Barriers and benefits to the adoption of a third party certified food safety management system in the food processing sector in Shanghai, China

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Abstract

Despite the recent passing of legislation by the National People’s Congress of China in 2009, many food businesses in China have yet to implement a third party certified food safety management system (FSMS). While the extent literature identifies a number of internal and external barriers and benefits, the extent to which these impact on the business is thought to be dependent upon how much progress the firm has made on its journey towards quality assurance and the environment within which the firm operates.

To test this proposition, the barriers and the benefits accrued from the implementation of a third party certified FSMS were explored by segregating the participating firms into three distinct groups; (i) those that have yet to implement a third party certified FSMS; (ii) those that were in the process of adopting a third party certified FSMS; and (iii) those that were already operating under a third party certified FSMS. Contrary to expectations, in what is a highly competitive market, those firms which were operating under a third party certified FSMS were more likely to question the benefits they had derived than those firms that were either in the process of adoption or had chosen not to adopt a third party certified FSMS. Irrespective of the stage of adoption, the major constraint to the implementation of a third party certified FSMS was the need for the organisation to focus on more immediate issues and the lack of any strategic long-term planning.

Keywords: food safety, quality management
Highlights

• benefits and barriers to the adoption of FSMS by three stages of adoption
• barriers become more apparent as the firm progresses towards quality assurance
• three latent constructs constrain the adoption of FSMS
• three benefits arise from the adoption of third party certified FSMS
• firms operating under a FSMS perceive themselves as being less competitive
Introduction

Food manufacturing in China continues to grow from strength to strength. In 2011, the food manufacturing industry employed more than 6.7 million people to generate sales in excess of RMB 6.9 trillion (GAIN, 2013). Expansion has been driven by the increasing growth in personal disposable income, the demand for more convenient food and greater urbanisation.

The food processing industry in China covers a multitude of sectors including meat, poultry and dairy products, fruit and vegetables, confectionary and snack products, cereals, oils and fats, beverages and seafood. While most food processors acknowledge that some basic food safety and hygiene system is necessary to protect consumers and their reputation, frequent reports of food adulteration continue to erode consumer confidence in both domestic and international markets (Jia & Jukes, 2013; Lam et al., 2013; Ortega et al., 2011; Tang & Babich, 2014; Yan, 2012). Although numerous internationally recognised third party certified food safety management systems (FSMS) including BRC, HACCP, IFS, ISO 22000 and QS are available to minimise the risk, there is some evidence to suggest that the uptake of these systems is well below expectations. Chu, Feng and Chen (2014) report that in 2013, only 12,520 food companies were third party certified in China. However, as GAIN (2103) reveal, 92% of the 400,000 plus food manufacturers are small to medium-sized enterprises, most of whom lack any formal training in food safety management.

Within the literature, there is widespread recognition that the barriers and constraints to the implementation of third party certified FSMS differ by the size of the firm (Fotopoulos et al., 2011; Karipidis et al. 2009; Massoud et al., 2010; Taylor, 2001; Trienekens & Zuurbier, 2008), by industry (Herath & Henson, 2010; Kuepper & Batt, 2012) and across countries (Bass et al., 2007; Dora et al., 2013; Maldonado-Siman et al., 2014; Massoud et al., 2010). While the literature acknowledges differences in a firm’s motives for adopting a third party certified FSMS (Fotopoulos et al., 2011; Katri & Collins, 2007; Massoud et al., 2001) and differences between those firms which choose to implement a third party certified FSMS and those which do not (Ahire et al., 1996; Jin et al., 2008; Salegna & Fazel, 2000), there is very little evidence in the literature of any study that explores differences in the perceived barriers and benefits by the stage of adoption. Using Rogers (1995) diffusion of innovation theory, Fernando et al. (2014) endeavoured to distinguish between innovators, early adopters, the early majority, late majority and laggards. Jin et al. (2008) took a more simplistic approach by seeking to compare firms that had a fully operational HACCP system and those that did not. While Herath and Henson (2010) noted that 38% of their sample had a fully operational HACCP plan, 19% were in the process of implementation and 37% had no intentions of implementing a HACCP based FSMS, they elected not to explore the different perceptions and experiences by the stage of adoption. As reported by Karipidis et al. (2009) and Kuepper and Batt (2012), the perceived benefits and barriers associated with the implementation of a third party certified FSMS are observed to be different before and after implementation.
To overcome these gaps in the literature, this study seeks to explore the perceived barriers and benefits derived from the implementation of a third party certified FSMS in the food processing sector in Shanghai, China, by grouping the firms into one of three mutually exclusive groups: (i) those firms which have chosen not to adopt a third party certified FSMS; (ii) those firms which are in the process of adopting a third party certified FSMS; and (iii) those firms that are already operating under a third party certified FSMS.

