. Nah et al. (2007). ERP, Malaysia |
| H ₇ | R&I | AIS Success | Supported | <ol style="list-style-type: none"> 1. Vaitkunaite et al. (2006); Jucevicius, (1998); Schein, (1992); Spivak, (2001). |

| | | | | |
|----------------|------|-------------|-----------|--|
| H ₈ | OLD | AIS Success | Supported | <ol style="list-style-type: none"> 1. Lee et al. (2017). ERP, Not country-specific 2. Guo et al. (2013). ERP, Not country-specific 3. Lapedra et al. (2011). ERP, Not country-specific |
| H ₉ | CORR | AIS Success | Supported | <p>N/A</p> <ol style="list-style-type: none"> 1. Biermeier-Hanson (2015) 2. Briggs & Wated (2012) 3. Kragh (2012) 4. Pelit et al. (2015) 5. Vveinhardt & Petrauskaitė (2013) 6. Kimbro (2002). Accounting and financial statements quality 7. Everett (2007). Accounting and corruption 8. Ainge et al. (2010). Role of accounting in lowering corruption level; Catalonia Spain 9. Ghaffoori (2016). Kurdistan 10. Uyar et al. (2017). Turkey |

The main focus of this study is to assess the impact of 17 organizational culture dimensions on the implementation success of AISs in Canada and Lebanon. Besides, moderation and mediation effects were considered. Specifically, the variables of the industry type, location, organization size and market levels were considered as moderator variables moderating the impact of organizational culture on AIS implementation success. Both *Use* and *User* satisfaction were considered as mediating variables between AIS success and its benefits, as indicated in the study model. The PLS results supported the hypotheses of the main study, besides supporting the hypothesis that the location variable has a moderating effect on the relationship between the main study independent and dependent variables. In the following Table 6.2, the PLS results of the study hypotheses are shown, and decisions to either support or not support any of the study hypotheses are presented.

Table 6.2 Hypotheses testing results

| Hypothesis | Hypothesis Statement | PLS Path- β analysis | Decision |
|--|---|---|-----------|
| Hypothesis 1: Involvement has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. H ₁ : INV -> AIS | | $\beta=0.891$; $p<0.001$; $t\text{-value}>1.96$. Involvement is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{1a} : EM -> AIS | Empowerment has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.768$; $p<0.001$; $t\text{-value}>1.96$. Empowerment is a significant predictor of AIS implementation success in the Canada and Lebanon. | Supported |
| H _{1b} : TW -> AIS | Effective team orientation has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.821$; $p<0.001$; $t\text{-value}>1.96$. Team orientation is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{1c} : CD -> AIS | Effective capability development has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.802$; $p<0.001$; $t\text{-value}>1.96$. Capability development is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |

| | | | |
|--|--|---|-----------|
| Hypothesis 2: Consistency has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. H ₂ : CON -> AIS | | $\beta=0.942$; $p<0.001$; $t\text{-value}>1.96$. Empowerment is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{2a} : C&I -> AIS | Strong and effective coordination and integration has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.844$; $p<0.001$; $t\text{-value}>1.96$. Coordination and integration is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{2b} : AG -> AIS | A clear and effective agreement has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.912$; $p<0.001$; $t\text{-value}>1.96$. The agreement is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{2c} : CV -> AIS | Strong and well-adhered to core values have a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.874$; $p<0.001$; $t\text{-value}>1.96$. Core values are a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| Hypothesis 3: Adaptability has a positive influence on AIS Implementation success in organizations in Canada and Lebanon H ₃ : ADP -> AIS | | $\beta=0.948$; $p<0.001$; $t\text{-value}>1.96$. Adaptability is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{3a} : CC -> AIS | Promoting change creation has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.868$; $p<0.001$; $t\text{-value}>1.96$. Creating change is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{3b} : CF -> AIS | Effective customer focus has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.856$; $p<0.001$; $t\text{-value}>1.96$. Customer focus is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{3c} : OL -> AIS | Effective organizational learning has a positive influence on AIS | $\beta=0.889$; $p<0.001$; $t\text{-value}>1.96$. .Organizational learning is a | Supported |

| | | | |
|--|--|--|-----------|
| | Implementation success in organizations in Canada and Lebanon. | significant predictor of AIS implementation success in Canada and Lebanon. | |
| Hypothesis 4: Mission has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. H ₄ : MIS -> AIS | | $\beta=0.962$; $p<0.001$; $t\text{-value}>1.96$. The mission is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{4a} : SDI -> AIS | Clear strategic direction and intent have a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.892$; $p<0.001$; $t\text{-value}>1.96$. Clear strategic directions and intent is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{4b} : G&I -> AIS | Clear goals and intent have a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.882$; $p<0.001$; $t\text{-value}>1.96$. Clear goals and intent is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H _{4c} : V-> AIS | Clear and effective vision has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.875$; $p<0.001$; $t\text{-value}>1.96$. A clear and effective vision is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H ₅ : TMC -> AIS | Continuous top management commitment has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.899$; $p<0.001$; $t\text{-value}>1.96$. Continuous top management commitment is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H ₆ : COF -> AIS | Effective organization-wide communication has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.866$; $p<0.001$; $t\text{-value}>1.96$. Effective organization-wide communication is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |

| | | | |
|---------------------------------|---|--|---------------|
| H ₇ : R&I -> AIS | Effective rewards and incentives system has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.814$; $p<0.001$; $t\text{-value}>1.96$. Effective rewards and incentives is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H ₈ : OLD -> AIS | Effective organizational leadership has a positive influence on AIS Implementation success in organizations in Canada and Lebanon. | $\beta=0.893$; $p<0.001$; $t\text{-value}>1.96$. Effective organizational leadership is a significant predictor of AIS implementation success in Canada and Lebanon. | Supported |
| H ₉ : CORR/NP -> AIS | <p>Nepotism and Favouritism has a negative influence on AIS Implementation success in organizations in Canada and Lebanon.</p> <p>Corruption has a negative influence on AIS implementation success in organizations in Canada and Lebanon. (Corrupt organizational culture bypasses AIS system rules and procedures)</p> | <p>$\beta=0.648$; $p<0.001$; $t\text{-value}>1.96$. Nepotism and favouritism is a significant predictor of AIS implementation success in Canada and Lebanon.</p> <p>Qualitative interviews results support this hypothesis in Lebanon, a developing country in the middle east.</p> | Supported |
| H ₁₀ : INC -> AIS | Industry moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | $\beta=0.091$; $p>0.001$; $t\text{-value}<1.96$. The industry is not a significant moderator for the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | Not Supported |
| H ₁₁ : LC -> AIS | Location types moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | $\beta=-0.430$; $p<0.001$; $t\text{-value}>1.96$. Location is a significant moderator for the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | Supported |

| | | | |
|--|---|--|---------------|
| H ₁₂ : ML -> AIS | Market level moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | $\beta=0.093$; $p<0.001$; $t\text{-value}>1.96$. The market level is not a significant moderator for the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | Not Supported |
| H ₁₃ : OS -> AIS | Organization size moderates the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | $\beta=-0.085$; $p<0.001$; $t\text{-value}>1.96$. Organization size is not a significant moderator for the impact of organizational culture on AIS implementation success in organizations in Canada and Lebanon. | Not Supported |
| H ₁₄ : AIS Success -> AISQ -> Use ->B | Use mediates the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. | $\beta=0.025$; $p<0.001$; $t\text{-value}>1.96$. Use is a significant mediator for the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. | Supported |
| H ₁₅ : AIS Success -> IQ -> Use ->B | Use mediates the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. | $\beta=-0.103$; $p<0.001$; $t\text{-value}>1.96$. Use is a significant mediator for the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. | Supported |
| H ₁₆ : AIS Success -> SQ -> Use ->B | Use mediates the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. | $\beta=-0.161$; $p<0.001$; $t\text{-value}>1.96$. Use is a significant mediator for the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. | Supported |

| | | | |
|--|---|--|-----------|
| H ₁₇ : AIS Success -> AISQ -> USS ->B | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. | $\beta=-0.080$; $p<0.001$; $t\text{-value}>1.96$. User satisfaction is a significant mediator for the impact of organizational culture on AIS success benefits in organizations through AIS quality in Canada and Lebanon. | Supported |
| H ₁₈ : AIS Success -> IQ -> USS ->B | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. | $\beta=-0.093$; $p<0.001$; $t\text{-value}>1.96$. User satisfaction is a significant mediator for the impact of organizational culture on AIS success benefits in organizations through information quality in Canada and Lebanon. | Supported |
| H ₁₉ : AIS Success -> SQ - > USS ->B | User satisfaction mediates the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. | $\beta=-0.136$; $p<0.001$; $t\text{-value}>1.96$. User satisfaction is a significant mediator for the impact of organizational culture on AIS success benefits in organizations through service quality in Canada and Lebanon. | Supported |
| H ₂₀ : OC -> AIS Success | OC impacts AIS success in Canada and Lebanon | $\beta= 0.943$; $p<0.001$; $t\text{-value}>1.96$ Organizational culture impacts AIS implementation success in Canada and Lebanon. | Supported |

In the following section, each hypothesis is discussed in detail with reference to literature and adopted foundational theories. The detailed discussion supports the study main hypothesis (H₂₀).

6.2.1 Impact of Organizational Culture on AIS Implementation Success: Multiple Dimensions

6.2.1.1 Involvement (H₁)

Involvement is the second-factor component being manifested in the study model by three dimensions that are empowerment, teamwork orientation and capability development (H_{1a}, H_{1b}, H_{1c}). The study results showed that involvement has a positive relationship with AIS implementation success in the surveyed countries. The results are supported in the reviewed literature with specific relevance to ERP implementation success in Brazil and Jordan (Panizzon, 2016; Rabaai, 2009) and accounting information system implementation success in Libya (Abduljalil & Zainddulddin, 2015). Furthermore, these results go in parallel with the studies of (Hossain et al., 2001; Arifin & Ermanzah, 2015) in regards to general technology and ERP systems implementation success in no specific country or city contexts.

Therefore, the positive findings of the study indicate that the involvement of the employees in the management, as well as the operations of the organizations, will undoubtedly lead to higher chances of AISs implementation success. In Lebanon and Canada and other countries of similar organizational culture contexts, it would be essential to have involved employees aiding in the success of AISs implementation. Empowering employees, promoting teamwork and developing their capabilities through training and knowledge development will get them more involved and thus, will have positive implications on the AIS implementation success in the organizations in both countries, Lebanon, and Canada. These findings align with the TAM and the social cognitive theory which emphasize on the perceived usefulness and ease of use of technology as important factors for successful adoption or implementation. The involvement of employees in the process of implementing AIS will reinforce its success opportunity. Therefore, referring to the adopted Denison Model (2012) for organizational culture, involvement has a positive relationship with AIS implementation success in surveyed Lebanese and Canadian organizations. Involvement is manifested in the three dimensions as represented by the study model. These dimensions are empowerment, teamwork orientation and capability development. The results of the study model indicated the following relationship in regards to the empowerment, teamwork orientation and capability development dimensions of organizational culture.

6.2.1.2 Empowerment (H_{1a})

The results of the study show a positive influence of *empowerment* on AIS success in both countries, Lebanon and Canada. This is consistent with prior studies that have addressed the relationship between empowerment and ERP systems implementation success (Hossain et al., 2011). Limited studies have addressed the relationship between empowerment and AIS implementation success. The results of this study are specific to two countries, Lebanon and Canada. Inadequate studies have likely been conducted in specific cities or countries. The findings of this study indicate that the empowerment of employees is necessary for AIS implementation success and these findings are aligned with the organizational theory which emphasizes on the role of all members inside an organization in achieving a common goal. While this section presented the findings in regards to the empowerment dimension, the following addresses teamwork orientation.

6.2.1.3 Teamwork Orientation (H_{1b})

The results of the study indicate that *teamwork orientation* has a direct positive influence on AIS implementation success in Lebanon and Canada. Good teamwork orientation in surveyed companies can positively influence AIS implementation success. These results were supported as well in the literature by (Panizzon, 2016) specific to ERP and Brazil, (Abduljalil & Zainuddin, 2015) specific to Libya and AIS, (Rabaai, 2009) specific to Jordan and ERP systems. Therefore, promoting teamwork in an organization will facilitate the success of AIS implementation. Teamwork orientation improves the communication flow inside the organizations and thus, promotes a better understanding of the AIS system requirements and features. Furthermore, teamwork promotes group support and interaction for better implementation of the AIS system.

Unlike the case in Canada, teamwork is not well promoted in Lebanon. Therefore, it is crucial that the management of organizations and software development companies to understand the importance of teamwork and how well teamwork is promoted inside organizations to improve the chances of AIS implementation success. The organizational theory consulted supports these findings. In the following section, the capability development dimension is addressed.

6.2.1.4 Capability Development (H_{1c})

The study results indicated that *capability development* has a positive relationship with AIS implementation success. These results go in parallel with prior results in the literature conducted by (Arifin & Frmanzah, 2015). This prior study was not specific to any country, and it was a general study focusing on the relationship between organizational culture and technology. The results of this study indicate that capability development in organizations is necessary for AIS implementation success. Effective capability development strategy and plan can lead to more knowledgeable and trained employees and thus, better opportunities for accounting information implementation success. The findings of this study are supported by the dynamic capability theory that promotes the learning and training of employees for better organizational performance. Thus, the findings support the study hypothesis H_1 , H_{1a} , H_{1b} , and H_{1c} . Further hypotheses are addressed in the following section.

6.2.1.5 Consistency (H_2)

Consistency as a second-order component in the study model is manifested by the first-order dimensions of *coordination and integration, agreement and core values* (H_{2a} , H_{2b} , H_{2c} , respectively). Consistency establishes a proper system of governance inside the organizations. The study results indicated that consistency influences the implementation success of AISs directly. These results have been supported by prior study results in the literature as indicated individually in the findings of the following hypotheses related to the three above-mentioned sub-dimensions of consistency. (Li, 2012; Pishdad et al., 2012; Guo & Wang, 2015; Stuart, 2013; Tartaraj & Hoxha, 2014; Azhar et al., 2016; Nur et al., 2015; Tarhini et al. 2015; Ahmady et al., 2016)

6.2.1.6 Coordination and Integration (H_{2a})

Coordination and integration have a positive relationship with AIS implementation success in both surveyed countries. This relationship has been supported by prior relevant studies (Li, 2012; Pishdad et al., 2012; Guo & Wang, 2015; Stuart, 2013; Tartaraj & Hoxha, 2014; Azhar et al., 2016; Nur et al., 2015; Tarhini et al. 2015). While some of these studies are focused on ERP systems implementation success, others address AIS success with a focus on Indonesia, Bangladesh and Albania. Therefore, the results of the study suggest that coordination and integration are necessary for organizations to increase the chances of AIS implementation success

in Canada and Lebanon. The results of the study can be generalized over other countries with similar organizational culture contexts as Lebanon and Canada. The findings in this context are aligned with the organizational theory that sees work in organizations as unanimous and collaborative efforts among organizational members and thus, coordination and integration promote better organizational achievements. In a relevant context, the following section will address findings in regards to the agreement dimensions as per the adopted Denison Model (2012).

6.2.1.7 Agreement (H_{2b})

Implementing dialogue and getting multiple perspectives in regards to organizational issues in general and adoption of new technology in specific is necessary for the successful application of AISs in Lebanon and Canada. The results of the study indicated that agreement across the organizational departments as well as the employees across the departments is necessary for successful implementation of AISs. These results have been supported as well in prior studies with no reference to any country and specific to general knowledge management only (Ahmady et al., 2016). Therefore, the results of the study are unique and should warrant the attention of firms' management and AIS developing companies before designing and implementing an AIS in a specific organization in both countries, Lebanon and Canada. These findings align with the organizational theory that supports agreement across organizational units for better performance and achievements. In relevance to the consistency dimension, the following section addresses study findings related to hypothesis H_{2c} .

6.2.1.8 Core Values (H_{2c})

The study results were able to show that a clear set of core values inside the organization in both countries is necessary to promote a consistent behaviour and thus, consistent decisions. Well established core values in the organizations will work as the guiding principles and thus, promote directions in the right path. The study results show that well-shaped core values inside the organization play an important role in the success of the implementation of AISs. The presence of core values is not sufficient, but rather positive core values that promote productive and effective orientation for the organizations. The likelihood is that limited studies have addressed the impact of core values on the implementation success of AISs in any place in the world. Furthermore, limited clear studies are present in the literature as well addressing any relationship between core

values and the implementation success of any other information systems. It is important to emphasize the presence of positive core values for the success of AIS. Corrupt core values, for instance, will certainly impact the AIS implementation success negatively, and this is supported in the qualitative themes of the conducted interviews, specifically Lebanon as a developing country. The contingency theory, Schein's model, organizational culture profile (OCP) theory, and competing values framework support the findings of the study in this context. Positive organizational values that promote organizational success can play a positive role in the successful integration of AIS in Lebanese and Canadian organizations. Therefore, if AIS is consistent with the organizational culture, the likelihood of its success will increase and thus, H₂ is supported. Therefore, the consistency dimensions of organizational culture are supported. The following section will explore the findings of the study pertaining the adaptability dimensions.

6.2.1.9 Adaptability (H₃)

Adaptability is a second-order component in the study model being manifested by *creating change, customer focus and organizational learning* (H_{3a}, H_{3b}, H_{3c}) respectively. The adaptability dimension of organizational culture measures how the organization adapts to its environment. The study results show that there is a positive relationship between adaptability and the AIS implementation success in the studied organizations in both Lebanon and Canada. These results indicate that an organization has to adapt to its environment in order to succeed in implementing new AISs. In this regard, a stable organization with no willingness and ability to adapt to its environment may not experience success in implementing AISs (Choe & Langfield-Smith, 2004). Management of organizations has to understand the importance of establishing an adaptable organizational culture that will cope with the evolution of the social and the business environments in which it nurtures. The contingency theory, Schein's model, competing values framework theory, and organizational theory support the findings of the study in this context. An organization with better adaptability to its environment will have improved chances of implementing AIS successfully. The following three sections will discuss sub-dimensions of adaptability, *creating change, customer focus and organizational learning*.

6.2.1.10 Creating Change (H_{3a})

Creating change is essential for AISs success in surveyed countries. Companies that are prone to have positive change creation are those that welcome new ideas, technology and try new approaches and ways of doing business. The study findings have shown a positive relationship between creating change and AISs implementation success. Limited studies have specifically addressed the creating change dimension or facet of organizational culture impact on AIS implementation success. Therefore, the results of this study are unique, and merit further and more detailed focus and investigation in further future research endeavours. An organization that lacks creating change adaptability may not succeed in implementing a new accounting information system no matter how advanced, and technically versatile such systems may be. The results of this study support this view and are aligned with the contingency theory, Schein's model, competing values framework theory, and organizational theory adopted.

6.2.1.11 Customer Focus (H_{3b})

Meeting *customer satisfaction* and expectations is an important aspect for successfully implementing AISs in both Canada and Lebanon. The results of the study show a positive relationship between customer focus and AIS implementation success. Scarce studies have probably addressed the impact of this organizational culture facet or dimension on the implementation success of AISs. Therefore, the results of this study in this regards are pioneering, and warrant further investigations in future studies taking customer focus in organizations as one major independent variable impacting the AIS implementation success as a dependent variable. In this study, customer focus was addressed as a dimension of organizational culture as a part of 17 other dimensions. The importance of this relationship sheds light on the relationship between AIS implementation success and customer satisfaction. Those organizations that care about the satisfaction of their customers may successfully adopt the proper AIS that promotes better service, inventory and pricing management. AIS is a competitive tool. Customer satisfaction and AIS success are positively related. A successful AIS will ensure proper corporate governance, and thus, a better management in organizations and thus, better profitability reflected into better customer sale and service. Adopted theories are not clear on this view. Therefore, these findings merit further research investigations.

6.2.1.12 Organizational Learning (H_{3c})

Knowledge development and *organizational learning* are reflected in the organizational efforts to seek new knowledge and to learn from failures and mistakes. The findings of the study indicate that there is a direct positive relationship between organizational learning and AIS success. Further studies have supported this view as well. In this respect, Choe and Langfield-Smith (2004), supported that organizational learning impacts ERP systems implementation success with no relevance to any specific country. It is actually important to differentiate between ERP systems and AIS specific studies as both systems are different, especially, that AIS connects the organizational performance with the government, society, environment, and the general public and any fabrication of accounting reports may lead to major social, political, economic and environmental repercussions. Therefore, AIS nurtures and survives in a wider and multi-faceted organizational culture impacted by several cultural, societal and environmental factors. Since occasional and scarce studies have addressed organizational learning impact on AIS success, such a relationship merits future studies and research orientation in multiple country contexts as the results of this study indicated differences as well between the two chosen countries, Lebanon and Canada. These findings are aligned with the dynamic capability theory that elaborates on the need for learning and training to develop more capable organizations and thus, increase the likelihood of AIS implementation success. H_3 is supported and the following section will address the findings in regards to the mission dimension of organizational culture.

6.2.1.13 Mission (H_4)

The mission is a second-order factor in this thesis study model and it is reflected by the following three dimensions *of strategic directions and intent, goals and intent and vision (H_{4a} , H_{4b} , H_{4c} , respectively)*. The study results showed that the mission of the organization is positively connected with AIS implementation success. The mission represents the purpose of the organization and thus, impact the AIS implementation success as an AIS system that serves a different purpose or a different mission than those of the implementing organizations, will fail. The findings of this study are in line with other relevant findings in the literature (Kouki et al., 2008; Shatat, 2015). AIS systems are developed to improve the performance, competitiveness and corporate governance of the organizations, and thus, a corrupt and failing mission will lead to the failure of such systems. The competing values framework and organizational culture profile

theories support the findings that an organizational culture that promotes planning, vision and intent increases the chances of AIS implementation success. In the following three sections, further sub-dimensions of *mission* are considered.

6.2.1.14 Strategic Goals and Intent (H_{4a})

Planning and creating long term strategies are essential for organizational success. The results of the study indicated that strategic goals and intent could impact the implementation success of AISs in surveyed organizations in both countries. Some prior studies have addressed this relationship with a focus on ERP systems and not AISs. For instance, Kouki et al., (2008) investigated this relationship in Tunisia and found that strategic goals and intent can impact the ERP systems implementation success. Furthermore, Shatat (2015) found the same positive relationship in the country of Oman with a specific focus on ERP systems and not AIS. The competing values framework and organizational culture profile theories support these findings. Therefore, this study is ground-breaking as it addresses the relationship specifically between AIS and strategic goals and intent, and it merits more detailed analysis and relevant future research investigations.

