School of Psychology

The Dimensions and Consequences of Trust in Senior Management

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This is to certify that the thesis is that of the candidate alone and has not been submitted previously in the whole or in part in respect of any other academic award.

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ABSTRACT

Trust between individuals and groups has been identified as an important factor in determining organisational success, organisational stability and the well-being of employees. The present research contributes to the growing literature on trust by developing measures and models of how employees trust senior management. Drawing from the literature and the results of pilot studies, a six dimensional model of trust in senior management - consisting of dispositional, cognitive, affective, social and behavioural intent dimensions - was tested using confirmatory factor analysis (n = 416). The results clearly supported the convergent and discriminant validity of the measurement model. For example, all model fit indices were above minimum recommended values and all items loaded at significant levels on their specified factor. The measures were successfully cross-validated in a sample from a different organization (n = 249). Next, models portraying alternative structural relations between the dimensions were examined, before deriving a model which successfully summarized the data in a theoretically plausible way. The model showed trust in senior management, defined in terms of behavioural intentions, to be directly influenced by affective reactions and perceived social norms. Cognitive assessments about the overall effectiveness of senior management were shown to have an indirect influence on trust. This structural model was successfully cross-validated on an independent sample. The attitudinal dimensions of the model were shown to hold, longitudinally, over a twelve month period (n = 257). In contrast to previous cross-sectional research, disposition did not influence trust in senior management over time. In terms of determining the organizational consequences of trust in senior management, the results showed that trust in senior management influenced cynicism toward change over a twelve month time period. Theoretical implications and the practical implications for the diagnosis and management of trust in senior management are discussed.

CHAPTER 1

INTRODUCTION

The influence of trust in organisational settings has sustained research interest in recent years (Clark & Payne, 1997; Hosmer, 1995; Kramer & Tyler, 1996; Lane , 1997; Mayer & Davis, 1999; Mayer, Davis & Schoorman, 1995). An entire issue of the Academy of Management Review (1998) was devoted to the topic, as was a chapter from a recent Annual Review of Psychology (Kramer, 1999). Researchers and practitioners recognise that trust is an important factor in determining organisational success, organisational stability and the well-being of employees (Cook & Wall, 1980; Jones & George, 1998; Mayer & Davis, 1999; Tyler & Kramer, 1996; Shaw, 1997). The ability to develop and sustain trust has been posited as a key dimension of managerial and leadership effectiveness (Fairholm, 1994; House, 1977; Ouchi, 1981; Sitkin & Roth, 1993). At a more tangible level, Miles and Creed, (1995) reported that the levels of organisational trust and trustworthiness can directly impact organisational structure and processes, and reduce transaction costs.

Despite increasing interest in the construct of trust within organisational settings, slow progress toward developing a clear definition of the construct has been achieved. Mayer, Davis and Schoorman (1995, p. 709) suggested that the study of trust in organisations has been characterised by "problems with the definition of trust; ... confusion between trust and

its antecedents and outcomes; lack of specificity of trust referents leading to confusion in the level of analysis; and a failure to consider the trusting party and the party to be trusted." Although the work of Mayer et al., and others, has since progressed the definition and operationalisation of the construct, widely accepted models and measures remain elusive. Kramer (1999) concluded that, "although there has been an impressive proliferation of middle-range theories about trust, an integrative model of organizational trust continues to elude researchers. Relatedly, while empirical evidence continues to accumulate at a rapid rate, there has been a dearth of studies using overarching concepts and multiple-level measures that might help bridge the increasingly diverse conceptions of trust represented by economic, sociological, and social psychological perspectives" (p. 594).

Researchers, over the past decade, have examined organisational trust from a number of different perspectives. For example, Butler (1983) examined reciprocal trust between professionals and their secretaries, Currall and Judge (1995) studied trust between individuals who provide linking mechanisms across organisational boundaries, McAllister (1995) studied peer level trust between cross-functional middle-level and upper-level managers, Clark and Payne (1997) focused on trust between blue collar workers and their managers; Zaheer, McEvily and Perrone (1998) investigated the role of trust in inter-firm buyer-supplier relationships, and Dirks (1999) conducted research into how trust within work groups influences group performance. Mayer and Davis (1999) studied employee trust in senior management within a small manufacturing firm.

The focus of trust for this research is on employee trust in the senior management. The focus is consistent with Mayer and Davis's (1999) suggestion that trust in top management needs to be researched in larger organisations. The research aim is to provide further insight in to the conditions, dimensions and consequences of employee trust in senior management. Although anecdotal evidence abounds as to the importance of establishing high levels of trust between senior management and employees (Horton & Reid, 1991; Shaw, 1997), the dynamics and dimensions of trust in senior management have, until recently, received little research attention. Given the impact that managerial decisions can have on the physical and psychological conditions for employees (Nelson, Cooper & Jackson, 1995), this seems an interesting and important area for investigation. A high level of trust between employees and senior management appears to be an important factor in the development and maintenance of healthy relations between an organisation and its' employees and will likely play a significant role in the successful implementation of change (Rousseau & Tijoriwala, 1999; Shaw, 1997).

Senior management for the purposes of the present study is defined as members of the organisational strategic and operational executive. The group would normally be comprised of the CEO, vice-presidents, divisional heads, and functional heads, all of whom directly contribute to the organisation's key strategic and business decisions.

The theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1974, 1975) and the tripartite model of attitude structure (Rosenberg & Hovland, 1960) provide sound theoretical bases for the study of trust in organisational contexts. Variants of the theory of reasoned action have been used to predict behaviour across a broad range of social contexts by

describing associations between attitudes, subjective norms and behavioural intentions. The tripartite model suggests that attitudes can be conceptualised as having cognitive, affective and behavioural dimensions. Clark and Payne (1997), Cummings and Bromiley (1996), and Currall and Judge (1995) have used the models and frameworks to explicate trust relations.

While others have adopted a more philosophical orientation (e.g. Hosmer 1995; Provis, 2000) or sociological orientation (e.g. Lewis & Weigert, 1985; Sztompka, 1999) toward the study of trust, the present research takes an empirically based construct validation approach. Building on the work of Cook and Wall (1980), Currall and Judge (1995), Mayer, Davis and Schoorman (1995), Mayer and Davis (1999), and Clark and Payne (1997), the approach is psychological, theory based, systematic, empirical, and based on rigorous analytical techniques. In broad terms, the research aims were to consolidate current psychological theories and perspectives, to develop robust measures which can be generally applied, and to develop models which can be shown to have external validity and which can be shown to hold longitudinally.

The primary aim of this chapter is to provide an overview of the thesis. In Chapter II, key aspects of the literature relating to organisational trust are reviewed. Attention is drawn to the different ways that trust has been conceptualised and defined. Definitions and key distinctions are reviewed. For example, the importance for distinguishing between trust and trustworthiness, and between trust and distrust is argued. A case is made for focusing on senior management as a focus for trust. Key theories, models and accounts of trust are reviewed. Azjen and Fishbein's (1977, 1980) theory of reasoned action (TRA) is offered as a useful way to conceptualise trust in senior management. The literature on TRA and attitudes

is briefly reviewed. Each component of the theory – cognition, affect, social norms, and behavioural intent - is examined and an argument is developed as to how the elements or dimensions might structurally relate. The affective component of TRA was developed to overcome some inadequacies in previous conceptualisations and operationalisations. In addition, literature is reviewed which suggests that dispositional or personality factors should be included in models of trust in senior management.

In Chapter III the methodological approaches taken to investigating trust in senior management are reviewed. A case is made for the use of confirmatory factor analysis and structural equations modelling as the preferred analytical techniques. This analytical approach enables tests as to the viability of the hypothesised dimensions of trust in senior management, the hypothesised structural relations between the dimensions, and the hypothesised consequences of trust in senior management. Anderson and Gerbing's (1988) 'two-step' approach to construct validation is overviewed. First, processes for developing and testing a "measurement model" are described. Then, processes to simultaneously estimate structural models, while simultaneously estimating the measurement model, are described.

In Chapter IV, the dimensionality of trust in senior management is investigated. Exploratory and confirmatory factor analyses are conducted to determine the nature and number of salient dimensions of trust in senior management. It will be shown that six dimensions are sufficient to capture the construct. The dimensions correspond, in large part, with Ajzen and Fishbein's (1977, 1980) theory of reasoned action and Rosenberg and Hovland's (1960) tripartite model

of attitude structure. The development of three item measures of these constructs is described. The measures are shown to be invariant across independent samples.

In Chapter V, the cross-sectional structural relations between the dimensions are tested. Alternative models, again based on theoretically plausible theory, are evaluated. Evidence is provided in support of a model which includes a higher order factor which encompasses two cognitive dimensions. The higher order factor corresponds to an evaluation of the "overall effectiveness" or "credibility" of senior management. The model shows that the influence of this higher order factor on trust is mediated by affective and social normative dimensions. Evidence is provided to show that the affective and social normative dimensions directly influence trust. Disposition, too, is shown, cross-sectionally, to have a direct effect on trust. The structural model is shown to be invariant in an independent sample.

In Chapter VI, the structural model is subjected to longitudinal analysis. Evidence is provided to show that, for the most part, the model holds longitudinally. The results showed that while the structural relations among the attitudinal dimensions of the model remained invariant over time, trusting disposition was found not to influence trust over time. In broad terms, the results of the longitudinal analysis suggest that the meaning of the construct remained the same over a twelve month time period.

In Chapter VII, the consequences of trust in senior management are explored. Again, using longitudinal data, the influence of trust at Time 1 on affective commitment, change cynicism, and intention to turnover at Time 2 is examined. Evidence is provided to show that trust in

senior management at Time 1 "causally" influences cynicism to change at Time 2. The validation and cross-validation of measures of the outcome variables are also described.

Finally, in Chapter VIII, a summary is provided of the major findings within the thesis, conclusions are drawn, implications discussed and recommendations for future research are considered. The point is made that the present research is the first to focus on an examination of trust in senior management using rigorous confirmatory factor analytic and structural modelling techniques across two large samples.

CHAPTER II

THE CONSTRUCT OF TRUST

In this chapter, an attempt will be made to identify some of the more important issues and research threads which relate to trust in organisational contexts. More specifically, issues and research threads which apply to trust relations between employees and senior management will be examined. As such, the purpose of this review is to examine how some of the "prominent themes", "emerging perspectives" and "enduring questions" identified by Kramer (1999) in his recent review of trust and distrust in organisational settings, apply to employee trust in senior management.

The review begins with a survey of some theoretical perspectives on trust in organisational contexts. Dispositional, sociological and psychological perspectives are overviewed. From within the psychological perspective, calculative and relational accounts of trust are compared. As a central theme, the proposition that trust in senior management can be viewed as an attitude, is explored. It is argued that Ajzen and Fishbein's (1977, 1980) "theory of reasoned action", and the tripartite theory of attitude structure (Rosenberg & Hovland, 1960), provide a useful framework for capturing the salient dimensions of trust in senior management. Elements within the framework are overviewed and the literature examining the stability of attitudes in organisational contexts is reviewed. Then, definitions of trust and theoretical approaches which help understand the dimensions and dynamics of trust in senior

management are described. The chapter concludes with a review of the potential antecedents and consequences of trust in senior management, as derived from the recent industrial-organisational psychology and organisational behaviour literatures.

Perspectives on Trust

Lewicki and Bunker (1995) identified that the concept of trust has been approached in several different ways, in several different literatures. They identified psychological, sociological, political science, economic, anthropological, historical and sociobiological approaches to the study of trust. Lewicki and Bunker concluded that, "little effort has been made to integrate these different perspectives or articulate the key role that trust plays in critical social processes (e.g. cooperation, coordination, performance)" (p. 115).

Lewicki and Bunker (1995) suggested that Worchel's (1979) three-part categorisation provides a structure to help integrate the different perspectives. The first broad categorisation focused on personality or dispositional perspectives on trust. The second categorisation focused on sociological and economic perspectives. The third focused on the development and dynamics of interpersonal and group level trust from a psychological perspective. Clark and Payne (1997) arrived at similar categories, however, they also included experimental psychological research, focusing on actual trust behaviour (e.g. prisoner's dilemma outcomes), as a fourth category.

Dispositional Perspective

With respect to the dispositional perspective, trust, as a personality trait, has been acknowledged as a key thread in the literature on trust. Rotter (1967) was among the first to

systematically research trust as an individual difference variable. Elaborating on Rotter's conception of trust as a 'generalized expectancy', Kramer (1999) argued that, over time, "people acquire a kind of diffuse expectancy for trust of others that eventually assumes the form of a relatively stable personality characteristic" (p. 575). Early trust-related experiences and previous socialisation have been posited as key determinants of dispositional trust (Rotter, 1971, Clark & Payne, 1997).

Mayer, Davis and Schoorman (1995) and Mayer and Davis (1999) referred to this relatively stable personality trait as a "propensity" to trust. They proposed that propensity to trust is, "a stable within-party factor that ... might be thought of as the *general willingness to trust others*... [and which] will influence how much trust one has for a trustee prior to data on that particular party being available" (p. 715). Kramer (1999) noted that research in psychology has shown that there is considerable variance between individuals in their general predisposition to trust others. On this basis, it appears prudent to include trusting disposition as an individual difference variable in research involving trust in organisational contexts. Mayer, Davis and Schoorman concluded that, "propensity should contribute to the explanation of variance in trust if used as part of a more complete set of variables" (p. 716).

With respect to the influence of employee dispositional trait on trust in senior management, Payne and Clark (1996) argued that, "trust in a more generalized category [e.g. lawyers, doctors, police, senior management] will be more affected by personality and predisposition than trust in a specific person [e.g. supervisor, specific colleague or team member], since trust of the latter kind is based on direct experience of the person. This direct experience might

well override one's basic predisposition to trust (or not to trust). It might also be expected that the situational variables are likely to relate more strongly to trust in a person located in that situation than to a more global level of trust in senior managers ..." (p. 4). On this basis it might be expected that, because most employees in large organisations have limited contact with senior management (Kramer, Brewer, & Hanna, 1995), and particularly so with senior management outside of their own division or functional area, employees are likely to perceive senior management as a general class. Under these circumstances, and in the absence of strong situational cues, disposition will likely influence employees' trust in senior management.

On a related point, Creed and Miles (1995) and Kramer (1999) identified interactional experience as an important determinant of trust. Kramer noted that, "individuals' perceptions of others' trustworthiness and their willingness to engage in trusting behaviour ... are largely history-dependent processes ... According to such models, trust between two or more interdependent actors thickens or thins as a function of their cumulative interaction. Interactional histories give decision makers information that is useful in assessing others' dispositions, intentions and motives." (p. 575). However, in the absence of interactional histories, dispositionally-grounded generalised expectations about others' behaviour, intentions and motives will likely be influential. Again, such arguments support the inclusion of disposition in models of trust in senior management.

A number of researchers have developed measures of dispositional trust. Rotter (1967) developed the Interpersonal Trust Scale (ITS) to assess people's generalised expectancies for interpersonal trust. Mayer, Davis and Schoorman (1995) noted that the measure has since

been widely used. The original measure consisted of 25 trust items and 15 'filler' items. The trust items consisted of both positively and negatively worded items, and described expectations of trust for a wide range of 'generalised others', with whom it was unlikely that the trustor had a great deal of personal experience (Rotter, 1980). Items included "In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy", and "Parents usually can be relied upon to keep their promises". In support of the psychometric properties of the measure, Rotter (1971) reported an alpha reliability coefficient of $\alpha = 0.76$, test-retest reliabilities in excess of $r = 0.56$, and, later argued that the measure had demonstrated construct validity, "in predicting attitudinal, sociometric, behavioural, and unobtrusive criteria in a variety of situations" (1980, p. 2).

However, a considerable amount of research suggests that Rotter's (1967) conceptualisation and measure of dispositional trust may have limitations. For example, Vondracek and Marshall (1971) and MacDonald, Kessel and Fuller (1972) found, contrary to Rotter's (1980) predictions, that the ITS did not correlate with self-disclosure. Further, Chun and Campbell (1974), Kaplan (1973), and Tedeschi and Wright (1980) found that rather than being uni-dimensional, as proposed by Rotter, the ITS is multidimensional. Chun and Campbell identified four factors within the ITS: political cynicism, interpersonal exploitation, social hypocrisy, and reliable role-performance. Tedeschi and Wright found three factors; political trust, paternal trust, and trust in strangers. More recent research suggests that ambiguity about the dimensionality of the ITS may, in part, be attributable to the inclusion of negatively worded items. As will be argued in subsequent chapters, the combination of positively and negatively worded items within scales can result in inconsistent factor

dimensionality across studies (Bentler, Jackson, & Messick, 1971; Schmitt & Stults, 1985), reduced alpha reliabilities (Barnette, 1999), and the emergence of reverse coded 'method' factors (Cordery & Sevastos, 1993; Magazine, Williams, & Williams, 1996). In addition, strong arguments have been forwarded suggesting that it may be imprudent to conceptualise distrust as the polar opposite of trust (Kramer, 1996, Lewicki, McAllister & Bies, 1998). Kramer, for instance, argued that researchers, "have often talked about distrust as if it were simply the absence of trust (i.e., that trust and distrust are symmetric). The present data call into question this assumption" (p. 236). Therefore, reverse coded trust items, being framed in terms of distrust, may not be, necessarily, tapping into trust.

Currall and Judge (1995) used a short form of Rotter's (1967) interpersonal trust scale, as developed by Chun and Campbell (1974), in their study of trust between organisational boundary role persons. Currall and Judge stated that the short form included, "the 12 items (of which eight are negatively worded) that best retained the 25-item scale's factorial structure" (p. 158). Currall and Judge modified three ITS items that they deemed ungrammatical. Although the alpha coefficients of $\alpha = 0.80$ and $\alpha = 0.74$, reported by Currall and Judge, are above the generally accepted criterion of $\alpha = 0.70$ (Nunnally, 1978), the inclusion of negatively worded items in the scale, again, suggests potential conceptual ambiguity and measurement problems.

Other researchers have also developed or adapted measures of propensity to trust. For example, Mayer and Davis (1999), in their study of trust in senior management at a small manufacturing plant, used a 'propensity to trust' scale developed by Schoorman, Mayer and

Davis (1996). The items included "One should be very cautious with strangers", "Most repair people will not overcharge people who are ignorant of their speciality", "Most people can be counted on to do what they say they will do" and "Most adults are competent at their jobs". Beyond sharing problems in common with Rotter's (1967) scale (negatively worded items, possible confounding of trust versus distrust), Mayer and Davis reported alpha coefficients ($\alpha = 0.55$, $\alpha = 0.66$) which were lower than the level ($\alpha = 0.70$), generally regarded as acceptable for research purposes (Nunnally, 1978). The Schoorman, Mayer and Davis measure, therefore, appears to require further development.

Trusting disposition has also been assesseed within broad spectrum personality inventories. The NEO PI-R (Costa & McCrae, 1992), for instance, which operationalises the "big-five" model of personality, includes a trust scale. The "big five" dimensions, or "domains", consist of "neuroticism", "extraversion", "openness", "conscientiousness" and "agreeableness". Costa and McCrae stated that the NEO PI-R, "embodies a conceptual model that distills decades of factor analytic research on the structure of personality. The scales themselves were developed and refined by a combination of rational and factor analytic methods and have been the subject of intensive research conducted for 15 years on both clinical and normal adult samples. ... The five factors represent the most basic dimensions underlying the traits identified in both natural languages and psychological questionnaires" (p. 14). Despite some critical reviews of the NEO PI-R (Juni, 1995), there is a considerable body of evidence on the reliability, stability, and construct validity of the scale (Botwin, 1995; Costa & McCrae, 1995; Furnham, 1997).

Within the broader NEO PI-R, the trust scale is one of six "facet" scales within the "agreeableness" domain, a domain which focuses, primarily, on interpersonal tendencies (Costa & McCrae, 1995). Costa and McCrae operationalised trust in terms of 8 items, five of which were positively worded, assessing the extent to which individuals have a disposition to believe that, "others are honest and well-intentioned" (p. 17). The positively worded items included, "I believe most people are basically well-intentioned", "I think most people I deal with are honest and trustworthy", "My first reaction is to trust people", "I tend to assume the best about people", and "I have a good deal of faith in human nature". Costa and McCrae reported an alpha coefficient of $\alpha = 0.79$ from a large employment sample ($N = 1,539$), suggesting that there is internal consistency among the items in the scale. In contrast to the ITS and the scale developed by Schoorman et al. (1996), the NEO PI-R assesses a more generalised form of trust, in the sense that no specific referents (e.g. parents, repair people) are prompted by the items.

MacDonald, Kessel, and Fuller (1972) used a 10-item scale developed by Kessler, to assess dispositional trust. The items were similar to the generic items developed by Costa and McCrae for the NEO PI-R. The five positively worded items included, "I feel that other people can be relied upon to do what they say they will do", "I have faith in the promises or statements of other people", and " I expect other people to be open and honest". These items are clearly consistent with the qualities of "openness", "reliability", "honesty", and "competence", often identified as characteristic of trust and or trustworthiness (Butler, 1991; Mayer, Davis & Schoorman, 1995; Mishra, 1996). MacDonald, Kessel, and Fuller reported a Cronbach's alpha coefficient of $\alpha = 0.84$ for the 10-item scale.

Overall, despite some variability in the psychometric adequacy in measures of the construct, there appears to be widespread support for the inclusion of disposition in models of trust in senior management. This support is consistent with that found in the broader organisational psychology literature. House, Shane and Herold (1996), for example, concluded that, "the evidence for the predictive validity of dispositions is too strong to dismiss and that this evidence presents a compelling case for incorporating dispositional arguments and evidence into theories of behavior in organizations" (p. 204). In addition, there appears to be a general recognition that trust should be particularly salient where the focal party is a generalised class (Clarke & Payne, 1997), and where there has been limited interaction between the trustor and the trustee (Lewicki & Bunker, 1995), as is often the case between employees and senior management. The NEO PI-R (Costa & McCrae, 1995) and Kessel's (1972) self-report Trust Scale appear to reliably capture the construct.

Sociological Perspective

From a sociological perspective trust is conceptualised as a broad level cultural construct or social phenomenon. Under this perspective trust is viewed at the level of societal norms or social wholes, rather than at the level of the individual or group. Lewis and Weigert (1985), for example, viewed trust as a quality of the 'social fabric' that facilitates interaction and cooperation. Barber (1983) viewed trust as being based on expectations of order, regularity and stability in the social and moral order. Under this view, there are normative imperatives to trust others, and there are normative obligations to be trustworthy. Sztompka (1999) argued that, "If the rules demanding trust are shared by a community, and perceived as given

and external by each member, then they exert a strong constraining pressure on actual acts of giving or withdrawing trust" (p. 66).

However, with respect to the sociological perspective, Mayer and Davis (1999) concluded that using such an approach, "one cannot identify specific actions a particular party might undertake in order to become more trusted by a given other or others. Hence, its utility ... is limited" (pp. 123-124). On this basis, the sociological perspective has provided limited utility to applied researchers attempting to identify the dimensions and consequences of employees' trust in senior management. Beyond acknowledging that numerous commentators (Elangovan & Shapiro, 1998; Fukiyama, 1995; Horton & Reid, 1991; Reynolds, 1997; Sheppard, Lewicki & Minton, 1992; Robinson & Rousseau, 1994) have identified a general decline in trust in organisational authorities, most researchers in the organisational field have focused on the social and psychological dimensions of trust between specified trustors and trustees (Clark & Payne, 1997; Cook &Wall, 1980; Currall & Judge, 1996; Mayer & Davis, 1999; McAllister, 1995).

Psychological Perspective

Much of the recent theory and research on trust within organisational contexts has assumed a psychological perspective. Kramer (1999), for instance, concluded that, "most trust theorists agree that, whatever else its essential features, trust is fundamentally a psychological state" (p. 571). In a similar vein, Jones and George (1998) noted that, "it is necessary to understand how trust in others is experienced psychologically before its impact on behavioural

expectations and outcomes, such as the level of cooperation between people in an organization, can be adequately analysed" (p. 531).

Despite the widespread recognition of trust as a psychological state, different researchers have assumed different theoretical perspectives when attempting to understand the psychology of trust in organisational contexts. Lewicki and Bunker (1995) and Sheppard and Tuchinsky (1995) discussed three different types of trust, each based on a different psychological orientation. The three types consisted of calculus-based trust, knowledge-based trust, and identification-based trust.

With calculus-based trust, Lewicki and Bunker (1995) argued that, "trust is an ongoing, market-oriented, economic calculation whose value is derived by determining the outcomes resulting from creating and sustaining the relationship relative to the costs of maintaining it or severing it" (p. 120). Calculus-based trust has a psychological orientation which is individualistic, dispassionate, calculative and cognitive. In contrast, Lewicki and Bunker proposed that knowledge-based trust has a psychological orientation based in a social psychological perspective. Over time, as individuals or parties interact, regularly communicate with each other, share experiences, and observe each other over a wide range of situations, trust develops as a result of the predictability and understanding which derives from the shared experience. The third form of trust, identification-based trust, is based on shared values, common interests, and mutually recognised needs. Identification-based trust between employees and senior management would be characterised by common values, a

shared vision and a collective identity (Sheppard & Tuchinsky, 1995). Sheppard and Tuchinsky argued that, of the three forms, identification-based trust is the highest order of trust. The leadership literature would also suggest that senior management who have effected the development of identification-based trust in their organisation, would encourage their followers to excel, positively influence followers' emotional connections, and articulate a vision which activates deeply held values in employees (House, 1977).

In contrast to Lewicki and Bunker's (1995) three part classification of the different psychological perspectives on trust, Tyler and Degoey (1995) advanced a two part classification. Tyler and Degoey argued that psychological perspectives on trust in organisational authorities can be classified as instrumental or relational models. Instrumental, or calculative models, suggest that, "trustworthiness should be linked to individual beliefs about the likelihood of receiving positive outcomes from interactions with authorities" (Tyler & DeGoey, 1996, p. 337). "The calculative image [of trust] suggests that people trust others either because these others have acted in favourable ways in the past, or they can be expected to act favourably in the future. ... Trust is [therefore] seen as a subjective probability calculation of the potential costs and benefits of future interaction" (p. 332). This instrumental or calculative model corresponds, in large part, to what Kramer (1999) referred to as the "rational choice" model. Kramer argued that it, "remains, arguably, the most influential image of trust within organizational science" (p. 572). With respect to trust in senior management, the model is built on employees exercising "mental arithmetic" about the motives, actions and intentions of senior management.

The Prisoner's Dilemma (PD) research paradigm underpins much of the research concerned with understanding trust as rational choice behaviour. The Prisoner's Dilemma is an experimental research paradigm whereby players make either cooperative decisions, taking account of both self and other interests, or play competitively, taking account of their self interest only. Deutsch (1958) used the Prisoner's Dilemma to investigate interpersonal trust, in effect, operationalising trust in terms of cooperative behaviour within the parameters or constraints imposed by the Prisoner's Dilemma game. This conceptualisation of trust has, however, been the subject of criticism. Arnstein and Feigenbaum (1967), for instance, questioned whether the artificiality of the Prisoner's Dilemma research enabled meaningful conclusions to be drawn about trust. They questioned whether the results revealed more about cooperation and competition than they did about trust. Consistent with this view, Pearce (1974) concluded that choices and behaviours within the Prisoner's Dilemma need not necessarily be accompanied by the psychological experience or attitude of trust. Bateson (1988) and Mayer, Davis and Schoorman (1995) also argued that cooperation needs to be distinguished from trust. Mayer, Davis and Schoorman made the point that it is possible to cooperate with those who are not trusted, as may be the case in hostage situations.

Kramer (1999) outlined a number of additional limitations associated with research conducted within the rational choice perspective. Firstly, Kramer asserted that, "the large and robust literature on behavioural decision making suggests that many of the assumptions of rational choice models are empirically untenable. ... As March (1994) cogently noted in summarising such research, rational choice models overstate decision makers' cognitive capacities, the degree to which they engage in conscious calculation, and the extent to which they possess

stable values and orderly preferences" (p. 573). There is a large body of evidence suggesting that individuals engage cognitive heuristics (Kahneman & Tversky, 1974) and social heuristics (Allison & Messick, 1990) when making decisions and processing information. In effect, rather than engaging in fully formulated calculative "arithmetic" (Kramer, 1995), individuals are often wont to use "short-cuts" to manage the complexities associated with making attributions and decisions.