**Benefits and barriers to the adoption of food safety management systems**

Firms implement third party certified FSMS because they are forced to, either by their customers or public authorities, or voluntarily because they recognise that the benefits outweigh the costs (Taylor, 2001; Karipidis et al., 2009). Within the quality literature, the benefits most often associated with the implementation of a third party certified FSMS include improved product quality and safety (Bai et al., 2007; Jin et al., 2008; Macheka et al., 2013); reduced costs (Dora et al., 2013; Fotopoulos et al., 2011; Jin et al., 2008; Katri & Collins, 2007; Massoud et al., 2010; Taylor, 2001); less waste (Fotopoulos et al., 2011; Jin et al., 2008); access to new markets (Bai et al., 2007; Fotopoulos et al., 2011, Jin et al., 2008; Macheka et al., 2013; Taylor 2001); increased market share (Bai et al., 2007; Macheka et al., 2013); fewer customer complaints (Bas et al., 2007; Fotopoulos et al., 2011, Jin et al., 2008; Macheka et al., 2013; Taylor 2001); improved productivity (Dora et al., 2013; Fotopoulos et al., 2011); an improved company image or reputation (Fotopoulos et al., 2011; Jin et al., 2008; Katri & Collins, 2007; Massoud et al., 2010; Macheka et al., 2013); greater consumer confidence (Bas et al., 2007; Trienekens & Zuurbier, 2008); and not unsurprisingly, the need to comply with legislation (Bas et al., 2007; Taylor, 2001; Yap & Fairman, 2006).

Taylor (2001) discussed the slow uptake of HACCP based FSMS systems by small and medium-sized enterprises under seven key headings: resistance to change; lack of expertise; time and money; documentation; validation and verification; and supplier selection. From multiple case studies in the UK, Yap and Fairman (2006) identified eight factors that impacted upon the adoption of FSMS: the lack of knowledge; the lack of trust; the lack of time and money; a lack of awareness; a lack of formal management systems; motivation; and external factors. Dora et al. (2013) concluded that small to medium sized food manufacturers struggled to establish FSMS primarily because of the lack of resources, expertise and inadequate training.

From an initial list of 18 constraints, through the use of pareto analysis, Fotopoulos, Kafetzopoulos and Gotzamani (2011) concluded that 11 key constraints (limited knowledge and skills; a lack of commitment to food safety by employees; resistance to change and a negative attitude; a shortage of capital; lack of employee training; the amount of time required; a lack of technical expertise and support; non availability of human resources; the excessive amount of paper work and documentation; inappropriate organisational structure and the lack of pre-requisite programs) were the most influential in facilitating the implementation of a HACCP based FSMS.
Karipidis et al. (2009) grouped the barriers to the adoption of third party certified quality assurance systems under two broad headings: external and internal, noting that both company and product characteristics, and market conditions could also influence adoption. With the use of principal component analysis, Fotopoulos, Kafetzopoulos and Psomas (2009) found four latent constructs that influenced the adoption of HACCP based FSMS: (i) human resource attributes; (ii) system attributes; (iii) external factors; and (iv) company attributes. In Canada, Herath and Henson (2010) were able to extract four factors which they labelled as: (i) the questionable appropriateness; (ii) the scale of change required to achieve implementation; (iii) the low priority given to enhance food safety controls; and (iv) financial constraints. In Spain, Escanciano and Santos-Vijande (2014) identified three principal components: (i) the lack of knowledge; (ii) no perceived need; and (iii) economic reasons as the major factors influencing the adoption of FSMS.