6.2.1.15 Goals and Intent (H_{4b})

In the same context of mission, the study shows a positive relationship between goals and intent and the success of AIS implementation in both cities. This indicates that goals and intent are necessary for the implementation of new technology in organizations. Creating proper goals will orient the employees toward specific objectives. Then, employees will be able to monitor their actions and evaluate their performance towards a specific vision, strategy and general objectives. AIS survives in such well-planned and organized environments. AIS establishes a governance system inside the organizations and thus enhances planning and goals. Therefore, goals and intent are positively related to AIS implementation success. Uncommon studies have supported this view. Therefore, the results of this study are exceptional and merit future relevant research. Furthermore, these important results shall be well considered by AIS adopting and developing organizations, namely in Lebanon and Canada and other countries of similar organizational culture contexts. The competing values framework and organizational culture profile theories support the findings of the study. Vision is another dimension of mission as presented in the following section.

6.2.1.16 Vision (H_{4c})

The study findings show that vision impact AIS implementation success. The vision reflects on the purpose of the organization. AISs serve the general purpose of the organization positively. The study results indicated a positive relationship between vision and AIS success. AISs succeed in well-planned organizations. A positive vision that promotes employee motivation, long-term planning and orientations promote successful implementation of AISs. The study results are in parallel with these views, and rare studies have specifically addressed these research orientations. Therefore, the result of this study merit further detailed investigations. An organization with lost vision will likely fail to implement AIS systems that have already succeeded in other organization characterized by strong and well-crafted visions. Literature lacks relevant studies in this context. Vision may have not been studied in relationship with AIS success before. The findings of this study are pioneering as they shed light on an important aspect connecting the impact of vision as a dimension of organizational culture on AIS implementation success in Lebanon and Canada. These findings that are supported by the competing values framework and organizational culture profile theories merit further investigation. Possible further research orientations will address vision as a separate independent variable and AIS success as the dependent variable. Vision can be measured in more details through addressing its features and characteristics inside organizations.

Overall, while the above hypotheses were mainly reflecting Denison's model dimensions of organizational culture and how these dimensions impact AIS implementation success in Lebanon and Canada, the following hypotheses shed light on the interaction between 5 other organizational culture dimensions and AIS implementation success in Lebanon and Canada.

6.2.1.17 Top management Commitment (H_5)

Top management commitment is essential for the implementation success of AIS in surveyed organizations. The results of the study show a direct positive relationship between top management commitment and AIS implementation success. Plenty of prior studies have addressed the impact of top management support and commitment on technology adoption with a specific focus on ERP systems rather than AIS. In the context of ERP systems implementation success, many prior studies have supported the positive relationship with management support and

commitment. Therefore, the commitment of top management is essential for the success of AIS systems in organizations in both countries. Top management support motivates employees to use the new system and help them understand the importance and the benefits of the new system besides being as a role model for using the system. In addition, the early stages of AIS implementation require close follow up and support from management to address any unexpected discrepancies, errors or any negative interactions between AIS and its users. Therefore, adopting and developing organizations ought to understand the crucial role of top management commitment in promoting the success of AIS implementations. Prior studies have supported the same relationship between ERP systems and top management support across several nations, namely but not limited to (Akkermans & Van Helden, 2002; Al-Mashari, Al-Mudimigh, 2003; Zairi, 2003; Dezdar & Sulaiman, 2009; Esteves & Pastor, 2000; Finney & Corbett, 2007; Nah et al., 2001; Nah et al., 2003; Somers & Nelson, 2001; Kouki et al., 2008; Bagranof, 2010, Sheth, 2010; Stair & Reynolds, 2012; Pearlson, 2010; Armstrong & Taylor, 2014; Al-Hiyari, 2013; Shatat, 2015; Shanks, 2000; Nusa, 2016; Chatterjee, 2000; Hwang & Xu, 2007; Kamhawi, 2007; Nah et al., 2007; Ragu-Nathan et al., 2004; Ramayah et al., 2007; Sarker & Lee, 2003; Tharwat & Rasmy, 2008; Wang & Liu, 2006. These findings are aligned with the efficient contracting theory that emphasizes on the role of management in promoting a healthy environment for AIS implementation success. The same is supported by the managerial power theory that gives further significance to the role of management. The competing values framework and cultural audit theories support the findings that management, through commitment and support, can play a major role in facilitating a successful implementation of AISs. In a relevant context, the following section will discuss the impact of communication flow as a dimension of organizational culture on AISs' implementation success.

6.2.1.18 Open Communication Flow (H₆)

The study results pinpointed the importance of having open communication flow in surveyed organizations for the implementation success of AISs. Open communication across all organizational levels horizontally and vertically promotes the implementation success of AISs as such communication will disseminate necessary information across organizational units. Furthermore, such open communication will reinforce the benefits and the purpose of AISs by establishing a knowledge base for better decision making. Therefore, open flow of communication

has a positive relationship with the implementation success of AISs. This dimension of organizational culture has been well studied in prior literature with specific focus on ERP systems implementation success with some reference to countries such as Malaysia, Netherlands and Iran namely but not limited to (Vadivelu & Klein, 2011; Chtorurou et al. 2008; Kanagaretnam, et al., 2013; Laksana et al., 2017; Dezdar & Ainin, 2012; Jewels, 2011; Alhirz & Sajeev, 2015; Choic, 2013; Gupta et al., 2014; Ashrafi, & Afshari, 2013; Ke and Wei, 2008; Rouhani et al., 2013; Karamatova, 2017; Zaglago et al., 2013; Van Der Meijden et al. 2003; Ramayah et al., 2007; Ravesteyn & Batenburg, 2010; Dezdar and Sulaiman, 2011b; Nah et al., 2007). The results of this study merit further investigations in reference to a specific country. These findings are supported as well by the diffusion of innovation theory that elaborates on the importance of communicating innovation throughout the organization to reinforce its successful adoption.

6.2.1.19 Rewards and Incentives (H₇)

The study results indicated that there is a positive relationship between rewards and incentives and the implementation success of AISs. In this regards, the organization that has a well-developed rewards and incentives system will more likely succeed in implementing a new AIS in both surveyed countries and others that have similar organizational cultural contexts. *Rewards and incentives* promote better performance and motivation of the employees. Therefore, employees may be motivated to successfully use the new AIS expecting rewards and incentives as a result.

Furthermore, the organizational culture that has rewards and incentives as a part of its dimensions will more likely support the successful implementation of AISs as employees will expect rewards for actions promoted and supported by management. Prior studies in the literature have supported these results (Vaitkunaite et al., 2006; Jucevicius, 1998; Schein, 1992; Spivak, 2001). The incentive theory of motivation supports these findings. Extrinsic factors may motivate positive behaviours. Therefore, employee rewards and incentives play a role in the implementation success of AIS.

6.2.1.20 Organizational Leadership (H₈)

Organizational leadership had a direct positive relationship with the implementation success of AISs in surveyed organizations. The study findings supported this hypothesis. Limited

studies have directly addressed or studied the relationship that exists between organizational leadership and the implementation success of AISs. Some prior studies exist in the literature with a focus on ERP systems implementation success (Lee et al., 2017; Guo et al., 2013; & Lapiedra et al., 2011). Organizational leaders can be model users for new AISs. Furthermore, they can lead and motivate subordinates to use AISs effectively. Huang and Hsu (2011) assert that the charismatic leaders have characteristics that are capable of affecting the performance of the employees and thus, lead to better implementation of information systems. Furthermore, in this same context, Goldkuhl and Rostlinger (2006) also support the fact that a competent leader has the information that is needed in order to make the best decisions and thus, promote the successful implementation of information systems in organizations. The trait theory of leadership supports these findings. An assertive, knowledgeable, charismatic and empathetic leader will promote AIS implementation success.

6.2.1.21 Nepotism and Corruption (H₉)

One major contribution of this study is that it addresses the impact of nepotism as a form of corruption and as a dimension of organizational culture on the implementation success of AISs. Many financial scandals that got public around the globe were hidden in fake and corrupt financial reports. Fabrication of accounting reports and records, made by humans in organizations, lead to catastrophic financial, economic, social, and environmental problems. The role of AISs cannot be undermined in fighting corruption, especially, in the developing world. AISs provide information about economic entities through financial statements and full financial reports (Ghaffoori, 2016). These reports work as the backbone of any financial and managerial or even policy and budgetary decisions in organizations, whether private or public (Ghaffoori, 2016). Auditing systems verify the accuracy of such reports before they are released and used (Ghaffoori, 2016). Chartered accountants and auditors are held accountable for their auditing and accounting roles in verifying and disseminating such reports.

AISs play two important roles. They provide the financial information to the stakeholders in one role, and they allow auditing, verification and monitoring of such financial information for accuracy and fair representation and thus, establish accountability and detection of possible corrupt activities in another (Ghaffoori, 2016). In the same context, Malagueno et al. (2010) identified the

relationship between corruption and AISs. The results of the study showed that corruption level in a specific country relies highly on AISs as such systems are used as the cornerstone to reflect on the financial and economic information in a specific country. The performance of a specific organization or even the general performance of the economy of a nation is assessed through AISs reports. Failing AISs will result in poor accounting information, and such poor information will mislead decision-makers into crucial decisions that will impact the overall economy of a nation. Successful AISs will deter the level of corruption inside organizations and in the overall economic structure of a specific nation (Ghaffoori, 2016). A successful accounting information system helps in detecting fraud cases, bribery, embezzlement, nepotism, etc. Ghaffoori (2016) found that a low level of corruption exists when good AISs exist. Furthermore, a high level of corruption will impact the success of AISs that are expected to produce accurate, relevant, comparable and transparent information. These results were supported by the qualitative data collected from two interviews of those conducted in Lebanon. For both interviewees, corruption was a killing factor in the success of any AISs. For them, corruption makes the accounting information system useless as corruption, and the purpose of AISs contradict each other. One interviewee stated that most companies he works for use two types of accounting systems, one to report to the government and another to report about the company and both reports are totally different. This is a complete failure for AISs, and the cause of this failure is corruption. For him, corruption has become a part of the culture of organizations as well as a part of the national culture. The information reported by AISs go beyond the boundaries of an organization but rather establish major and important economic information in regards to the general national income, general resources, social values, fairness and environmental consideration (Ghaffoori, 2016). This importance of AISs makes them unique and just different from any other information system implemented in organizations. This study has differentiated AISs from other information systems. Most of the conducted studies in the literature focus on ERP systems. Such systems are comprehensive systems that run an organization. However, AISs are different parts of such systems in comparison with other information systems that go under the umbrella of ERP or general information systems. AISs can cause a major change in the overall corporate governance, money systems and economic performance of nations. For example, one accounting information system that is designed and developed to deter corruption in a specific organization or nation will necessitate more accountability and transparency, a total shift

from cash-based to accrual-based accounting, tougher internal and external auditing procedures, separating private sector from government operations, etc. (Ghaffoori, 2016).

In parallel, the results of this study indicate that there is a positive relationship between nepotism as a form of corruption and a dimension of organizational culture and the implementation success of AISs. This argument is worth more detailed investigation due to its importance and its substantial contribution to the stability of our financial, economic and environmental security. Corruption as a dimension of organizational culture is a multi-faceted phenomenon and can take many forms, namely but not limited to nepotism, bribery, embezzlement, falsifications, etc. Future studies shall consider the direct impact of corruption on the implementation success of AISs. A detailed study will consider several facets and dimensions of corruption and see how each dimension can impact the implementation success of AISs separately. In this study, nepotism showed a direct relationship with the implementation success of AISs. No direct prior studies in the literature have addressed the impact of corruption on the implementation success of AISs. Furthermore, the interviewee, in one of the significant interviews conducted, emphasized on using the term "a culture of corruption" referring to corruption as a dimension of organizational as well as national culture. It is as well worth investigating how corruption is linked to organizational culture in future studies. Corruption can become a behaviour and a norm in organizations and nations. That is the case in some of the survey organizations, namely, in Lebanon and Canada. This study should pave the way into further relevant research due to the fact that results could be of substantial contributions to financial, economic, societal and environmental stability of developing nations.

6.2.2 The Moderating Effects

While the above sections discuss the findings with relevance to the organizational culture hypotheses, the following 4 sections address the study findings relevant to the 4 adopted moderation effects, namely, industry, firm location, market level and firm size.

6.2.2.1 Industry Category (H_{10})

Some prior studies indicated that the industry type could moderate the impact of organizational culture on the success of information systems. Industries such as ICT, media, finance, insurance, etc. are more willing to accept technology than others (Rayees & Vij, 2017).

Therefore, some industries are more technology-oriented than others and thus, are more willing to accept technology than others. However, the results of this study did not support the hypothesis that industry moderates the impact of organizational culture on AIS implementation success in Lebanon and Canada. It could be that AISs are different from the general information systems, and thus, they are not subject to the industry moderation effects.

6.2.2.2 Firm Location (H_{11})

The results of the study, through the moderation effect and the multi-group PLS analysis, show that firm location moderates the impact of organizational culture on AISs. Firm location leads to different organizational cultures and thus, different environments in which AIS nurtures. Prior studies have shown similar results as well (Hung et al., 2019). It is not only a matter of differences in organizational culture, but rather research has shown that some countries are more technologically developed and advanced than others and thus, they are more prone to implement AISs successfully (Awa et al., 2015).

6.2.2.3 Market Level (H_{12})

Analysis did not support that market level in terms of regional, national and international changes can moderate the impact of organizational culture on AIS implementation success in the surveyed countries. However, some prior researchers have identified geographical differences and national attributes as moderating variables impacting technology adoption (Swart & Roodt, 2015; Haapaniemi & Makinen, 2008). The discrepancy in the findings could be related to the differences in the information systems being studied or other factors that merit further investigation.

6.2.2.4 Firm Size (H_{13})

Findings of the study did not support the hypothesis that organization size moderates the impact of organizational culture on AIS implementation success. However, some other studies have found some moderation impact of the firm size in this context. It has been shown that larger firms can have more difficulty implementing information systems due to the complexity of the operations and the higher number of employees involved and thus, the interaction with the information systems gets more complicated (Rayees & Vij, 2017). Actually, AISs are different in this context, and firm size did not have any moderation impact. The following Table 6.3 presents the moderator variables hypotheses summary in reference to prior studies in the literature.

Table 6.3 The moderator variables hypotheses summary

| HP | Relationship | Decision | Prior Studies |
|-----------------|--------------|----------------------|---|
| H ₁₀ | INC -> AIS | Not Supported | 1. Rayees & Vij (2017) |
| H ₁₁ | LOC -> AIS | Supported | 1. Hung et al. (2019) 2. Awa et al. (2015) |
| H ₁₂ | ML -> AIS | Not Supported | 1. Swart & Roodt (2015) 2. Haapaniemi & Makinen (2008) |
| H ₁₃ | OS -> AIS | Not Supported | 1. Rayees & Vij (2017) |

6.2.3 The Mediating Effects

6.2.3.1 Use Mediates the Impact of OC on AIS Success via AIS Quality (H₁₄)

Study findings did not support this hypothesis. The AIS system quality does not impact the use of AISs that mediates between organizational culture and the organizational, individual, and group impact of AISs in Lebanon and Canada. Some prior studies found some support for this relationship but in totally different information systems, national and organizational contexts (Petter et al., 2008; Pitt et al., 1995)

6.2.3.2 Use Mediates the Impact of OC on AIS Success via Information Quality (H₁₅)

Analysis presented a mediating impact for *use* on the relationship between organizational culture and AIS success via information quality, reflected in the individual, organizational and group benefits in the Lebanon and Canada. Prior studies have found similar mediating impacts but in different contexts of organizational culture and information systems (Petter et al., 2008; Pitt et al., 1995; Namazi & Namazi, 2016; Sheng, nd).

6.2.3.3 Use Mediates the Impact of OC on AIS Success via Service Quality (H₁₆)

The study has found a mediating impact for the *use* variable on the relationship between organizational culture and the benefits of AIS success on the organizational, individual and group levels via service quality in Lebanon and Canada. Literature shows that occasional and rare are the studies that have specifically addressed this relationship. However, relevant literature has identified a mediating role for the user variable in this relationship (Petter et al., 2008; Pitt et al., 1995; Namazi & Namazi, 2016)

6.2.3.4 User Satisfaction Mediates the Impact of OC on AIS Success via AIS Quality (H₁₇)

The results of the study indicated that user satisfaction mediates the impact of organizational culture on AIS implementation success benefits across both surveyed countries via AIS quality. Prior research has revealed that for an information system to be adopted and implemented successfully, the level of user satisfaction should be high (Santhanamery & Ramayah, 2015). However, such research is not specific to AIS or any geography. However, it goes in parallel with the findings of the study. Further studies have identified system quality as an essential factor for mediation of user satisfaction between organizational culture and AIS success benefits (Milin & Hadžić, 2011; Petter et al., 2008; Serumaga-Zake, 2017)

6.2.3.5 User Satisfaction Mediates the Impact of OC on AIS Success via Information Quality (H₁₈)

Findings showed that user satisfaction mediates the impact of organizational culture on AIS implementation success benefits via information quality across both surveyed countries. In parallel, prior studies found that information quality can be a mediating variable that can greatly affect the relationship between AIS success and its predictor (Petter et al., 2008). Information quality can be assessed in terms of the reporting output of the system and this can be an indicator of accuracy, completeness and timeliness of the system (Petter et al., 2008; Sheng, nd.).

6.2.3.6 User Satisfaction Mediates the Impact of OC on AIS Success via Service Quality (H₁₉)

Results showed that user satisfaction mediates the impact of organizational culture on AIS implementation success benefits via service quality across Lebanon and Canada. These results were supported by other relevant studies with no specific relevance to AISs or a specific nation (Petter et al., 2008; Santhanamery & Ramayah, 2015; Pitt et al., 1995). The following Table 6.4 presents a summary of the mediating variables hypotheses with reference to prior studies in the literature.

Table 6.4 The mediating variables hypotheses summary

| HP | Relationship | Decision | Prior Studies |
|-----------------|--------------------------------|----------------------|--|
| H ₁₄ | AIS Success -> AISQ -> Use ->B | Not Supported | 1. Petter et al. (2008) 2. Pitt et al. (2008) |

| | | | |
|-----------------|--------------------------------|------------------|--|
| H ₁₅ | AIS Success -> IQ -> Use ->B | Supported | 3. Petter et al. (2008) 4. Sheng, n.d |
| H ₁₆ | AIS Success -> SQ -> Use ->B | Supported | 3. Pitt et al. (1995) 4. Petter et al. (2008) 5. Namazi & Namazi (2016) |
| H ₁₇ | AIS Success -> AISQ -> USS ->B | Supported | 2. Serumaga-Zake (2017) 3. Petter et al. (2008) 4. Milin & Hadžić (2011) |
| H ₁₈ | AIS Success -> IQ -> USS ->B | Supported | 1. Sheng, n.d 2. Petter et al. (2008) |
| H ₁₉ | AIS Success -> SQ -> USS ->B | Supported | 1. Pitt et al. (1995) 2. Petter et al. (2008) 3. Santhanamery & Ramayah (2015) |

6.3 THE RESEARCH OUTCOME MODEL

After a thorough analysis reviewing the relevant literature, the following unique research model was developed to study the relationship between 17 organizational culture dimensions and AIS success. We considered both moderating and mediating variables in two specific countries, Lebanon and Canada given the professional expertise and training earned through long years of work experience in both countries. The model was able to answer the principal research question as to whether organizational culture impacts AIS implementation success in the chosen countries. The 17 identified dimensions of organizational culture showed a significant relationship with AIS implementation success in both countries. Only one moderating variable had a significant moderation impact. It is the location variable. This reinforced the view that national cultures impact organizational cultures, and thus, their impact on AIS implementation success differs across nations. *Use* and *user satisfaction* had significant mediating effects on the study model. Thus, supported by the adopted relevant research theories and the study model results, it is essential to conclude that the primary research hypothesis is supported. Therefore, no matter how remarkable and well developed an accounting information system is, it is bound to fail if adopting organizational cultures do not support it. The technical factors by themselves are not sufficient for AIS implementation success. Socio-technical factors are of parallel importance. The explanatory power of the model is moderate to high falling at a level of 60.14% which indicates that the studied 17 dimensions explain 60.14% of the variance in the AIS implementation success variable in the studied countries. Including more dimensions of organizational culture along with additional possible moderating variables such as the age of the organization may lead to a higher level of

explanatory power R^2 . This model is unique as it comprehensively studies the relationship of 17 organizational cultural dimensions that have not been addressed as a whole in prior studies. Moreover, some of these individual dimensions may have been completely ignored. Further, available literature focuses on the effects of organizational culture dimensions on information systems as a whole. AISs are different as they provide key financial and non financial information to internal and external users including but not limited to stakeholders, medical users, environmental institutions, governments, etc. (Ghaffoori, 2016), and this study focuses on these systems only. In addition, the research model draws a unique relationship among (the above) organizational culture seventeen dimensions and D&M (2003) IS success eight dimensions model including mediation and moderation effects with a specific focus on two countries of different economic and societal contexts, Lebanon and Canada. This developed model is unique as it is inimitable with significant theoretical, practical and methodological contributions.