As a second, and more fundamental, limitation Kramer (1999) referred to March and Olsen (1989), and argued that rational calculation may not even be central to the phenomenon of trust. If one party has confidence in the good faith intentions and competence of another party, the trusting party would not ordinarily need to engage high level evaluative or appraisal processes before committing to engage in trusting behaviour. Bigley and Pearce (1998) also argued that, indeed, trust may be most salient in the absence of fully formed cognitive thinking, suggesting that trust, "may forestall the monitoring and evaluating of a partner's behavior" (p. 413). Similarly, Tyler and Degoey (1996) concluded that rational, calculative or instrumental models of trust, in the end, cannot explain anything more about trusting behaviour than economic theory or economic exchange. Consistent with the criticisms levelled at the prisoners' dilemma research, as previously outlined, the operationalisation of trust as cooperation does not necessarily entail trust. Mayer, Davis and Schoorman also distinguished between trust and cooperation on the basis that cooperation does not necessarily invoke uncertainty, vulnerability or risk. As will be discussed later in this chapter, these conditions or attributes are central to many definitions of trust. Loomis

(1959) and Rekosh and Feigenbaum (1966) argued that rather than equating cooperation and trust, cooperation is best considered as an outcome of trust.

As a third limitation, Kramer (1999) observed that instrumental or rational models pay insufficient regard to the emotional and social influences of trust. With respect to the emotional dimensions of trust, Lewicki and Bunker (1998), Lewis and Weigert (1985), McAllister (1995), Whitener, Brodt, Korsgaard & Werner (1998), and others, have argued that trust has both cognitive and affective dimensions. In line with the general trend in the organisational literature toward increasingly acknowledging the affective dimensions of organisational behaviour (Fox & Spector, 1999; Mossholder, Settoon, Armenakis, & Harris, 2000; Wright & Doherty, 1998), Kramer (1999) called for a conceptualisation of trust that extends the cognitive conceptualisation of trust to, "a more complex, multidimensional psychological state that includes affective and motivational components..."(p. 571). In contrast to the calculative model of trust, the relational model of trust explicitly incorporates social as well as affective dimensions of trust relationships (Kramer, 1999). This relational model corresponds most closely to identification-based conceptualisations of trust in Lewicki and Bunker's (1995) three part classification. Kramer (1999), in describing relational models of trust, argued that, "an adequate theory of organizational trust must incorporate more systematically the social and relational underpinnings of trust-related choices" (p. 573).

A number of other researchers have supported broadening the conceptualisation of trust beyond cognitive accounts, to include social, interactional or relational dimensions of trust in organisational contexts (Kramer, Brewer & Hanna, 1996, Mayer, Davis & Schoorman, 1995,

McAllister, 1995). Social exchange theory (Blau, 1964) has often provided the theoretical rationale for relational models of trust. Social exchange theory, in brief, contends that trust emerges through repeated beneficial exchange between individuals or parties. Typically, such exchanges would be voluntary. Over time, trust develops as a consequence of a history of reliability, consideration and reciprocation. Social identity theory (Tajfel, 1969, 1982) and the literature on psychological contracts (Robinson, 1996; Rousseau, 1989; Rousseau & Parkes, 1993) have also been forwarded in support of the social and relational dimensions of organisational trust. Robinson, for example, argued "trust comes not from a cognitive calculus of how a particular party will act but, rather, from the relational bonds between the parties (Lewis & Weigert, 1985) and the implicit assumptions that others in one's social relationships have respect and concern for one's welfare" (p. 579). Robinson argued that trust, "as a social construct, ... lies at the heart of relationships and contracts" (p. 576).

Psychological contracts can be defined as implicit or explicit beliefs about the terms, conditions and entitlements of a reciprocal exchange agreement between two parties (Rousseau, 1989). Robinson (1996) claimed that the relationship between trust and the psychological contract is strong and multi-faceted, and provided results which showed that if high levels of trust are established and maintained, organisations, may, in some sense, be inoculated against the negative consequences of psychological contract breach. "If employers can earn the trust of their employees early on, employees will be less likely to perceive a contract breach in the first place and more likely to retain their trust despite possible changes or breaches (perceived or actual) in the employment agreement" (p. 596).

Attributional theory has also been advanced as a way to explain social models of trust in organisational contexts. With particular reference to trust in authorities, Tyler and Degoey (1996) argued that trust is based on attributions about the motives and intentions of authorities, "to maintain respectful relations in decision-making processes. ... Attributions of positive intent lead group members to trust the authority and take the obligation to accept his or her decision onto themselves." (pp. 332-333). Tyler and Degoey argued that the results of their research showed that, "the psychology of trustworthiness is primarily determined by relational and intentional concerns rather than by instrumental concerns for receiving desired outcomes from interactions with authorities" (p. 333).

The relational dimensions of trust also include social or "normative" dimensions. These dimensions explain the social forces operating on individuals in organisational environments, which serve to influence each individual's attitudes, attributions, schemata, and experience. A rich body of literature clearly identifies the importance of normative influences on individual employees' decisions and behaviour. Literature on organisational climate (Schein, 1985, 1990), work group climate (Anderson & West, 1994, 1998), group attribution processes (Hewstone, 1989; Louis & Sutton, 1991; Weick, 1979) and social information processing (Salancik & Pfeffer, 1978), point to the importance of socially constructed organisational "realities". Indeed, Silvester, Anderson and Patterson (1999) argued that organisational experience, "can best be conceptualised as the dynamic product of a process of collective 'sense-making' where individuals communicate and agree common explanations for work-related events in an effort to understand, predict and control their environment (Reichers & Schnieder, 1990; Rousseau, 1990)" (p. 4).

Although Kramer (1999) argued that the rational choice and relational perspectives on trust project fundamentally different images of trust and have pushed empirical research in quite different directions, he also argued that it is counterproductive to think of the perspectives as mutually incompatible. "Rather a more useful approach is to move in the direction of developing a more contextualist account that acknowledges the role of both calculative considerations and social inputs in trust judgements and decisions. In other words, what is needed is a conception of organisational trust that incorporates calculative processes as part of the fundamental 'arithmetic' of trust, but that also articulates how social and situational factors influence the salience and relative weight afforded to various instrumental and non-instrumental concerns in such calculations" (p. 574).

So, rather than adopting an 'either/or' approach, Kramer (1996) argued that models of organisational trust need to take account of three different forms of trust. Kramer argued that task-focused, fiduciary and relational forms of trust will each, uniquely, influence judgements about trust. Focussing Kramer's model on employee trust in senior management, task-related forms of trust would likely entail attributions about 'competence' or 'technically competent role performance'. Fiduciary trust would be explained in terms of employee perceptions of mutual obligation and senior management being seen to keep to their commitments. Relational trust would be understood in terms of senior management being seen to ensure organisational justice and fair treatment, and to afford respect and dignity for employees.

Overall, it appears that trust is widely regarded as a complex and multi-dimensional construct, consisting, at a minimum, of calculative, relational and normative dimensions. Kramer's (1999) review makes it clear that a comprehensive model of trust in organisational contexts must account for affective and motivational as well as cognitive factors. Kramer also makes the case that, "most trust theorists agree that, whatever else its essential features, trust is fundamentally a psychological state" (p. 571). That is, trust needs to be conceptualised as a psychological state, or process, which involves cognitive, emotional and social dimensions.

In addition to the affective, cognitive and motivational dimensions, trust has dimensions based in behavioural intention. Behavioural intention, with respect to trust, corresponds to a willingness or an intention to engage in trust-related behaviour. Mayer, Davis and Schoorman (1995) and Mayer and Davis (1999) invoked "willingness to risk" as a defining feature of trust. Mayer, Davis and Schoorman were careful to distinguish trust as a "willingness to take risks", from the outcomes of trust. Outcomes of trust include manifest risk-taking or assuming of risk. Given that the Oxford dictionary defines "willingness", in part, as being "disposed to consent or undertake", "willingness" clearly implies some form of behavioural intent.

On a similar theme, Currall and Judge (1996) also posited behavioural intention as a central element in their conceptualisation of trust. They argued that when conducting research into trust, "it is important to measure the most proximal antecedent of trusting behaviour" (p. 152). Currall and Judge argued that, "previous measures of trust assessed the social judgement correlates of trusting behaviour (e.g. the target person's integrity), which compared

to … [a] measure of willingness to engage in trusting behaviour, are more 'distal (cf Fishbein, 1980) antecedents of … trusting behaviour" (p. 152). Again, willingness to engage in trusting behaviour, or behavioural intention, is central to this conceptualisation of trust.

Trust as an attitude

The treatment of trust as a psychological construct, characterised by valenced cognitive, affective, normative and behavioural dimensions, leads to the conceptualisation of trust as an attitude. Jones and George (1998) argued that attitudes consist of the knowledge, beliefs, and feelings people have about other people, groups, or organisations. By conceiving of trust as an attitude, many of the different approaches and considerations, overviewed earlier, can be reconciled.

Attitudes are generally understood to be evaluative responses. Ajzen (1989) defined attitudes as "an individual's disposition to respond favorably or unfavorably to an object, person, institution or event, or to any other discriminable aspect of the individual's world" (p. 241). Eagly and Chaiken (1993) argued that, "evaluation is at the core of the attitude concept" (p. 666) and defined attitudes as a, "psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). Eagly and Chaiken also argued that attitudes are latent constructs or latent processes, and as such are not directly observable nor directly amenable to measurement. They further suggested that an attitude is, "an internal state that endures for at least a short period of time and presumably energizes and directs behavior" (p. 7). In summary, attitudes can be viewed as latent psychological constructs which consist, in part, of an evaluative assessment, an affective dimensions and an

action tendency. Echoing this evaluative dimension and focusing on trust, Robinson (1996) argued that trust can be considered as, "a general *positive attitude* toward another social entity" (p. 576, italics added).

Although numerous models have been proposed which purport to describe the structure of attitudes (see Eagly & Chaiken, 1993, McGuire, 1989), a comprehensive review of all models is beyond the scope of this review. In this review, the theory of reasoned action (Ajzen & Fishbein, 1980), and the tripartite model of attitude structure (Rosenberg & Hovland, 1960), are proposed as suitable organising frameworks to model the attitude of trust in senior management.

However, to briefly address consideration of alternative attitude models, Eagly and Chaiken (1993) noted that many attitude models (e.g. Anderson's (1971) Information Integration theory; Fishbein's (1963) Expectancy-value Model) have a predominantly cognitive focus. Such models, therefore, may not fully account for the affective and social dimensions of trust. The theory of planned behaviour, developed by Ajzen (1987, 1988, 1991) as an alternative to the theory of reasoned action, was developed to accommodate non-volitional behaviour. However, given that trust is here defined in terms of willingness, or volition, and given that Ajzen consistently maintained that the theory of reasoned action remains valid for volitional behaviour, the theory of reasoned action (Ajzen & Fishbein, 1980) provides an appropriate structure for the study of trust.

The theory of reasoned action has been used to predict behaviour across a broad range of social contexts by describing associations between beliefs, attitudes and behavioural intentions (see Connor & Sparks, 1996, and Eagly & Chaiken, 1993 for reviews). Ajzen and Fishbein suggested that beliefs govern attitudes, attitudes determine behavioural intentions, which, in turn, predict behaviour. In addition, social forces operate to influence behavioural intention. Ajzen and Fishbein referred to these forces as "subjective norms". As previously noted, subjective norms represent the influence of the attitudes and opinions held by important others on an individual attitude. A key assumption which underpins the theory of reasoned action is, therefore, that attitudes and norms are linearly related to intentions (Hankins, French & Horne, 2000). The theory of reasoned action is modeled in Figure 2.1.

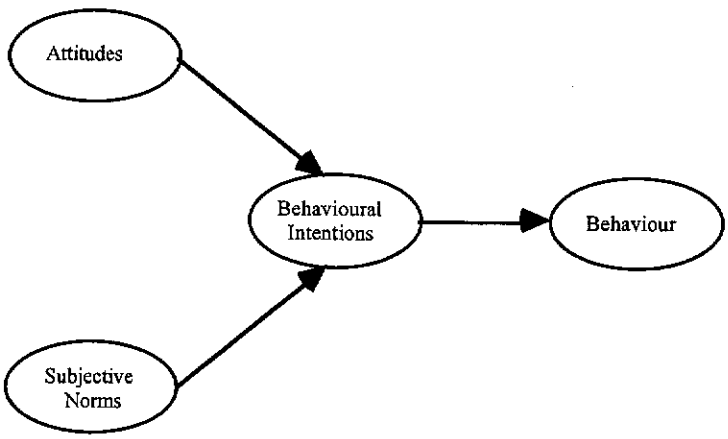

Figure 2.1. Representation of Ajzen and Fishbein (1980) Theory of Reasoned Action.

Ajzen (1988, 1989, 1993), Rosenberg and Hovland (1960) and Triandis (1970) advocated partitioning the attitude construct into three components – affect, cognition, and behavioural

intent. This conceptualisation is known as the tri-partite model of attitude structure. Ajzen (1988) argued that, although the three components all measure aspects of the attitude of interest, and therefore should all correlate with one another, each component has independent psychological significance. That is, each of the components should explain unique variance in an overall attitude which is not shared with the other two components. Eagly and Chaiken (1993) concluded, after reviewing the empirical evidence concerning the tri-partite model, that although the model has limitations, "the evidence supports the empirical separability of the three classes of evaluative responses under some but certainly not all circumstances" (p. 13). Figure 2.2 models the merging of the tripartite model of attitude structure and Ajzen and Fishbein's theory of reasoned action.

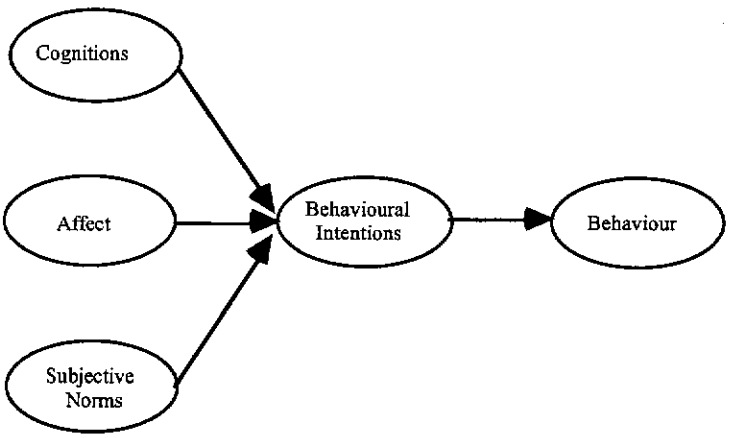

Figure 2.2. Representation of the Tripartite Model of Attitude Structure (Rosenberg & Hovland, 1960) and the Theory of Reasoned Action (Ajzen & Fishbein, 1980).

Previous researchers have used the theory of reasoned action and the tripartite model of attitude structure to guide their investigations of trust in organisational contexts (Currall & Judge, 1995; Payne & Clark, 1996). Clark and Payne (1997), for instance, suggested that, "the decision to trust involves cognitive, emotional, and behavioural intention components" (p. 207). Cummings and Bromiley (1996) also identified cognition, affect and intention as key dimensions of their Organizational Trust Inventory. These approaches to modelling trust have explicit links with Ajzen and Fishbein's (1980) theory of reasoned action.

Other constructs within the domain of Organizational Behaviour or Industrial-Organisational Psychology have also been viewed as attitudes. For example, Mowday, Steers and Porter (1979) conceptualised commitment as an attitudinal construct. Key dimensions of the construct included, "(1) a strong belief and acceptance of the organization's goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization" (p. 226). The first and third dimensions clearly invoke cognitive and affective responses, as represented in the tripartite model of attitude structure (Rosenberg & Hovland, 1960). The "willingness to exert considerable effort", in the second dimension, clearly corresponds to the behavioural intention dimensions of Ajzen and Fishbein's (1980) theory of reasoned action.

Attitude and Cognitive-Based Trust

With respect to the cognitive dimensions of attitude structure, Eagly and Chaiken (1993) observed that the cognitive category consist of the thoughts, ideas and beliefs that people have about an attitude object. As suggested by Currall and Judge (1995), much of the

organisational trust literature has focused on the cognitive antecedents of trust. Indeed many researchers have, in part, defined trust in terms of cognitive antecedents. Cook and Wall (1980) suggested trust is, "the extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people" (p. 39). Mishra (1996, p. 265) suggested that trust was, "one party's willingness to be vulnerable to another party based on the belief that the latter party is (a) competent, (b) open, (c) concerned, and (d) reliable".

Implicit in these definitions is a set of attitudes, attributions or beliefs about the motives, intentions, qualities or "trustworthiness" of some "other". Mayer Davis and Schoorman (1995) argued that the, "characteristics of the trustee that determine trustworthiness ... although not trust per se, ... help build the foundation for the development of trust" (p. 717). Similarly, Clark and Payne (1997) suggested, "useful insights concerning trust may be derived from investigating the perceived trustworthy attributes of others" (p. 206). Cognitive evaluations of trustworthiness are thus central to the conceptualisation of trust (Kramer, 1996).

Different researchers have identified different cognitive dimensions of trustworthiness. The number of dimensions has ranged from one to ten. Trust or trustworthiness has been conceptualised as having one dimension (Barber, 1983), two dimensions (Cook & Wall, 1980), three dimensions (Cummings & Bromiley, 1996), four dimensions (Mishra, 1996), five dimensions (Butler & Cantrell, 1984); six dimensions (Clark & Payne, 1997), and up to ten dimensions (Butler, 1991). Competence, integrity, good-intention and openness have consistently emerged as markers of trustworthiness. For example, Cook and Wall (1980)

identified good intentions and ability as the two key characteristics of trustworthy others. Dirks (1999) identified integrity and competence as the most salient dimensions. Mayer Davis and Schoorman (1995), Mayer and Davis (1999), and Tan and Tan (2000) identified integrity, benevolence, and ability as the most salient dimensions of trustworthiness. As noted previously, Mishra (1996) identified competence, openness, concern, and reliability as the four most salient dimensions, and Clarke and Payne (1997) identified integrity, competence, consistency, loyalty, openness and the showing of respect as the six most salient dimensions of trust and trustworthiness.

As will be argued in Chapters III and IV, the use of different theoretical perspectives and data analytic techniques may have contributed to the diversity of dimensions apparent in the trust literature. The majority of trust and trustworthiness models have been validated using exploratory factor analytic techniques. Fewer studies have employed the more rigorous confirmatory factor analytic techniques to determine the structural dimensions of trust and trustworthiness.

While no definitive solution as to the salient number of cognitive dimensions of trust has yet to appear in the literature, there is a consistent trend toward valuing more parsimonious models (Cook & Wall, 1980; Mayer, Davis & Schoorman, 1995; Tan & Tan, 2000). Parsimonious conceptualisations would, in all probability, be particularly appropriate with respect to employee trust of senior management in large organisations. This is because many employees will not have direct contact with senior management on a regular basis, and therefore will often have to rely on indirect experience and second hand information in making

assessments about senior management. The absence of rich direct information as to the reasons underpinning senior management behaviours, motives, and decisions, will likely make it difficult for employees to make fine grain discriminations across a large number of dimensions. On this basis, uni-dimensional, two-dimensional or three-dimensional models would be preferred.

Mayer and Davis (1999) and Tan and Tan (2000) argued in favour of Mayer, Davis and Schoorman's (1995) three dimensional conceptualisation of trustworthiness. It is noteworthy, however, that although Mayer and Davis's (1999) study demonstrated, using confirmatory factor analysis, that the model with three trustworthiness dimensions and a trust dimension, fitted the data better than a one dimensional model (where all four scales loaded on a single dimension), their analysis did not independently examine the dimensionality of the three trustworthy dimensions. Indeed, the correlations between the trustworthiness dimensions (ability, benevolence, and integrity) were moderately high, ranging between $r = 0.64$ and $r = 0.78$. The correlations between benevolence and integrity, on each of two occasions, were higher than the correlations between ability and benevolence, or ability and integrity. Their data, therefore, did not rule out the possibility that a one, two or three dimensional model of trustworthiness would provide an adequate fit to their data. Similarly, Tan and Tan did not report on the results of rigorous tests of discriminant validity among the three dimensions, as recommended by Anderson and Gerbing (1988) and as used by McAllister (1995).

Two dimensional models of trustworthiness, as already noted, have also been proposed (Cook & Wall, 1980; Dirks, 1999). The leadership literature (Kahn & Katz, 1960) would also suggest that two broad dimensions, one based on task performance (ability) and the other based on people performance (consideration), can usefully summarise employee attributions of leaders and senior management.

As an alternative to two or three dimensional models, a number of researches have suggested that a one-dimensional model provides the best account of trustworthiness in senior management. Rousseau and Tijoriwala (1999), Cropanzano and Prehar (1997), Robinson and Rousseau (1994), and Robinson and Morrison (1995), for example, operationalised trustworthiness as a unidimensional construct. A unidimensional conceptualisation would appear to be particularly plausible with respect to employee attributions of trustworthiness in senior management, because, as noted previously, employees may lack direct information about the behaviour and decisions of senior management, and thus, will be less able to make fine distinctions about the trustworthiness of senior management. Instead, they may rely on an overall evaluative response, which subsumes the broader set of hypothetical dimensions.

James and James (1980, 1989) described an overall higher order effectiveness factor, similar to the overall evaluative dimension, suggested above. In brief, James and James argued that there exists a general factor, representing an appraisal of the work environment as personally beneficial or detrimental, which underlies organisational climate perceptions. Carless (1998) also suggested the possibility of a higher order trust-related factor in her confirmatory factor analytic investigation of the discriminant validity of the Multi-factor Leadership

Questionnaire (MLQ) (Bass, 1985). Carless concluded that, "recent research on halo error suggests that the lack of discriminant validity [in the MLQ] may be explained by a general impression model (Lance, Lapointe, & Stewart, 1994) in that trustworthiness and charisma may simply be very general categorisations of the leader that influence subordinate ratings" (p. 357). Given these arguments, theoretical models of trust in organisational contexts might need to consider the possible existence of higher order models of cognitive trustworthiness.

Attitudes and Affective-Based Trust

With respect to the affective dimensions of attitudes toward senior management, the tri-partite concepualisation of attitude structure suggests that affective experience needs to be considered. Eagly and Chaiken (1993) observed that, "evaluative responses of the affective type consist of feelings, moods, emotions, and sympathetic nervous activity that people experience in relation to attitude objects. For example, when considering the concept of nuclear power plants, some individuals may experience a feeling or emotion of anger, and others may experience a feeling of hope and optimism" (p. 11).

With respect to the affective dimensions of trust, Kramer (1999, p. 572) quoted Fine and Holyfield (1996) who argued that, "one not only thinks trust, but feels trust". Although many trust researchers have made no explicit reference to the affective dimensions of trust (e.g. Currall & Judge, 1995; Dirks, 2000; Mayer & Davis, 1999; Tan & Tan, 2000), a number of researchers have incorporated affective dimensions of trust into their research. McAllister (1995), for example, operationalised affective-based trust in terms of reciprocated care and concern. Cummings and Bromiley (1995) also attempted to operationalise the affective

component of trust by, in effect, substituting the words 'feel' and 'think' in a set of trust items, in an attempt to differentially prompt affective and cognitive responses. Clark and Payne (1997) also attempted to operationalise the affective dimension of trust.

However, as will be argued in Chapter IV, the conceptualization and empirical evidence in support of the affective dimension of trust in organisational contexts is not well advanced. Neither Clarke and Payne's (1997), nor Cummings and Bromiley's (1995) measures of affective trust demonstrated clear discriminant validity from cognitive measures of trust. McAllister's (1995) conceptualisation of affective-based trust, although meeting psychometric criteria in terms of reliability and discriminant validity, was not clearly grounded in a well-developed affective theory.

In order to advance the research on the affective dimensions of trust (and trust in senior management), well-established affective frameworks, such as Warr's (1990, 1994) model of job-related affective well-being, Watson and Tellegen's (1985) two factor structure of affect, Russell's (1980) circumplex model of affect, or Roseman's (1991) appraisal theory of emotions, might usefully be employed. Although variants of the circumplex model have clearly advanced the understanding of moods and emotions (Larsen & Diener, 1992, Saaverda & Kwun, 2000, Weiss & Cropanzano, 1996), such pre-existing models have not previously been applied to the study of trust in organisational settings.

There is a considerable degree of overlap in the models developed by Warr (1990, 1994), Watson and Tellegan (1985), Russell (1980) and Larsen and Diener (1992). All posit an

evaluative (positive or negative) dimension and an arousal or activation dimension (high or low) as fundamental to their models. Within Warr's model, for example, affective well-being is conceptualised as a two dimensional bi-polar construct (anxiety-comfort and depression-enthusiasm) located in psychological space defined by the orthogonal dimensions of arousal and pleasure. Fixed by these dimensions, a set of indicators of affective states can be located around a circumplex (Larsen & Diener, 1992, Russell, 1980). For example, the affective state of depression would be located on the circumplex in the quadrant defined by low arousal and low pleasure. The affective state of anxiety would be located on the circumplex in the quadrant defined by low pleasure and high arousal. Enthusiasm would be characterised by high status on both pleasure and arousal, while relaxation would be characterised by high status on the pleasure dimension and low status on the arousal dimension. Warr (1990) suggested that although it is not possible to account for all emotional experiences within his model, it does provide a firm foundation for more "differentiated" accounts (p. 196).

As discussed subsequently, trust has been defined in terms of 'willingness to risk' (Mayer, Davis & Schoorman, 1996; Mishra, 1996). It is therefore plausible, at the intuitive level, that feelings of safety, security, confidence and comfort would be associated with trust. When confronted with uncertainty or risk, especially in organisational contexts, individuals will be likely to engage in trust related behaviours if they are feeling, at some level, relaxed, safe, comfortable and secure. Consistent with this speculation, Fairholm (1994, p.113) suggested that trust connotes feelings of security and confidence. Similarly, Creed and Miles (1995) and Powell (1990) suggested that security and stability engender trust. Shaw (1997) noted that the word 'trust' derives from the German word 'trost', suggesting comfort. Laschinger, Finegan,

Shamain, and Casier (2000) also suggested that feelings of safety and comfort will be associated with trust in management.

If, indeed, trust can be characterised in terms of feelings of safety, security, confidence and relaxation, affective trust in senior management would be located in the lower right hand quadrant of Warr's (1990) model of affective well-being. Specifically, affect-based trust would be associated with high status on the pleasure dimension and low status on the arousal dimension. By grounding the operationalisation of affective trust in well-established models, further insight into the affective dimensions of trust in organisational contexts may be obtained.

With respect to questions about the relative causal influence of cognitive and affective factors within attitude structure, the evidence in the social psychological and the information processing literatures is mixed. Although there is clear evidence that affect can influence cognitive evaluations (Forgas & Bower, 1987), and that affect can occur independently of deliberate and high level cognitive functioning (Fiske & Taylor, 1984; Lazarus, 1982), there is also a considerable body of evidence which shows that emotions arise out of cognitive appraisals (Frijda, 1988; Morrison & Robinson, 1997; Oatley, 1992; Ortony, Clore & Collins, 1988; Schwarz, 1990; Schwarz & Clore, 1983). For example, Morrison and Robinson showed that the emotional experience of psychological contract violation arises out of interpretational processes which are cognitive in nature. In addition, the "feelings-as-information" information processing models (Schwarz, 1990; Schwarz & Clore, 1983) and the literature on affect as "patterns of action readiness" (Frijda, 1986; Frijda et al., 1989) suggest

that affect and emotion can be construed as primary determinants of evaluative responses. It, therefore, appears viable that affect could have a primary influence on constructs such as "willingness to risk" and intentions to behave.

Attitudes and Social Norms

Ajzen and Fishbein (1977) suggested that the social forces surrounding an individual will impact on that individual's attitudes and behaviour. As previously noted, Ajzen and Fishbein referred to these forces as 'subjective norms'. In operationalising subjective norms, Ajzen and Fishbein developed items which assessed the extent to which a focal person believes that referents, who are important to him or her, think that he or she should perform a given behaviour. For example, with respect to an individual's attitude toward smoking cigarettes, subjective norms would be defined in terms of the "social pressure" coming from important others in his/her life (e.g. relationship partners, siblings, close colleagues at work), about the individual's smoking behaviour. Subjective norms correspond to what the individual perceives important others think that he or she should, or should not, do.

Ajzen (1991), Eagly and Chaiken (1993) and Terry, Hogg and McKimmie (2000) argued that there is limited empirical support for the role of norms in attitude-behaviour relations. For example, Azjen reported that in more than half of 19 tests of the theory of planned behaviour (a development of the theory of reasoned action), the statistical relationship between subjective norms and behavioural intention was non-significant. However, Terry, Hogg and McKimmie and Terry and Hogg (1996) argued that the lack of strong support for the influence of social norms lay with Ajzen and Fishbein's treatment of the construct. They

argued that, "Fishbein and Ajzen (1975) did not conceptualize norms in line with the wider social psychological literature on social influence – that is, as the accepted or implied rules that specify how group members should behave ... – and conceived of norms as being additive across significant others, rather than being linked to behaviorally relevant reference groups" (p. 338). Terry et al. drew from social identity theory (Tajfel & Turner, 1979), self-categorisation theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), and referent informational influence theory (Abrams & Hogg, 1990; Turner, 1991) to reconceptualise the role of norms as "inextricable properties of groups" (p. 339) that influence individual self-perceptions, beliefs, attitudes, feelings and behaviours. Under this reconceptualisation, Terry et al. argued that the influence of subjective norms on attitude-behaviour relations would be more salient. They also suggested, drawing from the contingent consistency hypothesis (Andrews & Kandel, 1979; Grube & Morgan, 1990), that norms might moderate the effects of attitudes on intentions.