In facilitating the adoption of third party certified FSMS, much of the literature has focused on minimising the perceived barriers to adoption. Firms that have yet to embark upon their journey cite enumerable internal and external barriers, including financial constraints, the appropriateness of quality assurance systems to meet the needs of downstream customers (Herath & Henson, 2010), the lack of knowledge (Escanciano & Santos-Vijande, 2014) and the lack of any external support (Fotopoulos et al., 2009). As the firm progresses on its journey towards quality assurance, many of the perceived barriers and constraints diminish in importance while others such as employee and cultural resistance, management and organisational issues increase in importance. As Fotopoulos et al. (2011) conclude, problems associated with employees (limited knowledge and skills; a lack of commitment to food safety; resistance to change; and a lack of training) may be responsible for almost one half of the difficulties associated with the implementation of a HACCP based FSMS.

As the firm progresses in its journey towards quality assurance, the many benefits derived from operating under a third party certified FSMS become more apparent. External motives for implementing quality assurance, such as the need to comply with legislation or customer demands, are progressively replaced by internal motives such as improving quality and efficiency, company image and due diligence (Escanciano & Santos-Vijande, 2014). Thiagaragan et al. (2001) noted how the success associated with the implementation of a quality assurance program was ultimately dependent upon a clear belief of the benefits derived from operating under a quality assurance system and the recognition that the traditional ways of doing business were no longer an option. Bas et al. (2007) concluded that the successful implementation of a FSMS required a full understanding of the principles associated with and a commitment to operate under a quality assurance system by all levels of the organisation. Trienekens and Zuurbier (2008) believe that the successful implementation of a FSMS is dependent upon organizational factors such as the size of the enterprise, the type of suppliers and customers, the degree of automation, product type, quality assurance requirements and the degree of commitment from senior management.
Methods and materials

The data for this study was collected from the Pudong district in Shanghai, China. Once a rural area, Pudong is now a thriving business metropole with many food processing and manufacturing enterprises supplying domestic and export markets. To identify potential respondents and to facilitate data collection, assistance was sought from the Shanghai Quality Supervision Bureau, the Shanghai Fengxian Quality Supervision Bureau and the Shanghai Bright Food Group. As a result, 250 questionnaires were randomly distributed to food processing and manufacturing enterprises for the attention of the quality control manager.

Prior to the distribution of the survey instrument, the lead author conducted several face-to-face meetings with the general manager or deputy general manager of selected food processing enterprises to discuss issues associated with the adoption of third party certified FSMS. Two enterprises were subsequently selected to pilot test the questionnaire. Where necessary, questions were adjusted according to the feedback. Another two companies were then selected to test the revised survey instrument before data collection commenced in September 2013.

The questionnaire was divided into three sections. Section 1 sought general information about the firm: the nature of their business; the number of employees; turnover; markets; the nature of ownership and the number of years the firm had been in business. Section 2 was divided into four parts, but respondents only had to answer that part which corresponded with the level of food safety management in their enterprise: (i) no third party certified FSMS; (ii) in the process of adoption; (iii) a fully operational third party certified FSMS; and (iv) the firm had abandoned its third party certified FSMS.

From the literature, 31 items were identified as constituting a major barrier to the adoption of a third party certified FSMS and 25 items were identified as the key benefits derived from having implemented a third party certified FSMS. Respondents were asked to indicate the extent to which they agreed with each statement on a scale of 1 to 6, where 1 was “I agree a lot” and 6 was “I disagree a lot”. The decision to use a six point scale was based on strong empirical evidence (Bishop, 1987; Coelho & Esteves, 2007; Mitchell, 1999; Si & Cullen, 1998) which overcomes the tendency for respondents in Asia to choose the neutral mid-point. Section 3 asked a number of personal questions relating to their gender, experience and position of the respondent within the firm.