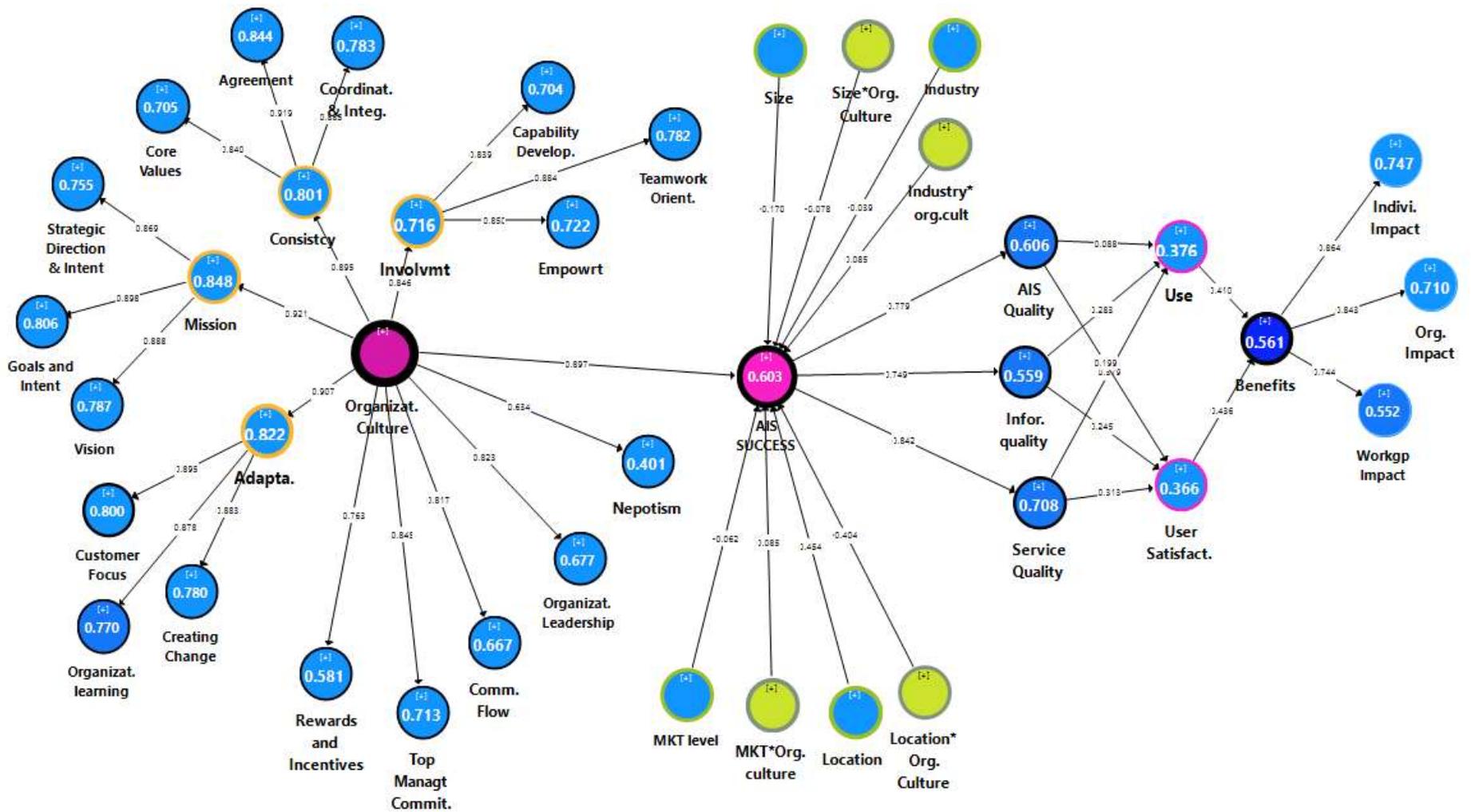


Figure 6.1 The study research model

6.4 CHAPTER SUMMARY

The findings of this study are pioneering, original and ground-breaking. Organizational culture in this study is much better conceptualized than other prior studies as the studied dimensions are well identified. The impact of each of those dimensions on AIS success is very quantitatively identified with clarity where each dimension shows a differential impact on AIS success compared with another. A number of these dimensions has not been addressed before, and all dimensions studied here have not yet been clearly addressed with relation to AIS success in the two countries studied. These findings merit further investigations and attention by researchers, AIS developers and adopters. The general 19 hypotheses of the study are supported. Furthermore, the study has shown that location plays a moderating effect on the relationship between organizational culture and AISs. Industry, firm size and market-level do not have a moderating effect on this relationship as shown in the findings of the study. Use and user satisfaction play a mediation role between the endogenous and the exogenous variables in the study, which are organizational culture and AISs success. This mediation impact is further influenced by AIS quality, information quality and service quality. The study has supported the hypotheses that use, and user satisfaction have a mediation effect on AIS success through information quality and service quality. The mediation effect on AIS success through AIS system quality was not supported in the findings. Furthermore, the findings of the study show the impact of 4 groups of organizational culture dimensions, using the Denison model (1999), namely, consistency, adaptability, mission and involvement on AIS implementation success in Lebanon and Canada. Under each of these categories, three separate dimensions of organizational culture occur. This study has shown the impact of these four main categories on AIS implementation success. The separate impact of 12 organizational culture dimensions within the Denison model is shown as well. Moreover, the study showed the impact of 5 other organizational culture dimensions on the AIS success, namely, top management support, nepotism as a dimension of corruption, rewards and incentives, communication flow and organizational leadership. The impact of the dimension of nepotism reflecting corruption was a fundamental and a leading finding for this study. Corruption impacts AIS success. The study, through, its qualitative findings, was able to denote a new term, namely, the culture of corruption. AIS success, as adopted from DeLone and McLean IS model (2002) is the dependent variable of

the study. Overall, some of the leading, innovative, founding and principal findings of the study, were supported by a combination of relevant theories and prior studies in the literature. Others were of prominent and revolutionary nature that merit further research orientations especially, the findings supporting that corruption as a part of the organizational or national culture is of primary influence on AIS success. Governments, policymakers, accountants, auditors, software developing organizations, organizational management at the private and public levels, organizational stakeholders, etc. should consider the dimensions addressed in this study as essential success factors for AISs. Therefore, measures have to be taken to address and investigate these factors before developing or adopting AISs. Furthermore, these factors should be considered to address a failing or mal-functioning AIS. The technical factors behind the failure of AISs could be just fractional in comparison with these prominent and fundamental factors.

Thus, this chapter discussed the findings of the study in relevance to the prior relevant literature providing a detailed explanation of the results on each of the 19 hypotheses of the study. The primary hypotheses of the study were all supported. Special attention was given to the nepotism/corruption hypothesis (H_{19}) due to the substantial importance of this part of the study. The significance of the relationships was tested and reported across prior relevant literature with a specific focus on the differences between the literature that address ERP systems or general IS and those that address AIS systems that were just a few. The hypotheses related to the mediating effects were all supported as well. However, the moderating effects were not all supported. Only the location moderating variable showed a significant effect on the relationship between organizational culture and AISs' implementation success.

Further, this chapter sheds light on the overall research model outcomes with a specific focus on its explanatory power and the need to address both technical and societal factors when considering the implementation of AIS. The following chapter seven, will provide the overall conclusion along with the theoretical, methodological and practical contributions of the study.

Chapter Seven: Conclusion

“The more original a discovery, the more obvious it seems afterwards.”- Arthur Koestler

“If the only tool you have is a hammer; you tend to see every problem as a nail.” - Abraham Maslow

7.1 CHAPTER OVERVIEW

This chapter concludes the study and provides recommendations, implications and future research orientations. The chapter starts with this study's main findings. Second, it presents the important theoretical, methodological and practical contributions of the study. Third, the chapter sheds light on the study implications. Fourth, the chapter presents the recommendations of the study. Fifth, the chapter deliberates the limitations faced throughout the study. Finally, before summarizing the chapter, the relevant future research orientations are identified. Hypotheses formulated and the research questions are revisited and re-emphasized. Overall, major conclusions have been drawn from this study that have not been addressed by prior literature, especially, the study focuses on two countries with dissimilar national cultures. As shown, literature lacks thorough studies that address the impact of organizational culture on AIS implementation success in two different nations from a comparative perspective. Therefore, it is essential to consider the future research orientations identified by this study.

The chapter is composed of numerous sections, starting with the main findings in section 7.2. Section 7.3 presents the contributions of the study while section 7.4 addresses the study implications. The recommendations of the study are presented in section 7.5. The limitations of the research are presented in section 7.6 while section 7.7 presents the future research orientations. Finally, the chapter is summarized in section 7.8.

7.2 MAIN FINDINGS

Findings of this thesis are ground-breaking as they emphasize the role of organizational culture in AIS failures and thus, a significant cause that underlies some of the major financial catastrophes that have stunned the world. The following sub-sections highlight the pioneering findings of the study.

7.2.1 Organizational culture dimensions' impact on AIS Success

The thesis findings showed that AIS implementation success is influenced by 17 dimensions of organizational culture in Canada and Lebanon. This level of influence on AIS success differs across the studied dimensions. For instance, the impact of core values, as one studied dimension of organizational culture varies in comparison with the impact of customer focus, another studied dimension, on AIS success. Therefore, organizations may consider the dimensions that have the most influential impact and improve them for better AIS implementation success. The results of this study found that organizational culture may be manifested by more than 100 dimensions (Jung et al., 2009). Each dimension may have a distinct impact. Organizations can address these dimensions separately while creating the right environment or culture in which AISs flourish. Further research may consider more than 17 dimensions and may aim for a study that will comprehensively identify the impact of organizational culture on AIS success.

7.2.2 Mediating and moderating effects

Furthermore, the study showed that location has a moderating impact on the relationship between organizational culture and AIS success. The results disclosed that firm level, industry and firm size have no moderating impact on the studied relationship. Further, other variables may play a moderating role in this context, namely, age of firms, level of experience, and type of firms. The findings of this study provide insights for further relevant investigations. The results of the thesis showed that *AIS user satisfaction* and *use* have a mediating role in the relationship between organizational culture and AIS implementation success in surveyed organizations. Further insights for future researches into the mediating roles of other variables are presented by this study.

7.2.3 Insights into Corruption and its Multiple Forms

One important insight the study pinpointed is the impact of corruption, specifically, nepotism on the implementation success of AISs. Corruption is an abstract concept that may take several forms, viz., embezzlements, fraud, forgery, etc. (Shaw & Bologna, 2000). The results of the study bring insights into a relationship that may exist between corruption and organizational culture. May corruption be one dimension of organizational or national culture? The results of the study provide vital insights into the interplay between corruption and organizational culture and

how corruption may impact culture and thus, AIS implementation success. The results of the study showed that corruption may facilitate corrupted cultures and thus, AIS failure. The study found that nepotism impacts the successful implementation of AIS in Canada and Lebanon. Corruption, on a wider perspective, may contaminate organizational cultures and thus, the appropriate environment in which AIS functions successfully. These findings merit further investigations.

7.2.4 A Theoretical Combination of Multiple Theories

The study has contributed to the relevant body of knowledge through providing a theoretical combination of multiple theories besides providing a new AIS implementation success model, expanding organizational culture and AIS data, applying advanced second generation statistical techniques and offering an evaluation on the applicability of DeLone and McLean (D&M) success model and Denison (2012) organizational culture dimensions to measure AIS success. The findings of the study support the adopted theories. The efficient contracting theory elaborates on the importance of accounting information in the organizations. Such information constitutes the cornerstone of major operational and strategic decisions. The study showed the importance of this information and how the fabrication of such information may lead to catastrophic financial, economic, ethical and social failures (Emanuel et al., 2003). Furthermore, the organizational theory is supported in the findings that presented several elements and components of organizational structure and culture that work together to achieve common goals (Glinkowska & Kaczmarek, 2015). A strong cooperation and communication among organizational units and members lead to successful performance. Furthermore, the study findings pertaining the role of top management in promoting AIS implementation success supports the managerial power and cultural audit theories (Van Essen et al., 2015). The role of management as well is supported by the agency theory (Teimouri et al., 2015). These findings of the study support the diffusion of innovation theory as communicating AIS benefits throughout the organizational levels reinforces its chances of success (Dearing & Cox, 2018). The study supports TAM model, the social cognitive theory, social exchange theory and D&M model in terms of perceived ease of system use and its usefulness. In other words, AIS is more likely to succeed if it is perceived to be useful and easy to interact with for the employees. The study provides evidence supporting the

task-technology fit theory and fit viability models. An AIS that fits with the organizational culture is more likely to succeed (IRMA, 2017). Therefore, organizations adopting AIS shall choose the most fitting system into their organizational culture and practices. The usefulness and benefits of AIS will improve its chances of success. Learning and training proved as important organizational aspects for AIS implementation success. These findings support the dynamic capability theory which elaborates on the importance of organizational learning for better change absorption (Arifin & Frmanzah, 2015). The interplay between the national, international and organizational cultures support the contingency theory. Organizations operate in an environment that influences their operations. The organizational internal and external environments impact organizational culture that influences the implementation success of AIS (Omoluabi, 2016). These findings support Schein's model, competing values framework and organizational culture profile theories (O'Reilly et al., 1991; Hogan & Coote, 2014). A strong leadership style in an organization was shown to impact positively AIS implementation success. These findings support the trait leadership theory. The study has shown that rewards and incentives impact employee performance positively and thus, encourage them to adapt to new technology effectively. These findings show evidence supporting the incentive theory of motivation (Killeen, 1981).

7.2.5 Better Corporate Governance

The study found that a successful implementation of AIS reinforces organizational corporate governance. These findings support efficient contracting, managerial power and agency theories that elaborate on the importance of information symmetry in creating better corporate governance in firms. A successful implementation of AIS will reinforce transparency and accountability across organizations. It will ensure timely, accurate and complete information and thus, maintain better corporate governance across organizations. These findings may merit further research investigation focusing on the interplay between AISs and corporate governance across organizations.

7.2.6 Building the Right Culture

The thesis showed that building the right culture in organizations will improve AIS success that leads to better IT and corporate governance. Understanding organizational culture and its

dimensions enables management to build the right culture for AIS success. The study showed that organizational cultures are not innate but rather, manmade. These study results are groundbreaking. They motivate organizations to reshape their cultures.

7.2.7 Inefficient Decisions by Policymakers

After major financial catastrophes, policymakers rush into stipulating new legislations such as the case of Sarbanes-Oxley Act (Wagner & Dittmar, 2006). The study results showed that lack of legislations may not underlie major financial scandals. Other reasons underlie AIS failures leading to the shocking financial catastrophes. This study identified that organizational culture is a main cause and thus, building the right culture may be more effective than stipulating new laws and legislations.

7.2.8 An Evolving Nature of Organizational Culture

The study presents the organizational culture as an evolving phenomenon that may be impacted by the local, regional, national and international cultures. These results are vital for further research endeavours. While in this section the findings of the study are identified, the following section presents the thesis contributions.

7.3 RESEARCH CONTRIBUTIONS

Practitioners, accountants, researchers, developers, vendors as well as management of companies at all levels need to understand the implementation process of AISs that is very promising for companies in terms of supplying critical information for decision making, yet a risky and costly endeavour. Some studies have addressed the impact of organizational culture on the implementation success of IS partially. However, it is crucial to consider that AIS is of greater importance in the organization. AIS is the engine that runs and reports all financial data and information on which investors, governments and management depend for sound financial and strategic decisions.

The study has identified 17 organizational culture dimensions that impact the implementation success of AISs. Management of organizations as well as accountant, stakeholders and software developing companies should consider these elements of organizational culture

before adopting a new accounting information system. An AIS that requires top management support and follow up is likely to fail in some of the Lebanese organizations or organizations in other developing countries where top management support is not available. From another perspective, a perfect accounting information system that is equipped with all functionalities and capabilities will mostly likely to fail in Lebanese organizations where nepotism and corruption are dominant. Furthermore, AISs that require group contributions and interactions are most likely to fail in an organization that lacks the spirit of teamwork and collaborations. The same applies to the rest of the 17 organizational culture dimensions adopted for this study. Therefore, the contributions of this research study are considerable and the following sections shed light on its theoretical, methodological and practical contributions.

7.3.1 Theoretical Contributions

This study has contributed to the body of knowledge through providing an assessment on the applicability of the organizational culture dimensions and the D&M success model to measure the implementation success of AIS. Therefore, the theoretical contributions of this study can be stated as follows:

7.3.1.1 Theoretical Combination of Multiple Theories

That study has made a theoretical combination of several relevant perspectives. Denison model of organizational culture is adopted in full along with D&M IS success model. Besides, other theories are adopted, namely but not limited to competing values framework, Schein model (1998), cultural audit theory, trait leadership, incentive motivation theory, organizational culture profile, social values inventory theory, social cognitive theory and the social exchange theory, etc. Therefore, the study has combined many theories in one model. This has not been addressed in prior literature. Therefore, 17 dimensions of organizational culture are adopted and tested for impact on the AIS implementation success in both Lebanon and Canada. In these both countries, the 17 organizational culture dimensions can be resorted to as determinant of success for implementing AIS in private as well as public organizations. The study has amalgamated different theories in one theoretical framework.

7.3.1.2 A New AIS Implementation Success Model

IS implementation success models may be common in prior studies. However, AIS implementation success models are limited in the relevant literature. It is important to note that AIS is an essential component of any IS if not taken as a standalone system. AIS is the engine that runs every ERP or IS system and it is the only component in the system that reports to taxation offices and external stakeholders. It is the system based on which major national, economic, environmental and social decisions are made. Despite this fact, rare studies have addressed the implementation success of this system. This current study, provides an outstanding research and assessment model for AIS implementation success in Lebanon and Canada. The study can be of great significance in both countries and others of similar national and organizational cultures. Furthermore, it is important to note the choice of both countries. Lebanon is a developing nation. In this country, nepotism and corruption are well nurtured. Canada is a well-developed nation with an advanced economy where the organizational culture is different and the phenomena of nepotism and corruption are not as common. Much of the IS research conducted lacks a theoretical foundation when evaluating the system implementation success. Furthermore, the variables and dimensions of measurements used are not recognized well in the literature but rather adopted based on common sense, intuition and past practices. This study is built on a solid theoretical framework comprised of several theories namely but not limited to social cognitive theory, fit viability theory, diffusion of innovation theory, TAM model, competing values framework, Schein model (1998), cultural audit theory, organizational culture profile, social values inventory theory, D&M model (2003), Denison model, and the social exchange theory. The study identifies 17 organizational culture dimensions and studies their impact on the implementation success of AIS through adopting the famous D&M IS success model 8 dimensions. Combining multiple theories in just one model creates a solid theoretical foundation to establish the worthiness, credibility and reliability of the model.

7.3.1.3 New Insights on the Numerous Dimensions of Organizational Culture

Apparently, and as stated in the literature, organizational culture is not a simple concept to define and measure. It is actually, as noticed in the study, the deoxyribonucleic acid (DNA) that

sets up the performance and the foundation of organizations. Every facet seen in an organization is influenced by the organizational culture set-up. The relevant literature has shed light on more than 100 dimensions of organizational culture. The available models studying the impact of organizational culture on IS implementation success are limited. They can convey just a partial image about the impact of organizational culture on IS implementation success. This study addresses even a unique component of IS, that is AISs. This component may be the only one that creates a link between the organizations and governmental or taxation authorities. Besides, it is the system that issues the reports that establish the basis on which major national decisions are made. Organizational culture impact on this unique component can take further descriptions. This study has addressed 17 dimensions of organizational culture adopted from multiple commonly embraced theories in the literature. It may be the first model in the literature that addresses this number of organizational culture dimensions and creates a causal relationship with D&M IS success model dimensions. The model can be used a standard reference to refer to when considering the implementation of AISs in organizations. Each of the organizational culture dimensions addressed in the study has its impact on the implementation of AIS in organizations. One important dimension that should be considered and given a greater value to the others is nepotism, specifically, in the developing countries. It has a major influence on the implementation success of AISs. Organizational culture has more than 100 dimensions to measure (Jung et al., 2009). These dimensions are not stable but rather developing. The study model creates insights for future studies to be more comprehensive and thus, create more complex models and possibly study, the interrelationships among the dimensions themselves. Furthermore, the study model is based on data collected from two different countries with different national and organizational cultures. The differences can create insights on the further culture studies specifically, the influence that national or even international cultures can have on organizational cultures.

7.3.1.4 Extending the New Theoretical Framework into the Accounting Industry

Accounting practice is one of the backbones of our modern economies. Accounting reports establish the grounds for major critical financial, strategic, economic, political, environmental, social, budgetary and other decisions. This study drags IS and organizational culture theory into

this industry. AISs are subject to an interrelationship between the company and its stakeholders, mainly government and external investors besides being the information and knowledge reference for any internal decisions inside the organization at all levels and in all departments. The accounting departments, being in a continuous interaction with other external reporting and governmental bodies, can have their own unique and specific differences. It is important that IS research understands the dynamics of the accounting industry and its differences. AISs are a part of the general taxation system in our modern economies. This study has addressed how organizational culture impacts this specific niche of information systems. Corrupt and imbalanced organizational cultures in taxation offices are most likely to promote organizational culture characterized by nepotism, corruption, favouritism, low level of management support, ineffective communication, tendency for fabricating accounting reports, etc. Therefore, AISs implementation success is subject to many factors within the organization itself and the parties with which such organizations have to interact. This study establishes a baseline foundation for future research in the accounting sector specifically on the impact of organizational culture on the success of the implementation of AIS. One can state in comparison for instance, that the nature of the operations of the marketing department is different from that of the accounting department. The marketing system component of IS inside an organization can be subject only to the organizational factors in which such department operate. Mainly, the marketing component of IS inside organizations is implemented for internal uses and decisions. However, AIS is a multi-faceted system with multiple components, based on its retrieved reports, many parties, internally and externally, make important decisions. The implementation success of AIS can be subject to organizational cultural interactions and differences among all these parties. This study brings insights into the impact of organizational culture, national, unit level and international level cultural dimensions on AIS implementation success. Future research can itemize the dimensions of these impacting cultural factors and thus, establish baseline foundations for further relevant research.

7.3.1.5 Establishing Conceptual Foundations for Future Empirical Research

Sporadic is the literature that addresses the impact of organizational culture on AIS success. In the developing world, such studies may be random. This study has specifically addressed two

different countries, Lebanon and Canada, an advanced economy and a developing economy. Data retrieved from these two countries were different. Therefore, having a standard study that is generalized globally may not be applicable. Each country might have its unique differences. Each city within one country can have its unique differences. The developing countries are different from the developed countries. The available studies about the relationship between organizational culture and IS systems in the literature are specific only to few countries. Are these studies applicable to other countries? Only empirical research can answer this question. This inquiry brings insights into further empirical research in specific countries.

7.3.1.6 Establishing Further Insights into IS and Nepotism and Corruption in Developing and Developed Nations

The study established that nepotism and corruption can detrimentally impact the AIS implementation success. Is nepotism a part of organizational culture? Can it be considered one dimension? Or is it a part of national culture? The literature and theory addressing this aspect is limited. Still, as noticed from the qualitative as well as the quantitative data collected, nepotism can impact AIS implementation success. This study brings insights into further studies on how nepotism and corruption can impact IS implementation and operations. Both nepotism and corruption can exist in developing, developed and advanced nations. Further empirical research can address nepotism as a part of the organizational culture. Furthermore, corruption can be addressed from a similar context but as a part of a national culture. The study determined that a full-fledged accounting information system is likely to be bypassed in organizations full of corruption and nepotism. Thus, AIS systems will fail. This study establishes a future research orientation into the relationships between corruption/nepotism and IS. Very little research has addressed this important relationship between IS and people behaviour.