Certainly, within organisational contexts, where there are often high levels of social and task interdependencies, "climate" and "norms" are likely to have a salient impact on attitudes and behaviour. The extent to which an individual perceives significant others in their work environment as having positive or negative attitudes to an issue or referent (e.g. senior management) will, no doubt, potentially impact on the individual's attitudes and behaviours. Significant others will include colleagues who are part of the same work group.

The normative dimension of trust will likely be salient because of the limited interaction which occurs between employees and senior management. Especially in larger organisations,

senior management are expected to spend significant amounts of time exercising responsibilities which are strategic rather than operational in nature, and interacting with external stakeholders (Quinn & Rohrbaugh, 1983). Such activities may limit the amount of time senior management have to interact with individual front line employees. Given that individual employees may be unable to access personalised knowledge about the trustworthiness and trust of senior management, they may, as a consequence, rely on social stereotypes, group consensus, and third party gossip (Burt & Knez, 1996) to arrive at knowledge and attitudes. Zucker (1986) referred to knowledge obtained in this way as "presumptive knowledge".

Presumptive knowledge can develop in a number of different ways. As described by Tyler and DeGoey (1996), under social identity theory (Tajfel & Turner, 1979), presumptive knowledge can arise where shared membership of a certain category can be sufficient to induce a particular level of trust, by-passing the need for personal knowledge. The 'group norm' defines the individual's attitude.

Individuals may also gain presumptive knowledge of the trustworthiness of others based upon "role categorization" (Kramer, 1999; Meyerson, Weick, & Kramer, 1995). Different organisational roles carry with them varying responsibilities, fiduciary duties and obligations, and stereotypes. Therefore individuals who enter into a trust relationship with such role-holders may make assumptions about their trustworthiness independent of a history of interaction (Barber, 1983).

Overall, a reading of the social psychological literature suggests that social norms are likely to play an important role in employee trust in senior management. Social information processing theory (Salancik & Pfeffer, 1978) and the organisational climate literature (James & James, 1989, 1992; Payne & Pugh, 1976, as discussed in Chapter IV, corroborate this influence.

Attitude and Behavioural Intention

Behavioural intention has been identified as an important factor in understanding trust in organisational contexts (Cummings & Bromiley, 1996; Currall & Judge, 1995). The theory of reasoned action (Ajzen & Fishbein, 1977) would suggest that behavioural intention is a fundamental component of belief structures and attitudes. Fishbein (1980) suggested that it is important to try, as far as possible, to measure the immediate determinant of the trusting behaviour, and under the theory of reasoned action, behavioural intentions are defined as being the part of attitude structure which is most proximal to behaviour. In line with arguments presented by Currall and Judge (1995), and as argued in the subsequent discussion of definitions of trust, "willingness to engage in trusting behaviour", thus suggesting behavioural intention, consistently appears in the trust literature as central to the conceptualisation of trust.

Care needs to be taken when operationalising behavioural intention. Items previously used to operationalise behavioural intention include: "in the future I will act as if management will treat the workers fairly", "in the future I will act as though management listen to my suggestions" (Clark & Payne, 1997), "we intend to check whether ____ meets its obligations

to our ____", and "we intend to speak openly in our negotiations with ____" (Cummings & Bromiley, 1995). In broad terms, such items are consistent with Sheppard, Hartwick and Warshaw's (1988) suggestion that the most direct or 'proximal' way to access behavioural intention, is to ask how likely it is that individuals would actively engage in specified trust-based behaviors. Such questions correspond to what Sheppard, Hartwick and Warshaw (1988) referred to as "behavioural estimation" items. Sheppard et al.'s meta-analysis revealed that behavioural estimation items showed a slightly stronger correlation with actual behaviour than alternative measures of behavioural intention ($r = 0.57$ versus $r = 0.49$, respectively).

In summary, the foregoing discussion has argued that attitude theory provides a useful way to conceptualise trust. Drawing from the theory of resoned action (Ajzen & Fishbein, 1977, 1980) and the tripartite theory of attitude structure (Rosenberg & Hovland, 1960), it appears that cognitive, affective, social normative, and behavioural intention dimensions can be viewed as relevant dimensions of the construct of trust in senior management. As previously discussed, in addition to the dimensions defined by the theory of reasoned action and the tripartite model of attitude structure, and consistent with arguments raised by Payne and Clark (1996), a measure of trusting disposition should also be included in a model which aims to fully capture salient dimensions of trust and trust in senior management. Payne and Clark argued a strong case for including disposition in models of organisational trust, particularly when generalised forms of trust are being considered. Given that many employees, especially in larger organisations, may have limited contact with senior managers on a regular basis, senior managers will, in large, be regarded or appraised in terms of their role and as a 'general

class'. Inclusion of dispositional measures of trust is therefore indicated in trust-related research.

The conceptualising of trust in senior management as an attitude suggests that the construct can be relatively stable and enduring over time. Krosnick (1988), Eagly and Chaiken (1993), Pomerantz, Chaiken and Tordesillas (1995) and Bagozzi, Gopinath and Nyer (1999) argued that attitudes, in general, have the capacity to persist over long periods of time. Alternatively, emotions and moods are generally conceived of as being relatively short in duration.

With respect to the stability of trust, McKnight, Cummings and Chervany (1998) noted that trust has been conceived of as both "fragile" (Kramer, 1999; Worchel, 1979) and "robust" (Zand, 1972). While there appears to be general, albeit anecdotal, agreement, that trust can easily be destroyed (Kramer, 1999), there is evidence suggesting that trust can be stable. Robinson (1996), for example, noted that "there is a long history of research on cognitive consistency and attitude change which has found that people act in ways that preserve their established knowledge structures, perceptions, schemata and memories" (p. 576). Reviews by Eagly and Chaiken (1993) and Greenwald (1980) support this position. Robinson cited research by Cohen, Brehm, and Latane (1959), and Olson and Zanna (1979), suggesting that, "people tend to seek out and focus on information that confirms prior cognitions, and they tend to avoid or ignore information that disconfirms them" (p. 577). Robinson concluded, on the basis of her results, that an employee's response to breaches of the psychological contract will be moderated by the employee's initial levels of trust. That is, if initial levels of trust are high, the employee will be less likely to perceive a breach. Conversely, an employee

with low levels of trust would be more likely to look out, find, and remember breaches of the psychological contract. Also in support of the stability of trust in senior management, Mayer and Davis (1999) reported test-retest reliabilities of $r = 0.75$ (5 month lag from time 1 to time 2) and $r = 0.66$ (9 month lag from time 2 to time 3) for their measure of trust. Overall, while it appears plausible that, in the absence of disconfirming critical events, trust in senior management will remain relatively stable over time, further longitudinal research is required to understand the development and dynamics of trust in senior management.

Definitions of Trust

Although numerous definitions of organisational trust have previously been offered, Kramer (1999) suggested that, " a concise and universally accepted definition has remained elusive" (p. 571). Hosmer (1995) also argued that, although there may be widespread acknowledgement of the importance of trust, there is an absence of an agreed definition of the construct. This is perhaps because the numerous and various definitions which have been offered, in many instances, derived from different perspectives and theoretical orientations and approaches. Before offering a definition of trust, deriving from the forgoing conceptualisation of trust as an attitude, it will be helpful to review some alternative orientations and definitions of trust.

Numerous definitions of trust derive from a cognitive or belief-based orientation within the psychological perspective. Robinson (1996), for example, defined trust as a person's cognitive "expectations, assumptions, or beliefs about the likelihood that another's future actions will be beneficial, favorable, or at least not detrimental to one's interests" (p.576).

Mishra (1996) defined trust as, "one party's willingness to be vulnerable to another party based on the belief that the latter party is (a) competent, (b) open, (c) concerned, and (d) reliable" (p. 265). Cummings and Bromiley (1996) defined trust as an, "individual's belief or a common belief among a group of individuals that another individual or group (a) makes good-faith efforts to behave in accordance with any commitment both explicit or implicit, (b) is honest in whatever negotiations preceded such commitments, and (c) does not take excessive advantage of another even when the opportunity is available (p. 303). Cook and Wall (1980) defined trust as, "the extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people" (p. 39) and identified "(i) faith in the trustworthy intentions of others, and (ii) confidence in the ability of others, yielding ascriptions of capability and reliability" (p. 40) as the two key dimensions to trust or trustworthiness.

A number of theorists and researchers have noted, however, that such definitions overly emphasise the cognitive perspective, focus on employee attributions about others as opposed to the *experience* of trust, and say more about trustworthiness, or the "conditions" of trust, than they do about trust. Although, as previously noted, such conditions may, "help build the foundation for the development of trust" (Mayer, Davis & Schoorman, 1995, p. 717), or generate, "useful insights concerning trust" (Clark & Payne, 1997, p.206), they do not, in themselves, fully define trust. Currall and Judge (1995), Mayer Davis and Schoorman (1995), and Kramer (1996) have all argued that, although evaluations of trustworthiness are important to the conceptualisation of trust, such definitions do not adequately account for the affective, social, and behavioural dimensions of trust.

In a similar way, the cognitively weighted definitions of trust which derive from a calculative or instrumental perspective, do not adequately define the multidimensionality and complexity inherent in the construct of trust. Tyler and DeGoey (1995) noted that, from the calculative perspective, trust is reduced to a, "subjective probability calculation of the potential costs and benefits of future interaction" (p. 332). Again, such conceptualisations discount the relational, non-rational, affective and behavioural dimensions of trust. Social exchange theory (Blau, 1964), would predict that trust is established not only on the basis of dispassionate calculations about procedural fairness and distribuitive justice, but also on the basis of the extent to which employees perceive the organisation provides support and reciprocates caringness and loyalty (see Eisenberger, Fasolo, Davis-LaMastro, 1990).

From a dispositional perspective, Rotter (1980) defined trust as a, "generalised expectancy held by an individual that the word, promise, oral or written statement of another individual or group can be relied upon" (p. 1). Although, this conceptualisation captures important attitudinal and social aspects of trust, particularly with respect to general classes (Clark & Payne, 1996), Mayer, Davis and Schoorman (1995) made a strong case for clearly specifying the trustor and the trustee when researching trust relationships. Mayer, Davis and Schoorman argued that failure to clarify the trustor and the trustee, "encourages the tendency to change referents and even levels of analysis, which obfuscates the nature of the trust relationship" (p. 711).

Mayer, Davis and Schoorman (1995) defined trust as, "a willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that party" (p. 712). This definition of trust appears to be attracting currency in the organisational literature (Dirks, 1999; Tan & Tan, 2000). Mayer and Davis (1999) defined trust as a, "willingness to engage in risk-taking with a focal party (p. 124), and based their investigation of the development of trust in senior management at a small manufacturing firm on this definition. Rousseau, et al (1998) defined trust as "a psychological state comprising the intention to accept vulnerability based on the positive expectations of the intentions or behaviour of another" (p. 395). McAllister (1995) defined trust as "the extent to which a person is confident in, and willing to act on the basis of, the words, action, and decisions of another" (p. 25). A number of elements are common to these definitions. First trust is a psychological state. The psychological nature of trust is explicitly acknowledged by Rousseau et al., and implicitly acknowledged by Mayer et al., and McAllister through the concept of 'willingness'. "Willingness' is a psychological state. Second, vulnerability, uncertainty and risk are identified as important components of trust. Third, trust emerges from 'conditions' such as 'positive expectations' or 'performance of particular actions'.

Consistent with existing definitions of trust in organisational contexts, trust in senior management is here defined as, "*a willingness to act on the words, actions or decisions of senior management under conditions of uncertainty or risk*". This definition captures the conceptualisation of trust as an attitude, as overviewed above, in that it is *the willingness to engage in trusting behaviour*, corresponding to the behavioural intention dimension of the

Ajzen and Fishbein model, which defines trust. The cognitive, affective, social normative and dispositional preconditions of trust determine the extent to which an individual is willing to engage in trusting behaviour. This definition is consistent with those offered by Cook and Wall (1980), McAllister (1996), Currall and Judge (1995), Mayer and Davis (1999) and others.

Conditions of trust

Conditions of "uncertainty or risk" are explicit in the proposed definition of trust in senior management. Uncertainty, risk, and 'vulnerability' have consistently been cited as necessary conditions for the development and engagement of trust. Kee and Knox (1970), for example, suggested that trust situations involve at least one party in the trust relationship having something meaningful at stake and being aware of the potential for betrayal and harm from the other. Johnson-George and Swap (1982) suggested that, "willingness to take risks may be one of the few characteristics common to all trust situations" (p. 1306).

Mayer, Davis, and Schoorman (1995) argued persuasively that trust, as a willingness to risk, needs to be distinguished from actual risk taking behaviours. As argued by Mayer, Davis, and Schoorman, "trust is not taking risks *per se*, but rather is a *willingness* to take risks" (p. 712). Trust, in being defined as willingness to risk, is imbued with a 'latent' quality in that it has implications for action, but *is not* action. The actual taking of risk is an outcome of trust.

Conditions of uncertainty, risk and vulnerability are implicit in the relationship between employees and senior management. This is so because senior management has the power and

authority to directly influence many dimensions of employee health and well-being. Decisions made by senior management about downsizing, restructuring and relocating, for example, can impact significantly on employee health, well-being and income (Nelson, Cooper & Jackson, 1995; Schweiger & De Nisi, 1991; Rousseau, 1998). Ashford's (1988) review of individual psychological responses to organisational change, also suggested that ambiguity about employment status and prospective roles were associated with high levels of strain. Thus, especially, given the 'turbulence' and 'change' which characterise current organisational environments (Hamel, 2000; French & Bell, 1999), risk and uncertainty are implicit in the relationship between employees and senior management.

Senior Management as a Focus for Trust

As previously noted, Mayer, Davis and Schoorman's (1995) model was developed to, "focus on trust in an organisational setting involving two specific parties: a trusting party (trustor) and a party to be trusted (trustee)" (p. 711). Mayer, Davis and Schoorman argued that it is important to explicitly acknowledge that trust has relationship-specific conditions. In a similar vein, Reichers (1985) argued that it is important to clearly specify focal parties when conducting research in organisational settings. Reichers argued that top managers, supervisors, and co-workers are generally important foci for employees in any organisational context. With respect to employee trust, different dimensions of trust may be more or less salient according to whether trustors have a focus on senior managers, middle managers or co-workers. Tan and Tan (2000), for example, reported that employees' trust in their organisation and employees' trust in their supervisor had different antecedents. This finding

reinforces the importance of clearly specifying the trustors and the trustees, when conducting research on trust in organisational contexts.

Although anecdotal evidence abounds as to the importance of establishing high levels of trust between senior management and employees (Horton & Reid, 1991; Karpin, 1995; Melohn, 1983; Rehder, 1986; Shaw, 1997), the dynamics and dimensions of trust in senior management has been the subject of limited theoretical consideration and empirical research. Cook and Wall (1980), Mayer and Davis (1999), McCauley and Kuhnert (1992), and Mishra and Morrisey (1990) are among the relatively few who have conducted research focusing specifically on employee trust in senior management.

Cook and Wall's (1980) study, which in part, looked at blue-collar worker trust in "management", attempted to redress, what they described as, the absence of measures of trust directly relevant to organisational settings. Although Cook and Wall (1980) reported that their measures of trust in management had acceptable alpha reliabilities ($\alpha = 0.74$, $\alpha = 0.77$), the items did not clearly tap into a "willingness to act", which, as previously discussed, is the defining feature of trust. For example, items such as "management at my firm is sincere in its attempts to meet the worker' point of view", "our firm has a poor future unless it can attract better senior management" and "management at work seems to do an efficient job", are clearly tapping into cognitive beliefs and attributions about management, rather than "a willingness to act". Despite potential concerns about the construct validity of the measures, other researchers (e.g. McCauley & Kuhnert, 1992) have subsequently used Cook and Wall's scales when attempting to identify predictors of trust in senior management.

Mayer and Davis (1999) recently investigated how perceptions of performance appraisal systems influenced trust in top management at a small manufacturing firm. Consistent with their definition of trust as a willingness to be vulnerable, Mayer and Davis operationalised their four item measure of trust in terms of behavioural intentions. Although reporting acceptable levels of test-retest reliability for their trust measure over their two-wave study, the reported alpha reliability coefficients, ($\alpha = 0.59$ and $\alpha = 0.60$), were lower than the level, ($\alpha = 0.70$), generally regarded as acceptable (Nunnally, 1978). Mayer and Davis reported that Schoorman et al. (1996), using the same measure, found a Cronbach's alpha of $\alpha = 0.82$ in a different sample and setting. The substantial variation in reliability across studies raises questions as to stability and generalisability of the measure. Although Mayer and Davis have made considerable progress toward operationalising the construct of trust in senior management, on the basis of their results, Mayer and Davis suggested that, "further developmental work with this measure of trust is warranted" (p. 133). They also suggested that further research should focus on how respondents assess trust in senior management in large organisations.

Tyler and Degoey (1996) also researched and reported on trust in organisational authorities. Although Tyler and Degoey focused their studies on a broad range of authority relationships, including legal and political authorities, work supervisors, and families, their focus on trust in authorities provides some insight into trust in senior management. Tyler and Degoey argued that the, "ability to secure compliance with decisions, more broadly labelled the ability to be authoritative ... is widely recognized as a central characteristic of the effectiveness of

organisational authorities" (p. 331). They argued that the trust relations between employees and authorities enable employees to voluntarily accept direction without consciously questioning its authoritativeness. Tyler and Degoey presented empirical evidence showing that employees' evaluations of trustworthiness, "shape their willingness to accept decisions of authorities as well as influencing feelings of obligation to follow organisational rules and laws" (p. 332).

Overall, it appears that opportunities exist to further develop and refine measures of trust in senior management. Research is needed to develop measures which can be shown to have construct validity and to generalise across different settings and samples. Currall and Judge (1995) argued that confirmatory factor analysis and structural equations modelling provide the most appropriate means of achieving such construct valid measures.

Outcomes and Antecedents of Trust in Senior Management

Although there is an increasing body of research which has focused on identifying the antecedents of trust and trustworthiness in organisational contexts, less research has focused on the outcomes of trust. In order for the 'renewed' interest in trust in organisational contexts (McCauley & Kuhnert, 1992) to be sustained, researchers will need to demonstrate evidence-based outcomes which will be perceived to be of value to organisational executives, HR personnel and organisational development practitioners. In the absence of such evidence, in contemporary times, where business decisions often appear to be driven by 'bottom line' considerations and underpinned by values of economic rationalism (Dunphy & Griffiths, 1998), it is likely that applied organisational research will be diverted to areas where benefits

and outcomes can objectively, or at least clearly, be demonstrated. Before turning to an examination of potential outcomes of trust, some of the studies which have identified antecedents of trust, will briefly be reviewed.

Whitener, Brodt, Korsgaard and Werner (1998) argued that the antecedents of trust and trustworthiness can be classified as organisational factors, relational factors, or individual factors. Organisational factors were identified as organisational structure, Human Resource policies and procedures, and organisational culture. Relational factors were identified as 'initial interactions', expectations, and the potential costs associated with engaging in trusting behaviour. Individual factors included propensity to trust, self-efficacy, and values.

Although Whitener at al. (1998) reviewed research which, in broad terms, supported their conceptualisation, the evidence they cited was not directly pertinent to employee trust in senior management. For example, Whitener et al. cited studies by Taylor, Tracy, Renard, Harrison, and Carroll (1995) and by Folger, Konovsky and Cropanzano (1992) indicating that procedurally fair HR policies influence employee perceptions of trustworthiness in managers. Mayer and Davis (1999) subsequently demonstrated, however, that organisational factors, such as employee perceptions of the fairness of performance appraisal systems, do, indeed, increase trust for senior management (Mayer and Davis, 1999). Similar findings linking perceptions of procedural justice to trust in management have been reported by Alexander and Ruderman (1987), Folger and Konovsky (1989) and Barling and Phillips (1993).

Tan and Tan (2000) identified organisational support as a possible antecedant of employees trust in their organisation. Eisenberger, Huntington, Hutchison and Sowa (1986) conceptualised organisational support as the extent to which employees feel their organization, "values their contributions and cares about their well-being" (p. 500). Drawing from social exchange theory (Blau, 1964), Eisenberger et al. argued that when employees perceive organisational support, they will reciprocate, or repay the organisation, through unspecified work-related behaviours that support organisational goals. In support of this association, Tan and Tan reported a strong correlation between organisational support and organisational trust ($r = 0.75$).

With respect to the outcomes of trust, the organisational literature suggests a number of outcomes, benefits or consequences which may be associated with trust in senior management. Kramer (1999) identified three levels at which the benefits of organisational trust may emerge. The first involves reduced 'transaction costs'. Here, when positive trust relationships exist between employees and senior management, senior management, and management in general, will expend less effort and energy on controlling and monitoring employee behaviour and performance. Kramer attributed reductions in transaction costs to the development of 'social decision heuristics', whereby, as trust develops, employees develop social decision heuristics which enable them to automatically assume the best about others' motives. Employees, under these conditions, would be more likely to assume that plans, policies and programs promulgated by senior management are based in good intentions, and thereby support their implementation.

As a second benefit, given a history of trust between employees and senior management, social exchange theory (Blau, 1964) and empirical research would predict that reciprocity (Rousseau, 1989) and organisational citizenship behaviours (Robinson & Morrison, 1995) would result. Robinson and Morrison, for example, found in a three-wave longitudinal study (n = 126), that when employees perceived that employers failed to fulfill their obligations, employees were less likely to engage in 'civic virtue' behaviour. That is, they would be less likely to provide the organisations with 'discretionary inputs', participate in, and voluntarily get involved in the 'life of the company'. Additional, albeit indirect, support for the association was provided by Konovsky and Pugh (1994), who found that trust in supervisor mediated the relationship between procedural justice and organisational citizenship behaviour.

The third category of benefit overlaps to some extent with the benefit accruing from reduced transactions costs. Kramer (1999) suggested that because trust facilitates voluntary deference to authority, it would also assist in maintaining hierarchical order within organisations. Kramer drew from Tyler and Degoey's (1996) research and argued that, "if organisational authorities continually have to explain and justify their actions, their ability to manage would be greatly diminished. Second, because of the costs and impracticality of monitoring performance, authorities cannot detect and punish every failure to cooperate, nor can they recognize and reward every cooperative act. As a result, efficient organisational performance depends on individuals' feelings of obligation toward the organization, their willingness to comply with its directives and regulations, and their willingness to voluntarily defer to organisational authorities" (p. 585).

Organizational Commitment

In addition to the benefits outlined by Kramer (1999), there is a growing body of research linking organisational trust to organisational commitment. Cook and Wall (1980), some twenty years ago, suggested that trust in management is related to organisational commitment. On the basis of moderately high correlations between 'faith in management', a subscale of their measure of trust in management, and organisational commitment ($r = 0.61$), and between 'confidence in management' and organisational commitment ($r = 0.42$), Cook and Wall concluded that trust, "should be considered as ... a variable contributing to the formation of organisational commitment" (p. 47). Konovsky and Cropanzano (1991) and, more recently, Tan and Tan (2000) also reported sizable correlations between trust and organisational commitment ($r = 0.68$, $r = 0.70$, respectively). Although correlation does not imply causation, on the basis of these studies, there is clear evidence of an association between trust in senior management and affective commitment. This association suggests that trust may directly or indirectly influence some of the organisational benefits attributed to organisational commitment.

Although a full-scale review of the organisational commitment literature is beyond the scope of this review, some discussion of the definitions, and the antecedents and outcomes of commitment, is warranted. Allen and Meyer (1996) broadly defined organisational commitment as the psychological link between an employee and an organisation. Commitment invokes both psychological and behavioural 'attachment'. As such, under psychological attachment, employees feel that they belong to the organisation, and, under behavioural attachment, are unlikely to consider leaving the organisation. Outcomes which

have been associated with organisational commitment include absenteeism (Mayer & Schoorman, 1992; Randall, 1993), turnover (Tett & Meyer, 1993), turnover intention (Mayer & Schoorman, 1992; Netemeyer, Burton, & Johnston, 1995; Pierce & Dunham, 1987; Shore, Newton & Thornton, 1990), and performance (Meyer et al., 1989, 1993; Mowday et al. 1979). It is noteworthy, that the overall evidence in support of these associations is neither strong nor unequivocal (see Randall, 1990). Meyer (1997), in summarising the literature on commitment, concluded that although the research continues to demonstrate "relatively modest correlations between commitment and outcome variables it has been assumed to influence ... on a more positive note, however, it is clear that affective commitment has modest correlations with a number of different behaviors. Thus organizations might expect to reap small benefits in several different ways by having affectively committed employees" (p. 215). Given the association between trust and commitment, and the association between commitment and outcomes, the causal relationship between trust and commitment appears worthy of further exploration. Trust in senior management might plausibly account for unique variance in outcomes associated with commitment.

It needs to be noted that there are a number of different conceptualisations of organisational commitment. Although Mowday, Steers and Porter (1979), Allen and Meyer (1990), and Mayer and Schoorman (1992), offered differing conceptualisations of organisational commitment, they all viewed commitment as a multi-dimensional construct. For example, Mowday et al. distinguished between behavioural commitment and attitudinal commitment. Allen and Meyer differentiated between affective, continuance and normative commitment. Mayer and Schoorman conceptualised commitment as having a values dimension and a

continuance dimension. Although the psychometric properties of all three conceptualisations have been demonstrated, to a greater and lesser extent in recent times, Allen and Meyer's measures have been the subject of considerable validation research (see Allen & Meyer, 1996; Hackett, Bycio, & Hausdorf, 1994; Meyer, 1997). Meyer's (1997) review of the commitment literature suggests that, in contrast to affective commitment, which is perhaps the most clearly defined and psychometrically robust dimension of commitment, there is some evidence that the continuance dimension is multi-dimensional, and that the normative dimension is strongly correlated with the affective dimension. Given that the psychometric status of the continuance and normative dimensions are less fully established, and that Randall, Fedor and Longnecker (1990) reported that affective commitment was a better predictor of behavioural outcomes than normative and continuance commitment, researchers might be advised to focus, at a minimum, on affective commitment when looking to establish potential relationships between commitment and trust.

Intention to Turnover

Turnover is frequently used as an index of organisational performance (Muchinsky, 1997). Turnover costs directly impact costs associated with recruitment, selection, induction and training. Given that intention to turnover is strongly associated with actual turnover (Carsten & Spector, 1987; Lane & Matthews, 1987; Pierce & Dunham, 1987; Prestholdt, Steel & Ovalle, 1984), it, too, is commonly used as an outcome variable in organisational research. Intention to turnover has been defined as a conscious and deliberate willingness to leave the organisation (Tett & Meyer, 1993).

Trust in senior management has been found to be associated with turnover intention (Costigan, Ilter & Berman, 1998; Konovsky & Cropanzano, 1991; Mishra & Morrisey, 1990; Tan & Tan, 2000). Costigan, Ilter and Berman, for instance, found a correlation of $r = -0.54$ between trust in top management and turnover intention. Tan and Tan also reported a strong association ($r = -0.62$) between intention to turnover and organisational trust. Support for the association between trust in senior management and turnover intention also derives from research into "organisational ineptitude" (Abraham, 2000). Abraham argued that employee perceptions of organisational ineptitude may lead to turnover intention. Given that perceptions of organisational ineptitude are, largely, within the province of senior management (Mishra & Morrisey, 1990), relationships between trust in senior management and turnover intention might be predicted. Mishra and Spreitzer (1998) also argued that where trust is absent employees who have survived downsizing, "survivors are more likely to either withdraw from the organization or retaliate against management and the downsizing implementation" (p. 568).

Attitudes to Change

Attitudes to change have recently emerged as a focus for research in the organisational literature (Armenakis, Harris & Mossholder, 1993; Judge, Thoreson, Pucik & Welbourne, 1999; Rousseau & Tijoriwala, 1999; Wanberg & Banas, 2000). Dunham, Grube, Cummings and Pierce (1989), and Lau and Woodman (1995) have argued in support of a generalised attitude toward change. Lau and Woodman's empirical research suggested that employees, "may have a general attitude or orientation toward change but at the same time possess different attitudes about specific changes. … For example, they can be generally supportive

of the overall thrust of an organisational change program yet vary in their enthusiasm about specific changes being undertaken" (p. 541).