Using one way ANOVA, the means by stage of adoption were compared. Any significant difference between the means was ascertained using Tukey’s HSD at the 95% confidence level.

However, as it is extremely unlikely that respondents would use all 56 items in considering the potential benefits derived from and the barriers experienced in implementing a third party certified FSMS, to reduce the number of items and thereby identify any underlying constructs, principal component analysis was employed using varimax rotation and Kaiser normalisation. Items with factor loadings below 0.4 and those which cross-loaded across two or more factors were excluded (Nunnally, 1995).
The resultant factors were then summated (Hair et al., 1998) and the reliability of the resultant factors tested using Cronbach’s alpha. The resultant factor means were then compared by the stage of adoption using ANOVA and Tukey’s HSD.

**Results**

**Survey respondents**

Of the 250 firms contacted, a total of 219 questionnaires were returned to yield a response rate of 94.8%. However, after reviewing the completed questionnaires, 204 were ultimately selected for analysis. For the firms that responded, 35% were currently operating under a third party certified FSMS, 47% were in the process of adoption and 18% had yet to implement a third party certified FSMS. For those firms that were either in the process of adoption or were already operating under a third party certified FSMS, the most common systems were HACCP, ISO 22000, ISO 9001 and QS. Given the study objectives, no attempt was made to differentiate between the alternative FSMS.

Respondents came from a diversity of different food processing sectors including confectionary (20%), meat (12%), snack foods (10%), soft drinks (8%), fresh fruit and vegetables (6%), oils (6%), dairy (5%), seafood (5%) and baking (4%). Given that the most recent breakdowns in food safety have been recorded in the dairy and eatable oil industries, all the firms operating in this sector were either in the process or were already operating under a third party certified FSMS. While 90% of the firms involved in seafood processing, 83% of the firms involved in fruit and vegetable processing, and 71% of the firms involved in meat processing were either in the process of introducing or already operating under a third party certified FSMS, 28% of the firms engaged in snack food production and 27% of the firms engaged in the manufacture of confectionary had yet to implement a third party certified FSMS of any kind.

Of the firms participating in the study, 62% were under foreign ownership, with a further 31% operating as subsidiary companies or owned and operated by multinational food companies. It was with some surprise to find that 31 foreign companies (16%), 5 subsidiary companies (3%) and 1 multinational company had failed to introduce any third party certified FSMS.

Not surprisingly, for firms that had been operating for less than three years, 28% had yet to introduce a third party certified FSMS, but for firms that had been operating for more than five years, the rate of adoption exceeded 91%. Similarly, where the firm employed less than 50 people, the likelihood of having adopted a third party certified FSMS was just 76% but as the number of employees increased, so also did the likelihood that the firm would already be operating under a third party certified FSMS or in the process of implementation (88%).

**Barriers to the adoption of third party certified food safety management systems**

For those firms which had yet to implement a third party certified FSMS of any kind, the major barriers related to the short-term decision-making that was evident within the firm, the knowledge that quality assurance was not a statutory requirement and a
perception that there were few if any benefits to be derived from the introduction of a third party certified FSMS as the product already met customers’ requirements. Those firms which had yet to embark on the quality journey acknowledged that the lack of records, conflicting information and the lack of any tangible government support presented additional impediments (Table 1).

With a limited knowledge of the processes and procedures associated with the introduction of a third party certified FSMS, respondents seemed largely unaware of the high costs associated with implementation and of the considerable amount of paperwork that was required to document their operating system. Having not yet commenced their journey towards implementing a third party certified FSMS, respondents had yet to appreciate the need to spread the costs across all of their enterprise and thus to experience the limitations that a small business presents.