7.3.1.7 Establishing Further Insights into the Relationship between National and Organizational Culture

Limited research has addressed as well the relationship between national and organizational culture. Study participants have referred to a strong impact of national culture on organizational culture and organizational performance, specifically in Lebanon, a developing

country. It is more likely that national cultures that are characterized by corruption/nepotism to have a negative impact on organizational cultures and thus, promote organizations that nurture nepotism and corruption. That is the case in Lebanon. The director at Naim Electrics, in one of the interviewees conducted, mentioned that “we have to ride in the same boat in this country. Otherwise, we will fail. We cannot go by rules and regulations in this country where everyone else does not. Going by the applicable rules and regulations will put us at a disadvantage. Therefore, we have to go by the shared and commonly followed behaviours in our nation in order to succeed” (M. Naim, personal communication, May 12, 2019). From another perspective, the owner of an accounting firm interviewed and a licensed accountant practicing in Lebanon, stated a similar opinion saying that companies have to go by the applicable traditions and behaviours in Lebanon, otherwise, they will fail. He provides an example of a company who uses dual AISs pricing features. One feature is dedicated for taxation purposes and another for sales. Therefore, this company could record two prices, one price for the government to save on taxes and another for sales to generate profits. Another company that operates in the same industry had only one standard accounting information system pricing feature. This company was not able to compete with the other companies because it pays a larger amount of taxes. Therefore, the company that uses two pricing features was able to sell a T-shirt at a price of US\$ 29.99 and generate profits and the other company was not able to sell at this price level because it faces losses (A. Ayoub, personal communication, May 17, 2019). Therefore, organizations are a part of a social system running in a specific country. National cultures may influence organizational cultures in a variety of ways. This study established a good framework for further research orientations addressing the interrelationships among IS, organizational culture and national cultures.

7.3.1.8 Establishing Further Insights into the Relationship between the International, National, Organizational culture, and IS

Lebanon is one country that has been occupied by many other civilizations, namely, French, Ottoman, etc. Furthermore, more Lebanese citizens live across the globe than those who are settled in Lebanon. Many of the Lebanese organizations are managed by individuals that have lived or still live overseas. One interviewee, advised that many of the companies that he works for

as an accountant are influenced by the cultures of the nations where their managers have connections to. This influence is reflected in the organizational strategic decisions and applicable policies. In Canada, traces of the Canadian, commonwealth and northern American culture can be seen in organizations. This study brings insights into further research addressing the interrelationship among IS, international, national and organizational cultures.

7.3.1.9 New Insights into Canada and Lebanon and the Fact that Generalizing Results Is Not Advised

The study focused on two countries. These countries have different societal, economic, cultural and environmental differences. The study showed differences in the results across both countries. This brings insights into further research addressing the differences in organisational and national cultures across cities and nations and thus, results that are applicable in a specific country might not be generalized over another country. It is essential that adopting and developing firms of AISs consider such differences. A standard accounting information system will likely fail without the proper custom modifications and upgrades matching organizational cultural characteristics of the city being implemented in.

7.3.1.10 New Classification of Organizational Culture Dimensions

The study contributes to the general body of knowledge besides contributing to the organizational culture dimensions' impact on AIS implementation success in Lebanon and Canada. The model presented is more comprehensive pertaining organizational culture dimensions than any other models or theories in the literature. It does not present a complete framework for organizational culture but a sort of a comprehensive framework for organizational culture dimensions. The same model can be applied to other countries. The study results can be different. However, the model can be generalized and applicable in different organizational cultural contexts.

7.3.1.11 A Model with Substantial Explanatory Power

The study unifies 17 organizational culture dimensions with 8 AIS implementation success dimensions incorporating multiple theories adopted in the literature. 4 Moderator and 2 mediating variables were a part of the study model. 147 variables are addressed in the study model. This

incorporation of multiple dimensions and theories creates the most comprehensible model yet for organizational culture and AIS relationship. The model has become complex and could not be run by co-variance based software such as AMOS but it is comprehensible. In this respect, Lee, Kozar and Larsen (2003) identified a trade-off between a comprehensive and barebones model. While comprehensive models increase the explanatory power, they increase the complexity of the models (Lee, et al., 2003).

7.3.1.12 Insights into the Instable Nature of Organizational Culture Impact on AIS

Organizational culture is not a stable concept or phenomenon. It may be important to mention that organizational culture as a part of our societies develops as our societies do. Therefore, it is important to consider the unstable and ever-changing nature of organizational culture. With time and progress and development of our societies and organizations, organizational culture dimensions develop. Therefore, future studies should be considering the developing nature of organizational culture especially, when intending to establish a more comprehensive model to describe the impact of organizational culture on the implementation success of AIS. One new possible dimension of organizational culture could be the adaptation to online working environment or social media presence or interaction of employees over social media and the list could go on and it is posited that such dimensions can impact the implementation success of AIS. Cloud accounting is one accounting information system that has been adopted by firms around the globe. It allows accounting records and functions via remote servers. Which organizational culture is more fit for this type of accounting software? Further empirical research can address such questions.

7.3.1.13 Literature and Theoretical Gap

The main hypothesis (H₂₀) is that "organizational culture impacts the implementation success of AIS in Canada and Lebanon". The study has considerable merits. It is addressing accounting information system as a component of IS or ERP systems. No other studies in the literature have addressed AISs in specific. The study is focused on two countries where no similar studies have been conducted before to the best of knowledge. One country is developing and

another is an advanced economy (Lebanon and Canada). This thesis focus sheds light on the differences between national and organizational culture and how national culture could impact organizational culture for future research orientation. Besides, this dimension is totally different between both countries. Corruptions and its facets as organizational/national culture dimensions are major future research orientations. As mentioned before, organizational culture is a complex phenomenon. All studies in the current literature have addressed just a few dimensions of organizational culture and a limited number of these studies has addressed AISs but rather the general IS or ERP systems. AIS is the core component of any ERP/IS because based on AIS data and information, all other ERP systems' components operate. Therefore, the success of AIS implementation is crucial for the success of IS structure in an organization. The study model is more comprehensive than any other model and it brings in new insights on the relationship between organizational culture and IS. It is a model that provides insights into more comprehensive models that would address more dimensions of organizational culture. Canada and Lebanon have different national culture and thus, the study provides research orientation on the national culture impact on AIS implementation success. The model is provided as a guide for AIS developers, management of adopting organizations, governments, decision makers, policy makers, politicians, and environmentalists, etc.

7.3.2 Methodological Contributions

Advanced studies should aim to have methodological contributions to the relevant body of knowledge. The following are important methodological contributions provided by this thesis to the relevant literature.

7.3.2.1 Expanding Organizational Culture and AIS data

Few studies have collected data from as many companies as this study has addressed. Furthermore, rare studies have collected organizational culture and AIS data from two specific countries, namely, Lebanon and Canada. Moreover, limited studies have used a mixed quantitative and qualitative approaches to data collection. This study made a use of an intensive data collection process via the distributions of hundreds of questionnaire to hundreds of companies. The quantitative methodology used in this study established a basis of estimation to determine the

extent of success and failure in AIS implementation. The outcome of this study can be used as a foundation for relevant future research in both addressed countries and other nations.

7.3.2.2 Applying Advanced Second Generation Statistical Techniques

The use of second generation statistical techniques is not new to IS studies. However, the advanced version of this statistical techniques has not yet been well explored and applied. In both countries, sporadic research has adopted the second generation statistical techniques. This study makes the best use of advanced partial least squares (PLS) structural equation modeling, specifically, the hierarchical component model via SmartPLS. Hierarchical component models are not well explored yet in the relevant literature. The use of this methodology in this study contributes to the development of the organizational culture and IS studies in specific countries or across global market environments.

7.3.3 Practical Contributions

The study provides several practical contributions besides is theoretical and methodological benefits. The practical contributions are discussed as follows.

7.3.3.1 A Model or Framework for Companies' Management

The success of AIS implementation has been important to all companies in today's competitive markets. Failure of such systems lead to catastrophic financial and operational consequences. Organizational culture has been determined to be one factor that influences the implementation success of AIS. The study identified 17 organizational culture dimensions including nepotism that happen to influence the implementation success of AIS. Therefore, company managers are concerned about the possible factors that are vital for AIS implementation success. The new knowledge provided by this comprehensive study allow managers of companies across all industries, specifically, in Lebanon and Canada to choose the proper and custom accounting information system that fits the characteristics of their organizational culture and thus, improve early planning and anticipate future problems and take corrective actions during the stages of implementation. The organizational culture factors identified in this study can be used as a planning tool where management of companies can focus on specific aspects to choose the most

culturally-fit AISs after requesting specific modifications to the body of the system and its key functions and thus, minimizing the risk of failure. The study sheds lights on the risks involved when purchasing out of the box systems to apply within culturally different or inadaptible environments.

7.3.3.2 A Model or Framework for Software Developing Companies

One important finding ensues this study suggesting that AISs purchased of the shelf do not succeed in all companies. They might be successfully implemented luckily in some companies, but fail in others. As an example, an AIS that is developed in China will most likely succeed in the Chinese market or markets of similar organizational or national cultures. However, implementing this same system in Canada or Lebanon without any upgrades or custom changes, will certainly be very challenging. Besides the need to conduct major updates on the technical features of the system, it is important to update the system to fit the organizational cultures of companies in Lebanon and Canada. In other words, the organizations in China may have different organizational culture than those in Canada and Lebanon, and as a result, such systems may fail due to cultural differences. As a result, the software developing companies should consider the dimensions of the organizational culture of companies before developing a suitable AIS. A universally standard accounting information system may not be successfully implemented everywhere. The study suggests that software developing firms conduct organisational culture evaluations during the planning stages of developing AISs as such systems should fit within the organizational culture of the adopting firms. The failure of AISs will result in high costs for developing firms and adopting firms besides the operational and competitive disadvantages. Furthermore, developing an AIS that does not fit within the organizational culture of the adopting firms will necessitate heavy schedules of follow up, maintenance and upgrades, and this results in heavy financial expenses for the adopting and the developing firms. Therefore, it is crucial to consider the characteristics of the organizational culture of the adopting firms while planning and developing the suitable and most culturally-fit AISs mentioned earlier in the research, organizational culture has numerous dimensions. The 17 adopted dimensions impact the implementation success of AISs. Therefore, it is essential that developing firms consider those 17 dimensions of organizational culture and

embed their purpose inside the functions and the goals of the developed AISs. It is much easier to adapt the features of the developed AISs to the characteristics of the dimensions of the adopting firms than to build or change the organizational culture to accommodate or absorb a culturally-unfit accounting information system. The study serves as a reference for proactive decision-making.

7.3.3.3 The National Culture Impact on AIS Implementation Success

The differences detected in the study between the organizational cultures in the two countries, identified a possibility that national culture can as well have an impact on the organizational culture and thus, the AIS implementation success. Therefore, future AIS implementation success studies should consider the impact of national culture. In Lebanon, for instance, the power distance is high, and the crucial decisions are controlled and often, manipulated only by top management. Such a characteristic of a national culture impacts communication and empowerment of the employees. Therefore, it affects the AIS implementation success in Lebanese companies negatively. Companies in this respect can take actions to support open communication and empower employees to express their opinions and take participative roles in the organization. This study pinpoints a role for the national culture in the implementation success of AISs. Besides developing or coding the most culturally-fit AISs' features, companies adopting or developing AISs can take necessary actions to make administrative changes, through building in a better fit culture.

7.3.3.4 A Model that Goes Beyond Its Context

The model depicts a relationship between organizational culture and AISs. However, the results of the study can be applied in other types of information systems, namely, but not limited to marketing information systems, decision support systems, general ERP systems, etc. However, it is important to note that the nature of AISs is more complex, especially, with regard to the people component of the system. It is important to note that differences could appear; However, exploring the notion of such differences is beyond the scope of this research study. Future relevant research may be done in this regards.

7.3.3.5 Better Decisions by Policymakers

Following AIS failures, policymakers rush to stipulate new laws and regulations to enable more transparency and accountability and further restrict management actions, viz., Sarbanes-Oxley Act that came into existence in 2002 to establish sweeping auditing and financial regulations for public companies (Wagner & Dittmar, 2006). However, is that the suggested action in this regards? It might play a positive role, but AIS system failures did not come to an end. This study allows policymakers to investigate such failures from a different perspective and address organizational culture causes rather than the flexibility or strictness in the set rules, laws and regulations. Thus, more effective decisions and actions can be taken. In this regard, decisions that would encourage and help building a better fit culture for IS may be an alternative route for policymakers to follow.

7.4 STUDY IMPLICATIONS

Important implications can be formulated from the outcomes of the study, especially, pertaining AIS/IS implementation and organizational culture aspects in today's organizations. The interrelationship described between organizational culture and AIS implementation success is of great use for managers to improve the AIS implementation success through taking necessary proactive and correction actions. Furthermore, management of organizations can resort to shaping the organizational culture to ensure better AIS-organizational culture fit. In the following are some essential managerial implications for the research study.

7.4.1 ICT Advancements

In today's organizations, Information and Communications Technology (ICT) expansions and advancements can positively promote better productivity, competitiveness and performance as a result of improving decision-making and interaction among the organization and its stakeholders. ICT in the business organization is made up of communication networks, information systems, internet technologies, etc. As successful implementation of AIS feeds other ICT elements with accurate and reliable information, it promotes the success on the organizational level. As a result, the organizational competitiveness, effectiveness and efficiency will improve.

7.4.2 Corporate and IT governance

Corporate governance, IT governance and accounting are connected through the principles of transparency and accountability. Prior research has indicated a positive relationship between AIS and governance mechanisms (Uyar et al., 2017). These findings are explained in the managerial power, agency and contracting efficiency theories. The reports of AISs are used as the cornerstone for investment, economic and budgetary decisions, and thus, such reports must be relevant, faithful, comparable, verifiable and comprehensive (Uyar et al., 2017). Successful implementation and operations of AISs lead to better IT and corporate governance across organizations.

7.4.3 Building the Right Culture

Building the right culture is feasible and can be a major implication of this study. The development and implementation of information systems (IS) require an organization to embrace the culture of innovation and originality. Kochargaonkar & Boulton (2014) asserts that an innovative culture improves the implementation of policies that are necessary for the survival of the organization in its dynamic industry. Technology companies and the organizations that strategize on incorporating innovative design into their activities tend to nurture the innovation culture by encouraging employees to be creative in all aspects of business operations (Kochargaonkar & Boulton, 2014). In support of creativity and innovativeness of the employees, Starostka (2014) claims that culture design management is essential in enhancing business specialization, and this can be integral in realizing effectiveness of IS system adoption and development. Developing the right mindset in the organization ensures that specialization in different departments establishes that the information system that is developed is inclusive of all the employees' needs within the organization. Further, Kochargaonkar & Boulton (2014) provides that the innovative idea that is undertaken within the organization should not only be contributed by the internal employees, but also by the external stakeholders. By giving an example of Google, Kochargaonkar & Boulton (2014) demonstrates the effectiveness of external stakeholders in influencing the right organizational culture characterized by innovativeness.

Starostka (2014) indicates that organizational culture can be realized where there is uniformity in the customs and values within the organization. The author utilizes the competitive values framework model as an effective tool in improving the organizational culture, and this framework is based on four elements of culture, including hierarchy, market, clan, and adhocracy. They are influential in determining the mindset orientation of the employees in determining the success of the information system developed in the organization. Starostka (2014) indicates that the internal components of the innovative organization should be based on the discretion and flexibility of the management in incorporating the policies within the organization. Halim et al. (2015) provides that innovative performance should be realized by understanding the framework that the organization can utilize in designing its thinking to be innovative. Organizations are faced with rapid changes in consumption, global competition, and constant change in technology, and it is through building an innovative organizational culture that the successful implementation of the information system can be realized. The success of the organization is mainly dependent on its ability to have a value-based culture that capitalizes on the resources available and improving the products and services offered to the consumers (Halim et al., 2015).

Leadership approach also plays a critical role in building the right organizational culture in the implementation of the information systems. Hester & Young (2013) supports this claim by outlining that value-based leadership is important in realizing the effective implementation of the information systems. The value-based leadership focuses on equality among all employees and the opportunities that can be influential in achieving an entrepreneurial and learning environment. Leaders need to provide freedom of conscience to the employees by trusting them in the strategies that they develop, and this is influential in enhancing competitiveness in the industry. The moral behaviours of the employees should be based on the constructive possibilities that necessitate growth and survival, and this can be instrumental in realizing the success of the operations (Hester & Young, 2013). Chen et al. (2018) support the role of leaders, and outline that the cultural orientation that is developed by management should be linked towards realizing innovation quality and speed. Considering that the level of competition is high in the industry, the organizational performance should be linked to the policies that are developed to realize the sustainability of the organization. Chen et al. (2018) support the role of the organizational culture in realizing the

innovative strategy that creates a competitive edge in the dynamic industry. Where the management offers direction to the employees in the best way in which they can be innovative, there is the possibility of enhancing the creativity of the employees towards achieving the sustainability of the organization.

Further, expounding on the role of management in influencing organizational culture, Kokina and Ostrovska (2013) utilize Denison model (2012) that is adopted in this study, for explaining the main attributes of the organizational culture. The model provides that the main elements of organizational culture include involvement, adaptability, consistency and mission. Accordingly, Barsade and O'Neill (2016) support the flexibility of the employees in adapting to the changes that are reported in the organization. This shows that the employees should be aware of the changes that are reported in the dynamic economy and implement innovative ideas that will enable the effectiveness of the operations in the long-run. Barsade and O'Neill (2016) claim that the internal focus of the management is on managing the weaknesses of the employees, and ensuring that quality services are offered. Employees should be encouraged to express themselves, and this is integral in ensuring that the emotional culture is managed within the organization. Barsade and O'Neill dwell on the internal focus of the management, where they outline the role of emotional culture in influencing the creativity and innovativeness of the employees. It is essential to always focus on modeling the emotions of the employees in realizing the desired culture that can improve the employees' productivity and innovativeness in a dynamic industry.

Finally, Grant (2016) claims that the culture of originality within the organization should be nurtured, and this is done by soliciting innovative ideas from the individuals rather than focusing on the group's views. Employees should be encouraged to provide their opinions and ideas and nurturing this culture can improve the success of the operations. One strategy that is proposed by Grant (2016) is cultivating on cohesion and dissent. A culture that is characterized by nonconformity ensures that the employees understand the importance of generating ideas and maintaining such group of employees requires a leader that reinforces the innovativeness of the employees. Although the employees need to provide their opinions and views on the ideas developed, the management has to consider the views of the teamwork and prevent the possibility of disintegrating the team. Employees should work as one team, and the leaders involved should

offer solutions to the employees where there is the possibility of disintegration and lack of teamwork spirit (Grant, 2016). Core values of the organization should be dissent, and this provides the employees with an environment in which they can passionately share their ideas and opinions towards realizing innovativeness in the organization (Grant, 2016). As such, organization culture should be developed based on originality, and this can enhance the effectiveness in the implementation of the information system. Therefore, increasing the chances of AIS implementation success can happen through building the right culture that will go seamlessly with the newly adopted AIS.

7.5 RECOMMENDATIONS

The findings, limitations, contributions and implications of the study have resulted in a number of recommendations to be considered for future research endeavours.

7.5.1 AIS Implementation Process

Modern organizations are interested in the implementation of a flexible information system (IS) due to the continuous changes in industries and the increase in the volume of the information being processed. In developing a valid and reliable information system, different phases should be followed. Eason (2016) states that the first phase is planning, which determines the reasons for building the system and the strategies that should be considered in building the system. In this phase, identification of business values, feasibility analysis, staffing, and controlling of the project are planned. The analysis is the second phase where the users of the information system implemented is determined, information is gathered, and modeling of the process, logic, and data conducted. As provided by Shendryk & Boiko (2015), a detailed analysis of the intention of the information systems development is critical as the findings of the analysis can determine the success or failure of the information systems implementation. Further, the design phase is essential in the development and implementation of information systems. This phase involves determining the way in which the system can work towards achieving the strategic goals of the business. The physical design of the information system is conducted in this phase, with focus being on the architectural design. It is important to link the design of the information system with the objectives for developing this system. The information system should be designed to link all the departments,

and this improves the communication process within the organization (Eason, 2016). Last, the implementation phase is undertaken in which system delivery is undertaken. The construction process involves the building of the program and undertaking system and program testing. The installation process is also vital where conversion, training, and support plans are put in place. As such, with this in place, the information system development and implementation is complete and can be used by the organization. Therefore, the study provides an insight into the development and implementation stages of AIS and thus, the needed action and planning throughout these stages to ensure a culturally-fit relationship between AIS and organizational culture. Future relevant research shall address the implementation planning, design and phases of AISs to increase the chances of successfully integrating AIS within the organizational culture.

7.5.2 Refining the Research Model

Further studies can be conducted to improve the research model through incorporating other organizational culture dimensions namely but not limited to, solidarity, assertiveness, change rigidity, attitudes and perceptions, conflict and risk, a people orientation, task orientation, formalization, attention to details, etc. Furthermore, additional moderating variables can be included in the model despite the fact that such additional moderating factors can render the model more complex. Moderating factors can include gender, age, technology experience, job role, project role, education level, company age, etc. one important aspect to investigate further is the dimension of nepotism and corruption. Those are of the main constructs that should be given attention in future studies. Can corruption be a part of a national or organizational culture or both? If theory supports that, then, corruption should be added to the model as it may have a direct impact on the implementation success of AISs. Corruption can be a national culture dimension. Further research is recommended here, especially, that corruption, namely, embezzlement, fabrication, nepotism and favouritism are major constructs that may highly impact the success of IS structure in advanced, developed, developing and under-developed nations. Future relevant research should address these construct more comprehensively with respect to the implementation success of AISs.