With respect to the association between trust and attitudes to change, Rousseau and Tijoriwala (1999) argued, from a social accounts perspective (Sitkin & Bies, 1993), that trust in management leads to acceptance of organisational change. Specifically, Rousseau and Tijoriwala, in a sample of 501registered nurses, found that trust was negatively associated with employee perceptions that change was illegitimate or based in self serving motives (β = -0.22, $p < .01$), and positively associated with perceptions that there were legitimate reasons for change ($\beta = 0.35$, $p < .01$). They concluded that, "high trust creates a broad zone of acceptance to the exigencies of complex organisational change" (p. 525). The concept of a "broad zone of acceptance" overlaps with Tyler and Degoey's (1996) notion of the "zone of indifference", wherein employees might, "voluntarily accept an order without consciously accepting its authoritativeness" (p. 332). Similarly, Kramer (1996) argued that management credibility, based on a history of good faith relations, is likely to contribute to positive responses to change.

Within the broader change focus, a number of researchers have focused particularly on cynicism toward change (Abraham, 2000; Andersson & Bateman, 1997; Dean, Brandes & Dhwardkar, 1998; Reichers, Wanous & Austin, 1997). Cynicism toward change can be broadly conceptualised as a generalised attitude toward change. Wanous, Reichers and Austin (2000) defined cynicism about organisational change (CAOC) as, "a pessimistic viewpoint about change efforts being successful because those responsible for making change are blamed for being unmotivated, incompetent, or both" (p. 133). Wanous, Reichers and Austin thus

conceptualised cynicism as consisting of two dimensions: a pessimistic outlook about the likely success of change, and dispositional attributions about those responsible for effecting successful change. As discussed in Chapter VIII, although conceptualising cynicism about organisational change in two dimensions, and despite their data suggesting a two factor conceptualisation provided a better fit to their data, Wanous et al. used a unidimensional measure of CAOC. Their results, in contrast, suggested that "pessimism" and "dispositional attribution" might best be treated as separate dimensions of CAOC.

Theory and empirical evidence exists which links trust in senior management to cynicism toward organisational change. For example, Kanter and Mirvis (1989) argued that cynicism follows when employees lack trust in the motives of senior management. Similarly, Andersson and Bateman (1997) found that high levels of executive compensation, poor organisational performance, and insensitive downsizing strategies generated cynicism in white-collar workers. Mishra and Spreitzer (1998), in developing a model of how survivors respond to downsizing, argued that, "trust is instrumental in overcoming resistance to change, for it shapes how individuals interpret the implementation process (Kotter & Schlesinger, 1979). If they have trust, survivors are willing to give managers the benefit of the doubt that they are, indeed, doing what is right for the company and its employees. If they do not have trust, survivors are likely to believe that management is misguided – putting its own interests ahead of those of the company and its employees" (p. 582). Overall, there is sufficient theory and research evidence to suggest that cynicism toward change is a likely outcome of trust in senior management.

In summary, and in concluding this review of selected parts of the organisational trust literature, Ajzen and Fishbein's (1977) "theory of reasoned action" and the tripartite theory of attitude structure (Rosenberg & Hovland, 1960), appear to provide a useful framework for capturing the salient dimensions of trust in senior management. Under this framework, trust in senior management can be defined in terms of, "employee willingness to act on the words, actions, and decisions of senior management under conditions of uncertainty or risk". It is the "willingness to act", or the "behavioural intention", which defines trust. In terms of the attitude structure, "willingness to act" will be influenced, directly or indirectly, by attributions of trustworthiness (cognitions), feelings of trust (affect), the normative social context (social norms) and disposition. Operationally, employees will attribute trustworthiness on the basis of a limited number of attributes, such as competence, integrity, and benevolence. The affective dimension of the attitude will involve employees assessing the extent to which employees feel "safe" and "secure" when they consider senior management. The social normative dimension of the attitude will be reflected in how employees think others, in their role set, view the trustworthiness of senior management. Trust, itself, expressed as behavioural intention, will involve employees assessing the extent to which they will act on the basis that senior management will honour agreements, and the extent to which employees would be prepared to actively support changes suggested by senior management.

The review of theoretical perspectives which have informed the study of trust, highlighted the importance of seeing trust as a complex and multi-dimensional psychological construct,

involving, at a minimum, calculative, relational and normative dimensions. Kramer's (1999) review makes it clear that a comprehensive model of trust in organisational contexts must account for affective, social, and motivational as well as cognitive factors.

The review of the literature also clearly suggests that trust in senior management appears to accrue benefit to organisations. It is likely the case that trust in senior management will be associated with increased organisational citizenship behaviour, higher organisational commitment, reduced intention to turnover, and decreased cynicism to change. It thus appears beneficial for senior management to develop and maintain a spirit of trust within their organisations. They can achieve this by fostering organisational behaviours that create trust and avoiding those that breed distrust. As can be seen from the above discussion, there are important consequences for the survival and success of the organisation.

The research described in the remainder of this thesis, addresses a number of questions which flow from the review. In Chapter IV the development and testing of a measurement model, aimed at capturing the salient dimensions of trustworthiness and trust in senior management is described. In Chapter V the structural relations between dimensions of the model are tested, and the generalisability of a structural model is tested on an independent sample. In Chapter VI longitudinal analyses, assessing whether the structural relations within the model remain invariant over time, are described. In Chapter VII analyses are conducted to assess whether trust in senior management 'causally' influences a number of outcome variables over time. In the following chapter, the broad methodology, which underpins these analyses, is described.

CHAPTER III

METHODOLOGY

In the previous chapter, a review of the trust literature was presented. Key developments, dilemmas and discussion points were reviewed. Ajzen and Fishbein's (1980) theory of reasoned action, and Rosenberg and Hovland's (1960) tripartite model of attitude structure were described as useful organising frameworks for developing models of trust in senior management. In this chapter, the samples, procedures, measures, analyses and statistical applications used to investigate the dimensions and consequences of trust in senior management are described. The use of questionnaire data, exploratory factor analysis, confirmatory factor analysis, and cross-sectional structural equations modelling, and longitudinal causal modelling are key features of the research methodology.

Samples

Throughout late 1997 and early 1998, the researcher made contact with a number of organisations and proposed administering an organisation-wide climate survey which would encompass research into trust in senior management. The researcher offered to design and administer the survey, deliver a report and a set of recommendations, and advise about processes for responding to results for organisations agreeing to participate in the research program.

Four independent organisations expressed an interest in participating. Two organisations were selected to participate in the research program on the basis that data from two organisations is sufficient to make claims about the external validity or generalisability of research findings (Bollen, 1989). The two organisations were selected on the basis of their heterogeneity, their size, and the degree of support for the research, as expressed by senior management.

With respect to heterogeneity, the two participating organisations operated in different sectors. Organisation 1 (N = 3000, approx.) was private sector and Organisation 2 (N = 1000, approx.) was public sector. Allison (1979) and Moore (1996) identified that public and private sector organisations have substantially different management and human resource characteristics and practices.

The two organisations also differed with respect to their core business activities. Organisation 1's primary business activities centred on the provision of gaming, entertainment and hotel services. The majority of employees were employed in a service role. Approximately 30% of employees were employed as gaming services attendants, 12% as cleaning and maintenance staff, 6% in security, and 28% in food and beverage service. Approximately 10% of employees were employed in white collar occupations such as administration, marketing, human resources and accounts, and approximately 3% of staff were employed to perform blue collar job functions such as engineering and equipment maintenance. There was, therefore, considerable heterogeneity of work function within and between the different divisions of the organisation.

Organisation 2's primary business activities centred on administration of State Government public arts, science and library services. The organisation was formed, two years prior to survey administration, to integrate what were previously autonomous agencies. Agencies subsumed under the new organisation included Museum, Art Gallery, Concert Hall, Theatres, Arts Funding and Arts Administration. The payroll included curatorial staff, administrative staff, librarians, theatre technicians, human resources staff, finance staff and customer service staff. The majority of the responses came from Library Services (36%), Theatres (26%) and Museum (23%). Sample 2, therefore, also contained considerable heterogeneity of work function within and between different divisions of the organisation.

Organisation 1 served as the primary validation sample ("Sample 1") from which constructs and measures would be developed and refined. Given that Organisation 1 had a larger number of employees, it was designated as the organisation where longitudinal research would be conducted. Organisation 1 was surveyed twice, once in June 1998 and once in June 1999. There was a 36% response rate (n = 1008) for Wave 1 and a 25% response rate (n = 625) for Wave 2.

Organisation 2 was surveyed once in October 1998, with a 33% response rate (n = 329). From Organisation 2, "Sample 2" was designated as the "hold-out" or cross-validation sample. Cross-validation procedures (Bollen, 1989) test the generalisability of measures and models which have been developed in a validation sample (in this case, Sample 1), by statistically assessing the extent to which a range of equality conditions are satisfied in an

independent sample (in this case, Sample 2). Processes to cross-validate measures and models are explained, more fully, later in this chapter.

Table 3.1 shows the demographics for Sample 1 at Time 1 and Time 2 and the demographics for the longitudinal sample (i.e. those respondents from Sample 1 who completed the questionnaire at both Time 1 and Time 2). Table 3.1 also shows the demographics for Sample 2. Relative to Sample 1, Sample 2 had a higher proportion of female respondents, were older, had longer tenure, and were tertiary educated. The demographics of the longitudinal sample were similar to the demographics of the Time 1 and Time 2 respondents. Reference to organisational data established that both samples were representative of their organisation in terms of gender split, full-time/part-time/casual status and organisational level. Figure 3.1 shows how the different samples and sub-samples were used at different points in the analysis.

Overall, given the clear differences between the Sample 1 and Sample 2, if invariance of measurement and structural models across the two independent organisations could be demonstrated, this would afford considerable confidence in the robustness of the measures and models.

A second consideration for selecting organisations focused on issues of sample size. The research methodology required sufficient numbers of responses to enable meaningful interpretation of structural equations modelling output. Structural equation modelling (SEM) requires sample sizes of 150 or more "to obtain parameter estimates that have standard errors

small enough to be of practical use" (Anderson & Gerbing, 1988, p. 415). Hoelter (1983) advocated testing models on a critical sample size of 200, no matter what the size of the original sample. Given that the validation sample had a population of approximately 3000 employees, and the cross-validation sample had a population of approximately 1000 employees, even with a modest response rate, the researcher anticipated that sample sizes would be adequate to test the models.

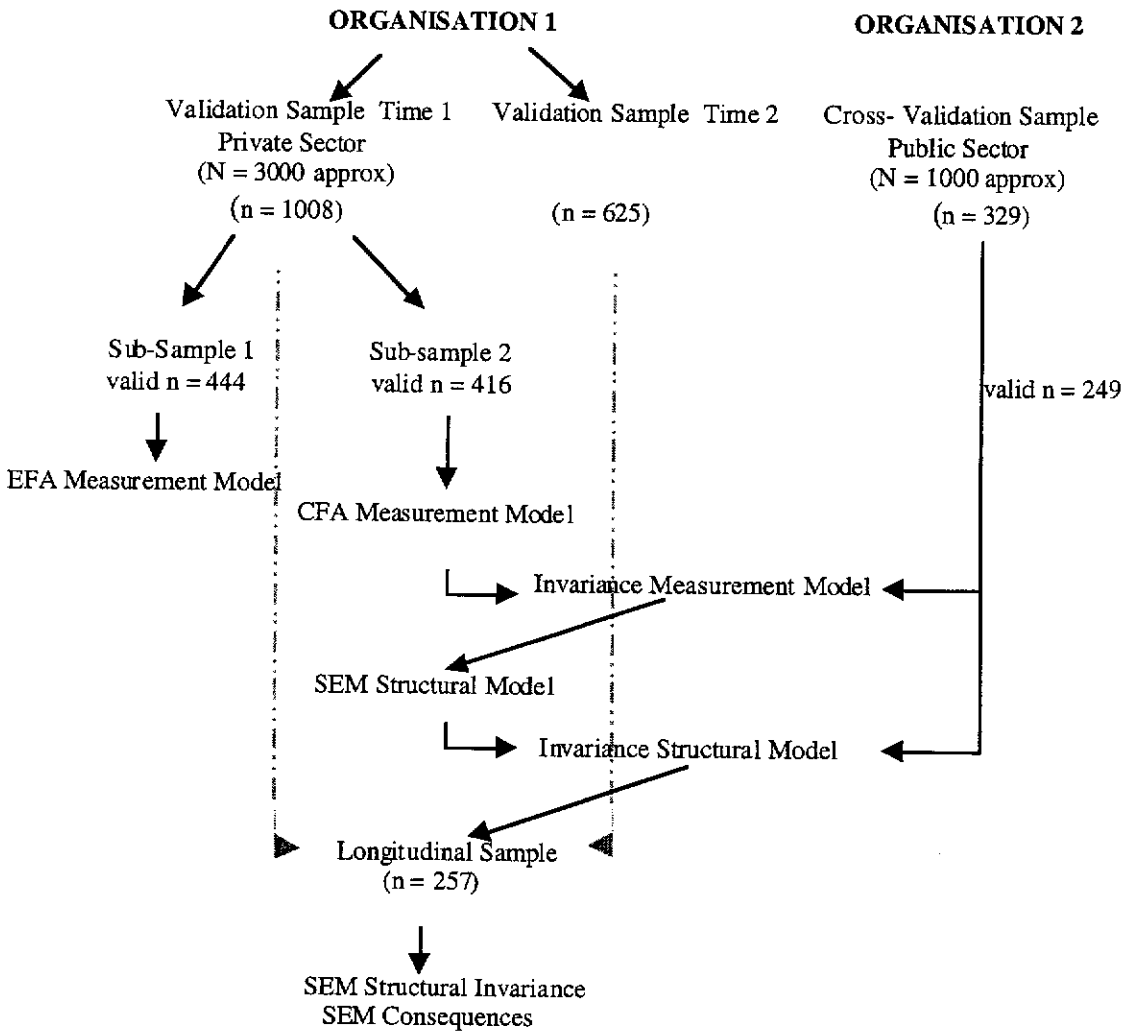

Figure 3.1. Samples and sub-samples used for different analyses.

Table 3.1
Sample Characteristics

	Sample 1 Wave 1	Sample 1 Wave 2	Sample 1 Longitudinal	Sample 2	
# Survey Responses	1008	645	257	329	
Response rate %	36	25		33	
Males %	52	54	57	33	
Females %	46	44	43	66	
Mean Age Years	35	38	39	42	
(Standard Deviation)	(10.6)	(11.2)	(9.9)	(12.3)	
Mean Tenure Years	5.3	6.3	7.2	8.2	
(Stnd Deviation)	4.0	4.1	(3.9)	7.9	
Highest Level Education					
Secondary %	40%	44%	40%	38%	
Trade Qualifications%	16	14	14	6	
Diploma%	28	26	26	23	
Tertiary%	15	15	15	33	
Full Time %	72	76	84	68	
Part Time %	17	15	12	18	
Casual %	11	8	4	14	
Level					
Senior Management	1	2	1		
Middle Management	11	15	16	Level 7+	6%
Supervisory	17	19	19	Level 5-6	19%
Front Line	56	48	46	Level 3-4	18%
Administration	12	16	18	Level 1-2	57%
Unspecified	3				21%

With longitudinal research, Lieberson (1985) suggested that it is reasonable to expect a thirty to fifty percent drop out or attrition rate (quoted in Pedhazur & Pedhazur-Schmelkin, 1991). The attrition rate may be due to voluntary or involuntary turnover, transfer, sick leave, holiday leave, and dissatisfaction with dissemination of previous survey results. Active survey administration procedures (e.g. pre-publicity, information sessions, the appointment of designated information persons), and a history of actioning survey feedback, helps maintain participation rates across subsequent survey administrations (Kraut, 1996). Beginning from a high base (i.e. a large sample) at Time 1 also helps maintain a viable longitudinal sample. The size of the validation sample, for the current research, afforded the

researcher confidence that a longitudinal sample would hold up to the exigencies of attrition and non-participation for Time 2.

Procedure

Extensive consultation was carried out between the researcher and key representatives of the participating organisations. The survey content and administration process was discussed, and agreed with key organisational stakeholders. In the three weeks prior to administering the survey, the researcher attended numerous staff meetings to explain the purpose of the survey, to respond to questions, and to promote employee participation.

In both samples, questionnaires were distributed by being attached to individual employee pay-slips. The questionnaire was distributed to all full-time, permanent part-time and long-serving casual employees. Casual employees are employed on an "as-needs" basis and do not have permanent employment with the employer. They usually work 20 hours or less and are paid a loading on top of the ordinary rate of pay instead of annual leave, sick leave and paid public holidays. Long-term casuals had been employed for a minimum of 12 months. Casual employees, who had been employed for 12 months or less, were excluded because they may not have had enough contact or familiarity with organisational personnel and processes to be able to make meaningful assessments.

Accompanying each questionnaire was a covering letter from the respective Chief Executive Officer (CEO), a participant information sheet, and an envelope addressed to the researcher. The CEO covering letter conveyed his/her support for the process, reinforced the confidentiality of responses and encouraged employees to participate. The participant

information sheet explained the purpose of the survey and assured participants of the confidentiality and anonymity of their responses. The information sheet also provided contact telephone numbers of the researcher, so any additional questions regarding the survey could be addressed.

Employees were asked to complete the questionnaire at their own convenience, either at work or at home. The questionnaire took approximately thirty to forty five minutes to complete. Employees were asked to seal their completed questionnaires in the envelope provided before "posting" it into a sealed "drop box". A number of drop boxes were placed in highly visible locations throughout each respective organisation. The researcher cleared the boxes on a regular basis.

Throughout the administration period, the researcher spent a number of hours in staff canteens and common rooms, providing employees with the opportunity to ask questions on an *ad hoc* basis. Posters and e-mails were used during the administration phase to heighten awareness of the closing date and encourage participation.

The questionnaire consisted of both quantitative and qualitative sections. For the quantitative section, respondents were asked to rate their attitudes toward a number of organisational factors on Likert scales (see measures section). In the qualitative section, respondents were asked to provide comments about how they would like to see the organisation improve. Individual payroll numbers were solicited in order to be able to match responses longitudinally and with absenteeism and turnover data. Respondents were assured that, if

they chose to volunteer their identification number, their responses would remain confidential. Within Sample 1, 84% of respondents reported their identification number at Time 1 and 93% reported their identification number at Time 2. Within Sample 2, 61% of respondents volunteered their identification numbers.

Measures

A primary research goal was to develop valid measures of perceived trustworthiness and trust in senior management and to determine the structural relationships between these constructs. As described in the previous chapter, the theory of reasoned action (Ajzen & Fishbein, 1980) and the tripartite model of attitude structure (Rosenberg & Hovland, 1960) provided the framework for the development of cognitive, affective, behavioural intent, social normative and dispositional measures of perceived trustworthiness and trust in senior management. Hankins, French and Horne (2000) argued that structural equation modelling (SEM), when meeting requisite assumptions, provides an appropriate means to assess theory of reasoned action (TRA) models.

Items and scales, included in the questionnaire, were selected to accommodate the research objectives and to meet the needs of participating organisations in terms of organisational climate analysis. The questionnaire contained a sufficient number of items to capture the construct of trust in senior management, as well as items capturing key aspects of organisational climate. Items addressing trust in senior management were, for the most part, derived from the literature, and were augmented with items drawn from pilot studies and

preliminary research (Albrecht, Firns, Travaglione & Savery, 1998). The development of these items is more fully described in Chapter IV.

Scales and items assessing broader organisational climate were selected, partly on the basis of the research objectives, and partly on the basis of providing information requested by, or of use to, the client organisations. For research purposes, scales and items were drawn from the literature to enable an understanding of the causes and consequences of trust in senior management. These dimensions included procedural justice (Folger & Kanovsky, 1989), job characteristics (Hackman & Oldham, 1975), job satisfaction (Warr, Cook & Wall, 1979), perceived organisational support (Eisenberger, Fasolo, & Davis-LaMastro, 1990), affective commitment (Allen & Meyer, 1990), attitudes toward change (Reichers, Wanous, & Austin, 1997), and turnover intention (Seashore, Lawler, Mirvis, & Camman, 1982). These constructs are well established in the organisational literature, and for the most part, robust measures have been developed. These measures will be more fully described in Chapter VII.

Consistent with Warr et al.'s (1979) call for short and generally applicable measures of organisational factors, the item selection process was designed to culminate in the selection of three items to represent each latent construct. Hankins, French and Horne (2000) tacitly supported the identification of theory of reasoned action (TRA) constructs with three item measures, claiming that, "in the TRA, one could have three items measuring the latent variable 'attitude' and three items measuring the latent variable 'intention'. [T]he analysis would produce an estimate of the degree of relationship between 'attitude' and 'intention' ... and the extent to which each ... questionnaire item was measuring the same psychological

construct ..." (p. 155). Bagozzi and Yi (1988) also suggested that latent constructs can be indicated by three or more measured indicators. Anderson and Gerbing (1998) suggested that, "it often occurs in practice that there are less than four indicators of construct" (p. 415). Little, Lindenberger & Nesselroade (1999) cited recent work (Kishton & Widaman, 1994; Marsh, Hau, Balla, & Grayson, 1998) suggesting that three is the optimal number of indicators required to define a construct. Zhou and Ferris (1995) used three items to indicate constructs in their validation study of the dimensionality of organisational politics perceptions. Therefore, and in keeping with Warr et al.'s call for parsimonious measures, three items were deemed sufficient to define each construct of interest.

Within each measure or scale, either all three items were positively worded, or all three items were negatively worded. The combination of positively and negatively worded items within scales has resulted in inconsistent factor dimensionality across studies (Bentler, Jackson, & Messick, 1971; Schmitt & Stults, 1985), reduced alpha reliabilities (Barnette, 1999), and the emergence of reverse coded "method" factors (Cordery & Sevastos, 1993; Magazine, Williams, & Williams, 1996). Such effects have been attributed to "careless" responding (Schmitt & Stults) and to respondents not having an understanding of negatively worded items which is the exact opposite of positively worded items (Barnette, 2000). On the use of negatively worded items, Barnette (2000) concluded that, "It is somewhat disturbing to consider the loss of score reliability and validity that has been the result of extensive use of negatively worded items when this has been shown to be detrimental to internal consistency" (p. 369). On the basis of such conclusions, even if the full implications of the use of

negatively worded items for substantive research remain unclear (Magazine, Williams & Williams), for the present research, all items within scales were coded consistently.

Statistical Programs

All analyses were conducted using either SPSS Version 6.1.1 or EQS Version 5.4 (Bentler, 1995). SPSS version 6.1.1 was used to explore the data (descriptives, correlations, exploratory factor analysis). Although, exploratory factor analysis (EFA) has traditionally been used to generate scales for constructs of interest, in the last twenty years or so, confirmatory factor analysis (CFA) and structural equation modelling (SEM) have been advanced as the preferred methodology for developing scales and testing models. Stone-Romero, Weaver and Glenar (1995) identified a rapid increase in the use of SEM in the field of industrial-organisational psychology. Anderson and Gerbing (1988) attributed increased use of structural equation modelling in psychology and the social sciences to the potential it provides for development, assessment and modification of theoretical models. On this basis, CFA and SEM were selected as the primary methods to establish construct valid measurement and structural models of dimensions of trust in senior management and their consequences.

The distinction between EFA and CFA needs to be clarified. With EFA there is, often, no *a priori* specification of the numbers of factors to be extracted , nor *a priori* specification of the factors on which indicators load. In contrast, CFA requires *a priori* specification of the number of factors to be extracted and *a priori* specification of where each indicator will load. CFA is, therefore, more theory driven. A primary advantage of CFA over EFA is that CFA

accommodates modelling of and correction for measurement error, thereby, enabling better estimation of model parameters (Saris, 1989).

EFA does, however, have a legitimate place in the assessment, development and modification of theoretical models. Gerbing and Hamilton (1996) argued that EFA can legitimately be used as a strategy for model specification prior to CFA. A number of contributors to a recent review of EFA versus CFA procedures (Hurley et al., 1997) also advocated the use of EFA in the early stages of scale development, because EFA shows how well items load on alternative factors. CFA procedures, on the other hand, constrain items to load 'zero' on non-hypothesised factors.

In addition, CFA and SEM need not only be used in a strict confirmatory sense. Jöreskog (1979) proposed that SEM could be used in a strict confirmatory sense, for testing competing models, or for making model adjustments. In contrast, Anderson and Gerbing (1988) saw the distinction between exploratory and confirmatory analysis as that of an "ordered progression" (p. 412). Gerbing and Hamilton (1996) acknowledged that, "most uses of 'confirmatory' factor analyses are, in actuality, partly exploratory and partly confirmatory in that the resultant model is derived in part from theory and in part from a respecification based on the analysis of model fit" (p. 71).

With respect to model respecification Hurley et al. (1998) argued that, "We simply cannot write items that behave perfectly in a psychometric sense; using empirical data (item analysis) we need to choose the best items from a set of items that are equally face valid.

Even after selection of items by EFA to maximize convergent and discriminant validity of items in scales, the CFA model is too restrictive to expect a good fit. That is we cannot reasonably expect many loadings to be zero in the population. The typical CFA model may symbolize what we mean by good measurement; however to expect such a model to hold with a real scale is simply asking too much of our fallible measures" (pp. 672-673).

Therefore, on the basis of the arguments outlined above, both EFA and CFA analyses were included in the present research. EFA was used to help define constructs through pilot studies and was also used to determine and refine constructs later subjected to CFA.

There are a number of packages available to the researcher wishing to conduct CFA and SEM analyses. The more widely used include Lisrel, EQS and Amos. EQS has advantages over other confirmatory and structural equation programs because it accommodates violations of assumptions of multivariate non-normality. Byrne (1995) argued that multivariate normality is a fundamental assumption underlying structural equation modelling. Although Micceri (1989) suggested that many data sets have non-normal distributions, many structural equation modelling procedures are generally not particularly robust against violations of non-normality (Hu, Bentler, & Kano, 1992). EQS, however, accommodates multivariate non-normality through a maximum likelihood robust (ML robust) estimation procedure and a scaled chi-square statistic - the Satorra-Bentler scaled χ^2 (Satorra & Bentler, 1988). Byrne argued, "in contrast to LISREL, then, EQS uses an estimation method that assumes the data are multivariate normal but bases evaluation of model fit on a statistic that has been corrected to take nonnormality into account" (1995, p. 148). In addition, EQS provides a measure of

multivariate skewness and kurtosis through a normalised variant of Mardia's coefficient (Bentler, 1995).

Although LISREL, AMOS and alternative SEM programs have procedures to accommodate non-normal data (e.g. the use of asymptotic distribution free (ADF) estimation procedures), Hoyle and Panter (1995) recommended against ADF methods in favour of maximum likelihood estimations as found in EQS. Given that EQS can effectively accommodate both normal and non-normal data, and because it has been acknowledged as, "by far the most user friendly" (Ullman, 1996, p. 767) of the structural equation modelling programs, EQS was chosen as the preferred SEM program for the present research.

Data Analysis

In this section, the research design and broad analytic approach is overviewed. Anderson and Gerbing's (1988) "two-step approach" to structural equations modelling is outlined, the distinction between exploratory and confirmatory FA is drawn, the need to cross-validate measures is outlined, and the statistical packages used to analyse data are described. The primary purpose of this section is to orient the reader, in broad terms, to the systematic and analytical approach adopted to develop and test theoretically grounded measurement and structural models of trust in senior management.

More fine-grained approaches to data analysis are elaborated in the chapters which follow. The chapters on measurement models, structural models and causal modelling are intended to be, largely, self-contained. So, for instance, Chapter IV is focused on the development of the

measurement model, on evaluating model fit, and on determining convergent and discriminant validity. The relevant analyses are described in more detail in Chapter IV. Procedures for testing competing structural models and for testing mediating effects are, more fully, described in Chapter V.

Anderson and Gerbing (1988) advocated a two step approach to model building. The first step requires development of a measurement model. A measurement model, "specifies the relations of the observed measures [questionnaire items] to their posited underlying constructs, with the constructs allowed to inter-correlate freely" (Anderson & Gerbing, 1988, p. 411). The second step, the development of structural model, involves specifying the, "causal relations of the constructs to one another, as posited by some theory" (Anderson & Gerbing, p. 411). Anderson and Gerbing made a strong case for the, "separate estimation and respecification of the measurement model prior to the simultaneous estimation of the measurement and structural sub-models" (1988, p. 417). The simultaneous estimation of the measurement and structural models, having first obtained and fixed the values of the measurement model, results in more accurate relationships, avoids measurement and structural interaction, and is particularly recommended when measures and theory have not previously been tested (Hair, Anderson, Tatham & Black, 1992).

So, step one in the two-step approach requires the researcher to first identify indicators which unambiguously define the constructs of interest. Anderson and Gerbing (1988) asserted that, "unidimensional measurement ... is a crucial undertaking in theory testing and development. A necessary condition for assigning meaning to estimated constructs is that the

measures that are posited as alternate indicators of each construct must be acceptably unidimensional. That is, each set of alternate indicators has only one underlying trait or construct in common ..." (p. 414). Jöreskog (1971) referred to such unidimensional multiple-indicator measures as "congeneric" measurements. The use of multiple indicators also enables the assessment of construct reliability and the control of measurement error.