For those firms that were in the process of implementing a FSMS, it was evident that a number of doubts were influencing decision-makers: there was an element of uncertainty as to which FSMS to introduce, more so as most customers had not indicated the need to have a third party certified FSMS. It was also evident in the highly competitive food industry that there were other more immediate problems that needed to be resolved.

To our surprise, in asking those firms that were already operating under a third party certified FSMS, an enormous number of both internal and external barriers emerged. Externally, while it was recognised that there was currently no need to operate under a third party certified FSMS, there was a great deal of uncertainty about where the legislation might go and about the potential value that a FSMS delivered to the organisation. With most customers not requiring the firm to have a third party certified FSMS and a strong belief that the system they were operating under prior to the introduction of a formal FSMS had served them well, the benefits derived from the implementation of a third party certified FSMS were being questioned. Furthermore, the high costs associated with verification and certification was being debated in terms of what, if any, additional value had been delivered by operating under a third party certified FSMS.

Internally, the lack of records and the need to establish appropriate documentation was a significant impediment. This was accentuated by budgetary constraints and the desire by management to focus on other short-term priorities. It was also evident that in implementing a third party certified FSMS, the small size of the business presented a significant impediment. Furthermore, poor communication between departments had impeded the process.

With such a large number of internal and external variables potentially influencing the adoption of a third party certified FSMS, exploratory factor analysis was undertaken to identify any latent underlying variables. Using principal component analysis with varimax rotation and Kaiser normalisation, three constructs emerged which collectively explained 70% of the variance (Table 2). With a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of 0.875, a Bartlett’s test result of 1399.11 and a significance level of p<0.000, the data could reliably be tested using exploratory factor analysis.
Constraint 1, which was labelled as financial impediments, captured six items which collectively explained almost 30% of the total variance. With a Cronbach’s alpha of 0.873, the construct was very reliable, but with a factor mean of 3.57, was probably the least influential. In deciding to implement a third party certified FSMS, significant costs were incurred, initially in the implementation of the system, and subsequently in seeking and maintaining certification. Most firms, because they were perceived to be too small, experienced some difficulty in putting the cash aside to support the process. The process was made all the more difficult by the lack of external funds and consultants to assist with the introduction of a FSMS.

Borrowing from Herath and Henson (2010), Constraint 2 was labelled questionable appropriateness. Within this construct it was evident that firms struggled to come to grips with the additional paperwork and the bureaucracy associated with operating under a third party certified FSMS, knowing full well that the system under which they were currently operating was performing quite adequately. In comparing existing systems with a third party certified FSMS, it was evident that the systems had much in common. This made it all the more difficult to see where and how a third party certified FSMS might deliver any superior value to justify the cost. The other item that the construct captured was the lack of any promotion of the benefits derived from the adoption of a third party certified FSMS, presumably by the government, which left firms questioning why they should introduce a third party certified FSMS. With a Cronbach’s alpha of 0.868, this construct was also considered very reliable.

The final constraint was labelled business today. This construct was comprised of just two items which reflected, in a highly competitive food industry, the need to focus on other business priorities. With the rapid expansion of the food processing industry in China, few firms were either willing or able to focus on long-term strategic goals. With a mean of 2.81, this was the most significant barrier impacting on the firm’s decision to adopt a third party certified FSMS. With a Cronbach’s alpha of 0.827 it too was considered very reliable.

These findings were reinforced in the subsequent analysis that looked at the influence of the principal components by the stage of adoption. Constraint 3 (business today) was considered to be the most influential barrier by all firms, irrespective of the stage they had reached in implementing a third party certified FSMS (Table 3). Those firms that were currently operating under a third party certified FSMS were more likely to question the value of introducing a third party certified FSMS than those firms that had already made the decision not to adopt. Similarly, it was only after the firm had been certified and was operating under a third party certified FSMS that the full costs became apparent.

**Benefits arising from the adoption of a quality assurance system**

To our surprise, none of the food processing enterprises that responded to our questionnaire were able to demonstrate that they had gained any meaningful benefit from the implementation of a third party certified FSMS. Indeed, the highest levels of agreement were often given by those firms that had yet to embark upon the process of
implementation, suggesting that there was a significant difference between perceptions and reality (Table 4).