7.5.3 Survey Distribution

To get the highest possible rates of respondents, it is important to appeal to their intellect and communicate with them either face to face or through a phone or social media conversations. Sending just batches of emails will not lead to a high level of responses. Therefore, it is recommended that studies adopt an approach that will bring them close to their participants. Contacting participants via phone or another communication channel and explaining the importance of participating in the surveys will be of good benefits and will certainly increase the participation rate. Furthermore, it is recommended that a close follow up with participants is done to get a higher response rate. In this study, following up with respondents on a usual basis was essential to improve the response rates. With the technology developments, distribution of questionnaire can take place through a variety of means. Using the most possible means can certainly cover a wider sample and thus, increase the response rates.

7.5.4 Research Methodology

Organizational culture is a complex phenomenon, and AIS has various components, of which people are considered to be another complex dimension. Therefore, the survey methodology has its disadvantages. The qualitative interviews were conducted to provide a mix study approach. However, the case study approach is another approach that can be used since it is acknowledged to be appropriate for studying complex social phenomena (Yin, 2003). It is recommended that a plurality of methodological approaches is used in such studies involving complex social phenomena and interacting with humans. Such an approach will allow researchers to gain a deeper understanding of the impact of organizational culture dimensions on the implementation success of AISs.

7.5.5 Limitation to Two Countries

The study conducted was limited to two countries of different organizational and national cultures. Furthermore, the study addressed 17 dimensions of organizational culture. A more comprehensive study shall address a plural number of countries as well as a larger number of organizational culture constructs. Such studies should be able to gain a deeper understanding of

the role of national culture due to the differences in the countries chosen as well as a richer understanding of the organizational culture impact on AIS implementation.

7.5.6 Nepotism and Favouritism: Corruption

Future studies shall give important weight and attention to the concepts of nepotism, favouritism and corruption, overall, as a part of organizational or national culture. Other forms of corruption can be considered, namely but not limited to embezzlement, fabrications, fraud, falsifications, etc. These concepts may have a direct impact on the implementation success of IS systems in organizations. They prevail more in developing countries than developed ones. They are available in developed countries but might be hidden under different umbrellas or titles. Their impact cannot be ignored. This study incorporated nepotism as one dimension of organizational culture, and thus, a part of the conceptual framework and model developed. Future studies shall dive deeper into this construct. The study qualitative and quantitative results show evidence about the direct impact of nepotism as a form corruption, on the successful implementation of the AIS system, especially, in developing nations.

7.6 LIMITATIONS

Despite its clear, practical, theoretical, methodological contributions and implications, the study has its limitations that are listed below.

7.6.1 Organizational Culture Dimensions

The study was limited by not including all identified organizational culture dimensions in the relevant literature. These dimensions are more than one hundred (Jung et al., 2009). Furthermore, organizational culture schools are numerous, and each school looks at organizational culture from a different perspective. Therefore, it is impossible to have one determined definition of organizational culture or a set of determined and final dimensions. It is a complex phenomenon that literature has been trying to describe. Besides, there are no structural equation modeling software that will analyse data pertaining to a hundred or more dimensions of a specific latent construct. A hundred dimensions will require a sample data set of 1000 participants as a minimum. Furthermore, running such complex models will require advanced computers with significant

memories and processing power. Therefore, the study focused on the most commonly adopted organizational culture dimensions supported by relevant theory in the literature. Future studies should address more dimensions of organization culture, especially, if accompanying technology progress supports that. More comprehensive models will positively identify more dimensions of organizational culture that have a direct impact on the implementation success of AISs.

7.6.2 Chosen Countries

The study was conducted in just two countries of different economic and social developments. Future studies can address more than two countries and thus, introduce multiple perspectives of national cultures and thus, different organizational cultural contexts. Chosen countries can be from under-developing, developing and developed nations to allow for different cultural characteristics.

7.6.3 Survey Methodology Limitations

There are numerous methodologies and approaches that researchers can use in collecting data, and each method is dependent on the distinct factors including the aim of the research, resources available, and type of research being conducted (Ponto, 2015). One of the methods used in collecting data is survey research. Ponto (2015) defines survey research as the method of data collection by asking questions. The methods that are used for the collection of the data include open-ended questions (qualitative research approach), questionnaires (quantitative research approach), and mixed methods (Ponto, 2015). Stephen, Scott, Shawn & Mattie (2017) provide that the collected data can be useful in conveying information consistently and accurately, and this can be done with the use of questionnaires. Although, various studies, including Stephen et al. (2017), discuss the benefits of a survey method in data collection, there are distinct limitations associated with this method.

One of the key limitations is the coverage error (Ponto, 2015), and this involves the zero or unknown chance of the individuals to be included in the sample selected. The same limitation is highlighted in Stephen et al. (2017) study providing that there is an inability of the researcher to collect information from the non-representative samples. Survey research often focuses on a specific region, and this can be non-representative in the population. Stephen et al. (2017) rely on

Internet-based survey research in determining the effectiveness of the survey and this including the inherent bias. Also, the response rates are low for the survey methods (Stephen et al., 2017). Stephen et al. (2017) claim that the initial set of the respondents is always high, but when they go through the questions that they are asked, they tend not to finish the survey, and there has been a problem in increasing the response rate. With this in place, there is a possibility that the data collected cannot be reliable or generalizable, and this can influence the effectiveness of the research being conducted.

Ponto (2015) indicated that sampling error is also another problem that characterizes survey method, and this involves individuals included in the sample size that do not fully represent the whole population. It is worth noting that the population that is selected should be inclusive in the sample size, but this is not the case with the survey method. Also, Ponto (2015) highlights measurement error as the limitations of the survey method, and this implies that the questionnaires demonstrate the effectiveness in evoking truthful answers. In the measurement error, Stephen et al. (2017) provide that the measurement is on perceptions and attitudes of the respondents, and it fails to address the behaviours of the participants. With this in place, the data collection instrument administration can be limited to the problem being on communication with the necessary stakeholders. Other limitations include lack of follow-up ability with the problem being the evaluation of the participant responses.

Tehseen, Ramayah and Sajilan (2017) provide that common method bias is also a limitation to the survey research conducted. The study provides that using the same respondents in addressing the dependent and independent variables is one of the ways in which common method bias can be reported (Tehseen et al., 2017). Further, the manner in which the information is presented amongst the respondents is also the cause of the common method bias (Tehseen et al., 2017). The questionnaires that are distributed should have a clear context of the items provided, but there can be a challenge in the use of survey method, which can result in common method bias. Finally, the common method bias, as provided by Tehseen et al. (2017), is also caused by the measurement of the research constructs such as location, time, and media of data collection. Survey research is primarily affected by common method bias (Tehseen et al., 2017).

7.6.4 Generalizability

The study focuses on two countries, Lebanon and Canada. Therefore, the findings of the study cannot be easily generalized beyond the sample of population, organizations and settings due to a variety of reasons discussed below.

7.6.4.1 Focus on Two Specific Countries

The study focused on two specific countries, Lebanon and Canada, and thus, generalizing the results on other countries is not possible because other countries might have different national cultures and thus, different organizational cultures. However, the results can still be used in countries that have similar national and organizational cultures to the ones in which the study has been conducted.

7.6.4.2 CMV Analysis

The study has addressed the common bias issue. However, still, the fact that bias may still exist can be another obstacle in front of generalizability.

7.6.4.3 Sample Size

Despite the fact that the sample size meets the minimum sample size requirements for SmartPLS analysis, the number of samples is still insufficient to generalize the results of the study. The sample size of this study is 402. However, only 349 questionnaires were found useful to be included in the study.

Despite these limitations, this study is a unique contribution to the body of knowledge and relevant literature. It has provided an unprecedented understanding of the impact of organizational culture on AIS implementation success besides deciphering many of the dimensions of the complex organizational culture concept. Furthermore, it paved the way towards more relevant future research. Therefore, the limitations of the study call for its advancement, refinement and improvement and thus, explore better opportunities for further understanding of organizational culture, AIS implementation success and their interrelationships.

7.6.4.4 Industry type

The study addressed several types of industries. However, still, results may not be generalizable over other industries as they may differ. Some industries may have specific organizational cultures and different environments for AISs.

7.6.5 Temporal lag

Organizational culture is an evolving phenomenon. This thesis is based on cross-sectional data. Therefore, the organizational culture in both Canada and Lebanon may change across time periods. As a result of this evolving nature of organizational culture, the results of the study may change over time. A longitudinal study may be more robust in comparison with the current study analysis, as it observes the evolvement of organizational culture dimensions and their impact on AIS success over multiple time periods.

7.7 FUTURE RESEARCH ORIENTATIONS

The study establishes a solid framework for future research orientations addressing the impact of organizational culture on the implementation success of AISs. The conceptualization of organizational culture is not yet clear. Organizational culture has been shown to manifest into more than 100 dimensions (Jung et al., 2009). Each of these dimensions can have a different impact on AIS implementation success. Furthermore, the impact of organizational culture may change across locations and nations and develop with time. Moreover, an important insight is given on the impact of corruption as a part of organizational or national culture on AIS implementation success. In this regard, future research orientation may address facets of corruption inside organization and how these facets impact the implementation success of AISs. In addition, addressing the relationship between corruption, its facets, and organizational and national culture can be a topic worth investigating. Corruption as a part of organizational culture is an abstract concept that may contain numerous dimensions and thus, conceptualizing these notions is a promising research orientation. Corruption and organizational culture develop with time and may take different forms across geography. Studying their relationship with information systems across time and geography is a praiseworthy research orientation.

Evidently, there are opportunities for future research on the topic of organisational culture and AIS implementation by firms given that most of the existing studies have concentrated on the implementation of ERP systems in firms. These possible lines of future research orientation are critical to filling the gaps in the body of knowledge in relevance to the implementation of AIS considering the vital role of organisational culture. Further opportunities for research are concerned with the influence of national culture and organisational culture on AIS implementation. In particular, the opportunities for future research include: (a) use of organisational culture models to determine impact of national culture on organisational culture; (b) impact of national culture on the implementation of AIS by firms using a comparative approach; (c) use of alternative national culture models to examine the impact of national culture on organisational culture; (d) the impact of both national and organisational culture on the implementation of AIS; (e) replication of studies on the impact of national culture on organisational culture of accounting firms and using comparative approach for investigating this relationship; (f) impact of national and organisational culture on the use of AIS; (g) the mediating impact of national and organisational culture on the relationship between AIS implementation and firm performance, with a consideration of non-financial and financial measures of organisational performance in future studies; (h) an investigation of the relative significance of organisational and national culture in influencing accounting firms' performance following AIS implementation; (i) the moderating effects of various variables such as firm size, age, location, industry and market level, job roles on the relationship between organizational culture and AIS success; and (j) the impact of corruption as stated previously in this section, as a part of the organizational and national culture on AIS success. Therefore, these opportunities for research on organisational and national culture and AIS implementation highlight the existing gaps in knowledge that need to be addressed. These future studies will provide updated knowledge on the implementation of AIS in organizations by considering the issue from the perspective of national and organisational culture. As national culture influences the organisational culture, it is important to demonstrate how this extends to the successful implementation of AIS by adopting firms.

7.8 CHAPTER SUMMARY

This chapter revisited this study's research objective and questions providing a summary of the results investigating the impact of the organizational culture on AIS implementation success. The contributions of the study are presented in this chapter, principally, its theoretical, methodological and practical aspects. This study is novel by its nature and is conducted in countries differing culturally, economically and socially. The study provides a unique model that builds on and extends the existing theory. The study addressed the impact of organizational culture as comprehensively as possible by addressing 17 organizational dimensions adding nepotism as one important and impacting dimension on AIS implementation success, especially, in the developing countries.

The study has outstanding merits and contributions in terms of theory, practice and methodology besides important implications for organizations developing AIS software as well as organizations adopting such software. Despite its limitations, the study provides a robust framework for future research orientations on the interrelationships between organizational culture and accounting information systems.

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Every reasonable effort has been made to acknowledge the owners of copyright material. I would be pleased to hear from any copyright owner who has been omitted or incorrectly acknowledged.

Appendices

Appendix A: Recruitment email



Recruitment Email

Greetings,

My name is Abdul Ayoub and I am a PhD student in the School of Management at Curtin University. I am conducting a research study about **The Impact of Organizational Culture on the Implementation Success of AISs in Canada and Lebanon.**

I am emailing to ask if you would like to take about 15 minutes to complete a survey for this research project.

Participation is completely voluntary and your answers will be kept confidential. If you are interested, please click on the link for the survey and additional information:

https://curtin.au1.qualtrics.com/jfe/form/SV_0AqV9pz9QWRWS8t

To obtain further information or answer any questions, please do not hesitate to contact me through the following:

Phone Number: +61894679750

Email: a.ayoub2@postgrad.curtin.edu.au

Thank you for your time

Abdul Ayoub

Doctoral Research Student

Curtin Business School

Appendix B: Cover Letter

PhD Dissertation Questionnaire

Name: Abdul Ayoub

31 Pollock Street, Bentley, Perth, WA, 6102.

a.ayoub2@postgrad.curtin.edu.au

“Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 15201).”

Dear Respondent,

I am a PhD student in the school of Information Systems at Curtin University. I am conducting a research study is to investigate the impact of organizational culture on the implementation success of AISs in Canada and Lebanon. I believe the results would be of great value and significance to professionals in the field, individuals firms and organizations. The results of the study will hopefully minimize the occurrence of AISs implementation failures and the resulting heavy costs. The company and you are part of a representative sample.

I request your participation which will involve just completing the following survey questions to the best of your knowledge. Your participation in this research is completely voluntary and there are no known risks beyond those encountered in everyday life. You can choose not to participate or to withdraw from the study at any time and your results will be discarded. Your responses are vital to the success of my study. I recognize the value of your devoted time and appreciate your efforts and cooperation. Your responses will be anonymous and any provided information about your company will be held in confidence. The estimated time to complete this survey is 14 minutes. Kindly, complete it and click submit at your earliest convenience.

Your time is highly appreciated. Thank you for your assistance in this important endeavour.

If you have any question about this research project, please contact researcher at the email provided above.

Sincerely,

Abdul Ayoub

Doctoral research student in Information Systems at Curtin University.

PARTICIPANT INFORMATION STATEMENT

| | |
|-----------------------------|--|
| HREC Project Number: | 15201 |
| Project Title: | The Impact of Organizational Culture on the Implementation Success of AISs in Canada and Lebanon. |
| Chief Investigator: | Dr Vidyasagar Potdar, Senior Research Fellow, School of Management, Curtin Business School |
| Student researcher: | Abdul Ayoub |
| Version Number: | |
| Version Date: | |

What is the Project About?

- Research Background: AISs improve the quality of financial reporting and thus, the overall quality of performance in organizations. Modern businesses rely on information systems for success. However, many cases of information systems implementations have failed. Reasons behind such failures are not fully understood. These failures had major financial

losses and organizational issues. One major reason behind such failures is organizational culture.

- **Methodology:** Research is based on available literature and survey data. Eligible participants will be sourced and identified via a variety of means including but not limited to personal networks, phone books, yellow pages, social media tools, and print media. Potential participants are contacted, informed and invited to participate in the study.
- **Why doing it?** My study will focus on how 23 facets of organizational culture impact the successful implementation of AISs. Prior studies have been much broader addressing ERP systems and did not focus on as many facets of organizational culture as my research study does.
- **Aims:** The study intends to determine the impact of organizational culture on the implementation success of AISs in Canada and Lebanon.
- **Why it is important?** The research will be of benefit to organizations planning to or implementing an Accounting Information System especially, if the developing firm of the Accounting Information System has a different organizational culture in comparison with the adopting firm or there is a large gap between the organizational cultures of both firms. It will provide developers with better understanding of organizational cultural impact and thus, improve their efforts to develop more efficient, adaptable and successful AISs. The research will tighten the gap in the lack of knowledge on the impact of culture on the implementation of AIS and thus, increase the likelihood of success and improve satisfaction with such software.

Who is doing the Research?

- The project is being conducted by {Abdul Ayoub}.
- The results of this research project will be used by {Abdul Ayoub} to obtain a Doctor of Philosophy at Curtin University and is funded by the Australian government through the Postgraduate Research Support Scheme.
- There will be no costs to you and you will not be paid for participating in this project.

Why am I being asked to take part and what will I have to do?

- You have been asked to participate in our research because you work in one of our recruited organizations and your working position gives you the experience, knowledge and educational background to respond to survey questions as efficiently and precisely as possible.
- Your participation will only involve responding to 32 questions to the best of your knowledge as presented in the survey.
- I will conduct my study via Curtin campus and home office online and by phone.
- I will ask you questions about several facets of organizational culture and AISs inside your organization to assess the direct relationship among identified variables. All questions follow Likert Scale format.
- You will complete the questionnaire only once.
- You will fill in the questionnaire online. You only need to click submit as you fill in the questionnaire to return it to us.
- You will spend no more than 13-16 minutes to complete the questionnaire.
- There will be no cost to you for taking part in this research and you will not be paid for taking part.

Are there any benefits' to being in the research project?

- The research outcome is expected to minimize the occurrence of AIS implementation failure in organizations. The outcome of my research will be of benefits to you and your organization in this regards. But, I note that there may be no direct benefit to you from participating in this research.
- Sometimes, people appreciate the opportunity to discuss their opinions/ feelings/condition
- We hope the results of this research will allow us to:
 - Minimize the occurrence of AIS implementation failures
 - Tighten the gap in the lack of knowledge on the impact of organizational culture on the implementation success of AIS

- Allow developers to develop more culturally fit and customized information systems
- Allow organizations to apply and adopt culturally suitable AISs

Are there any risks, side-effects, discomforts or inconveniences from being in the research project?

There are no foreseeable risks from this research project.

Who will have access to my information?

- The information collected in this research will be identifiable. This means that any information we collect that can identify you will stay on the information we collect and it will be treated as confidential and used only in the project unless otherwise stated. We can let others know this information only if you say so or if the law says we need to. All information will be stored securely on Curtin's University R-Drive on campus. The following people will have access to the information we collect in this research: the research team and, in the event of an audit or investigation, staff from the Curtin University Office of Research and Development
- Electronic data will be password-protected and hard copy data will be in locked storage.
- The information we collect in this study will be kept under secure conditions at Curtin University for 7 years after the research is published and then it will be kept indefinitely.
- The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Will you tell me the results of the research?

- We will write to you at the end of the research (in about 12 months) and let you know the results of the research. Results will not be individual but based on all the information we collect and review as part of the research.

- Results will be published in a professional scientific journal. We will advise you about the title of the journal at the end of the research.

Do I have to take part in the research project?

- Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. If you choose not to take part or start and then stop the study, it will not affect your relationship with the University, staff or colleagues.
- You can withdraw your participation prior to submitting your responses. You can do this by simply closing the browser.
- We will destroy any information we have collected from you

What happens next and who can I contact about the research?

- Please contact researcher: Abdul Ayoub to obtain further information or answer questions through the following:
Phone Number: +61894679750
Email: a.ayoub2@postgrad.curtin.edu.au
- If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Signing the consent indicates that you agree to be in the research project. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep.
- At the start of the questionnaire, available via the link provided, there is a checkbox to indicate you have understood the information provided here in the information sheet.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number XX/XXXX). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Appendix D: Consent Form

CONSENT FORM

| | |
|-------------------------|---|
| HREC project number: | |
| Project title: | The impact of organizational culture on the implementation success of AISs in Canada and Lebanon. |
| Primary contact person: | Abdul Ayoub, PhD research student |

- I have read, (or had read to me in my first language – delete if not appropriate), the information statement and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my involvement in this project.
- I voluntarily consent to take part in this project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that I can withdraw my consent at any time without any penalty.
- I understand I will receive a copy of this Information Statement and Consent Form.

| | |
|-------------------|--|
| Participant Name: | |
| Signature: | |
| Date: | |

Declaration by investigator/contact person: I have supplied an Information Letter and Consent Form to the participant who has given consent, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

| | |
|---------------|--|
| Investigator: | |
| Signature: | |
| Date: | |

Appendix E: Ethics Approvals/Amendment Approvals



Office of Research and Development

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 7863
Facsimile +61 8 9266 3793
Web research.curtin.edu.au

14-Sep-2018

Name: Vidy Potdar
Department/School: School of Management
Email: Vidyasagar.Potdar@cbs.curtin.edu.au

Dear Vidy Potdar

RE: Ethics Office approval
Approval number: HRE2018-0609

Thank you for submitting your application to the Human Research Ethics Office for the project **The Impact of Organizational Culture on AIS Implementation Success in Halifax, Canada and Beirut Lebanon.**

Your application was reviewed through the Curtin University Low risk review process.

The review outcome is: **Approved.**

Your proposal meets the requirements described in the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research (2007)*.

Approval is granted for a period of one year from **14-Sep-2018** to **13-Sep-2019**. Continuation of approval will be granted on an annual basis following submission of an annual report.

Personnel authorised to work on this project:

| Name | Role |
|---------------------|------------|
| Ayoub, Abdul Rahman | Student |
| Rudra, Amit | Supervisor |
| Potdar, Vidy | CI |

Approved documents:

Document

Standard conditions of approval

1. Research must be conducted according to the approved proposal
2. Report in a timely manner anything that might warrant review of ethical approval of the project including:

- proposed changes to the approved proposal or conduct of the study
 - unanticipated problems that might affect continued ethical acceptability of the project
 - major deviations from the approved proposal and/or regulatory guidelines
 - serious adverse events
3. Amendments to the proposal must be approved by the Human Research Ethics Office before they are implemented (except where an amendment is undertaken to eliminate an immediate risk to participants)
 4. An annual progress report must be submitted to the Human Research Ethics Office on or before the anniversary of approval and a completion report submitted on completion of the project
 5. Personnel working on this project must be adequately qualified by education, training and experience for their role, or supervised
 6. Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, that bears on this project
 7. Changes to personnel working on this project must be reported to the Human Research Ethics Office
 8. Data and primary materials must be retained and stored in accordance with the [Western Australian University Sector Disposal Authority \(WAUSDA\)](#) and the [Curtin University Research Data and Primary Materials policy](#)
 9. Where practicable, results of the research should be made available to the research participants in a timely and clear manner
 10. Unless prohibited by contractual obligations, results of the research should be disseminated in a manner that will allow public scrutiny; the Human Research Ethics Office must be informed of any constraints on publication
 11. Approval is dependent upon ongoing compliance of the research with the [Australian Code for the Responsible Conduct of Research](#), the [National Statement on Ethical Conduct in Human Research](#), applicable legal requirements, and with Curtin University policies, procedures and governance requirements
 12. The Human Research Ethics Office may conduct audits on a portion of approved projects.