As a first step toward identifying the measurement model, exploratory factor analysis (EFA) was conducted on a sub-sample of the primary validation sample. Anderson and Gerbing (1988) argued that, "ideally, a researcher would want to split a sample, using one half to develop a model and the other half to validate the solution obtained from the first half" (p. 412). Therefore, it was proposed to split the primary validation sample from Organisation 1 into two sub-samples. Exploratory factor analysis, aimed at identifying salient factors (and their salient indicators) would be conducted on Sub-Sample 1. Maximum likelihood extraction and oblimin rotation methods are preferred (Fabregar, Wegener, MacCallum, & Strahan, 1999). Having developed a viable model with EFA, where a set of items unambiguously relate to each construct of interest, confirmatory factor analysis (CFA) can be conducted, on the alternative sub-sample, to validate that solution.

Confirmatory factor analysis (CFA) enables the overall model fit and the uni-dimensionality of constructs to be assessed with reference to a range of fit statistics. Chi-square has been posited as an indicator of model fit (Ullman, 1996). A small chi-square value would, in principle, suggest small disparities between actual and estimated matrices (Hacket et al., 1994), and therefore suggest "good fit". However the chi-square statistic is widely recognised

as being sensitive to sample size (Jöreskog & Sörbom, 1989). With large sample sizes, the chi-square test is "not very helpful because it has the power to detect non-substantive differences between the matrices" (Hacket et al., 1994, p. 17). A number of alternative incremental fit indices have, therefore, been recommended (Bentler, 1990; Bollen & Long, 1993; Marsh, Balla, & McDonald, 1988). The Bentler-Bonnett Normed Fit Index (NFI), Bentler-Bonnett Non-Normed Fit Index (NNFI), the Comparative Fit Index (CFI), the Robust Comparative Fit Index (Robust CFI), and the Root Mean Square Error of Approximation (RMSEA) are routinely used to assess overall goodness of fit of a model. Values of 0.90, or above, suggest a good fit for NFI, NNFI, and Robust CFI. CFI values of 0.93, and above, also suggest goodness of fit (Browne & Cudeck, 1993; Byrne, 1994). RMSEA values of 0.05 or less indicate "good fit" (Byrne, 1994; Steiger, 1990), while values between 0.05 and 0.08 represent "moderate fit" or reasonable errors of approximation (McCallum, Browne & Sugawara, 1996). RMSEA values above 0.10 indicate "poor fit" (Browne, Mels & Cohen, 1994).

More recently, researchers have recommended that the confidence intervals around the root mean square error of approximation (RMSEA) provide an important index of model fit (Steiger, 1990). Unlike other well-known indices, the RMSEA exhibits distributional properties that are known, therefore enabling models to be tested on the basis of confidence intervals. Narrow confidence intervals suggest greater precision in the assessment of fit. MacCallum, Browne and Sugawara (1996) provided criteria to assess model fit on the basis of RMSEA confidence intervals. They suggested that when both points of the confidence interval are below 0.05, the hypothesis of "not a close fit" could be rejected. This result

implies a close fit. When both points of the confidence interval are above 0.05, the hypothesis of "a close fit" could be rejected. When both points of the confidence interval straddle 0.05, neither the hypothesis of "close fit" nor "not close fit" could be rejected.

It needs to be noted that adequate power is required to assess, with confidence, hypotheses about model fit based on RMSEA criteria. MacCallum et al. (1996) provided a formula for calculating power and determining sample size when the null hypothesis is ≤ 0.05, the alternative hypothesis is equal to 0.08, using an alpha level of 0.05, and a power of 0.80.

At this point in the analysis, on the basis of fit indices and parameter estimates, a decision could be reached as to which model best reflected the data and existing theory. For the present purposes, the CFI statistic, the robust CFI statistic, Root Mean Square Error of Approximation (RMSEA) and the RMSEA confidence intervals will be used as the primary indices of model fit. All subsequent model fit evaluations in this research will proceed after first demonstrating adequate power.

Extending Anderson and Gerbing's (1988) first step, and beyond establishing that the measurement model fits the data in one organisation, it is important to cross-validate the measurement model in an independent sample (Burke et al., 1989). Cole and Maxwell (1985) have argued that the evidence of construct validity in one sample does not guarantee construct validity across groups. Demonstrating, through confirmatory factor analysis, that any given measurement model is invariant across samples, addresses the threat that measures derived in one sample are idiosyncratic to that same sample (Byrne, 1994). The "multi-sample"

procedures, available in programs such EQS and Lisrel, can be used to "cross-validate" the statistical characteristics of a model across two independent sets of data and, therefore, determine the generalisability of the model.

The first requirement for determining invariance across samples involves assessing equivalence of "form" (Bollen, 1989). Two samples share a common form when the model for each group has the, "same parameter matrices with the same dimensions and the same location of fixed, free and constrained parameters" (Bollen, 1989 p. 356). Fit statistics (e.g. CFI, RMSEA) are assessed to determine that the same dimensions are common across samples (i.e. equivalence of form). If equivalence of form cannot be demonstrated, Bollen argued that it then "makes little sense to proceed" (p. 360). Having determined equivalence of form, next, a hierarchy of models, with increasingly restrictive conditions, are compared. The full cross-validation procedure requires demonstrating that the loadings, error variances, and construct intercorrelations are equivalent across groups (Bollen, 1989). Bollen noted that demonstrating the equality of loadings is more important to establishing invariance than demonstrating equality of error variances or covariances, and Byrne (1994) and Bentler (1995) argued that the test of error variances is unduly strict. Therefore, for the present purposes, invariance was evaluated with respect to equivalence of form, loadings and construct intercorrelations.

So, having initially established fit in the base-line model, at the next step in the invariance process, loadings are constrained to be equal across both samples. Since the model with loadings constrained to be equal is "nested" within the base-line model, the difference in chi-

square is distributed as a new chi-square variable with degrees of freedom equal to the difference in degrees of freedom for the two models (Bollen, 1989). A non-significant increase in chi-square suggests that the model generalises across both data sets.

At the next step in the invariance process, while maintaining the equality condition for the loadings, the construct intercorrelations are constrained to be equal across samples. Again, a non-significant increase in chi-square, given the difference in degrees of freedom, suggests that the model generalises across both data sets.

Having established invariance of the measurement model, step two of Anderson and Gerbing's (1988) two step procedure can be undertaken. That is, hypothesised structural relations between the constructs can be tested, such that competing theory driven models are assessed against fit indices. As previously noted, Anderson and Gerbing recommended that the measurement model and the structural models be estimated simultaneously at this step. That is, parameters of the measurement model are "fixed" prior to estimating the structural relations. On the basis of the fit indices, assessments can be made as to which model provides the most parsimonious and theoretically plausible account of the data. It needs to be noted that modifications to models can be entertained and evaluated on the basis of loadings, standardised residuals and modification indices (Hair, Anderson, Tatham & Black, 1992). However, Hair et al. noted that model modification should only proceed where there are sound theoretical reasons for doing so.

Mediation models, where the structural relations between constructs contain both direct and indirect effects, are a common form of structural model. James and Brett (1984) argued that, "researchers in organisational psychology are placing increasing emphasis on studying mediation models in which the influence of an antecedent is transmitted to a consequence through an intervening mediator" (p. 307). Particular analytical processes are required to assess the fit of mediation models, and, again, a process recommended by Bollen (1989) can be used. The process uses chi-square difference tests to compare competing nested models, which differ in their number of estimated parameters and, therefore, their number of degrees of freedom. Where there is no statistical difference in chi-square between the models (relative to the difference in degrees of freedom), the more parsimonious of the competing models is preferred. A more parsimonious model will have fewer estimated parameters and, therefore, more degrees of freedom. Where there is a statistical difference in the chi-square, the better fitting model is preferred. It needs to be noted that when conducting multiple difference tests, significance levels need to be adjusted for the possibility of committing Type I error. Bonferroni adjustments (dividing the default significance level (.05) by the number of comparisons) need to be applied.

Having established a viable structural model within one sample, as previously described, the invariance of the structural model needs to be tested on an independent data set. This is particularly true if modifications to the model have been applied (Hair et al., 1994). Again, Bollen's (1989) process is recommended. First, invariance of form needs to be established. Next, invariance of loadings (λx, λy) is tested. Then, the invariance of the path coefficients (β, γ) needs to be established. Next, Bollen recommended constraining the error variances for

the endogenous ($\theta\delta$) and exogenous ($\theta\varepsilon$) variables to be equal. However, as previously mentioned, given that Bentler (1995) and Byrne (1994) argued that the imposition of equality constraints across error variances is unduly restrictive, this constraint need not be imposed. The fourth step in the invariance analysis involves constraining the disturbance terms (ζ) to be equal across groups. Bollen's fifth, and final step, involves constraining the covariances (ϕ) among the exogenous variables to equal.

Having determined the structural invariance of a model, cross-sectionally, across two organisations, the next step in the analysis involved assessing the causal relations between variables of interest in a longitudinal design. Glomb, Munson, Hulin, Bergman and Drasgow (1999) claimed that longitudinal research is "indisputably important in examining causal relationships, yet few researchers answer the perpetual call for such research in psychology" (p. 14). Longitudinal designs have advantages over cross-sectional designs for at least two reasons. First, by using the same subjects (matched, for example, by ID number and birth date), individual differences are controlled (Brief et al., 1988). Second, causal relations among the variables can be established. Even though it would be inappropriate to make strict causal claims based on structural equations modelling of two wave data (Anderson & Gerbing, 1988; Bentler & Speckart, 1979), Lieberson (1985) suggested that, "longitudinal data provide the only fully appropriate 'test' of a causal proposition's validity (quoted in Pedhazur & Pedhazur-Schmelkin, 1991, p. 316). Willet (1989) suggested that three data points are required to fully determine the pattern of relationships among variables over time. Whereas path modelling over two data points certainly provides insight in to the causal relations

among variables, modelling over three data points enables reciprocal causation among variables to be identified (Pedhazur & Pedhazur-Schmelkin).

Longitudinal analysis requires consideration of alpha, beta and gamma change (Golembiewski, Billingsley & Yeager, 1976; Thomas, Cunningham-Snell, & Anderson, 1998) before claims about causality can be made. It is important to determine how constructs, measured at different points in time, are construed or interpreted by respondents. If respondents' interpretations of constructs remain substantially the same over time, changes in mean responses over time are interpreted as "alpha change". If respondents "recalibrate" the measurement scale (for instance in response to finding out how others calibrate the construct), then "beta change" is indicated. "Gamma change" describes the circumstances where constructs have undergone definitional change from Time 1 to Time 2. Confirmatory factor analysis techniques (Schmitt, 1982) and structural equation modelling techniques have been developed to determine alpha, beta and gamma change (Thomas, Cunningham-Snell & Anderson, 1998; Schaubroeck & Green, 1989; Vandenberg & Self, 1993). The application of these techniques will be more fully described in Chapter VI. For the present purposes, it is enough to note that the procedure is, essentially, about establishing invariance of the measurement and structural models between Time 1 and Time 2. Given that there was no intervention or circumstance which would lead to explicit hypotheses about change over the period in question, the assessment of change, *per se,* was not the fundamental focus of this research program. Rather, the research focused more on establishing whether or not, under conditions of relative stability, the construct remained invariant over time. Horn and McArdle

(1992) and Lance, Vandenberg and Self (2000) referred to such invariance as 'configural' and 'metric' invariance.

Assuming that the meaning of the constructs associated with trust in senior management remains stable over time, the final step in the analysis focuses on establishing outcomes of trust in senior management. Although there is, no doubt, inherent or intrinsic value in developing an understanding of the dimensions of trust in senior management (Provis, 2000), it is also important to attempt to identify the organisational consequences of trust in senior management. Researchers, organisational development practitioners and senior management will, no doubt, be interested to identify how trust impacts on organisational attitudes, behaviour and outcomes. The processes for establishing the consequences, or outcomes, parallel processes previously described. First, exploratory factor analysis is conducted in a sub-sample to identify salient items for each of the potential consequences. Next, confirmatory factor analysis (CFA) is conducted on an alternative sub-sample to test the overall fit of a "measurement model" which defines specific item-construct relations. Having determined a satisfactory measurement model, tests of convergent and discriminant validity are conducted. Next, an invariance analysis is conducted on an independent sample to assess the generalisability of the measures.

Having established brief and robust measures of potential consequences, the final set of analyses assesses the "causal" associations between trust in senior management and the set of potential consequences. Analysis of two-wave longitudinal data, using structural equations modelling, is used to establish the causal relationships between trust in senior management at

Time 1 and the set of potential consequences at Time 2. The longitudinal analyses are detailed in Chapter VII.

All in all, the analyses are designed to proceed in a logical flow and, at each step, are subjected to rigorous criteria. First, the construct validity of measures of trust in senior management is to be established. Theoretically derived measurement models are to be tested against strict criteria in terms of overall model fit, convergent validity, and discriminant validity. Then, invariance of the measurement models is to be tested across samples from two dissimilar organisations. Next, the structural relations between the dimensions, and the invariance of the structural relations, are to be assessed, again, against strict model fit criteria. Next, a proposed model is to be tested longitudinally, to establish whether the meaning of the construct "trust in senior management" remains invariant across time. The year long time lag between Time 1 and Time 2 data ensures a rigorous test of the invariance of the construct over time. Finally, the longitudinal influence of trust in senior management on theoretically relevant outcome variables is to be assessed. A model which successfully meets the exacting criteria required by these analyses, will be a model in which practitioners and researchers can have confidence.

In summary, this chapter has provided an overview of the samples, procedures, measures, analyses and programs used to investigate the dimensions and consequences of trust in senior management. In the next chapter, as a first step in the analysis, the development of the measurement model is described.

CHAPTER IV

MEASUREMENT MODEL

As reviewed in Chapter 2, the influence of trust in organisational settings has attracted increasing interest in recent years (Clark & Payne, 1997; Hosmer, 1995; Kramer & Tyler, 1996; Mayer & Davis, 1999; Mayer, Davis & Schoorman, 1995). Researchers have developed and adapted measures which have focussed on trust in fellow employees (Cook & Wall, 1980; McAllister, 1995), lower level employees (Spreitzer & Mishra, 1999), team members (Dirks, 1999), supervisors (Koys & DeCotis, 1991; Tan & Tan, 2000), management (Clark & Payne, 1997; Cook & Wall, 1980; Kanovsky & Cropanzano, 1991; Tyler & Degoey, 1996), senior management (Mayer & Davis, 1999), employers (Robinson, 1996; Robinson & Rousseau, 1994) and the organisation itself (Tan & Tan, 2000).

Many of these measures have been validated using exploratory factor analytic methods (e.g. Butler, 1991; Clark & Payne, 1997; Cook & Wall, 1980; Koys & DeCotis, 1991). It is only more recently that the more rigorous and theory driven techniques of confirmatory factor analysis and structural equation modelling have been applied to research on trust in organisational contexts (e.g. Currall & Judge, 1995; Mayer & Davis, 1999; McAllister, 1995).

In this chapter, confirmatory factor analysis is used to establish the dimensionality of trust in senior management. As such, theoretically grounded constructs, based partially on Ajzen and Fishbein's (1980) theory of reasoned action and the tripartite model of attitude structure (Rosenberg & Hovland, 1960) will be evaluated. To assist with the logical development of the rationale underpinning the measurement model, some of the information presented in the previous chapter will be reiterated.

Anderson and Gerbing (1988) recommended a two-step approach to construct validation. The first step involves using confirmatory factor analysis to estimate a 'measurement model'. A measurement model specifies the relationships between selected indicators (questionnaire items) and underlying factors (Hair et al., 1992). The test of a measurement model assesses the extent to which the specified relationships between the indicators and the constructs are represented in a given set of data (Anderson & Gerbing, 1988).

Having established a viable measurement model, Anderson and Gerbing's (1988) second step involves estimating the structural relations between the constructs of interest. Parameters of the measurement model are 'fixed' prior to estimating the structural model. That is, the loadings and covariances within the structural model are set according to the parameter estimates derived from the measurement model. This is done in order to control for the biasing effects of measurement error and to maximise the interpretability of the measurement and structural models (Hair et al. 1992).

This chapter focuses on step one of Anderson and Gerbing's approach. The primary aim is to provide evidence in support of the construct validity of measures of trust in senior management. As such, at this stage, no claims are made about the structural relations between the dimensions. The generalisability of the measures across dissimilar organisations will also be assessed.

Senior Management as a Focus for Trust

As previously noted, although there is abundant anecdotal evidence as to the importance of establishing high levels of trust between senior management and employees (e.g. Horton & Reid, 1991; Shaw, 1997), there has been relatively little systematic research focused on specifying the dimensions and consequences of trust in senior management. Given that decisions taken by management, in general, and senior management, in particular, can have considerable impact on the physical and psychological conditions of employees (Gilmore, Shea & Useem, 1997; Nelson, Cooper & Jackson, 1995; O'Neill & Lenn, 1995; Schweiger & De Nisi, 1991), trust in senior management is an important area for investigation. Senior management, for the purposes of the present study, is defined as members of the organisational strategic and operational executive. The group would normally be comprised of the CEO, vice-presidents, divisional heads, and functional heads, all of whom directly contribute to the organisation's key strategic and business decisions.

Mayer and Davis (1999) are among the relatively few who have systematically examined the construct of trust in senior management. They used confirmatory factor analysis (n = 166; n = 185), path analysis (n = 185), and longitudinal analysis (n = 79), over two waves of data, to

investigate trust in top management at a small manufacturing firm. Consistent with their definition of trust as "a willingness to be vulnerable", Mayer and Davis operationalised their four item measure of trust in terms of behavioural intentions. Their trust items included "I would be comfortable giving top management a task or problem that was critical to me, even if I could not monitor their actions" and "I would be willing to let top management have complete control over my future in this company".

As previously noted, although their measure had acceptable levels of test-retest reliability, Mayer and Davis (1999) reported alpha coefficients of $\alpha = 0.59$ and $\alpha = 0.60$ over two administrations of their measure. These values are lower than those generally regarded as acceptable (Nunnally, 1978). In addition to the low alpha coefficients, Mayer and Davis reported that that Schoorman et al. (1996), using the same measure, found a Cronbach's alpha of $\alpha = 0.82$ in a different sample and setting. This variation raises questions about the generalisability of the measure. Mayer and Davis, themselves, suggested that "further developmental work with this measure of trust is warranted" (p. 133). They also suggested that further research should focus on how respondents assess trust in senior management in large organisations. The present research was aimed at developing robust measures of trust in senior management. Collection of data from two large, independent and dissimilar organisations enabled a test of the 'generalisability' of the measures.

Dimensionality and Definitions of Trust

Trust and trustworthiness have been variously defined as having one dimension (Barber, 1983; Robinson, 1996;), two dimensions (Cook & Wall, 1980; Dirks, 1999), three dimensions

(Cummings & Bromiley, 1996), four dimensions (Mayer & Davis, 1995, 1999; Mishra, 1996), six dimensions (Clark & Payne, 1997) and up to ten dimensions (Butler, 1991). A number of different conceptualisations of trust are summarised in Table 4.1. Clearly, there is scope to further reconcile these different conceptualisations.

A diversity of research designs and analytic methods has contributed to the lack of consensus in the specification of organisational trust. Many of the dimensions identified in Table 4.1 have been validated using cross-sectional, post hoc, exploratory factor analytic methods.

Table 4.1

Dimensions of trust and trustworthiness appearing in the literature

Dimensions	
expertness, reliability, intentions, dynamism	Giffin , 1967
openness, previous outcomes	Gabarro, 1978
good faith intentions, confidence in words and actions	Cook & Wall, 1980
reliability	Johnson-George & Swap, 1982
openness/congruity, shared values, autonomy/feedback	Hart, Capps, Cangemi & Caillouet, 1986
availability, competence, consistency, discreteness, fairness, integrity, loyalty, openness, promise- fulfillment, receptivity	Butler , 1991
benevolence	Konovsky & Cropanzano, 1991
ability, value congruence	Sitkin & Roth, 1993
good faith intentions	Robinson & Rousseau, 1994
competence, intentions, capacity	Tway, 1994
cognitive - competence/reliability	McAllister, 1995
affective - care/concern/openness/investment	
competence, integrity, benevolence	Mayer, Davis & Schoorman, 1995
good-faith efforts to honour commitments,	Cummings & Bromiley, 1996
honesty, non-opportunistic behaviour	
competence, openness, reliability, concern	Mishra, 1996
competence, integrity, consistency, loyalty, openness, respect	Clark & Payne, 1997
consistency, integrity, delegation, communication, concern	Whitener, Brodt, Korsgaard & Werner, 199
care, dependability	Dirks, 1999
ability, integrity, benevolence, trust	Mayer & Davis, 1999
ability, integrity, benevolence, trust	Tan & Tan, 2000

For the present study, the more rigorous and theory driven techniques of confirmatory factor analysis were used to establish the dimensionality of trust in senior management. The confirmatory analytic approach is described more fully below. For the present purposes it is

sufficient to note that confirmatory factor analysis requires clearly specified models which are underpinned by a well develop theoretical base.

Conceptual Development

As previously noted, variants of the theory of reasoned action (Ajzen & Fishbein, 1980) have been used to understand a broad range of attitudes. Attitudes are latent psychological tendencies expressed in evaluative responses (Eagly & Chaiken, 1993). The theory invokes associations between attitudes, subjective norms and behavioural intentions to predict behaviours.

The tripartite model of attitude structure (Rosenberg & Hovland, 1960) suggests that attitudes consist of both cognitive and affective dimensions. Ajzen (1993) argued that although cognitive and affective dimensions are likely to correlate to some degree, they, nevertheless, each have independent psychological significance.

Subjective norms represent the influence of the social environment and perceived social pressure. They, in part, consist of an individual's perceptions of the modal salient beliefs held by those in an individual's reference group (Ajzen & Fishbein, 1980).

Behavioural intentions are defined in terms of the likelihood that an individual will engage in a given behaviour (Ajzen & Fishbein, 1980). Behavioural intentions are hypothesised to predict behaviour and to mediate the relationships between attitudes, social norms and actual behaviour.

As already noted, researchers have used variations of the theory of reasoned action to guide their investigations of trust in organisational contexts (Currall & Judge, 1995; Payne & Clark, 1996). Clark and Payne (1997), for example, suggested that trust should be accessed through the 'modalities' of beliefs (cognitions), feelings (affect) and behavioural intention. Cummings and Bromiley (1996) also identified cognition, affect and intention as key dimensions of their Organizational Trust Inventory.

The theory of reasoned action provides a framework to distinguish between the antecedents of trust and trust itself. Antecedents of trust include attributions of trustworthiness and dispositional influences (Mayer, Davis & Schoorman, 1995).

Mayer et al. (1995) identified ability, benevolence and integrity as key determinants of trustworthiness. Ability refers to the, "group of skills, competencies, and characteristics that allow a party to have influence within some domain" (p. 124). Benevolence refers to the extent to which good intentions are attributed to a focal party. Mayer and Davis (1999) argued that, "if an employee believes a manager *cares* about the employee's interests, the manager will be seen as having benevolence for the employee" (p. 124, italics added). Integrity refers to the extent to which an employee believes that a focal party has an acceptable set of values and that the focal party acts in a way consistent with those values. Mayer and Davis argued that, "incidents or developments that prompt a reappraisal of any of these perceptions of the trustee will impact trustworthiness" (p. 124). These three dimensions overlap with those identified by other researchers as important determinants of

trustworthiness (Clark & Payne, 1997; Cook & Wall, 1980; Butler, 1991; Rosen & Jerdee, 1977).

Generalised propensity to trust is also antecedent to trust in that "the higher the propensity to trust, the higher the trust for a trustee prior to availability of information about the trustee" (Mayer et al., p. 716). Rotter (1967), Clark and Payne (1997), and Currall and Judge (1995) have also identified disposition as an important antecedent of trust.

Beyond attributions of trustworthiness and disposition, the theory of reasoned action and the tripartite model of attitude structure would suggest that social norms and affective responses should also be included as antecedents to trust.

The antecedents of trust, in turn, determine the extent to which an individual is willing to engage in trusting behaviour. It is the willingness to engage in trusting behaviour, corresponding to the behavioural intention dimension of the Ajzen and Fishbein model, which defines trust. Consistent with previous definitions (Cook & Wall, 1980; Mayer, Davis & Schoorman, 1995; McAllister, 1995), trust in senior management is hereby defined as an employee's willingness to act on the basis of the words, actions, and decisions of senior management under conditions of uncertainty or risk. Beyond conceptualising trust simply as a "psychological state" (Rousseau, Sitkin, Burt, & Camerer, 1998), conceptualising trust in terms of "a willingness to act", or a behavioural intention, potentially provides practical utility for researchers and

practitioners seeking to understand and manage organisational relationships and outcomes.

Consistent with other definitions of trust (Mayer & Davis, 1999), trust in senior management requires conditions of uncertainty, risk and vulnerability. Conditions of uncertainty, risk and vulnerability are implicit in the relationship between employees and senior management because senior management has the power and authority to influence employee health and well-being. Decisions made by senior management about downsizing and restructuring, for example, can have a profound impact on employee health, well-being and income (Schweiger & De Nisi, 1991; Rousseau, 1998).

To summarise, the proposed conceptualisation of trust is largely consistent with that proposed by Mayer, Davis and Schoorman (1995). In common with Mayer et al., it is here proposed that attitudes define trustworthiness, trustworthiness influences trust, disposition influences trust, and that trust can be defined in terms of behavioural intention. However the proposed model corresponds more closely to the Ajzen and Fishbein (1980) and Rosenberg and Hovland (1960) frameworks in that 'social norms' and 'affect' are also included as discrete antecedents of trust.

As previously mentioned, the focus of this chapter is on construct development and the testing of a measurement model. The assessment of the measurement model entails determining the extent to which specified relationships between indicators and constructs are represented in the data (Anderson & Gerbing, 1988). As such, at this stage, no claims are

made about the structural relations between the hypothesised dimensions. The individual dimensions of trust in senior management and their correspondence with elements of the theory of reasoned action are discussed more fully below.

Cognitive-Based Trust

Cognitive processing is clearly involved when assessing if a focal party is competent, caring and, ultimately, trustworthy. Although Butler (1991) proposed that such assessments can be conducted over as many as 10 dimensions, research by Spreitzer and Mishra (1999) suggests that survey respondents may find it difficult to reliably differentiate between cognitively loaded trustworthy constructs. As opposed to Mayer and Davis (1999) who proposed integrity, ability and benevolence as key dimensions of trustworthiness, a two dimensional conceptualisation of cognitive trust is here proposed. The first dimension reflects an amalgam of integrity, openness, care and concern. Pilot studies (summarised below), suggested that the extent to which senior managers demonstrate concern for employee well-being, tell the truth, and are willing to share information openly, may be salient markers of a single trustworthy dimension. This dimension is referred to as 'cognitive care'.

The second dimension of cognitive trust focuses on 'competence'. 'Competence' covers qualities such as influence, impact, ability, expertness, knowledge and the ability to do what is needed (Cook & Wall, 1980). With respect to trustworthiness in senior management, research by Albrecht, Savery, Firns and Travaglione (1997) suggested that the dimension can be defined in terms of strategic clarity, requisite knowledge and skills, and the drive and capacity to achieve objectives. These qualities are consistent with leadership qulaities found

by Kirkpatrick and Locke (1996) and Baum, Locke and Kirkpatrick (1998) to predict follower performance, follower attitudes and organisational level performance. More specifically, Kirkpatrick and Locke identified that communicating a vision, and implementing a vision were directly associated with trust in leader. Podsakoff, MacKenzie, Moorman and Fetter (1990) also reported significant associations between vision, individualized consideration, and follower trust in leaders.

Mayer and Davis's (1999) research leaves open the viability of the more parsimonious two dimensional model proposed here. Mayer and Davis compared the fit statistics of two competing models. Their "proposed" model posited three trustworthy dimensions (integrity, benevolence, and ability) and a trust dimension. Their alternative "global factor" model had all four scales loading on to a single factor. The proposed model provided the best fit to the data, and the Comparative Fit Index (CFI) for the global factor model was below the criterion level of 0.93 (Bentler, 1990) for each wave of data ($r = 0.88$ and $r = 0.89$ respectively). However, the relatively high correlations between the integrity and benevolence factors across the two waves of data ($r = 0.69$ and $r = 0.78$ respectively) suggest that alternative models might have provided equal or better fit than the four factor model. The fit of a three factor model, for instance, where integrity and benevolence from part of a single dimension, might usefully have been tested. Results of tests of discriminant validity, as recommended by Anderson and Gerbing (1988), might usefully have been reported.