In particular, those firms which were currently operating under a third party certified FSMS were very disillusioned with the experience. Few if any gains had been made in reducing product losses, enhancing their competitiveness in export markets, streamlining paperwork or improving profit margins. Presumably, any reductions in legal liability had yet to be tested, because the firm had yet to experience a food safety recall. As the market was failing to differentiate between those food processors who had a third party certified FSMS and those who did not, the increasing incidence of food safety breakdowns in China was having a negative impact on all food businesses, including some of the world’s best known fast food chains.

In an effort to identify any underlying latent constructs, principal component analysis was again undertaken. On this occasion, another three constructs emerged which collectively explained 70% of the total variance (Table 5). With a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of 0.889, a Bartlett’s test result of 1472.28 and a significance level of p<0.000, once again the data could reliably be tested using factor analysis.

Benefit 1, which was labelled quality attitude, was driven by the improved quality of management within the organisation, the desire to improve food quality and safety, and an improved company image in the market. Collectively, these benefits were perceived to lead to some competitive advantage. With a Cronbach’s alpha of 0.887, the factor was very reliable, but with a mean of 5.59, it was apparent that most food processors had yet to embrace the benefits that operating under a third party certified FSMS could potentially deliver to their enterprise (Table 6).

Benefit 2, which was labelled risk mitigation, reflected potential improvements in the nature of the firm’s long-term relationships with suppliers and buyers, the negative consequences of adverse publicity arising from a food safety incident, and the reduced likelihood of product losses derived from the preventative maintenance of plant and equipment. Although this factor was also very reliable (Cronbach’s alpha = 0.862), with a mean of 4.97, the perceived and actual benefits derived from the adoption of a third party certified FSMS continued to allude most firms.

Benefit 3, which was labelled financial gains, was perhaps the most surprising result, for it was observed that firms operating under a third party certified FSMS perceived themselves to be worse off than those who had chosen not to adopt a third party certified FSMS. The perceived gains in export competitiveness and gaining new customers were not leading to any improved levels of profitability, nor were firms able to assess whether the introduction of a third party certified FSMS had led to any marked reduction in the likelihood of instituting a product recall.

**Discussion**

This study has found that as food processors in Shanghai progress on their journey towards quality assurance, the perceived barriers and constraints escalate rather than
diminish. Furthermore, in what is perhaps the world’s most dynamic and highly competitive food market, there is a perception by those firms that have adopted a third party certified FSMS that they may be less competitive in the market. For those firms that have adopted a third party certified FSMS, few report any improvement in quality, in profitability, in the quality of management, company image, improved relationships with customers and suppliers, or in their capacity to attract new customers or to penetrate new markets. The most significant constraint appears to be the absence of any prescribed need for a FSMS from downstream customers.

Despite the rapid growth in modern retail formats in China, as the majority of food manufacturers are small enterprises, few have the capacity to supply modern retailers or export markets on a regular basis. By necessity, these firms must compete in the traditional market where the primary purchasing criteria is price. As the introduction of a third party certified FSMS will incur significant costs, initially in establishing appropriate processes and systems, and subsequently in meeting the on-going costs of auditing and verification, firms that have adopted a third party certified FSMS may indeed be less competitive.

Furthermore, in this market segment, most managers are more concerned about the very survival of their business rather than the introduction of improved systems that might improve their long-term competitiveness. The focus on short-term goals and the failure to prioritise efforts to establish a third party certified FSMS may also indicate the absence of a quality culture. Fatimah, Strohbehn and Arendt (2014) propose that a firm's food safety culture can be evaluated by exploring employees' perceptions towards the management system, style and process, leadership, communication, the sharing of knowledge and information, accountability, risk perception, and the work environment.