Special Conditions of Approval

None.

This letter constitutes low risk/negligible risk approval only. This project may not proceed until you have met all of the Curtin University research governance requirements.

Should you have any queries regarding consideration of your project, please contact the Ethics Support Officer for your faculty or the Ethics Office at hrec@curtin.edu.au or on 9266 2784.

Yours sincerely



Catherine Gangell
Manager, Research Integrity

Research Office at Curtin

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 7863
Facsimile +61 8 9266 3793
Web research.curtin.edu.au

12-Feb-2019

Name: Vidy Potdar
Department/School: School of Management
Email: Vidyasagar.Potdar@cbs.curtin.edu.au

Dear Vidy Potdar

RE: Amendment approval
Approval number: HRE2018-0609

Thank you for submitting an amendment request to the Human Research Ethics Office for the project **The Impact of Organizational Culture on AIS Implementation Success in Halifax, Canada and Beirut Lebanon.**

Your amendment request has been reviewed and the review outcome is: **Approved**

The amendment approval number is HRE2018-0609-01 approved on 12-Feb-2019.

The following amendments were approved:

Questions have been added to the survey which will lead to a more robust study.

Any special conditions noted in the original approval letter still apply.

Standard conditions of approval

1. Research must be conducted according to the approved proposal
2. Report in a timely manner anything that might warrant review of ethical approval of the project including:
 - proposed changes to the approved proposal or conduct of the study
 - unanticipated problems that might affect continued ethical acceptability of the project
 - major deviations from the approved proposal and/or regulatory guidelines
 - serious adverse events
3. Amendments to the proposal must be approved by the Human Research Ethics Office before they are implemented (except where an amendment is undertaken to eliminate an immediate risk to participants)
4. An annual progress report must be submitted to the Human Research Ethics Office on or before the anniversary of approval and a completion report submitted on completion of the project
5. Personnel working on this project must be adequately qualified by education, training and experience for their role, or supervised
6. Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, that bears on this project
7. Changes to personnel working on this project must be reported to the Human Research Ethics Office

8. Data and primary materials must be retained and stored in accordance with the [Western Australian University Sector Disposal Authority \(WAUSDA\)](#) and the [Curtin University Research Data and Primary Materials policy](#)
9. Where practicable, results of the research should be made available to the research participants in a timely and clear manner
10. Unless prohibited by contractual obligations, results of the research should be disseminated in a manner that will allow public scrutiny; the Human Research Ethics Office must be informed of any constraints on publication
11. Ethics approval is dependent upon ongoing compliance of the research with the [Australian Code for the Responsible Conduct of Research](#), the [National Statement on Ethical Conduct in Human Research](#), applicable legal requirements, and with Curtin University policies, procedures and governance requirements
12. The Human Research Ethics Office may conduct audits on a portion of approved projects.

Should you have any queries regarding consideration of your project, please contact the Ethics Support Officer for your faculty or the Ethics Office at hrec@curtin.edu.au or on 9266 2784.

Yours sincerely



Amy Bowater
Ethics, Team Lead



Research Office at Curtin

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11-May-2019

Name: Vidy Potdar
Department/School: School of Management
Email: Vidyasagar.Potdar@cbs.curtin.edu.au

Dear Vidy Potdar

RE: Amendment approval

Approval number: HRE2018-0609

Thank you for submitting an amendment request to the Human Research Ethics Office for the project **The Impact of Organizational Culture on AIS Implementation Success in Halifax, Canada and Beirut Lebanon.**

Your amendment request has been reviewed and the review outcome is: **Approved**

The amendment approval number is HRE2018-0609-02 approved on 11-May-2019.

The following amendments were approved:
Minor modifications to the survey questionnaire.

Any special conditions noted in the original approval letter still apply.

Standard conditions of approval

1. Research must be conducted according to the approved proposal
2. Report in a timely manner anything that might warrant review of ethical approval of the project including:
 - proposed changes to the approved proposal or conduct of the study
 - unanticipated problems that might affect continued ethical acceptability of the project
 - major deviations from the approved proposal and/or regulatory guidelines
 - serious adverse events
3. Amendments to the proposal must be approved by the Human Research Ethics Office before they are implemented (except where an amendment is undertaken to eliminate an immediate risk to participants)
4. An annual progress report must be submitted to the Human Research Ethics Office on or before the anniversary of approval and a completion report submitted on completion of the project
5. Personnel working on this project must be adequately qualified by education, training and experience for their role, or supervised
6. Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, that bears on this project
7. Changes to personnel working on this project must be reported to the Human Research Ethics Office
8. Data and primary materials must be retained and stored in accordance with the [Western Australian University Sector Disposal Authority \(WAUSDA\)](#) and the [Curtin University Research Data and Primary Materials policy](#)
9. Where practicable, results of the research should be made available to the research participants in a timely and clear manner
10. Unless prohibited by contractual obligations, results of the research should be disseminated in a manner that will allow public scrutiny; the Human Research Ethics Office must be informed of any constraints on publication
11. Ethics approval is dependent upon ongoing compliance of the research with the [Australian Code for the Responsible Conduct of Research](#), the [National Statement on Ethical Conduct in Human Research](#), applicable legal requirements, and with Curtin University policies, procedures and governance requirements

12. The Human Research Ethics Office may conduct audits on a portion of approved projects.

Should you have any queries regarding consideration of your project, please contact the Ethics Support Officer for your faculty or the Ethics Office at hrec@curtin.edu.au or on 9266 2784.

Yours sincerely



Amy Bowater
Ethics, Team Lead

Vendor

Others, Please Specify

Q9. AIS Implementation Success:

AIS Quality:

Below are a number of statements regarding the Quality of Accounting Information Systems (AIS). Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Our AIS has accurate data. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS is flexible to interact with. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS is easy to learn. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS is easy to use. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS is reliable. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I find it easy to get the AIS do what I want. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS system is user friendly. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS system is stable. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The AIS system is fast to recover from errors. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q10. Information Quality:

Below are a number of statements regarding the Information Quality of Accounting Information Systems (AIS). Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Information generated by AIS is correct. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Information generation by AIS is useful for its purpose. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I trust the information output of AIS. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS provides timely information. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS makes information more understandable. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS provides custom information. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS provides accurate information. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The information provided by AIS is up-to-date. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The information output is presented in a useful format. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q11. Service Quality:

Below are a number of statements regarding the Service Quality of Accounting Information Systems (AIS). Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Division/unit employees provide assurance to solve problems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Division/Unit employees are consistently courteous with users. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Division/Unit employees understand my needs and those of my work group. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Division/Unit people provide prompt service to users. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| There is adequate technical support from the system provider/s. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The overall infrastructure in place is adequate to support AIS. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The AIS can be relied on to provide information when needed. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The output of AIS is complete for work processes. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Division/Unit employees provide follow-up service to users. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q12.

Individual Impact:

Below are a number of statements regarding the Accounting Information Systems (AIS) Individual Impact. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Using AIS in my job enables me to accomplish tasks faster. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Using AIS saves time. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Using AIS improves my job performance. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Using AIS in my job increases my productivity. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Using AIS enhances my effectiveness in my job. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Using AIS makes it easier to complete my job. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Using AIS enhances my awareness and recall of job related information. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I learn a lot through the presence of the AIS. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, I am satisfied with the AIS. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q13.

Organizational Impact:

Below are a number of statements regarding the Accounting Information Systems (AIS) Organizational Impact. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Capacity planning, cost estimation and inventory control have improved. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS has resulted in overall productivity improvement. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS has resulted in an increased capacity to manage a growing volume of activity. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS has resulted in improved business process. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| There is a reduction in operating costs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cooperation between various departments within the organization has improved (e.g., finance, human resource, and operations). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Employee job satisfaction and morale has improved. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS improves communication efficiency. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS improves the quality of service. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q14.

Workgroup Impact:

Below are a number of statements regarding the Accounting Information Systems (AIS) workgroup Impact. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Our AIS helps to improve workers' participation in the organisation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS improves organisational-wide communication | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS creates a sense of responsibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS improves the efficiency of sub-units in the organisation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our AIS enhances solution effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q15.

Use:

Below are a number of statements regarding the Accounting Information Systems (AIS) Use. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-------------------|----------|---------|-------|----------------|
|--|-------------------|----------|---------|-------|----------------|

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Using AIS enables me to accomplish tasks more quickly. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Using AIS has improved my job performance. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS supports my work procedures. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Implementation of AIS entails new tasks for me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS replaced paper records. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Generally, AIS has made my work easier. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q16. User Satisfaction:

Below are a number of statements regarding the Accounting Information Systems (AIS) User Satisfaction. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I am satisfied with the functions of AIS. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS has eased work processes. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am generally satisfied using the AIS. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS meets customer needs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AIS allows efficient exchange of information. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q17. Organizational Culture: Involvement:

Empowerment: Please indicate your views in regards to empowerment in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Most employees in this organization are highly involved in their work. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Decisions in this organization are usually made at the level where the best information is available. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Information is widely shared in this organization so that everyone can get the information s/he needs when it is needed. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Everyone in this organization believes that s/he can have a positive impact. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Business planning in our organization is ongoing and involves everyone in the process to some degree. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q18. Teamwork Orientation:

Please indicate your views in regards to teamwork orientation in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Cooperation and collaboration across functional roles are actively encouraged in this organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Working in this organization is like being part of a team. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Work is sensibly organized in this organization so that each person can see the relationship between his/her work and the goals of the organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Teams are the primary building block of this organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This organization relies on horizontal control and coordination to get work done, rather than hierarchy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q19. Capability Development: Below are a number of statements regarding capability development in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| This organization delegates authority so that people can act on their own. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The capability of the people in this organization is viewed as an important source of competitive advantage. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This organization continuously invests in the skills of its employees. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The "bench strength" of this organization is constantly improving. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Problems often arise in my organization because we do not have the skills necessary to do the job. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q20. Consistency:

Coordination and Integration:

Below are a number of statements regarding coordination and integration in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Our approach to doing business is very consistent and predictable. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| There is good alignment of goals across levels of this organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| People from different organizational units still share a common perspective. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is easy to coordinate projects across functional units in this organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Working with someone from another part of this organization is like working with someone from a different company. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q21. Agreement:

Below are a number of statements regarding agreement in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| There is a clear and consistent set of values in this company that governs the way we do business. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This company has a characteristic management style and a distinct set of management practices. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The managers in this company "practice what they preach." | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This organization has an ethical code that guides our behavior and tells us right from wrong. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ignoring the core values of this organization will get you in trouble. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q22.

Core Values:

Below are a number of statements regarding the core values in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Understanding task details before making a decision is important in my organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Minimizing financial uncertainty is given high importance in the decision making process in my organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of professional knowledge is important in my organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My organization's decision making is based on systematical collection of data and facts | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q23.

Adaptability:

Creating Change:

Below are a number of statements regarding creating change in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| This organization is very responsive and changes easily. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| This organization responds well to competitors and other changes in the external business environment. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This organization continually adopts new and improved ways to do work. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Attempts to change this organization usually meet with resistance. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Different units in this organization often cooperate to create change. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q24.

Customer Focus:

Below are a number of statements regarding customer focus in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Customer comments and recommendations often lead to changes in this organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Customer input directly influences our decisions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All members of this organization have a deep understanding of customer wants and needs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| We encourage direct contact with customers by members of the organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The interests of the final customer often are ignored in our decisions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q25. **Organizational Learning:**

Below are a number of statements regarding learning in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| This organization encourages innovation and rewards those who take risks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| We view failure as an opportunity for learning and improvement. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Lots of things "fall between the cracks" in this organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Learning is an important objective in our day-to-day work. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| We make certain that the "right hand knows what the left is doing." | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q26.

Mission:

Strategic Direction and Intent:

Below are a number of statements regarding strategic direction and intent in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| This organization has a clear mission that gives meaning and direction to our work. . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This organization has a long-term purpose and direction. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The strategic direction of this organization is unclear to me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This organization has a clear strategy for the future. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our organization's strategy is leading other firms to change the ways that they compete. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q27.

Goals and Intent:

Below are a number of statements regarding goals and intent in your firm. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| There is widespread agreement about the goals of this organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The leaders of this organization set goals that are ambitious, but realistic. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The leadership of this organization has "gone on record" about the objectives we are trying to meet. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| We continuously track our progress against our stated goals. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| The people in this organization understand what needs to be done for us to succeed in the long run. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q28. Vision:

Below are a number of statements regarding vision in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| We have a shared vision of what this organization will be like in the future. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The leaders in this organization have a long-term orientation. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Short-term thinking often compromises long-term vision. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our vision creates excitement and motivation for our employees. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| We are able to meet short-term demand without compromising our long-term vision. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q29.

Top Management Commitment:

Below are a number of statements regarding top management commitment in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Clearly identify AIS goals to be achieved. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Willing to change the current work procedures to conform to the requirements of the AIS system. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Allocate sufficient financial resources for the success of AIS implementation. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Provide necessary guidance, direction and leadership throughout the implementation process. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Allocate sufficient human resources for the success of Accounting information Systems (AIS) implementation. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Management in my organization treats quality as more important than cost. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q30. Communication Flow:

Below are a number of statements regarding communication in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| In this organization, my ideas are frequently passed on to top-management. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In my organization, management takes timely and appropriate follow-up action on communication received from customers, vendors, regulators, or other external parties. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In my organization, the lines of communication are "open" all the way to top executives. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My coworkers and I readily share important information that is critical to our success | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My organization appears committed to keeping the channels of communication "open." | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Most of the information I receive on a daily basis is detailed and accurate. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q31. Organizational Leadership:

Below are a number of statements regarding organizational leadership in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| The leadership in the organization is generally considered to exemplify mentoring, facilitating or nurturing. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results oriented focus. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q32. Rewards and Incentives:

Below are a number of statements regarding rewards and incentives in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Rewards and Incentives | | | | |
|---|------------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| Reward system is efficient in my organization (employee is getting salary/ wage according to the results and efforts) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is always rewarded (in monetary or other form) for the good work, ideas, innovations, etc | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Existing punishment system is correct in my organization | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Employees are more often awarded than punished in our organization | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Managers care about welfare of employees (e.g. they are provided with free services, things, etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q33. Nepotism:

Below are a number of statements regarding nepotism and favoritism in your organization. Please read each one and indicate to what extent you agree or disagree with each statement.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|--|---|-----------------------|-----------------------|-----------------------|-----------------------|
| | Employees in my firm always feel that they need someone they know or a friend in a high-level position. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Supervisors are afraid of subordinates who are related to high-level executives. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The interests of executive relatives and acquaintances are given priority over the use of Accounting Information Systems (AIS) when taking important decisions in my organization. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Executives are more interested in keeping friends and acquaintances in good positions than skillful and more qualified employees. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My firm permits employment of executives' relatives and has, as a result, difficult time firing or demoting them if they prove inadequate. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The power of connections with relatives and acquaintances supersedes formal rules, policies and systems in place. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Appendix G: Path Coefficient Histograms

Appendix G₁: Main Study Hypothesis

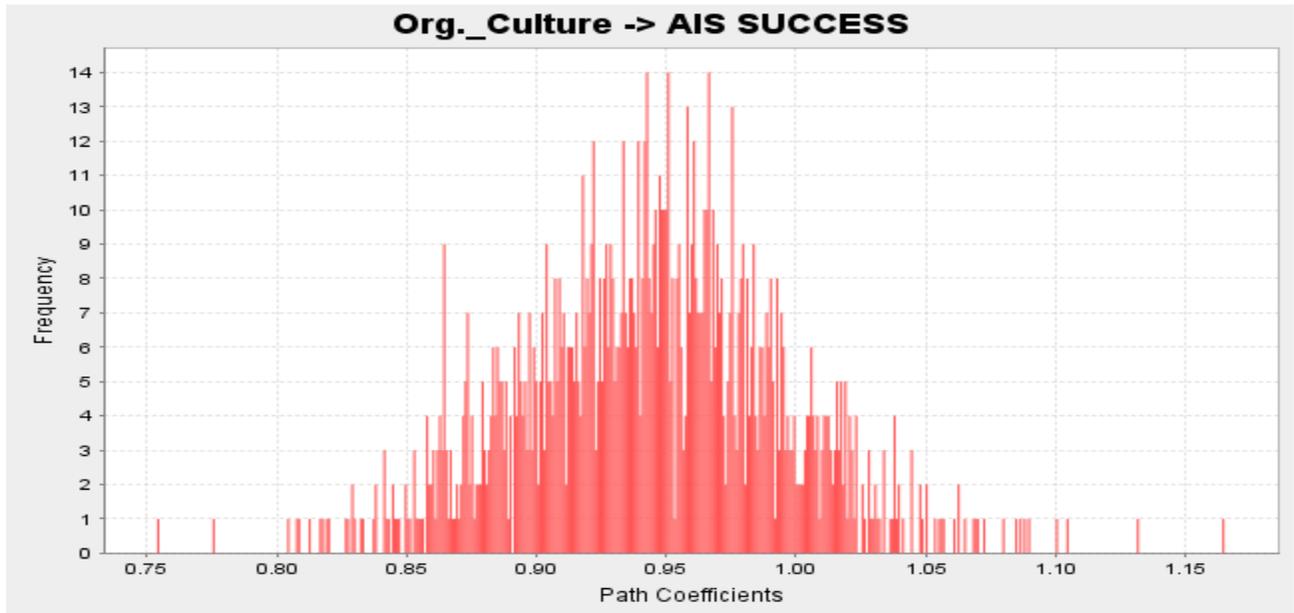


Figure Appendix G₁ Main hypothesis (H₂₀) path coefficient histogram

Appendix G2: Moderating Variables Hypotheses (H10-13)

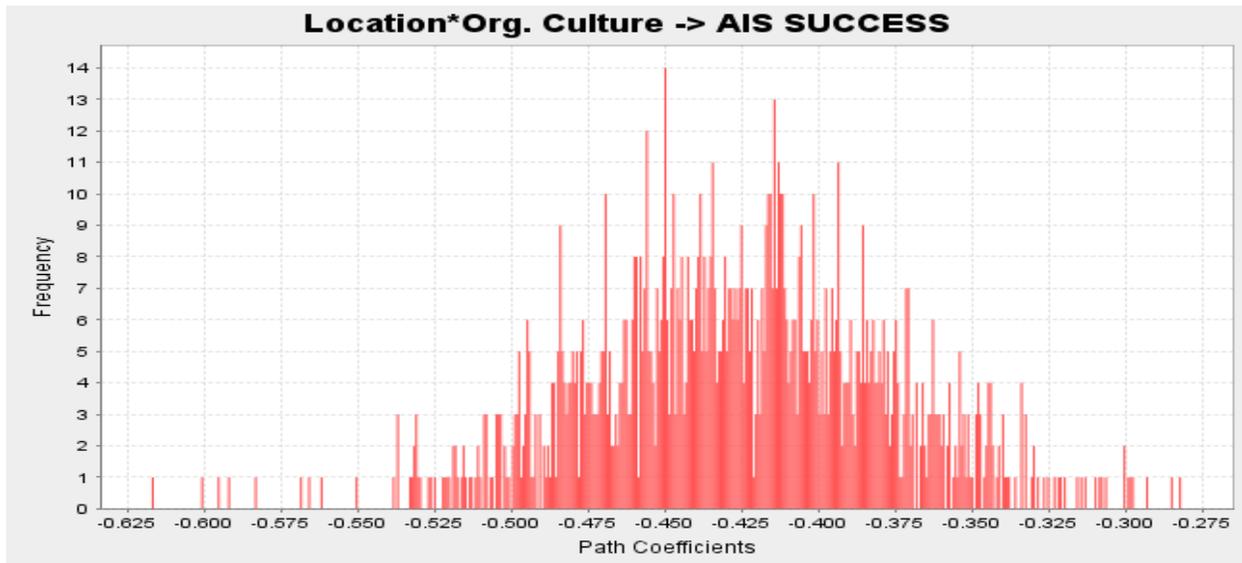


Figure Appendix G2 Location (moderating variable) Path Coefficients histogram

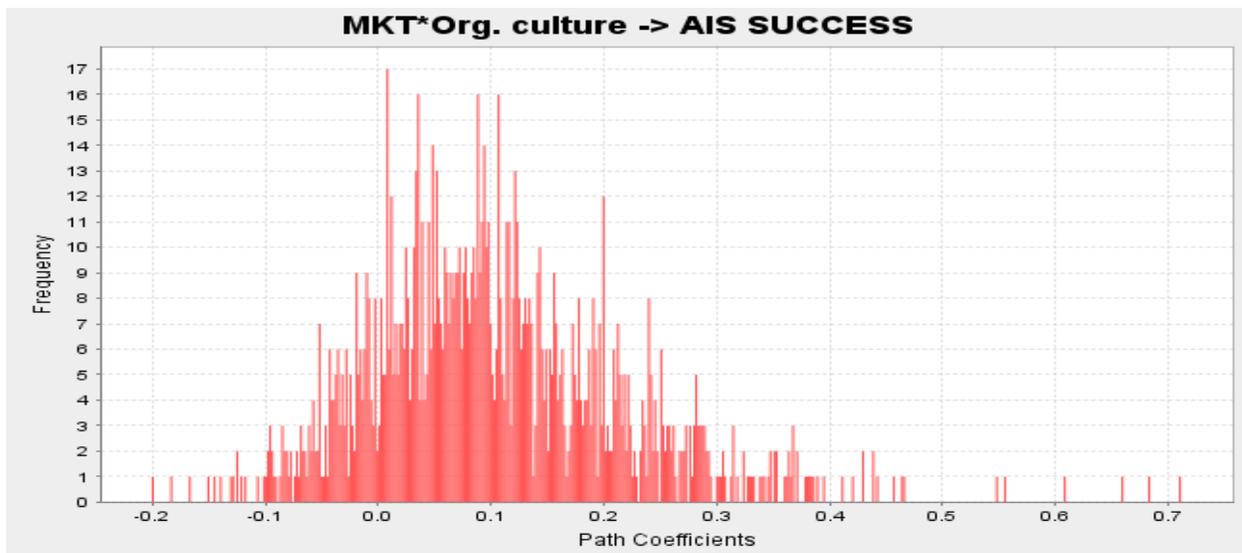


Figure Appendix G3 Market level (moderating variable) Path Coefficients histogram