Caringness and competence have been widely cited as dimensions of trustworthiness (Butler, 1991; Clark & Payne, 1996; Mayer & Davis, 1999; Mishra, 1996). Models similar to the two

dimensional model of trustworthiness here proposed have previously been advanced (Cook & Wall, 1980; Leiberman, 1981). The caring and competence dimensions correspond, in broad terms, to distinctions drawn in the leadership literature between relations-oriented leadership and production-oriented leadership (Kahn & Katz, 1960; Blake & Mouton, 1964), and between consideration and initiating structure (Fleishman, 1973; Stogdill, 1974). At an intuitive level, there is considerable overlap between the construct of trust in senior management and the construct of leadership (Fairholm, 1994; Zand, 1997).

Social Norms

Ajzen and Fishbein (1977) suggested that the social forces surrounding an individual influence attitudes and behaviour. Ajzen and Fishbein referred to these forces as 'subjective norms'. Certainly, within organisational contexts, where there are often high levels of social and task interdependencies, 'climate' and 'norms' are likely to have a salient impact on attitudes and behaviour. The extent to which an individual perceives significant others as having positive or negative attitudes toward an issue or focal group will likely impact on the individual's attitudes and behaviours. The broader social psychological literature (Festinger, 1950, 1954; Jones & Gerard, 1967), the social information processing literature (Salancik & Pfeffer, 1978), and the organisational climate literature (Erez & Earley, 1993) support this view. Festinger (1950) argued that, especially where there are limited opportunities to access information first hand, (as may often be the case with respect to the motives and behaviour of senior management), "... an opinion, a belief, an attitude is 'correct', 'valid', and 'proper' to the extent that it is anchored in a group of people with similar beliefs, opinions, and attitudes" (p. 272). 'Significant others' will include colleagues who are part of the same work group.

Strong theoretical arguments have been forwarded in support of a relational and socially constructed view of trust (Kramer, Brewer & Hanna, 1996; Lewis & Weigert, 1985; Tyler & Degoey, 1996). Despite theoretical arguments and empirical evidence that social norms can influence behavioural intentions (Bentler & Speckart, 1979; Currall & Judge, 1995), many trust researchers have not included social norms as a determinant of trust. For example, Clark and Payne (1997), Mayer and Davis (1999), and Tan and Tan (2000) focused primarily on the internal cognitive representations of attitudes without investigating the effects of social norms. It is here argued that, especially when individual employees do not have extensive personal contact with a focal group (in this case senior management), social norms will directly influence the willingness of employees to engage in trust-related behaviour.

Although individual assessments about social norms clearly have a cognitive component, Eagly and Chaiken (1993) advocated maintaining a clear distinction between attitudinal and social normative dimensions as predictors of behavioural intentions. They argued that, "a classic feature of social and personality psychology is a division of the determinants of social behaviour into two categories – attributes of the person and attributes of the social environment ... [Maintaining] this dichotomy in the theory of reasoned action ... allows it to address a variety of traditionally important questions concerning the attitudinal versus normative regulation of conduct" (pp. 171-172).

Affective-Based Trust

Kramer (1999) noted that beyond acknowledging, "the importance of cognitive correlates of trust, ... trust needs to be conceptualised as a more complex, multidimensional psychological state that includes affective and motivational components..." (p. 571). Affective based trust is concerned with the emotional experiences associated with a focal trustee. Kramer (p. 572) quoted Fine and Holyfield (1996) who argued that, "one not only thinks trust, but feels trust".

Fox and Spector (1999) observed that with research into attitude formation, including investigations into the theory of reasoned action, the "affective component of attitude formation is frequently mentioned, but set aside in the obligatory suggestions for further research. This near-exclusive focus on the cognitive component misses a large part of the explanation of attitudinal and behavioural variance" (p. 916). Theory and research from the social psychological literature (Clore, Schwarz & Conway, 1994; Forgas, 1994), suggests that affective experience is an important determinant of evaluative responses and behaviour. Many trust researchers (e.g. Currall & Judge, 1995; Mayer & Davis, 1999; Tan & Tan, 2000) have made no explicit reference to an affective dimension of trust in their research.

As previously noted, a number of researchers have, however, attempted to assess affective dimensions of trust. McAllister (1995) operationalised affective-based trust in terms of reciprocated care and concern. Although McAllister's measures address feeling states, they are heavily imbued with cognitive evaluation. For example, the extent to which a person agrees or disagrees with an item such as, "we would both feel a sense of loss if one of us was

transferred and we could no longer work together" clearly requires an assessment of some future or hypothetical experience. The psychological response to the item would be more cognitive than affective in character. The affective response to the item, if any, is very unlikely to involve a direct sense of loss.

Cummings and Bromiley (1995) also attempted to operationalise the affective component of trust. They used the word 'feel' and the word 'think' in a set of trust items in an attempt to differentially prompt affective and cognitive responses. For example, "we think that people in [selected department or unit] are fair in their negotiations with us" was included as a cognitive item. "We feel that [selected department or unit] takes advantage of us" was included as an affective item. Extremely high correlations (as high as 0.99) between the cognitive and affective dimensions resulted. Clearly, the factors were confounded and alternative ways to operationalise cognitive and affective dimensions need to be developed.

Clark and Payne (1997) were also unable to operationalise the affective dimension of trust to their own satisfaction. They reported that " ... the items associated with the feeling element .... corresponded very highly with the corresponding beliefs questions ... (correlations ranging from $r = 0.66$ to $r = 0.83$)". They did not proceed with analysing the affective dimension in their research and concluded that the strong associations between the affect and belief items "may call for more subtlety in the design of the questions if clearer distinctions between items representing cognitive and affective modes are to be achieved" (p. 211).

The evidence in support of the affective dimension of trust in organisational contexts is thus, clearly, not well developed. The present research draws from Warr's (1990, 1994) model of job-related affective well-being in an attempt to better capture the affective dimension of trust in senior management. Warr suggested that although it is not possible to account for all emotional experiences within his model, it does provide a firm foundation for more "differentiated" accounts (p. 196). It is here suggested that affect-based trust will likely be located in Warr's affective circumplex (adapted from Russell, 1980) in the 'relaxed' quadrant, defined by low arousal and pleasure. This is because a 'willingness to risk', often cited as a defining feature of trust (Mayer, Davis & Schoorman, 1996; Mishra, 1996), would likely be associated with feelings of safety, security, confidence and comfort. Shaw (1997) reported that the word trust derives "from the German word *trost*, which suggests comfort" (p. 21). Fairholm (1994, p.113) suggested that trust connotes feelings of security and confidence. Therefore, it is hypothesised that the extent to which a focal party elicits feelings of safety, security, confidence and comfort will also influence trust. Potential indicators of affective trust in senior management might assess feelings of safety, security, comfort and trust.

Although responses to questionnaire items necessarily involve cognitive processing (Breckler, 1984), items were sought that would require respondents to directly access their feelings about senior management. For the present research, respondents were asked to 'think back over the past few weeks' and rate the extent to which a set of items described their feelings about senior management.

Behavioural Intentions

Behavioural intentions are the immediate determinants of overt behaviour in the theory of reasoned action (Ajzen & Fishbein, 1980) and are central to many definitions of trust in organisational contexts (Cummings & Bromiley, 1996; Currall & Judge, 1995; Mayer & Davis, 1999). Mayer and Davis argued there is a "clear conceptual distinction between trust as a behavioural intention (i.e., willingness to be vulnerable) and perceptions of the trustee (i.e., the factors of trustworthiness)" (p. 134).

Care needs to be taken when operationalising behavioural intention. Fishbein (1980) suggested that it is important to try, as far as possible, to measure the immediate determinant of behaviour. Items previously used to operationalise behavioural intention include: "in the future I will act as if management will treat the workers fairly" and "in the future I will act as though management listen to my suggestions" (Clark & Payne, 1997). Sheppard, Hartwick and Warshaw (1988) argued that behavioural intentions should be assessed directly, by asking how likely it is that individuals would actively engage in specified trust-based behaviours. Such questions correspond to what Sheppard, Hartwick and Warshaw referred to as "behavioural estimation" items. Their meta-analysis revealed that behavioural estimation items showed a stronger correlation with actual behaviour than measures of behavioural intention.

Items assessing the extent to which employees would willingly enter into informal agreements with senior management, and the extent to which they would communicate openly with senior management, serve as examples of behavioural estimation items. Similar items were

used by Currall and Judge (1995) in their study of trust between organisation boundary role persons. Currall and Judge suggested that, "some overlap may exist between the dimensions of boundary role person trust and the dimensions of trust in other work relationships" (p. 153). Behavioural estimation items were, therefore, included in the set of items developed to assess behavioural intentions.

Disposition

Disposition has been included in previous trust research and models of trust (Currall, 1992; Currall & Judge, 1995; Mayer et al., 1995; McKnight, Cummings & Chervany, 1998). Payne and Clark (1996) suggested that dispositional trust, "might be expected to relate to other measures of trust such as trust in a specific person, or a general class of persons" (p.1). They suggested that personality or predisposition will be especially salient with more generalised forms of trust. Given that many employees do not have direct contact with senior managers on a regular basis, and therefore may perceive senior managers as a 'general class', inclusion of dispositional measures of trust was indicated in the present research. So, in addition to the primary dimensions defined by the theory of reasoned action, a measure of trusting disposition was included in order to fully capture the salient dimensions of trustworthiness and trust in senior management.

In summary, the present research was aimed at defining the constructs associated with trust in senior management. Consistent with Ajzen and Fishbein's (1980) theory of reasoned action, it is here suggested that trust in senior management is a latent construct defined and operationalised in terms of intentions to behave. Behavioural intention is influenced by

attributions of trustworthiness (cognitive trust), feelings of trust (affective trust), the normative social context (social norms) and disposition. The following hypotheses follow from the arguments presented above:

Hypotheses

H4.1. A six dimensional measurement model of trust in senior management (consisting of cognitive-care, cognitive-competence, affect, social norms, behavioural intentions, and disposition) will adequately summarise data drawn from the validation sample (sub-sample 2, organisation 1). That is, the measurement model will fit the data.

H4.2. The form, loadings, and construct covariances of the measurement model derived from the validation sample will generalise (be invariant) to data drawn from an independent cross-validation sample (organisation 2).

Method

Preliminary study

A pilot questionnaire was developed in order to capture salient cognitive and affective dimensions of trust in senior management. The pilot questionnaire consisted of 41 cognitive items and 9 affective items. The cognitive items were developed or adapted from a number of sources (Cook & Wall, 1980; Currall & Judge, 1995; Mishra, 1995). Participants rated the extent to which they agreed or disagreed with statements such as "senior management deliver on the promises they make" and "senior management demonstrate integrity in their dealings

with employees". The affective items were drawn from Warr's model of affective well-being and the literature on positive and negative affect (Brief, Burke, George, Robinson, & Webster, 1988). Participants were asked to rate the extent to which senior management made them feel 'safe', 'relaxed', 'confident' and 'trust' over the past few weeks. Item selection will be discussed more fully in the following sections.

The questionnaire was administered to 89 post-graduate students. Approximately half were enrolled in a project management post-graduate degree and half were studying toward their MBA. The sample consisted of 58 males and 31 females, 80 of whom were working full-time, with ages ranging from 22 to 54 years. Forty nine respondents identified themselves as middle management, 32 as non-management and 8 as upper management. The amount of contact with senior management was rated as 'very little' or 'a little' by 20 respondents, as 'moderate' by 27 respondents, and as 'quite a lot' or 'a lot' by 42 respondents.

Despite the ratio of items to subjects, principal components analysis (PCA) yielded a clean three component solution accounting for 71.4% of the variance. Tabachnick and Fiddell (1989) recommended PCA as a first step in factor analysis. Correlations between the components ranged from $r = 0.49$ to $r = 0.60$. The primary component, accounting for 58.2% of the variance, consisted of items concerned with 'treating employees fairly', 'caring about the well-being of employees', 'looking after the welfare of employees' 'being loyal to employees'. The second component, accounting for 6.9% of the variance was concerned with competence and ability. High loading items included "senior management have the ability to achieve the objectives they set", "senior management achieve the goals they set", and "senior

management has the knowledge and skills to effectively lead this organisation". The third component, accounting for 6.2% of the variance, consisted of the affective items, all of which had loadings greater than 0.55. The 'trust' item loaded at 0.74.

These results lent some confidence to a two dimensional conceptualisation of cognitive-based trust and a unidimensional conceptualisation of affective-based trust. The cognitive items largely overlapped with items previously identified in the literature (e.g. Cook & Wall, 1980). Given the logically appealing structure resulting from the pilot study, the research proceeded and the substantive studies were commenced.

Substantive research - subjects and data collection

Data were drawn from two dissimilar organisations. The organisations were, in part, selected on the basis of having sufficient numbers of employees to enable meaningful interpretation of structural equations modelling output. Anderson and Gerbing (1988) suggested that structural equation modelling requires sample sizes of 150 or more, "to obtain parameter estimates that have standard errors small enough to be of practical use" (p. 415) and to "obtain a converged and proper solution for models with three or more indicators per factor" (p. 416).

The primary sample consisted of all full-time and part-time employees from a large (N = 3000 approx.) private sector organisation operating in the hospitality and gaming sector. A questionnaire (see Appendix 1) was distributed in June 1998. Of the 2800 questionnaires

distributed, 1008 (36%) were returned. Various jobs were represented, including cleaners, hospitality workers, gaming attendants, administrative staff, and maintenance staff.

The second participating organistion was a large public sector organisation (N = 1000 approx.) responsible for the administration and management of State public libraries, museums, performing arts centres and visual arts services. All full-time and part-time employees were sent a questionnaire in November 1998. Of the 989 questionnaires distributed, 329 (33%) usable questionnaires were returned.

The demographics of respondents for each organisation are summarised in Table 2. In general terms, sample 2 respondents were older, had longer tenure and more education, than respondents from sample 1. Sample 2 also had a higher proportion of female respondents. Given the differences in demographics and the difference in core business activities of the two organisations, strong tests concerning the generalisability of results could be performed.

Measures

A primary aim of the research was to develop and test the validity of measures of trust and trustworthiness in senior management. A number of items generated from pilot studies and drawn from the literature were selected to indicate each of the six dimensions proposed. The dimensions included behavioural intention, cognitive-care, cognitive-competence, affect, social norms and disposition.

Table 4.2
Demographics of respondents for organisation 1 and organisation 2

Demographic	Validation Sample Organisation 1 (n = 1008)	Cross-Validation Sample Organisation 2 (n = 329)
Gender		
Male	52%	33%
Female	46%	66%
Age		
Mean years (Stnd Deviation)	35 (10.57)	42 (12.13)
Range	17-67	19-52
Tenure		
Mean years (Stnd Deviation	5.3 (4.02)	8.2 (7.9)
Range	0-13	0-37
Education		
Primary/Secondary	40%	18%
Trade	15%	6%
Diploma	24%	23%
Tertiary	15%	53%
Employment Category		
Full-Time	72%	68%
Part-Time	17%	18%
Casuals	11%	14%
Employment Level		
Senior Management	1%	2% (Level 8+)
Middle Management	11%	28% (Level 4-7)
Supervisory	17%	
Uniformed/Front Line	56%	
Administration	12%	63% (Level 1-3)

Note: Part-time = permanent part-time, Casuals work irregular hours; Levels 1 to 8 represent Public Sector employment levels.

Consistent with structural equation modelling conventions (Bentler, 1995), each of the latent constructs was specified in terms of measured or manifest variables. Jöreskog and Sörbom (1993) noted that model fit is difficult to attain when models contain many factors and many indicators. Therefore a limited number of items strongly associated with each of the six dimensions were sought. Bollen (1989) suggested that two items are sufficient to define a construct and meet the requirements for the identification of multidimensional confirmatory factor analytic measurement models. Bentler and Chou (1987) and Kline (1998) recommended using three item scales.

All selected items were positively worded so as to guard against method effects and to circumvent confounding trust and distrust (Payne & Clark, 1996; Bigley & Pearce, 1998). With respect to method effects, Magazine, Williams and Williams (1996), Schmitt and Stults (1985), and Barnette (2000) have found that negatively worded items tend to load on separate factors irrespective of their semantic meaning. Therefore, given their uncertain psychometric status, no negatively worded items were included in the item pools.

Items assessing 'disposition' were adapted from the trust sub-scale of NEO PI-R (Costa & McRae, 1992), and from Kessel's Self Report Trust Scale (MacDonald, Kessel & Fuller, 1972). Acceptable reliability coefficients have been reported for both of these scales. Ten items were originally included in the questionnaire. Items included "I have a good deal of faith in human nature", "I feel that other people can be relied upon to do what they say they will do", "My first reaction is to trust people" and "I have faith in the statements and promises of other people". Participants rated the extent they agreed with each statement on a 7-point scale ranging from strongly disagree to strongly agree.

Five items designed to assess 'social norms' were developed. The items assessed individuals' perceptions of how their work colleagues perceive the trustworthiness of senior management. Items included "most people in my work group trust senior management", "most people I work with think senior management look after the interests of employees" and "most people I work with think senior managers have personal integrity". Participants rated the extent to which they agree or disagreed with each statement on a 5-point scale ranging from strongly

disagree to strongly agree. As the items were designed for the present study, no reliability data are available.

Twenty items assessing employees' cognitive evaluations of the 'trustworthiness' of senior management were included in the survey. The items were modified from existing measures (Cook & Wall, 1980; Cummings & Bromiley, 1995) or developed from theoretical formulations of trust (Mayer, Davis & Schoorman, 1995; Mishra, 1995). The items were expected to load cleanly on two dimensions – care and competence. Pilot studies showed that these two dimensions accounted for most of the variance in employees' perceptions of trustworthiness in senior management. The two dimensions are consistent with those previously identified in the trust literature (Cook & Wall, 1980).

The "care" dimension focused on the extent to which employees attribute integrity, openness, care and concern for employees to senior management. Pilot studies indicated that, at least when senior management is the focal group, items designed to tap integrity, openness, care and concern load on a single factor. Fourteen 'care' items were included in the questionnaire. Items included "senior management care about the well-being of employees", "senior management tell the truth to employees", "senior management would not take unfair advantage of employees", "senior management deliver on the promises they make" and "senior management communicate openly with employees".

The second dimension focused on "competence". "Competence", in previous trust research, has encompassed qualities such as influence, impact, ability, expertness, knowledge and the

ability to do what is needed. With respect to senior management, it was expected that the dimension would be defined in terms of clear strategy, having the required knowledge and skills, and the drive and capacity to achieve objectives. Six items, drawn or adapted from previous measures (e.g. Cook & Wall, 1980) were included in the survey. Items included "senior management have this organisation headed in the right direction", "senior management have the knowledge and skills to effectively lead this organisation", "senior management have the courage to achieve the objectives they set" and "senior management can be trusted to make sensible decisions for the organisation's future".

For both cognitive dimensions, participants rated the extent they agreed with each statement on a 7-point scale ranging from strongly disagree to strongly agree. In addition to the care and competence items, a global cognitive trust item assessed the extent that "overall, I trust senior management".

Using items drawn from Warr's (1990) model of affective well-being and literature on positive affect (Brief et al., 1988), 14 potential items for the affective dimension of trust in senior management were selected. Consistent with Warr's administration instructions, respondents were asked to think back over the past few weeks and rate the extent to which each item described their feelings about senior management. These single worded items included "safe", "secure", "positive", "relaxed", "confident" and "optimistic". To ensure that the affective items were tapping in to the construct of interest, the word "trust" was also included in the set. The measure of affective trust was thus designed to tap employees'

generalised affective trust response to senior management. Items were anchored on a 7-point scale ranging from 'not at all' to "to a very great extent".

Behavioural intentions were assessed with a set of 10 items adapted from existing measures (Cummings & Bromiley, 1995; Clark & Payne, 1997; Currall & Judge, 1995). Some of the items were designed as 'behavioural estimation' items (Sheppard, Hartwick & Warshaw, 1988). The items included "I will act on the basis that Senior Management would honour any agreements made with employees", "I will act on the basis that Senior Management will keep the promises they make to employees", "I would be comfortable communicating to Senior Management what I think is wrong with organisation", "I would confidently enter into an unwritten agreement with Senior Management", 'I would be willing to support changes suggested by Senior Management", and "I would be willing to help convince others that ideas put forward by Senior Management are good ideas". Items were anchored on a 7- point scale, ranging from extremely unlikely to extremely likely.

Analyses

The research proceeded in a number of steps. First, the 1008 cases in the validation sample (organisation 1) were randomly assigned to one of two sub-samples, sub-sample 1 (SS1, n = 493) and sub-sample 2 (SS2, n = 460). Anderson and Gerbing (1988) suggested that, "ideally, a researcher would want to split a sample, using one half to develop a model and the other half to validate the solution obtained from the first half" (p. 421). The randomisation was performed using the SPSS command "randomly select approximately 50%".

Second, exploratory factor analysis (EFA) of SS1 was conducted to assess the factor structure of the items included in the final questionnaire. This procedure helped identify the number of factors in the data set and the high loading items for each of the factors. Fabregar, Wegener, MacCallum, and Strahan (1999) recommended maximum likelihood as the preferred extraction method and oblimin as the preferred rotation method.

Third, the measurement model resulting from the exploratory factor analysis was tested using confirmatory factor analysis in sub-sample 2 (SS2). Model fit was assessed using EQS (Bentler, 1995). Overall model fit was determined by assessing a number of "fit indices" (Bentler, 1990; Marsh, Balla & Hau, 1996). The Bentler-Bonnett Normed Fit Index (NFI), Bentler-Bonnett Non-Normed Fit Index (NNFI), the Comparative Fit Index (CFI), and the Robust Comparative Fit Index (Robust CFI) were used to assess the overall goodness of fit of the model. Values of 0.90 and above for NFI, NNFI, and Robust CFI and CFI values of 0.93 and above suggest acceptable levels of fit (Browne & Cudeck, 1993).

Beyond assessing conventional indices model fit, the root mean square error of approximation (RMSEA) was also assessed. The RMSEA measures model discrepancy per degree of freedom, with values of 0.05 or less indicating very close fit and a RMSEA approaching 0.08 representing reasonable errors of approximation (Browne, & Cudeck, 1993). Unlike the ratio of chi-square to degrees of freedom and other point estimates, RMSEA values are not affected by sample size (Steiger, 1990).

Also, in contrast to other fit indices that provide only point estimates, the RMSEA has known distributional properties that allow for the construction of confidence intervals that contain the true value of the index for the model in the population (MacCallum, Browne, & Sugawara, 1996). MacCallum et al. proposed a framework for testing hypotheses about model fit based on confidence intervals. When the entire confidence interval falls below 0.05 there is strong support for rejecting the "not-close fit" hypothesis (i.e., accepting the hypothesis of "close fit"). When the entire confidence interval is above 0.05, the hypothesis of "close fit" is rejected. When the confidence interval "straddles" 0.05, neither the hypothesis of "close fit" nor the hypothesis of "not-close fit" may be rejected, and both hypotheses remain plausible (MacCallum et al.).

In order to draw confident conclusions about model fit, adequate power needs to be demonstrated. Power is the "probability that the results of a significance test will lead to rejection of the null hypothesis when there is a true effect in the population" (Kline, 1998, p. 308). Power analysis for tests of model fit require specification of effect size (i.e., the extent to which the null hypothesis is incorrect). MacCallum et al. (1996) provided formulae for calculating power and requisite sample size when the null hypothesis is less than or equal to 0.05, and the alternative hypothesis is equal to 0.08, using an alpha level of 0.05, and a power of 0.80. In this study all model fit evaluations were based on the MacCallum et al. (1996) framework, after demonstrating adequate power and sample size requirements.

In the fourth stage of the analysis, model respecification procedures were employed to identify the items which most clearly captured the constructs of interest. Anderson and

Gerbing (1988) acknowledged that with structural equations modelling, "most often some respecification of the measurement model will be required" (p. 416). Anderson and Gerbing argued that respecification of multiple-indicator measurement models best proceeds from an examination of the residuals. Items which "have not worked out as planned" (p. 417) can legitimately be deleted. In addition, item deletion can proceed on the basis of low factor loadings and excessive contribution to multivariate non-normality (Kline, 1998). Low factor loadings have values less than 0.3 (Kline). The Lagrange statistics in the EQS program can be used to identify items which contribute to multivariate non-normality.

Given that three items are sufficient to define a construct (Bollen, 1989), measurement model respecification proceeded toward identifying three high loading items for each of the six constructs of interest. Bentler and Speckart (1979) and Hankin, French and Horne (2000) advocated using three item measures to test attitude-behaviour relations within the Ajzen and Fishbein (1975) framework.

Fifth, the convergent validity, discriminant validity and overall fit of the respecified model were established. Convergent validity was assessed by examining the parameter estimates (factor loadings) of the items on their specified dimensions. High and moderate loadings suggest convergent validity. Standardised values greater than 0.5 demonstrate reasonably high factor loadings (Kline, 1998).

Discriminant validity assesses the extent to which dimensions of a model are unidimensional. Anderson and Gerbing (1988) argued that unidimensional measurement models are more

useful for the interpretation of latent constructs because they allow more precise tests of the convergent and discriminant validity of the indicators. The discriminant validity for each pair of constructs was assessed by comparing chi-square values when covariances were fixed at one, to when covariances between the constructs were freely estimated. A non-significant chi-square difference test suggests that the constructs are equivalent. A significant difference in chi-square (with 1 degree of freedom) suggests non-equivalence and assures discriminant validity (Bagozzi & Phillips, 1982). That is, respondents can distinguish between the constructs. Anderson and Gerbing argued that the chi-square difference test must be performed separately for each pair of constructs (rather than a simultaneous test of all constructs), because a nonsignificant value for one pair of factors can be obscured by other pairs which have significant differences in chi-square. McAllister (1995) employed these same procedures to test the discriminant validity of his measures of interpersonal trust.

Sixth, the fit of the measurement model was examined in an independent sample. Bollen (1989) argued that an examination of model fit in an alternative sample is a sensible precursor to conducting invariance analyses.

Seventh, having established the viability of the model in the two samples, the factor structure derived in the validation sample was cross-validated against the independent sample. Beyond establishing a fit to the data in one organisation, it is important to cross-validate the structure to an independent sample (Burke et al., 1989). Cole and Maxwell (1985) argued that the evidence of construct validity in one sample does not guarantee construct validity across groups. Thus, the multi-sample procedure in EQS was used to "cross-validate" the statistical

equalities between the two sets of data. This analysis helps establish the generalisability of the model.

To establish invariance, competing models (with increasingly restrictive conditions) are compared. The full cross-validation procedure requires determining that the loadings, error variances, and construct intercorrelations are equivalent across both samples (Bollen, 1989). However, Byrne (1994) and Bentler (1995) have argued that the test of error variances is unduly strict. In this instance, therefore, the invariance analysis was based on comparisons of form, loadings, and construct intercorrelations. Non-significant difference in the chi-square statistic, at each subsequent level of analysis, suggests that the model generalises across both sets of data.

The 'n' for all analyses was based on listwise deletion of cases, exclusion of questionnaires completed by senior managers, deletion of questionnaires completed by employees employed on a casual basis, and deletion of cases which contributed at high levels to multivariate non-normality. Multivariate non-normality may result in inflated Type 1 error and inaccurate significance tests of individual parameters (West, Finch & Curran, 1995). Although EQS accommodates violations of assumptions of multivariate non-normality through a scaled chi-square statistic (Satorra & Bentler, 19988), this statistic is currently not available for multi-sample tests of invariance.

Results

Exploratory Factor Analysis

Exploratory factor analysis (EFA) using maximum likelihood extraction and oblimin rotations was conducted on validation sub-sample 1 (n = 493) to test the dimensionality within the items. An initial factor analysis of the data set yielded 8 factors with eigenvalues greater than one, collectively accounting for 71.4% of the variance. A number of items cross-loaded and some items had relatively low factor loadings.

To obtain a cleaner factor solution, a second factor analysis was performed. Items were included in the second analysis (a maximum of seven items per factor) if they initially had loadings of 0.40 or higher on a single factor. Listwise deletion of cases with missing values, and deletion of records completed by senior management, resulted in 444 cases being included in the analysis. Here, a six factor solution, accounting for 71.8% of the variance, resulted. The pattern matrix is reproduced in Table 4.3. The SPSS output is shown in Appendix III.

The six dimensional solution reproduced the proposed affective, behavioural intention, social norm, dispositional and cognitive dimensions. Each item loaded on its specified factor and only one item cross-loaded on alternative factors, thus suggesting the measures are unidimensional (Anderson & Gerbing, 1988). The cognitive-care dimension accounted for 45% of the variance; the dispositional factor accounted for 8% of the variance, the affective dimension accounted for 5.2% of the variance, the cognitive-competence factor accounted for 4.3% of the variance, the behavioural intention dimension accounted for 3.6% of the variance,

and the social norm factor accounted for 3.3% of the variance. The factor correlation matrix (Table 4.4) shows moderate correlations among the dimensions, ranging from 0.32 to 0.57.