As the legislation itself is relatively new, as firms have sought to comply, the lack of any external funds to facilitate the process and the absence of a sufficient number of trained quality consultants has left many firms confused, leading to a perception that a great deal of effort has been expended for very little benefit. Thiagaragan et al. (2001) suggested that for firms contemplating the introduction of a quality management system, the plethora of precepts, principles, models and prescriptions often left the business so confused that it resulted in total quality paralysis.

While the results of this study may appear to contradict those of Bai et al. (2007) who reported a number of market based incentives for the food enterprises that participated in their study, all 27 firms were large to medium enterprises which were producing for the export market. As Bai et al. concluded “small-sized food enterprises in China has little incentives to implement HACCP systems…” (p 110). Based on a study of 117 food companies in Zhejiang Province, Jin et al. (2008) came to a similar conclusion, finding that the majority of firms which have yet to adopt a HACCP based FSMS were small to medium sized enterprises where managers had a low level of education and a limited understanding of the HACCP system.

Given the considerable number of both internal and external variables that have been found to influence the adoption and implementation of third party certified FSMS, Fotopoulos et al. (2009), Herath and Henson (2010) and Escanciano and Santos-Vijande
(2014) have each employed exploratory factor analysis in the hope of simplifying the
process through the discovery of underlying latent constructs. While drawing any
meaningful comparison with the results obtained from this study is problematic, due to
the use of different item measures and the different regulatory environments within
which each of these studies have been conducted, a number of similarities do
nevertheless emerge. Herath and Henson (2010) identified four factors, three of which
were captured in the present study, albeit that the constructs are somewhat different in
their structure (Table 7). While it is more difficult to extract any similarities from the
work of Fotopoulos et al. (2009) and Escanciano and Santos-Vijande (2014), difficulties
associated with sourcing sufficient funds, either internally or externally to support the
implementation of a third party certified FSMS, were common to all four studies.

In comparing the benefits derived from operating under a third party certified FSMS,
two of the three constructs extracted (quality attitude and financial gain), share some
elements in common with the findings of Escanciano and Santos-Vijande (2014)(Table
8). As neither Fotopoulos et al. (2009) or Herath and Henson (2010) sought to explore
the benefits of operating under a third party certified FSMS, it is not possible to make
any comparison.

**Conclusions**

For those small to medium-sized food processing enterprises that primarily supply the
domestic market in Shanghai, with little demand from downstream customers to operate
under a third party certified FSMS, the adoption and implementation of a third party
certified FSMS is perceived to add costs and to potentially reduce the competitiveness
of the firm in what it is a very price sensitive market. However, as the market matures
and as customers increasingly look towards the non-price attributes of the food that they
consume, the benefits of operating under a third party certified FSMS are expected to
become more evident.

As argued by Bai et al. (2007), domestic consumers should be entitled to the same food
safety standards as foreign consumers. As the prevention of food safety incidents is in
the public interest, there is a clear role for government. However, rather than to require
food processors to implement a FSMS through legislation, as most firms do not
appreciate the benefits derived by operating under such a system, there is a prior need to
develop a quality culture through the provision of food safety management workshops.
As Fernando et al. (2014) conclude, in encouraging small food processing enterprises to
adopt FSMS, education and promotion is more effective than legal enforcement. Jin et
al. (2008) come to a similar conclusion, suggesting that it is inappropriate to force small
enterprises to implement FSMS as most lack financial resources and infrastructure, few
have any real commitment to food safety management and most have not implemented
the pre-requisite quality management systems.

With a limited knowledge of food quality concepts, some consideration should be given
towards employing a greater number of trained quality management facilitators to assist
firms through the process. Furthermore, as most firms, irrespective of the stage of
adoption, experience some financial constraints in the adoption and implementation of a
FSMS, government may need to find a way of providing some financial assistance, either directly or indirectly.

Theoretically, what this study has revealed is the need to develop a consistent set of item measures that can be utilised in future studies to explore differences in the barriers and the benefits derived from the implementation of third party certified FSMS. The methodology proposed by Churchill (1979) provides a useful approach for generating potential item measures and assessing both their reliability and validity.

References