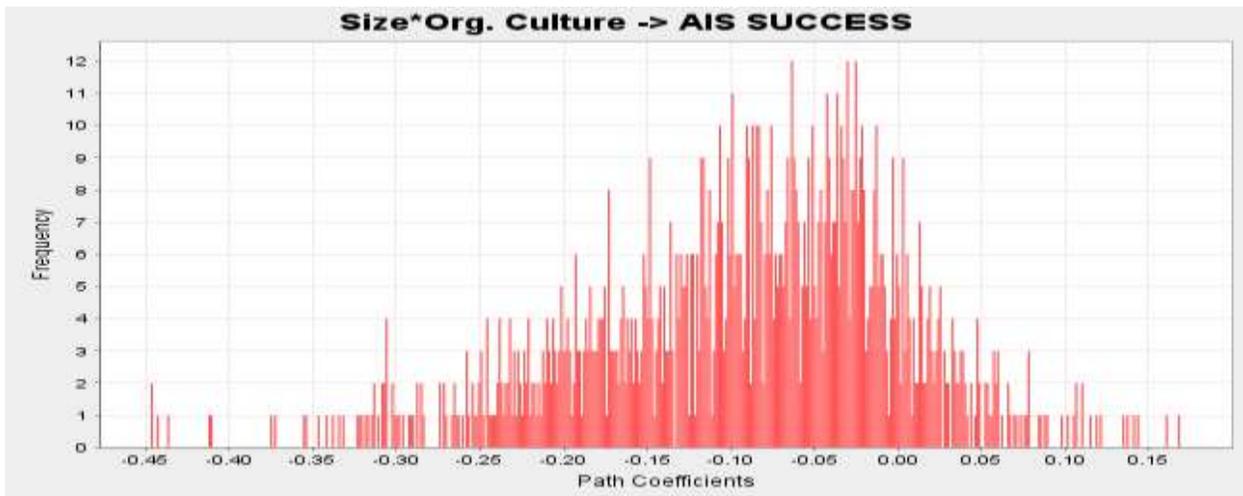


Figure Appendix G4 Market size (moderating variable) Path Coefficients histogram

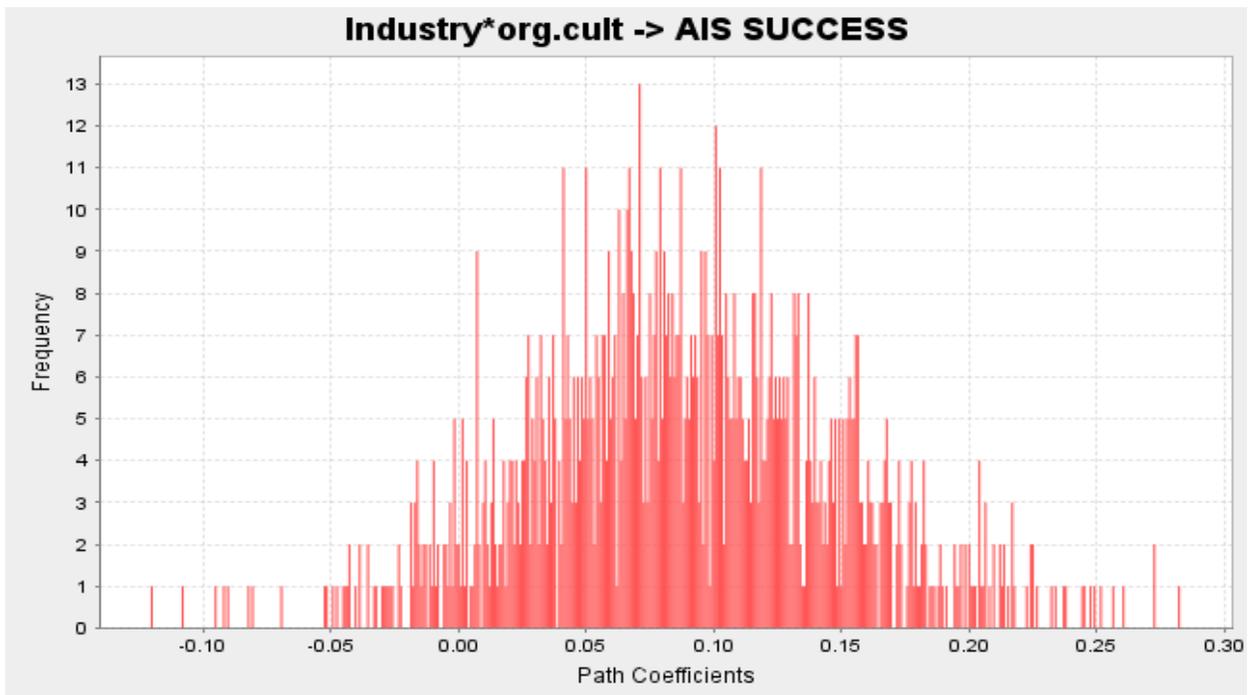


Figure Appendix G5 Industry (moderating variable) Path Coefficients histogram

Appendix G3: Mediating Variables Hypotheses (14-19)

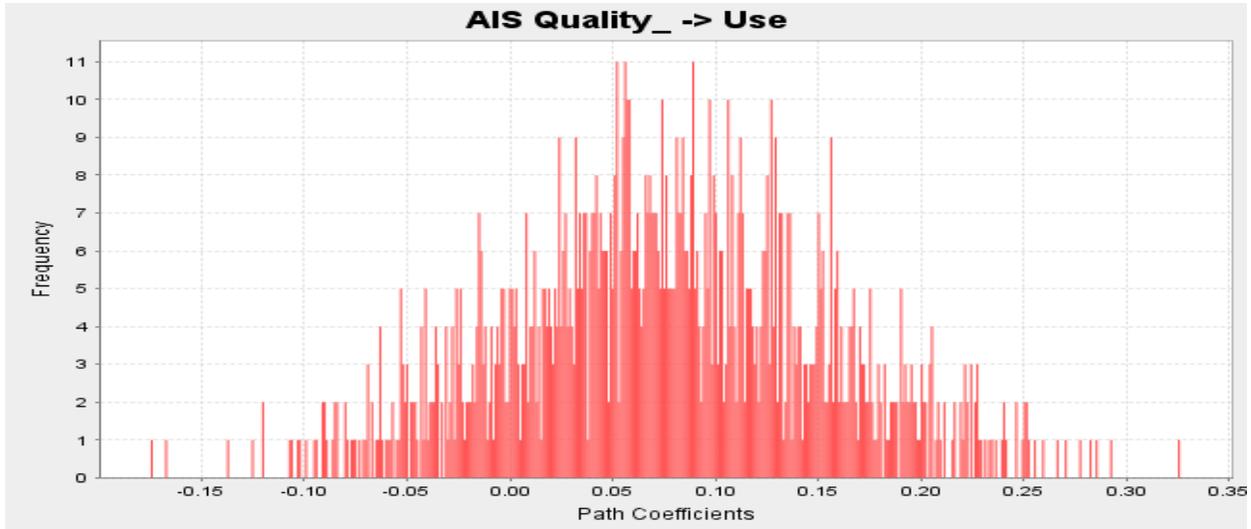


Figure Appendix G6 Use (mediating variable) through AIS quality Path Coefficients histogram

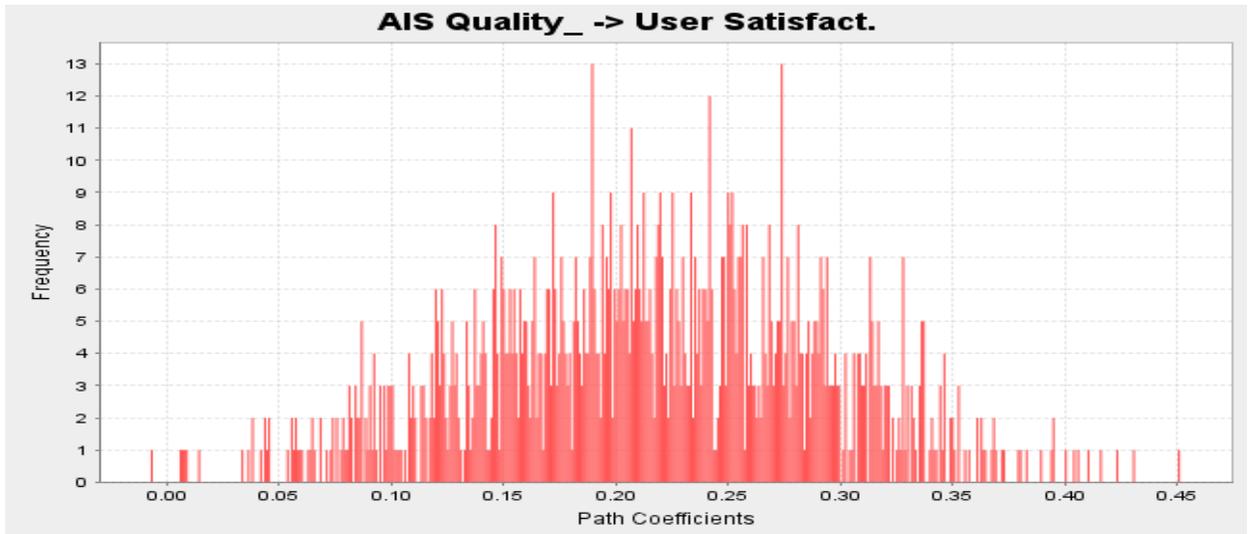


Figure Appendix G7 User Satisfaction (mediating variable) through AIS quality Path Coefficients histogram

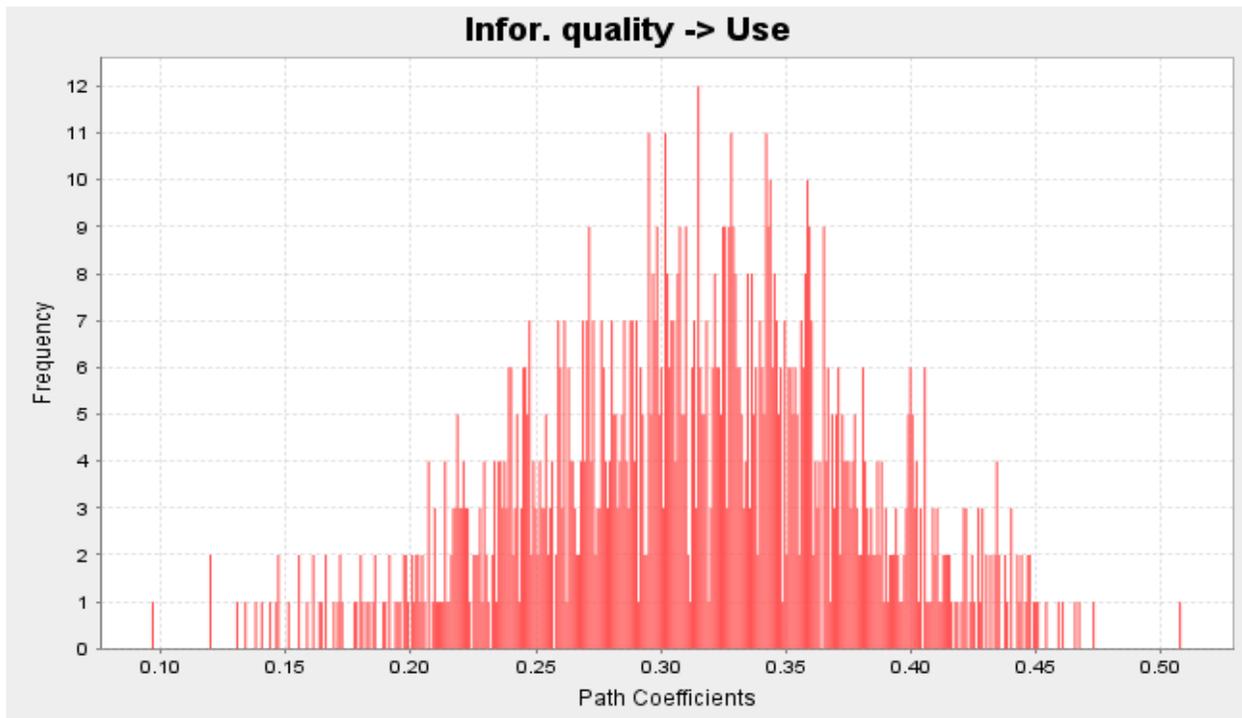


Figure Appendix G₈ Use (mediating variable) through Information quality Path Coefficients histogram

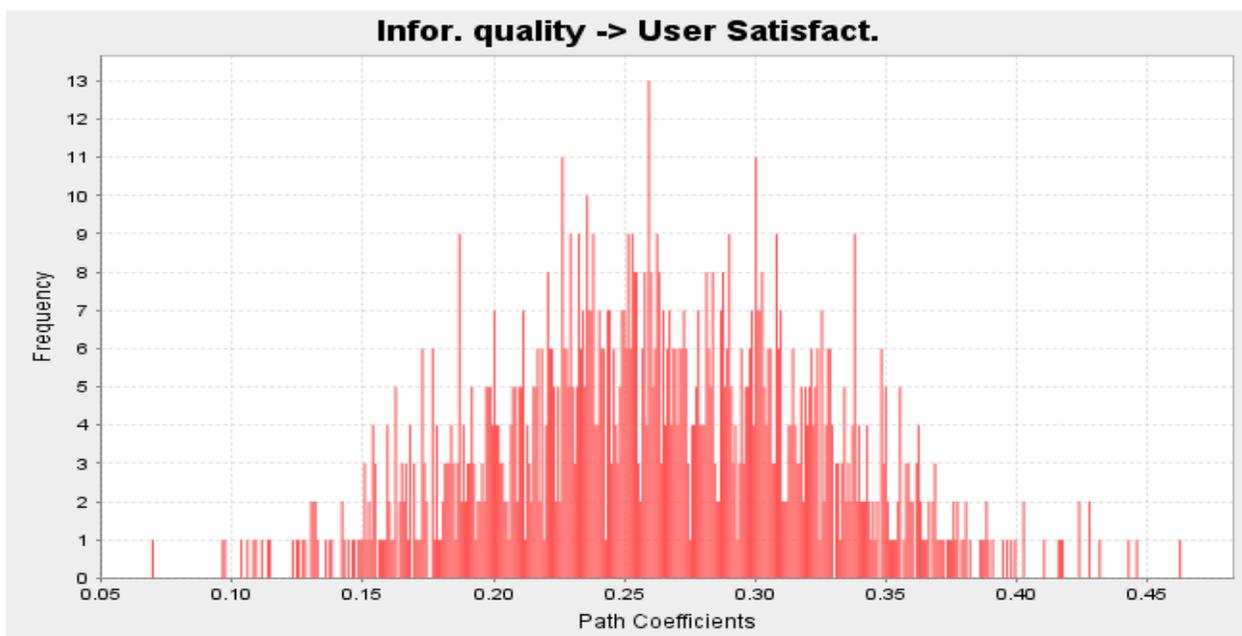


Figure Appendix G₉ User Satisfaction (mediating variable) through Information quality Path Coefficients histogram

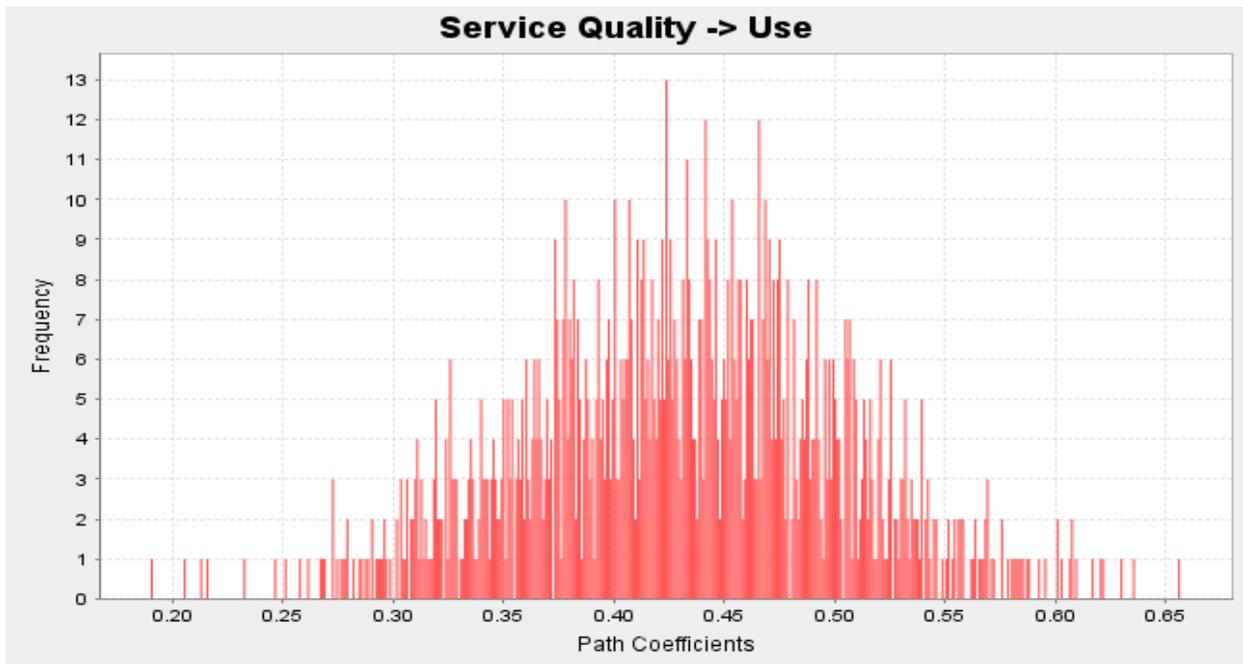


Figure Appendix G₁₀ Use (mediating variable) through Service quality Path Coefficients histogram



Figure Appendix G₁₁ User Satisfaction (mediating variable) through Service quality Path Coefficients histogram