Table 4.3
Pattern matrix of maximum likelihood extraction with oblimin rotation for Sub-Sample 1 (n = 444)

	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
care3	.72208					
care1	.67664					
care7	.66896					
care2	.66234					
care4	.65893					
care5	.64166					
care6	.55753					
disp4		.75243				
disp6		.72191				
disp5		.72091				
disp2		.69359				
disp9		.69306				
disp8		.67301				
disp7		.66011				
aff3			.81345			
aff6			.77024			
aff2			.76398			
aff9			.75710			
aff5			.69479			
aff13			.55751			
comp4				.75154		
comp3				.70494		
comp2				.70082		
comp6				.67519		
comp5				.64849		
comp1				.57341		
bint8					.88727	
bint6					.85495	
bint9					.45823	
bint10					.41072	
bint2						
bint1						
bint7						
norm1						.80068
norm2						.73535
norm3						.69357
norm4						.63864
norm5				.48675		.43175

Table 4.4
Factor correlation matrix for sub-sample 1 (n = 444)

	Factor1	Factor2	Factor3	Factor4	Factor5
Factor 1	1.00000				
Factor 2	.34893	1.00000			
Factor 3	.57390	.31535	1.00000		
Factor 4	.56035	.33650	.49365	1.00000	
Factor 5	.47729	.39437	.51622	.41412	1.00000
Factor 6	.53348	.31454	.44126	.51607	.46150

Confirmatory Factor Analysis

Having established a theoretically viable structure with EFA, the next step in the analysis was to perform a CFA on the alternative sub-sample (sub-sample 2, organisation1). Listwise deletion of cases, exclusion of questionnaires completed by senior management, exclusion of questionnaires completed by casual employees, and deletion of cases contributing to multivariate non-normality, resulted in 416 of the 460 cases being included in the analysis. Using sub-sample 2 (n = 416), confirmatory factor analysis, using EQS (Bentler, 1995), was conducted to test the six dimensional model of trust in senior management.

The three items with the highest loadings in the EFA were included in the CFA. As previously mentioned, Bollen (1989) suggested that three items are sufficient to identify a construct. The only exception to selecting the three highest loading items was with the affective dimension. In order to ensure that the construct of trust was being assessed, the item 'trust' was included in this dimension. Thus, 18 items, organised into 6 dimensions, were used in the confirmatory analysis. Figure 4.1 shows the full measurement model, where each of the observed indicators is hypothesised to load on a specified construct, with the constructs allowed to inter-correlate freely. (The scale items organised by their dimension and the response scales for each of the measures are shown in Appendix III).

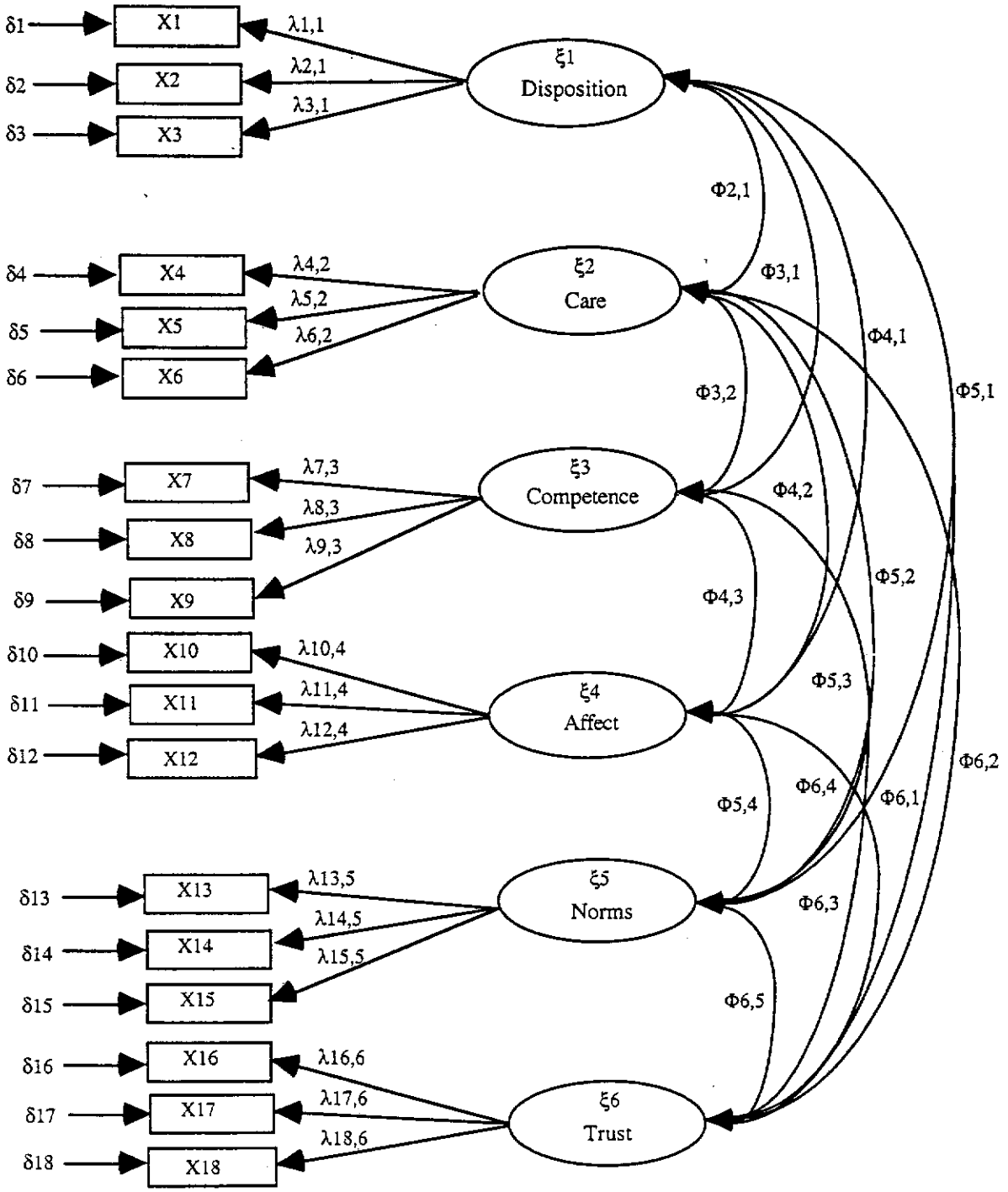

Figure 4.1. Measurement Model – Six dimensions of trust and trustworthiness of senior management.

Table 4.5 shows the fit statistics for the six factor measurement model. For comparison purposes, statistics are also shown for the null model and for a one-dimensional model. The null model represents the case where all indicators are independent or uncorrelated, and is evaluated with respect to its corresponding χ^2 value. Bentler (1993) argued that "in large samples, [as in the present case,] the independence model is also a good baseline model against which other models can be evaluated for the gain in explanation they achieve" (p. 92). The one-dimensional model tests whether all eighteen items can adequately be subsumed by a single construct. The complete output of the CFA analysis, including univariate statistics, is shown in Appendix IV.

Table 4.5 shows that the 6 factor model was the only model to provide acceptable fit. All of the "fit" indices for the 6 factor model were above criteria. The Bentler-Bonnett Normed Fit Index (.95), Bentler-Bonnett NonNormed Fit Index (.96), and the Robust Comparative Fit Index (.97) were all above .90. The Comparative Fit Index (.97) was higher than the criterion value of .93. The RMSEA point estimate (.054) was very close to Steiger's (1989) criteria for close fit (less than .05) and well below MacCallum et al.'s (1996) criterion for a "mediocre fit" (between .08 and 1.00). Although the RMSEA confidence intervals (.045 - .063) straddled .05, and thus suggested neither strong grounds for accepting nor rejecting the model (MacCallum), the narrow range of the RMSEA confidence interval suggests precision in the indicator of fit (MacCallum et al.). Neither the null model nor the one-dimensional model provided acceptable fit to the data.

Table 4.5
Fit indices of the 6 factor measurement model of trust in senior management compared with null model and 1 factor model (Organisation 1, sub-sample 2, n = 416)

Model	χ^2	S-B χ^2	df	NFI	NNFI	CFI	Robust CFI	RMSEA (CI)
Null	4963.324		153					
1 Factor	1792.48	1508.867	134	.639	.606	.655	.658	.174 (.166 - .181)
6 Factor	262.597	226.913	120	.947	.962	.970	.973	.054 (.045 - .063)

Note: S-Bχ^2 = Satorra-Bentler scaled statistic, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, CI = Confidence Interval.

The convergent validity of the items in the model was determined by examining the parameter estimates (factor loadings) of the 18 items on their specified dimensions. Table 4.6 shows that the standardised parameter estimates ranged from 0.49 to 0.91 and that all the loadings were highly significant. Given that standardised values greater than 0.5 demonstrate reasonably high factor loadings (Kline, 1998), these results support the six dimensional model of trust in senior management as proposed.

The discriminant validity for each pair of constructs was assessed by comparing chi-square values when covariances were fixed at one to when covariances between the constructs were freely estimated. Results of the tests of discriminant validity are shown in Table 4.7. For each comparison, the chi-square values, with 1 degree of freedom, were significantly different. These results, again, lend support to the validity of the proposed dimensions of trust and trustworthiness in senior management.

Table 4.6
Convergent validity of 6 factor model (n = 416)

Parameter	Standardised Coefficient	t Value
Dispositional Trust		
I believe that most people have good intentions	0.868	19.345
I feel that other people can be relied upon to do what they say they will do.	0.835	17.292
I have faith in the promises or statements of other people.	0.563	11.571
Cognitive - Care		
Senior management ...communicate openly with employees.	0.889	22.656
.. can be counted on to look after the interests of employees	0.886	22.529
... tell the truth to employees	0.874	22.050
Cognitive - Competence		
... have a clear idea of where this organisation is headed	0.822	19.670
... have the knowledge and skills to effectively lead this organisation.	0.865	21.228
... have the courage to achieve the objectives they set.	0.834	20.090
Behavioural Intention		
I will act on the basis that Senior Management would honour any agreement with employees.	0.893	20.729
I will act on the basis that Senior Management will keep the promises they make to employees.	0.835	18.988
I would be willing to support changes suggested by senior management.	0.486	9.444
Affective Trust		
... safe	0.857	20.383
... secure	0.789	18.115
... trust	0.803	18.579
Social Norms		
Most people in my work group trust senior management	0.868	21.474
Most people I work with think Senior Management do a good job of communicating to employees.	0.912	23.243
Most people I work with think senior management have personal integrity	0.771	18.031

Table 4.7
Discriminant validity among pairs of factors in proposed model (n = 416)

	χ^2 covariance set free	df	χ^2 covariance fixed at 1	df	$\Delta\chi^2$
Dispositional Trust with:					
Cognitive - Care	3.762	8	356.154	9	$p < .001$
Cognitive - Competence	9.771	8	372.328	9	$p < .001$
Behavioural Intention	22.642	8	335.824	9	$p < .001$
Affective Trust	13.499	8	369.074	9	$p < .001$
Social Norms	15.129	8	349.445	9	$p < .001$
Cognitive - Care with:					
Cognitive - Direction	7.721	8	152.715	9	$p < .001$
Behavioural Intention	39.190	8	285.425	9	$p < .001$
Affective Trust	52.054	8	327.043	9	$p < .001$
Social Norms	13.865	8	268.599	9	$p < .001$
Cognitive - Competence with:					
Behavioural Intention	53.479	8	299.344	9	$p < .001$
Affective Trust	59.328	8	344.930	9	$p < .001$
Social Norms	13.735	8	370.321	9	$p < .001$
Behavioural Intention with:					
Affective Trust	64.524	8	324.406	9	$p < .001$
Social Norms	28.104	8	296.184	9	$p < .001$
Affective Trust with:					
Social Norms	43.907	8	383.581	9	$p < .001$

Overall, the evidence supports the six factor, 18 item measurement model. Although the confidence intervals do not suggest a "close" fit, all of the other relevant point estimate indices were well above their required minimum values. That is, trust and trustworthiness (i.e. antecedents of trust) in senior management can be conceptualised in terms of the six hypothesised dimensions. These dimensions and their elements adequately summarise the data and are largely consistent with previous theory and research (e.g. Mayer, Davis & Schoorman, 1995).

Next, the measurement model was applied to an independent sample (Organisation 2, Sample 2, n = 249). As with the validation sample, each of the observed indicators was hypothesised

to load on a specified construct, with the constructs allowed to intercorrelate freely. Table 4.8 shows the fit statistics for the six factor measurement model, for the null model and for a one-dimensional model. For the 6 dimensional model, the Bentler-Bonnett Normed Fit Index (0.94), Bentler-Bonnett NonNormed Fit Index (0.96), and the Robust Comparative Fit Index (0.97) were all above the 0.90 criterion level. The Comparative Fit Index (0.97) was higher than the criterion value of 0.93, and the RMSEA point estimate (0.064) was well below MacCallum et al.'s (1996) criterion for a "mediocre fit" (between 0.08 and 1.00). Although the RMSEA confidence intervals (0.052 - 0.076) suggested that the hypothesis of "close fit" could be rejected (MacCallum et al.), the very high point estimates (suggesting acceptable fit) justified proceeding to the invariance analysis. As with the results from the validation sample, neither the null model, nor the 1 factor model provided an acceptable fit to the data.

Table 4.8
Fit indices of the 6 factor measurement model (Sample 2, n = 249).

Model	χ^2	S-B χ^2	df	NFI	NNFI	CFI	Robust CFI	RMSEA (CI)
Null	4032.145		153					
1 Factor	1261.325	1114.914	135	.687	.671	.710	.714	.185 (.176 - .194)
6 Factor	239.764	221.252	120	.941	.961	.969	.970	.064 (.052 - .076)

Note: S-Bχ^2 = Satorra-Bentler scaled statistic, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, CI = Confidence Interval.

Invariance Analysis

Having demonstrated the model's validity in the private sector validation sample and in an independent public sector sample, the next step in the construct validation process involved conducting a more rigorous test of the invariance of the model. Burke et al. (1989) and Bollen

(1989) argued that it is important to cross-validate measurement models in independent samples. Cross-validation, or invariance analysis, determines whether there is equivalence of form, loadings, and construct intercorrelations across independent samples (Bentler, 1995). If chi-square difference tests show that, indeed, there is equality after testing a series of hierarchically nested models, the model can be said to be invariant (Bollen, 1989). Results of the invariance analyses, across the private sector sub-sample (Organisation 1, sub-sample 2, n = 416) and the public sector sample (Organisation 2, n = 249) are shown in Table 4.9. The baseline model, in which the basic form of the model is compared across samples, provided a good fit to the data (CFI = 0.97, RMSEA = 0.041, RMSEA confidence interval = 0.036 – 0.046). As a first step toward testing invariance, the loadings were constrained to be invariant or equal across the samples. Table 4.9 shows that this constraint resulted in a non-significant change in chi-square relative to the baseline model ($\Delta\chi^2 = 28.573$, 18 df, $p > .05$). Next, while maintaining equality condition for the loadings across samples, the factor covariances were also constrained to be equal across samples. This also resulted in a non-significant change in chi-square ($\Delta\chi^2 = 15.311$, 15 df, $p > .05$).

In short, the non-significant differences in the chi-square statistic, at each subsequent level of analysis, suggests that the model generalises across both sets of data. The results, therefore, show that the proposed model of trust in senior management successfully generalises across two very different organisations.

Table 4.9
Invariance analysis of the 6 factor model
(Organisation 1,sub-sample 2, n =416; Cross-validation sample, n =249)

Level of Analysis	χ^2	df	$\Delta\chi^2$	Δdf	CFI	RMSEA (CI)
Form (Baseline)	502.354	240	-	-	.970	0.041 (0.036 – 0.046)
Invariance of Loadings	530.927	258	28. 573 ^{ns}	18	.969	0.040 (0.035 – 0.045)
Invariance of Loadings & Covariances	546.238	273	15. 311 ^{ns}	15	.968	0.040 (0.035 – 0.044)

$\Delta\chi^2$ = change in chi-square, Δdf = change in degrees of freedom, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, CI = Confidence Interval.

Table 4.10 shows the means, standard deviations and alpha reliabilities (α) across both organisations for each dimension of trust in senior management included in the model. As expected from the previous analyses, all measures had internal consistencies exceeding Nunnally's (1978) criterion of $\alpha = 0.70$.

Higher mean scores, for all variables, suggest higher levels of trust or trustworthiness. The number of scale scores below their corresponding scale mid-point, therefore, suggests relatively low levels of perceived trustworthiness in both organisations. The *t* values shown in Table 4.10 show that, except for dispositional trust, there were significant differences in scale scores for each of the dimensions across the organisations. Levels of trustworthiness and trust in the private sector validation sample were significantly higher than those in the public sector cross-validation sample.

Table 4.10
Descriptive statistics for trust in senior management in both organisations

	Organisation 1 Sub-Sample 2 n = 416			Organisation 2 n = 249			*t* value
	Mean	SD	α	Mean	SD	α	
Dispositional Trust	4.88	1.19	.79	5.05	1.13	.79	- 1.904 ^{ns}
Cognitive Trust - Care	3.83	1.66	.92	3.48	1.67	.94	2.747 **
Cognitive Trust - Competence	4.63	1.40	.88	4.11	1.55	.91	4.641 ***
Trust - Behavioural Intention	4.93	1.23	.75	4.42	1.41	.80	5.097 ***
Affective Trust	3.84	1.44	.85	3.04	1.52	.93	7.091 ***
Social Norms	2.74	0.90	.88	2.40	0.95	.91	4.822 ***

Note: ** = significant difference between organisations at $p < .01$; *** $p < .001$, df = 703; ns = non-significant difference between organisations. Range of 1 -7 for all variables except Social Norms (range = 1-5).

Correlations among the dimensions of trust in senior management across both organisations are shown in Tables 4.11. The correlations, derived from the output of the CFA for validation sub-sample 2, ranged from $r = 0.38$ to $r = 0.84$. The correlations from the cross validation sample were similar, and ranged from $r = 0.19$ to $r = 0.88$. The invariance analysis suggests that the correlations are statistically equivalent across groups.

Table 4.11
Correlations between dimensions of trust in senior management in Organisation 1 and 2

	1	2	3	4	5	6
1 Dispositional Trust	1.00	.220	.198	.316	.186	.271
2 Cognitive Trust - Care	.411	1.00	.879	.651	.738	.777
3 Cognitive Trust - Competence	.349	.837	1.00	.582	.730	.700
4 Trust - Behavioural Intention	.456	.563	.514	1.00	.584	.632
5 Affective Trust	.389	.658	.609	.530	1.00	.639
6 Social Norms	.448	.773	.638	.552	.567	1.00

Note: lower half of matrix from validation sample (Organisation 1, sub-sample 2, n = 416) and upper half of matrix from cross-validation sample (Organisation 2, n = 249).

Discussion

The study contributes new insights to the literature on trust in organisational contexts by identifying a set of constructs useful for understanding employee trust in senior management. Evidence in support of construct validity for six dimensions of trust in senior management was presented.

The analytic methods used lend weight to the validity of the constructs. Many previous studies have used exploratory methods to validate the dimensionality of models. Exploratory methods are data driven, rather than theory driven and, in that sense, are limited to post hoc interpretation. Confirmatory analyses provide an immediate test of a theoretically driven model. The measurement model, in this instance, was developed using well-established frameworks (Azjen & Fishbein, 1980; Rosenberg & Hovland, 1960). Elements within the model were also developed from well established theory. Warr's (1990) model of affective well-being provided the conceptual grounding for the affective measure of trust in senior management.

Overall, the results support the proposed six dimensional model of trust in senior management. The dimensions include two cognitive factors, an affective factor, a behavioural intent dimension, a dispositional factor, and a social normative factor. Given that the dimensions were derived from well established theories in the attitude literature (Azjen & Fishbein, 1980; Rosenberg & Hovland, 1960), the results lend considerable support for the

view that trust in senior management can be viewed as an attitude (Clarke & Payne, 1996; Jones & George, 1998; Whitener, Brodt, Korsgaard & Werner, 1998).

The cognitive dimensions fit with existing formulations of trust in organisational contexts. The two cognitive dimensions overlap with dimensions identified by Butler (1991), Cook and Wall (1980), Clark and Payne (1996), Mayer, Davis and Schoorman (1995), Mishra (1996) and others. All of these researchers included, amongst a broader set of factors, dimensions which correspond to cognitive-care and cognitive-competence. The present analysis suggests a two dimensional conceptualisation is sufficient to capture cognitive attributions of trustworthiness in senior management.

It is noteworthy, that despite demonstrating discriminant validity between the care and competence dimensions, the correlations between the two factors were high across both organisations ($r = 0.84$, $r = 0.88$). The results of more extensive analyses to investigate whether a higher order factor drives these dimensions will be reported in subsequent chapters. This higher order factor might correspond to the construct of "credibility" (Tinsley-Dillard, 1996) or to generalised psychological climate (James & James, 1989). With respect to trust *per se*, McKnight, Cummings and Chervany (1998) suggested that a combination of trusting beliefs (benevolence belief, competence belief, honesty belief or predictability belief) could be used in empirical research as a second order construct.

The investigation of the affective dimensions of trust in organisational contexts has proved problematic for researchers. By referencing the affective dimension of trust in senior

management to Warr's (1984) model of affective well-being, trust in senior management was located within the broader affective space. Affective trust appears to sit in the lower right hand quadrant of Warr's affective space and is associated with feelings of safety and security.

In contrast to some previous research where correlations between cognitive and affective dimensions were extremely high (Cummings & Bromiley, 1995), the correlations in the present study were only moderately high. The correlations across both organisations (r = 0.61 and r = 0.74) were not so high as to suggest a second order factor (Christiansen, Lovejoy, Szymanski & Lango, 1996). The results supported the discriminant validity between the cognitive and affective dimensions.

The means by which affective responses to senior management were measured may have broad potential application. Given the increasing recognition of the importance of affect and emotion in organisational contexts (Fox & Spector, 1999; Wright & Doherty, 1998), scales which more directly access affective responses to individuals, groups, and organisational processes (e.g. managers, team members, peers, performance appraisals) might help to explain additional variance in outcome variables such as trust, commitment, absence, and intention to turnover.

Evidence was also provided in support of the validity and reliability of measures of disposition, social norms, and behavioural intentions. Convergent validity, discriminant validity and acceptable alpha coefficients were reported for each of these dimensions. The dispositional dimension was derived from the trust sub-scale of 'big 5' dimension of

agreeableness (Costa & McCrae, 1992). The robustness of the measure of dispositional trust was reinforced by the fact that there was no significant difference on this variable across organisations. This result suggests that 'dispositional trust', as expected, functions independently of situational context. Further research might be directed toward identifying other 'big 5' domains, facets, and sub-scales which, alone or in combination, might impact on trust in organisational contexts. Openness to experience, for example, by being associated with tolerance (Goldberg, 1992), might influence trust. Judge, Thoresen, Pucik and Welbourne (1999) identified a number of additional personality dimensions which might be applied in trust research.

Along with Mayer and Davis (1999), Currall and Judge (1996) and others, trust was operationalised in terms of behavioural intentions. Given that the measure of trust showed acceptable validity and reliability, researchers and practitioners are hereby provided with a short but psychometrically tested measure of trust in senior management. In contrast to some alternative measures, the trust-related measures developed here had alpha coefficients above criterion values (Nunnally, 1977) and were shown to be invariant across dissimilar organisations.

Despite demonstrating the measurement model provided acceptable fit to the data, further research aimed at developing and refining the scales is indicated. Two items had moderate, albeit statistically significant, standardised loadings on their respective dimension (e.g. 0.56 for a disposition item, and 0.49 for a behavioural intention item). Additional items might be developed to augment these three item scales.

Overall, however, the robustness of the results was evidenced by successfully cross-validating the model to a second independent organisation. Given the heterogeneity between and within the organisations, and given that the invariance analysis showed that the model is generalisable, researchers and practitioners can use the measures with some confidence in both private and public sector service organisations. The significant difference in mean scores for trust and trustworthiness across the two samples demonstrates that the measures are sensitive to differences across organisations. The validity, reliability and brevity of the measures (three items per construct) should prove appealing to researchers and practitioners who are looking to contain organisational climate surveys to the shortest possible length. Many existing measures of trust and trustworthiness are quite lengthy.

In summary, a theoretically sound and empirically robust suite of measures of trust and trustworthiness in senior management was developed. While the construct of trust is enjoying a resurgence within the popular management literature, as well as within academic literature, it is important to operationalise the construct in valid and reliable ways. By specifying a focal group and by using well established theory and rigorous methods, measures were developed which can be generally applied.

In the next chapter the research is focussed on determining the structural relations between the six dimensions. It will be argued that the affective and normative dimensions of trust will likely mediate relations between the cognitive dimensions and behavioural intentions.

CHAPTER V

STRUCTURAL MODEL

In the previous chapter, the development of measures of six dimensions of trust in senior management was described. In this chapter, a structural model is proposed which identifies the structural relations between the six dimensions. Consistent with a structural equation modelling orientation, and as recommended by Byrne (1994), the relations within the proposed model are grounded in theory and empirical research. A competing model is then examined to determine whether it provides a more parsimonious and theoretically plausible description of how the six trust factors interrelate.

Having first described the conceptual development of the proposed model, the methods used to evaluate the proposed and the competing model are outlined. Then, using Anderson and Gerbing's (1988) two-step procedure, the overall fit of the proposed model and the alternative model is assessed. A determination is then made as to which of the competing models is the most parsimonious and theoretically plausible. Next, the direct and indirect effects specified in the selected model are tested. Finally, an invariance analysis is conducted to determine whether the resulting model generalises to an independent sample.

Conceptual development of alternative structural models.

The tripartite model of attitude structure (Rosenberg & Hovland, 1960) and the theory of

reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1974,1975) provide sound theoretical bases for the study of trust in organisational contexts. Clark and Payne (1997), Cummings and Bromiley (1996), and Currall and Judge (1995) have used the models and frameworks to explicate trust relations.

As described in the previous chapter, the theory of reasoned action and the tripartite model of attitude structure provided the basis for developing measures of cognitive, affective, normative, dispositional and behavioural intention dimensions of trust in senior management. The six dimensions were shown to provide a good fit with data derived from two independent organisations. Despite high correlations between two cognitive dimensions, the measures were shown to have convergent and discriminant validity.

The cognitive, normative, affective and dispositional dimensions help define the antecedents of trust. Mayer, Davis and Schoorman (1995) suggested that the antecedents of trust include attributions of trustworthiness and dispositional influences. Cognitive assessments as to the competence and caringness of a focal person or group will help define the extent to which that person or group is perceived as trustworthy (Mayer & Davis, 1999). In the absence of attributions about trustworthiness, trust will not develop. In a similar way, social norms will influence the extent to which an individual experiences trust. The extent to which an individual perceives others as trusting senior management will influence the extent to which the individual, himself or herself, will trust senior management. Information processing theory (Salancik & Pfeffer, 1978) and organisational culture perspectives (Erez & Earley, 1993) attest to the importance of social influence in organisational contexts. On the affective plane,

evoked feelings of safety, security, confidence and comfort can also influence the extent to which trust is elicited (House, 1977). Affective responses are likely to be particularly salient under conditions of change, uncertainty or vulnerability (Begley & Czajka, 1993; Gilmore, Shea & Useem, 1997). Finally, an individual's generalised propensity to trust will also impact on willingness to engage in trusting behaviour, especially when the focal party (e.g. senior management, politicians, police, teachers) is representative of a generalised class (Payne & Clark, 1995).

The preconditions of trust, in turn, determine the extent to which an individual is willing to engage in trusting behaviour. It is the willingness to engage in trusting behaviour, corresponding to the behavioural intention dimension of the Ajzen and Fishbein model, which defines trust. Trust in senior management is here defined as *the willingness to act on the word, decisions and actions of senior management under conditions of uncertainty or risk.* This definition is consistent with those offered by McAllister (1996), Currall and Judge (1995), Mayer and Davis (1999) and others.

Starting from the proposition that behavioural intention can be used to define trust, alternative models, (Model 1 and Model 2), were developed to portray structural relations between the six dimensions. Both models specify direct and indirect effects of the cognitive, affective, normative, and dispositional dimensions on trust (behavioural intention). The models are shown in Figures 5.1 and 5.2.

Model 1 (Figure 5.1) represents a first order model, where the construct of trust is defined in terms of each of the six elements, as previously defined. For reasons outlined below, the cognitive "care" and "competence" dimensions are hypothesised to influence "affect-based" trust and "social norms". In turn, affect-based trust and social norms are hypothesised to influence trust. Affect-based trust and social norms are, therefore, hypothesised to mediate the relationship between the "care" and "competence" dimensions, on the one hand, and "trust" on the other.