Appendix H: Measurement Model Assessment Charts

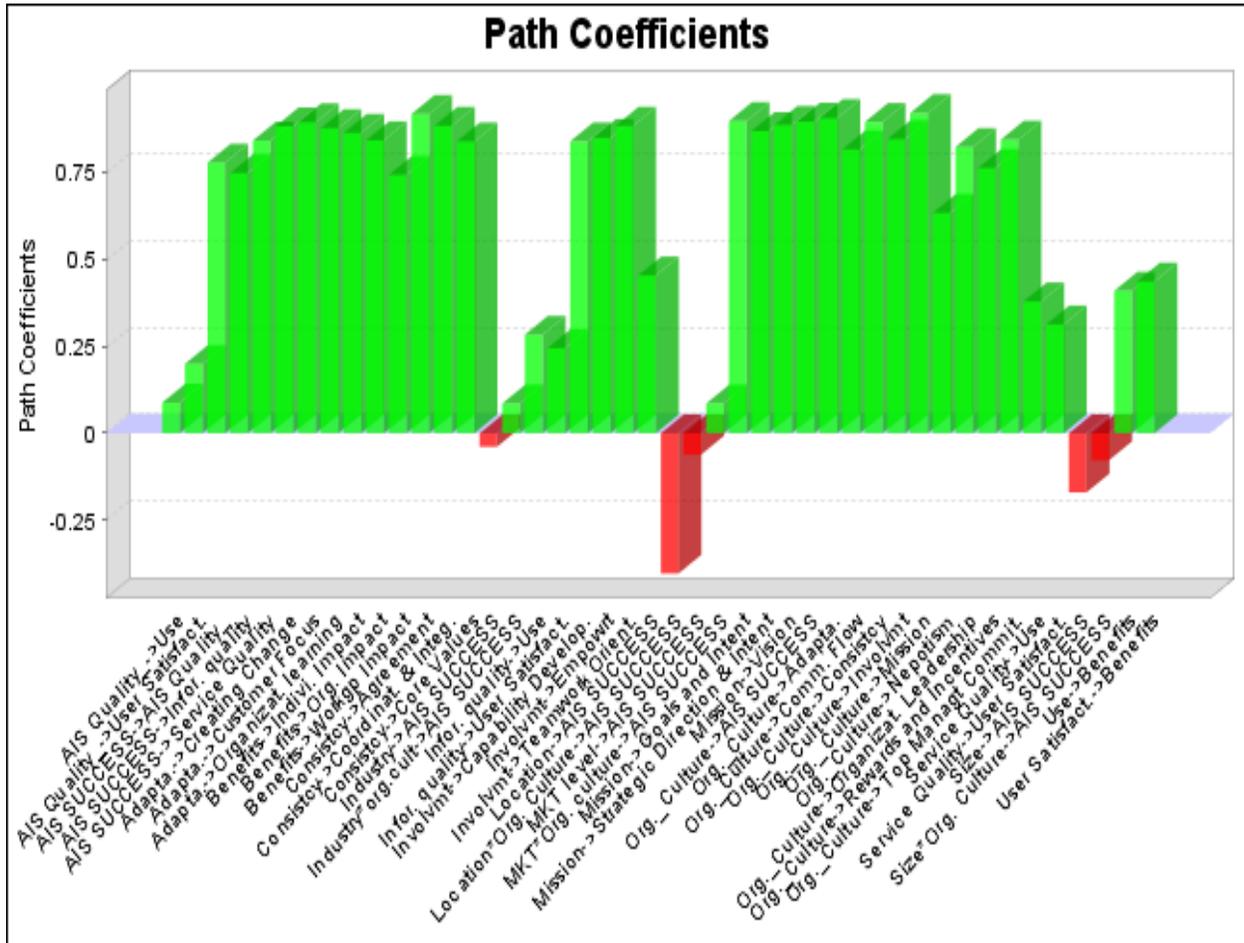


Figure Appendix H₁ Study variables Path Coefficients histogram

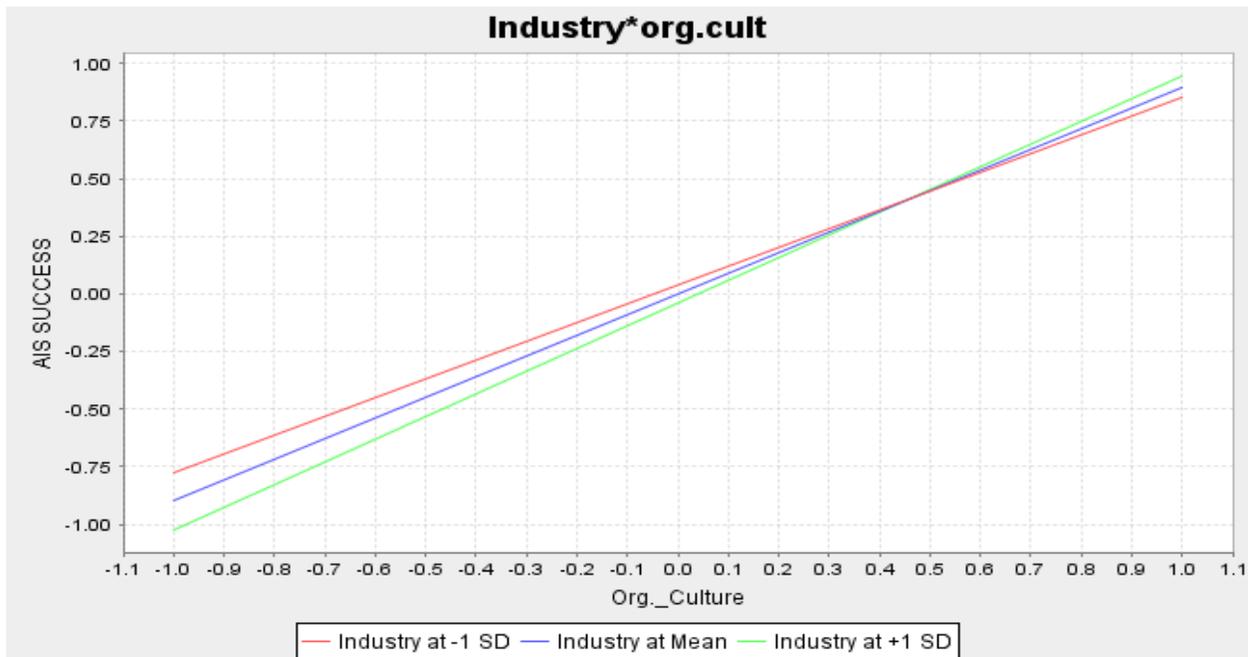


Figure Appendix H₂ Industry moderating effect

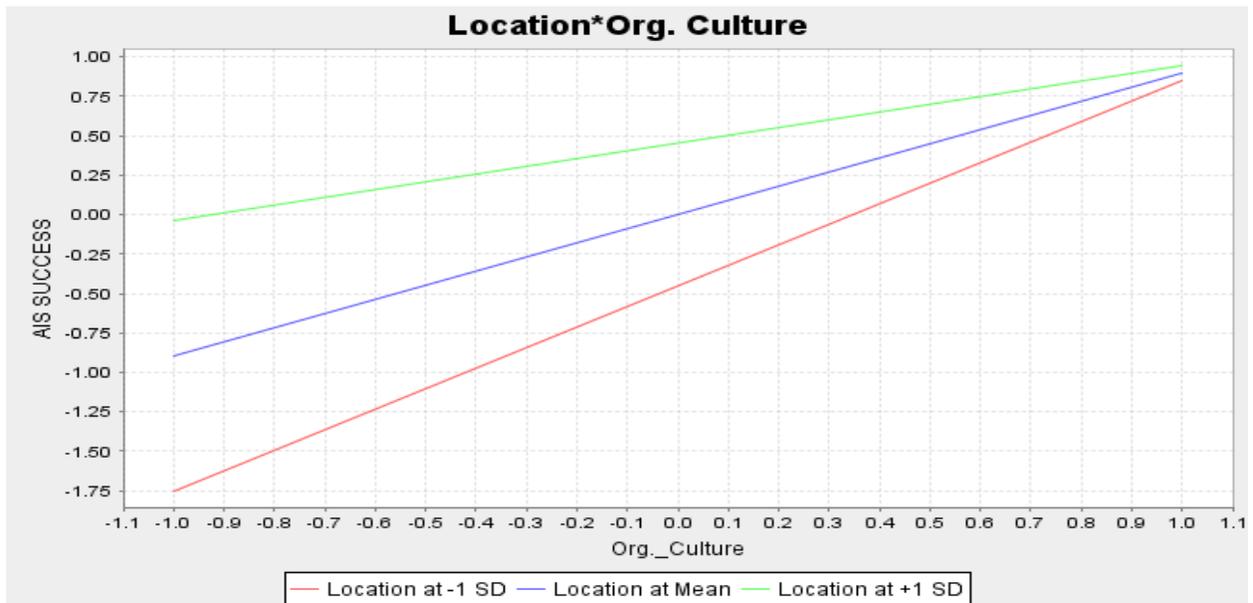


Figure Appendix H₃ Location moderating effect

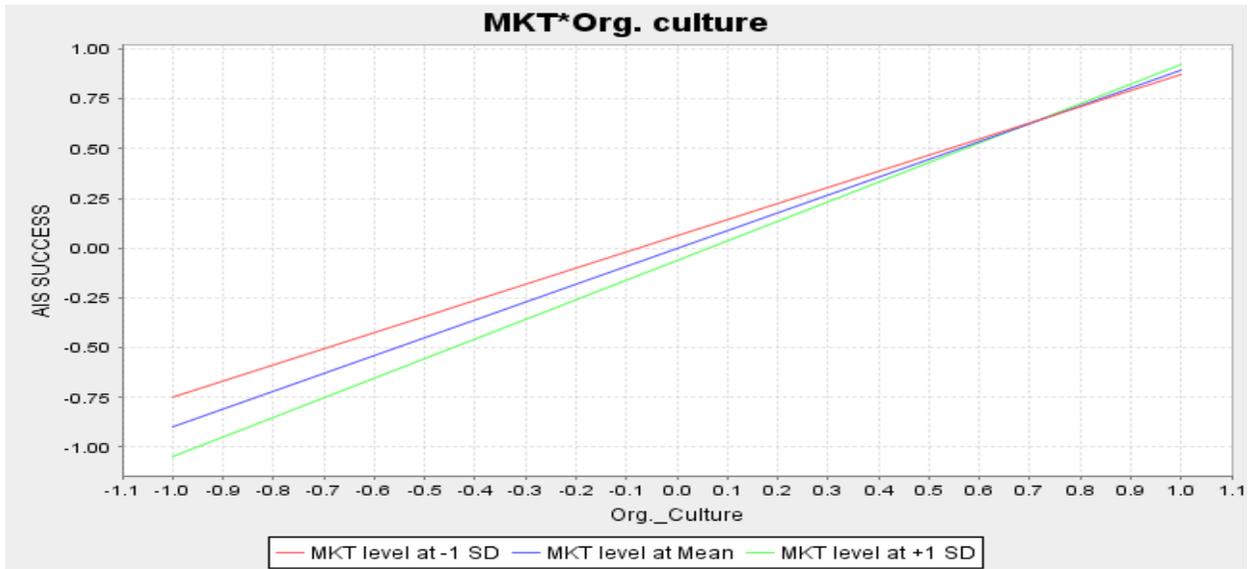


Figure Appendix H₄ Market level moderating effect

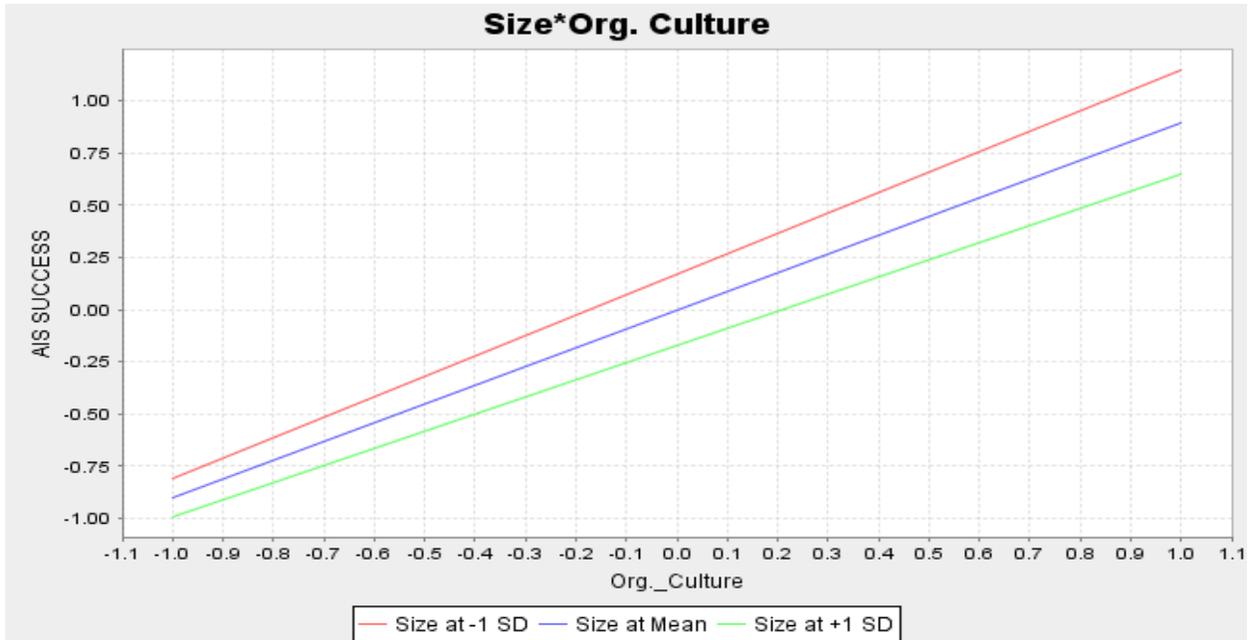


Figure Appendix H₅ Market size moderating effect

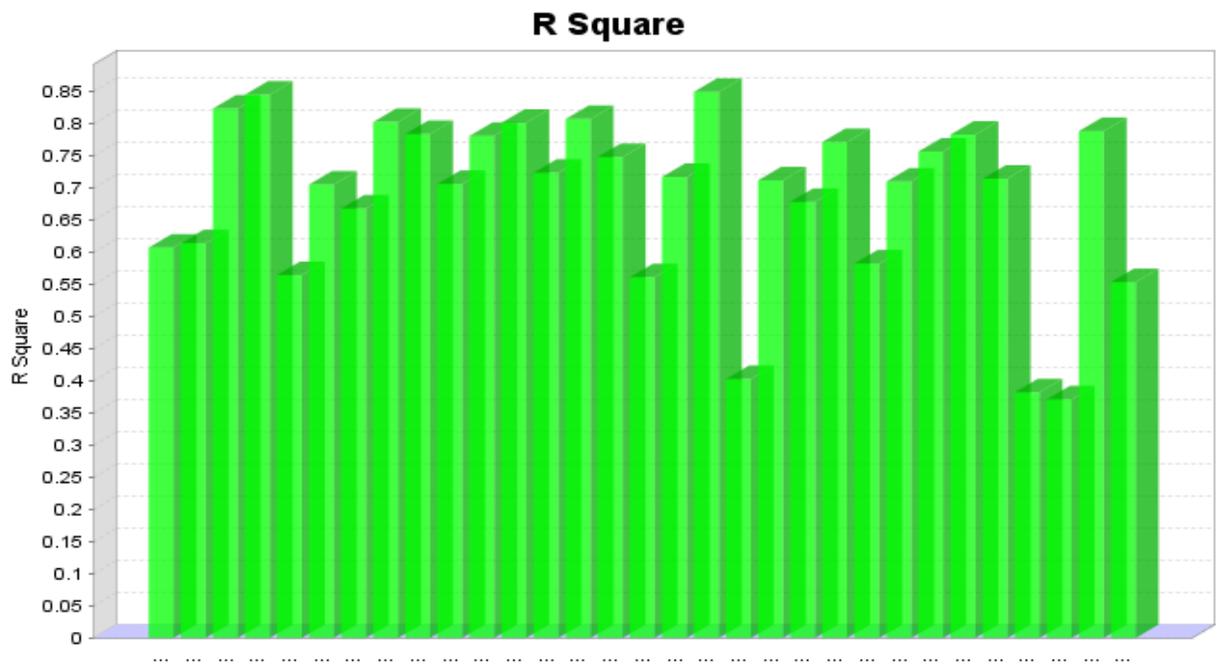


Figure Appendix H₆ Study R² histogram

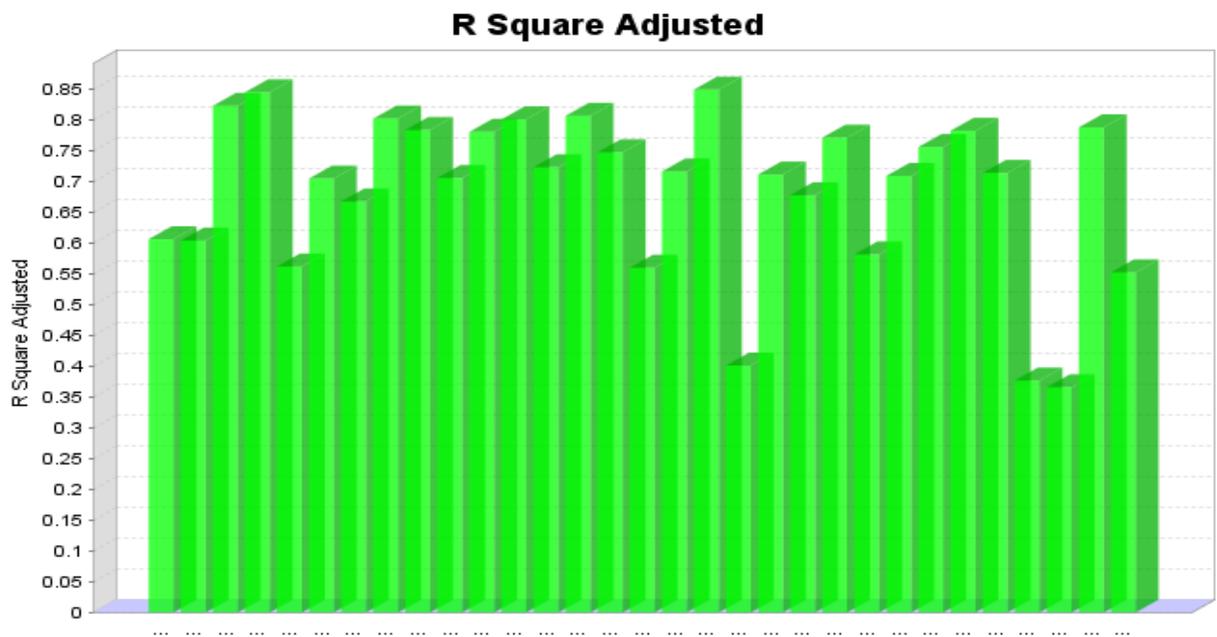


Figure Appendix H₇ Study R² adjusted histogram

Appendix I: Model Sketches with Different Values

Appendix I₁: Cross Validated Redundancy: The Predictive Relevance (Q^2)

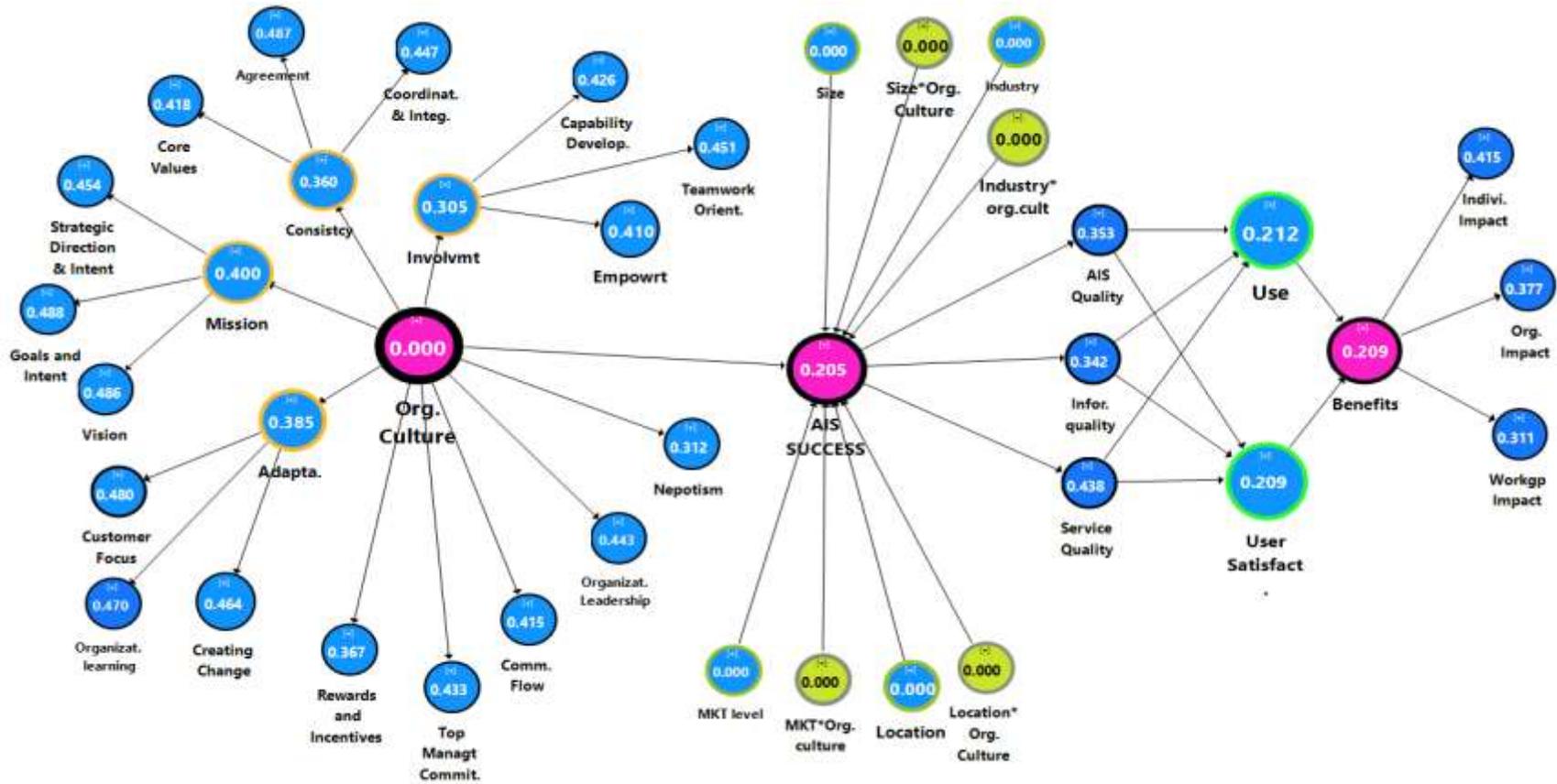


Figure Appendix I₁ The study predictive Relevance (Q^2)

Appendix I₂: The Effect Size (f²)

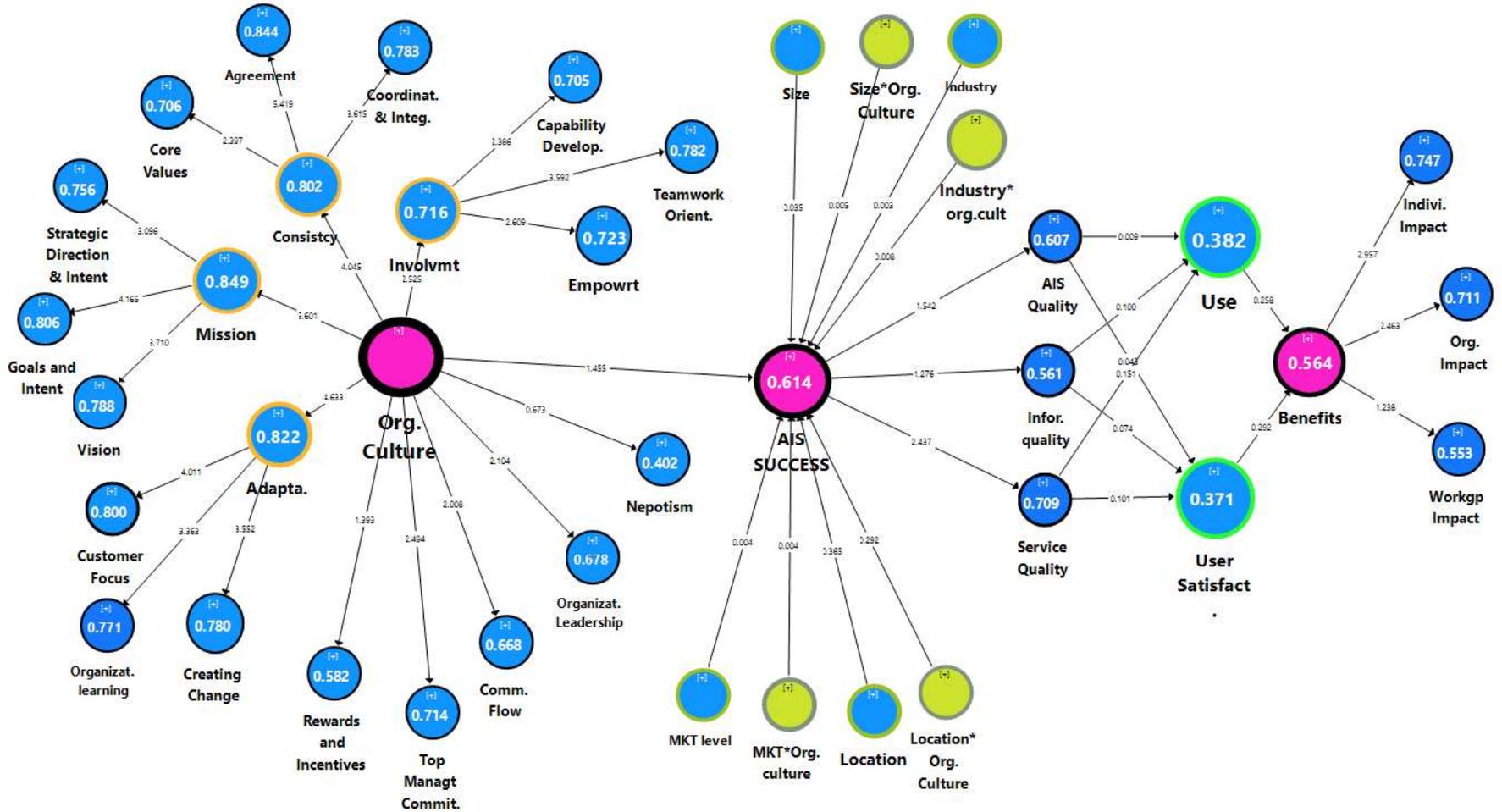


Figure Appendix I₂ The study effect size (f²)