Model 2 (Figure 5.2) represents a higher order model. Here, the "care" and "competence" dimensions are subsumed by a higher order "overall effectiveness" factor. The high correlations between "care" and "competence", as reported in Chapter IV, suggested the possibility of a higher order factor. A higher order factor, as opposed to a unidimensional factor, was indicated because discriminant validity between the "care" and "competence" dimensions was demonstrated. Also, there is a considerable body of literature which suggests that both care and competence need to be considered when conceptualising trustworthiness (Butler, 1991; Cook & Wall, 1980; Mayer, Davis & Schoorman, 1995). Vandenberg, Richardson and Eastman (1999) noted that, "Higher order constructs have been used in other situations where the meaning of a conceptual entity cannot be captured through its individual components, but must be captured through the common forces underlying those components" (p. 305-306). Further arguments in support of the higher order 'overall effectiveness' factor are outlined below.

In structural equations terminology, Models 1 and 2 show exogenous (ξ) and endogenous (η) variables. Paths between exogenous and endogenous variables (gamma paths, γ), and paths between endogenous variables (beta paths, β) are also shown. For ease of representation, elements of the measurement model, (i.e. the three indicators per constructs and their associated error terms) have been omitted from the models.

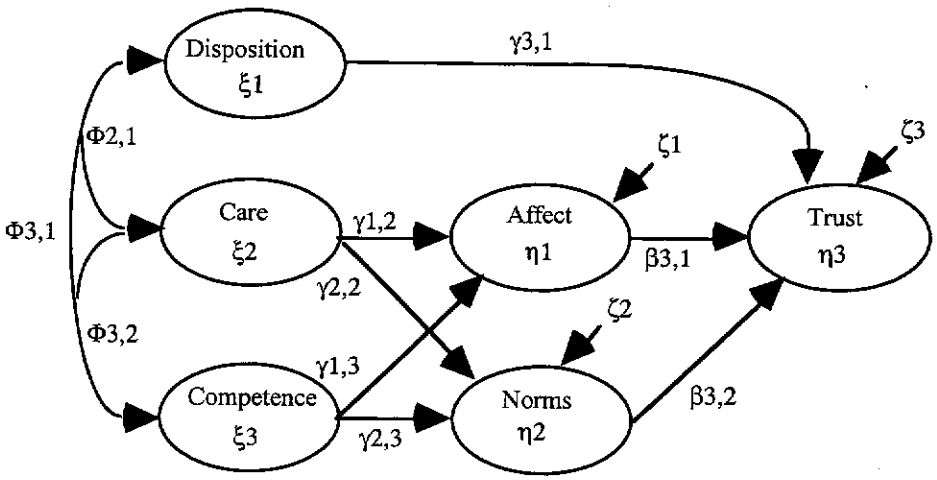

Figure 5.1. Model 1: First order structural model of trust.
Note: measured indicators not shown for ease of interpretation

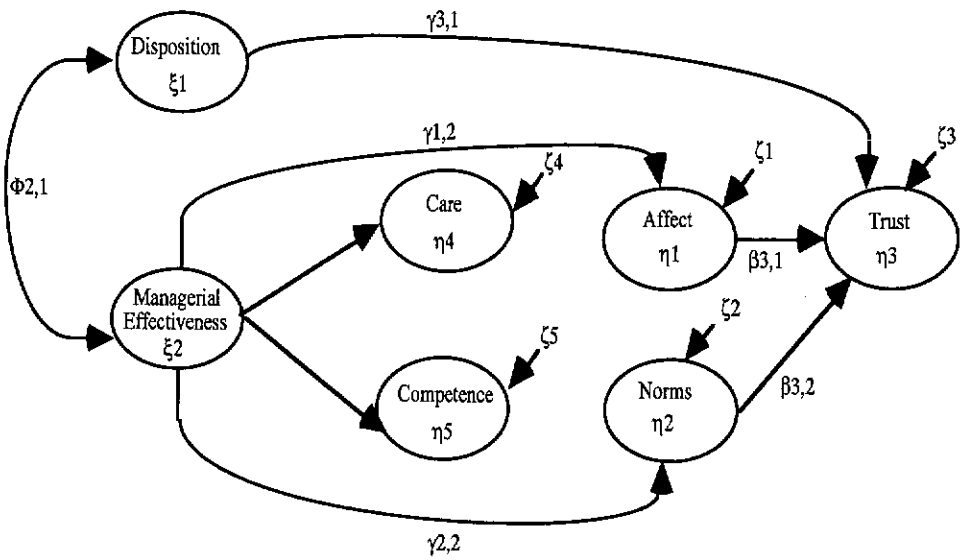

Figure 5.2. Model 2: Higher order structural model of trust in senior management.
Note: measured indicators not shown for ease of interpretation

The proposed models are consistent with Fishbein and Ajzen's (1980) model in that attitudes and social norms are posited as key determinants of intentions to behave. The proposed models are also consistent with the tripartite model of attitude structure (Rosenberg & Hovland, 1960) in that both the cognitive and affective dimensions of attitude are explicitly acknowledged. More detailed arguments in support of the hypothesised structural relations are outlined below.

Affect $\longrightarrow$ Trust

Bagozzi, Gopinath and Nyer (1999) conceptualised affect as, "an umbrella for a set of more specific mental processes including emotions, moods, and (possibly) attitudes" (p. 184). Affect implies an emotional response (Breckler, 1984) or a valenced feeling state (Cohen & Areni, 1991). Beyond the strong intuitive appeal for the proposition that affect influences behaviour (Forgas, 1994; Roesch, 1999; Weiss & Cropanzano, 1996), empirical evidence also suggests that affect influences behaviour. George (1990) found that group affective tone influenced prosocial behaviour and absence behaviour. McAllister (1995) reported that affect influences trust behaviour. Given that attitudes are defined as evaluative responses (Ajzen, 1989), Model 1 and Model 2 both show affect-based trust as an attitudinal dimension directly influencing trust as behavioural intentions (Fig. 5.1 path β 3,1; Fig. 5.2 path β 3,1).

Social Norms $\rightarrow$ Trust

The social environment has been found to have a profound influence on employees' attitudes and behaviours (Asch, 1958; Hackman, 1976; Leonard-Barton & Deschamps, 1988). The

social information processing model (Salancik & Pfeffer, 1978; Thomas & Griffen, 1983; Zalesny & Ford, 1990) provides an account of how social cues operate in the work environment to influence behavioural intentions and behaviour. Within the organisational trust domain, Kramer, Brewer and Hanna (1996) and Whitener, Brodt, Korsgaard and Werner (1998) argued that social processes are important determinants of trust behaviour. Given that most employees do not have direct and extensive contact with senior management (Kramer, Brewer & Hanna, 1996), it is highly likely that employees will rely on heuristics, stereotypes, scripts, culture and work group norms when assessing whether or not to trust senior management and whether or not to engage in trusting behaviour. The research findings of Burt and Knez (1995) are consistent with this view. They described how third parties can influence trust and future cooperation in organisational contexts. Model 1 and Model 2 therefore show social norms leading directly to trust (Fig. 5.1 path β 3,2; Fig. 5.2 path β 3,2).

Cognition $\rightarrow$ Affect and Social Norms

The dimensions of care and competence have consistently emerged as dimensions of trustworthiness in the organisational literature (Butler, 1991; McAllister, 1996; Mayer & Davis, 1999). Tyler and Degoey (1996) argued that "according to the social model of trust, an authority's intentions to maintain respectful relations in decision-making processes are central to trust" (pp. 332-333). In addition, Tyler and Degoey argued that, especially in more distant relationships, trust or cooperation may be driven by judgements about competence.

Although differing accounts of the causal relationship between cognitive and affective dimensions have been presented in the literature, there is substantial support for the

proposition that cognitive-based attitudes influence affect-based attitudes (Zajonc, 1980). McAllister (1995) argued that, in working relationships, "some level of cognition-based trust may be necessary for affect-based trust to develop..." (p. 30).

It is therefore proposed that care and competence assessments influence affective experience. Attributions of caringness and competence will lead to feelings of safety, security and trust, particularly under conditions of uncertainty or risk. It is this associated emotional involvement or engagement, rather than the attribution of caringness or competence itself, which, in the end, will influence trust. It is also proposed that attributions of caringness and competence are filtered through normative evaluations. Because individual employees rarely have detailed and direct information about senior management performance, they will rely on social cues to come to judgements about the caringness and competence of senior management. Again, attributions of caringness or competence, by themselves, will be insufficient to influence trust. It is only through the filters of emotional engagement and consensual validation, that caringness and competence attributions will influence willingness to engage in trusting behaviour. For these reasons, Model 1 shows cognitive-care leading to affect-base trust (Figure 5.1 path γ 1,2) and to social norms (path γ 2,2), and competence leading to affect-based trust (path γ 1,3) and social norms (path γ 2,3).

In the previous chapter, high correlations between competence and care were reported across two samples ($r = 0.84$, $r = 0.88$). Christiansen, Lovejoy, Szymanski and Lango (1996) reported that correlations between factors of 0.80 and above might suggest the existence of a higher order factor. "Indeed, the capacity of the measurement model to support higher order

structures depreciates rapidly when the first-order factor intercorrelations are lower than .80, resulting in an unacceptable fit for the hierarchical model" (Christiansen et al., 1996, p. 606). Therefore alternative Model 2 posits a higher order factor subsuming competence and care. The higher order factor represents an overall evaluation as to the effectiveness, credibility or suitability of senior management. It is a global or holistic assessment which subsumes evaluations of both care and competence considerations. This composite higher order factor is consistent with James and James' (1989, 1992) underlying general psychological climate factor (PCg) and Tinsley-Dillard (1996) "credibility" construct. McKnight, Cummings and Chervany (1998) suggested that a combination of trusting beliefs (benevolence belief, competence belief, honesty belief or predictability belief) could be used in empirical research as a second order construct. In line with the arguments outlined for the first order factors, it is here proposed that the influence of the higher order factor on trust will be mediated by emotional engagement and consensual validation. Model 2 (see Figure 5.2) therefore shows the higher order evaluation factor leading to affect-base trust (path γ 1,2) and social norms (path γ 2,2).

Disposition $\rightarrow$ Trust

Some individuals are more dispositionally trusting than others (Costa & McCrae, 1992; Driscoll, 1978; Rotter, 1967; Farris et al., 1973; Mayer et al., 1995). Disposition has been included in previous trust research and models of trust (Currall, 1992; Currall & Judge, 1995; Mayer & Davis, 1999). Payne and Clark (1996) suggested that dispositional trust will be especially salient with more generalised forms of trust. Given that many employees may not have direct contact with the "general class" of senior managers on a regular basis, a

dispositional measure of trust was included in the present research. Dispositional influence is probably inversely related to contact with senior management. Given that contact or exposure influences attitudes (Zajonc, 1965), it is likely that the attitudes of those who have limited contact with senior management will be influenced by disposition. Consistent with Currall and Judge (1995), a direct link between trusting personality and trust is proposed (Figure 5.1 path γ 3,1; Figure 5.2 path γ 3,1).

Hypotheses

Model 1 (Figure 5.1) shows the hypothesised first order structural relations between the six dimensions of trust in senior management. Model 2 (Figure 5.2) shows the alternative higher order model. Although numerous alternative models might be considered, (e.g. all dimensions leading directly to trust), theoretical considerations and the arguments outlined above led to the conceptualisations shown in Figures 5.1 and 5.2.

On the basis of the forgoing arguments, the following hypotheses are considered:

H5.1. Trust is proportionally affected by affect-based trust.

H5.2. Trust is proportionally affected by social norms.

H5.3. Trust is proportionally affected by trusting disposition.

H5.4. Affect-based trust is proportionally affected by cognitive-care.

H5.5. Affect-based trust is proportionally affected by cognitive-competence.

H5.6. Social norms are proportionally affected by cognitive-care.

H5.7. Social norms are proportionally affected by cognitive-competence.

H5.8. A higher order "effectiveness" factor explains the covariance between cognitive-care and cognitive-competence.

Methods

Samples

Data were drawn from two organisations. As described in the previous chapter, the organisations were, in part, selected on the basis of having sufficient numbers of employees to enable meaningful interpretation of structural equations modelling (SEM) output. SEM requires sample sizes of 150 or more, "to obtain parameter estimates that have standard errors small enough to be of practical use" (Anderson & Gerbing, 1988, p. 415).

The primary validation sample consisted of all full-time and part-time employees from a large private sector organisation operating in the hospitality and gaming sector. Of the 2800 questionnaires distributed in June 1998, 1008 (36%) were returned. A wide variety of jobs

was represented, ranging from cleaners, hospitality workers, gaming attendants, administrative staff, and maintenance staff.

The second sample was drawn from a large public sector organisation, responsible for the administration and management of State public libraries, museums, performing arts centres and visual arts services. Of the 989 surveys distributed to full-time and part-time employees in November 1998, 329 (33%) usable surveys were returned.

As described in the previous chapter, the two organisations differed with respect to the proportion of males and females, average age, educational levels, tenure and employment level. Sample 2 had a higher proportion of female respondents, longer tenure, more education and, on average, were older than sample 1. Given the differences in demographics and the difference in core business activities of the two organisations, invariance analyses can provide a good test of the generalisability of results.

The validation sample, used to test the structural relations between the trust dimensions, consisted of a randomly generated sub-sample 1 of organisation 1 (n = 416). The same sub-sample was previously used to generate the measurement model. The cross-validation sample (n = 249) consisted of all full-time and part-time non-senior management employees from organsiation 2.

Measures

As described in the previous chapter, three items were selected to indicate each of the six trust related dimensions. As previously noted, Bollen (1989) and Kline (1998) suggested that

a minimum of two items is sufficient to define a construct and meet the requirements for the identification of multi-factorial measurement and structural models. Bentler and Chou (1987) advocated the use of three item scales. In this instance, three items were used to define each construct. Model identification requires that the number of observations is equal to, or exceeds, the number of estimated parameters, and that each latent variable has a scale (Kline, 1998).

Items assessing "disposition" included "I feel that other people can be relied upon to do what they say they will do", and "I have faith in the statements and promises of other people". Alpha coefficients of $\alpha = 0.79$ and $\alpha = 0.79$ were reported in the previous chapter. Participants rated the extent they agreed with each statement on a 7-point scale ranging from strongly disagree to strongly agree.

Three items assessing "social norms" included "most people in my work group trust senior management", and "most people I work with think senior managers have personal integrity". The items correspond more closely to an individual climate perception of social norms than to a strict interpretation of Ajzen and Fishbein's (1980) notion of "subjective norms". Participants rated the extent to which they agree or disagreed with each statement on a 5-point scale, ranging from strongly disagree to strongly agree. Alpha coefficients of $\alpha = 0.88$ and $\alpha = 0.91$ were reported in Chapter IV.

The three items assessing "cognitive-care" included "senior management can be counted on to look after the interests of employees" and "senior management tell the truth to employees".

Participants rated the extent they agreed with each statement on a 7-point scale ranging from strongly disagree to strongly agree. Alpha coefficients of $\alpha = 0.92$ and $\alpha = 0.94$ were reported in Chapter IV.

The three items assessing "cognitive-competence" included "senior management have the knowledge and skills to effectively lead this organisation", and "senior management have the courage to achieve the objectives they set". Again, participants rated the extent they agreed with each statement on a 7-point scale ranging from strongly disagree to strongly agree. Alpha coefficients of $\alpha = 0.88$ and $\alpha = 0.91$ were reported in the previous chapter.

Three items assessed affective-based trust. Respondents indicated the extent to which senior management made them feel "safe", "secure", and "trust" over the previous few weeks. Items were anchored on a 7-point scale ranging from not at all to to a very great extent. Alpha coefficients of $\alpha = 0.85$ and $\alpha = 0.93$ were reported in Chapter IV.

Trust was assessed in terms of behavioural intentions. Items included "I will act on the basis that Senior Management would honour any agreements made with employees", "I would be willing to support changes suggested by Senior Management", and "I will act on the basis that Senior Management will keep the promises they make to employees". Items were anchored on a 7- point scale, ranging from extremely unlikely to extremely likely. Alpha coefficients of $\alpha = 0.75$ and $\alpha = 0.80$ were reported in Chapter IV.

Analyses

The analyses proceeded in a number of steps. First, model fit was assessed, using EQS (Bentler, 1995), for the alternative models (Model 1 and Model 2), shown in Figures 5.1 and 5.2. Overall model fit was determined by assessing a number of recommended 'fit indices' (Marsh, Balla & Hau, 1996). The Bentler-Bonnett Normed Fit Index (NFI), Bentler-Bonnett NonNormed Fit Index (NNFI), the Comparative Fit Index (CFI), the Robust Comparative Fit Index (Robust CFI), and the Root Mean Square Error of Approximation (RMSEA) were used to assess the overall goodness of fit of the model. Values of 0.90 or above suggest a good fit for NFI, NNFI, Robust CFI, GFI, and AGFI. CFI values of 0.93 and above, and RMSEA values less than 0.08 also suggest acceptable levels of fit (Browne & Cudeck, 1993; Jöreskog & Sörbom, 1996).

As discussed earlier, MacCallum, Browne and Sugawara (1996) presented a framework for testing hypotheses about model fit based on RMSEA confidence intervals. When the entire confidence interval falls below 0.05 the evidence provides strong support for rejecting the "not-close fit" hypothesis (i.e., accepting the hypothesis of "close fit"). When the entire interval is above 0.05, the hypothesis of "close fit" is rejected. When the confidence interval 'straddles' 0.05, neither the hypothesis of "close fit" nor the hypothesis of "not-close fit" may be eliminated, and both hypotheses remain plausible (MacCallum et al., pp. 137-138).

In order to determine whether an hypothesis about model fit is false, adequate power needs to be demonstrated. MacCallum et al. (1996) provided a formula for calculating power and determining sample size when the null hypothesis is ≤ 0.05, the alternative hypothesis is

equal to 0.08, using an alpha level of 0.05, and a power of 0.80. All subsequent model fit evaluations proceeded after first demonstrating adequate power. The minimum sample size required and actual power (based on degrees of freedom) for model fit hypotheses are shown in note form in the tables which follow.

At this point in the analysis, on the basis of fit indices and parameter estimates, a decision could be reached as to which model best reflected the data and existing theory.

The second step in the analysis entailed testing the mediation hypotheses. As previously noted, James and Brett (1984) argued that, "researchers in organisational psychology are placing increasing emphasis on studying mediation models in which the influence of an antecedent is transmitted to a consequence through an intervening mediator" (p. 307). The proposed models are mediator models in that the affective and normative dimensions of trust mediate the effects of "care" and "competence" (Model 1) or the higher order 'effectiveness' factor (Model 2), on intentions to engage in trusting behaviour.

To test the mediating effects, a process recommended by Bollen (1989) was employed. Mayer and Davis (1999) described the process as follows: "Nested models, differing in the number of estimated parameters are statistically compared with chi-square difference tests. The chi-square difference test takes into account the differences in degrees of freedom for competing models. Where there is no statistical difference in chi-square between the models relative to the difference in degrees of freedom, the more parsimonious model is preferred. That is the model with the fewer number of estimated paths (therefore the greater degrees of

freedom) is preferred" (p.132). Where the chi-square difference test is significant, the better fitting model is preferred. It needs to be noted that when conducting multiple difference tests, significance levels need to be adjusted for the possibility of committing type 1 error. Bonferroni adjustments need to be applied (dividing the default significance level (.05) by the number of comparisons).

The third step in the analysis involved cross-validating the structural relations within the selected model against an independent sample. Beyond establishing a fit to the data in one organisation, it is important to cross-validate the structure to an independent sample (Burke et al., 1989). Cole and Maxwell (1985) have argued that the evidence of construct validity in one sample does not guarantee construct validity across groups. Thus, the multi-sample procedure in EQS was used to establish the "invariance", or the statistical equalities, between the two sets of data. Invariance analysis helps establish the generalisability of the model.

The process for demonstrating invariance involves imposing increasingly restrictive constraints on the two data sets to test equalities (Bollen, 1989). Values from the validation sample are substituted into the specification of the cross-validation sample to determine whether or not there is a significant increase in chi-square at each step of the process. First, the invariance of form across the two samples needs to be established. Bollen noted that, "Two models have the same form if the model for each group has the same parameter matrices with the same dimensions and the same location of fixed, free and constrained parameters" (p. 358). Next, if invariance of form can be established in the baseline model, the invariance of loadings (λx, λy) is tested. This step is followed by a test of whether the path

coefficients (β, γ) are the same across both groups. Bollen then recommended testing the equality of the exogenous error variances ($\theta\delta$) and endogenous error variances ($\theta\varepsilon$), testing the equality of the disturbance terms (ζ), before finally testing the equality of the construct covariances (ϕ) across groups. Bollen suggested that, "If a structural model with observed variables still matches the data under this highly restrictive hypothesis, the results are consistent with the assumption that the same model operates in both groups" (p. 359). However, as previously noted, Bentler (1995) and Byrne (1994) have argued that there is little utility in testing the equality of exogenous and endogenous error parameters. Therefore, tests for equality across error parameters for the exogenous and endogenous constructs ($\theta\delta$) were not conducted.

The 'n' for all analyses was based on listwise deletion of cases. In addition, questionnaires completed by senior management and casual employees were excluded, and cases which were found to contribute to multivariate non-normality were deleted from the analyses. Multivariate non-normality may result in inflated Type 1 error and inaccurate significance tests of individual parameters (West, Finch & Curran, 1995). Although EQS accommodates violations of assumptions of multivariate non-normality through a scaled chi-square statistic (Satorra & Bentler, 1994), this statistic is currently not available for multi-sample tests of invariance.

Results

Table 5.1 shows that the fit indices for structural Model 1(first order model) and for structural Model 2 (higher order model) met criterion values. The NFI, NNFI, Robust CFI point estimates were well above criterion levels of 0.90 and the CFI values were well above the criterion value of 0.93. The Root Mean Square Error of Approximation (RMSEA) point estimates (being lower than 0.08) also suggested goodness of fit (Byrne, 1994). With reference to MacCallum, Browne and Sugawara's (1996) RMSEA confidence interval criteria, in both models, neither the hypothesis of "close fit" or "not close fit" could be rejected. As noted under Table 5.1 (and subsequent tables), there was more than adequate power to test the hypotheses. Using MacCallum et al.'s (1996) formula, it was determined that, given the degrees of freedom in each model, minimum sample sizes of 104 and 106 would be required to test Model 1 and Model 2 fit hypotheses (respectively), with power set at 0.80. Given the validation sample size of 416, power equaled 1when testing the fit hypotheses for both Model 1 and Model 2.

Although Models 1 and 2 are not nested models, they can be statistically compared (Kline, 1998). Table 5.1 shows that the RMSEA values for the first order model (Model 1) were marginally lower than those for the higher order factor (Model 2). However, in the absence of clearly defined criteria for comparing RMSEA values, both models remained viable. Neither the hypothesis of "close fit" or the hypothesis of "not close fit" could be rejected.

Table 5.1
Fit indices of alternative structural models (Organisation 1, sub-sample 2, n = 416).

Model	χ^2	df	NFI	NNFI	CFI	RCFI	RMSEA	RMSEA CI
Model 1 (First Order)	288.02	143	.942	.968	.970	.973	.050	.041 - .058
Model 2 (Higher Order)	290.07	139	.942	.966	.969	.972	.051	.043 - .059

Note: NFI = Normed Fit Index, NNFI = Non-Normed Fit Index, CFI = Comparative Fit Index, RCFI = Robust Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, RMSEA CI = RMSEA confidence interval.
RMSEA Power Model 1 = 1.00, minimum N = 104 (df = 143).
RMSEA Power Model 2 = 1.00, minimum N = 106 (df = 139).

As suggested by Mayer and Davis (1999), path estimates for the competing models were examined. Standardised path estimates generated for Model 1 and Model 2 are shown in Table 5.2. For Model 1, while all other hypothesised paths were significant, the path coefficients from "competence" to "affect" and from "competence" to "social norms" were not significant. This suggests that competence is redundant in the model. For structural Model 2, all path coefficients, as hypothesised, were significant. This result is consistent with previous theory and research.

In order to further evaluate the competing models, statistical comparisons between structural Model 1(first order model) and structural Model 2 (higher order model) were repeated with the cross validation sample from Organisation 2 (n = 249). The fit indices are shown in Table 5.3. Again, the NFI, NNFI, Robust CFI point estimates were well above criterion levels of 0.90 and the CFI values were well above the criterion value of 0.93. The RMSEA point estimates (< 0.08) suggested reasonable fit, and MacCallum, Browne and Sugawara's (1996)

RMSEA confidence interval criteria, suggested that neither the hypothesis of "close fit" or "not close fit" could be rejected. With this sample, the RMSEA values for the higher order model (Model 2) were slightly lower than those for the first order model (Model 1). Again, in the absence of any clearly defined criteria for comparing RMSEA values, both models remained viable.

Table 5.2
Standardised path estimates and t values for Model 1 and Model 2 (Organisation 1, sub-sample 2, n = 416).

		Model 1		Model 2	
(ξ) Parameter	(η) Parameter	Standardised Path Estimate	t value	Standardised Path Estimate	t value
Disposition	Trust	.228	4.479*	.210	4.095*
Affect	Trust	.292	5.032*	.290	4.880*
Social Norms	Trust	.307	5.331*	.319	5.380*
Care	Affect	.535	5.500*		
Competence	Affect	.163	1.652 ^{ns}		
Care	Social Norms	.825	9.707*		
Competence	Social Norms	-.050	-0.576 ^{ns}		
Higher Order	Care			.974	ϕ
Higher Order	Competence			.850	20.199*
Higher Order	Affect			.696	14.833*
Higher Order	Social Norms			.795	18.651*

Note: * = sig $p < .05$ ($t > 1.96$); ns = non-significant; $_{\phi}$ = parameter fixed to 1

Table 5.3
Fit indices of alternative structural models (Organisation 2, n = 249).

Model	χ^2	DF	NFI	NNFI	CFI	R CFI	RMSEA	Conf Interval
Model 1 (First Order)	256.947	143	.937	.969	.971	.972	.057	.046 - .068
Model 2 (Higher Order)	243.324	139	.940	.971	.973	.975	.056	.044 - .067

Note: NFI = Normed Fit Index, NNFI = Non-Normed Fit Index, CFI = Comparative Fit Index, RCFI = Robust Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, Conf Interval = RMSEA confidence interval.
RMSEA Power Model 1 = 1.00, minimum N = 104 (df = 143).
RMSEA Power Model 2 = 1.00, minimum N = 106 (df = 139).

The standardised path estimates for Model 1 and Model 2, drawn from Sample 2 (n = 249), are shown in Table 5.4. For Model 1, all hypothesised paths were significant, except the path from "competence" to "social norms". For Model 2, all path coefficients, as hypothesised, were significant.

Overall, the results suggested that both Model 1 and Model 2 provided good fit to the data. Although the confidence intervals did not necessarily suggest a "close" fit (MacCallum et al., 1996), all of the relevant point estimate indices were well above their required minimum values. However, the competence dimension appeared not to behave consistently across the samples. Contrary to established theory and research (Butler, 1991; Cook & Wall, 1980; Mayer, Davis & Schoorman, 1995; Mishra, 1995), results from the validation sample suggested that competence was redundant in Model 1. In contrast, the results from the cross-validation sample (n = 289) indicated that competence was not redundant. Given the

acceptable fit indices, the significant paths between all hypothesised dimensions, and the consistent results across samples, the evidence is, therefore, more supportive of Model 2. Overall, Model 2 most successfully summarises the data and, therefore, becomes the preferred model.

Table 5.4
Standardised path estimates and t values for Models 1 and 2 (Organisation 2, n = 249).

		Model 1		Model 2	
(ξ) Parameter	(η) Parameter	Standardised Estimate	t value	Standardised Estimate	t value
Disposition	Trust	.166	2.862*	.156	2.854*
Affect	Trust	.292	4.423*	.295	4.084*
Social Norms	Trust	.307	5.698*	.397	5.507*
Care	Affect	.468	4.670*		
Competence	Affect	.326	3.208*		
Care	Social Norms	.713	7.448*		
Competence	Social Norms	.091	0.936 ns		
Higher Order	Care			.967	ϕ
Higher Order	Competence			.916	20.626*
Higher Order	Affect			.788	15.615*
Higher Order	Social Norms			.810	16.552*

Note: * = sig $p < .05$ ($t > 1.96$); ns = non-significant; ϕ = parameter fixed to 1

Testing the higher order measurement model

Having established Model 2 as the preferred model, it was necessary to more formally test the hypothesis that the higher order "effectiveness" factor explains the covariation among the first order factors. A high correlation between the two dimensions of cognitive-based trust, by itself, does not provide sufficient evidence of the verisimilitude of the higher order factor (Christiansen et al., 1996).

To test the hypothesis that the higher order "effectiveness" factor explained the covariation among the two first order cognitive factors, fit indices of the first order model (see Figure 5.3) and the higher order model (see Figure 5.4) were compared. Marsh and Hocevar (1985) reported that even when the higher order model is able to explain the factor covariations, the goodness-of-fit of the higher order model can never surpass the corresponding first-order factor model. To compensate for this problem, Marsh and Hocevar developed an index based on the ratio of the chi-square of the first-order model over the chi-square of the more restrictive second-order model. This index is referred to as the "target coefficient" or "T". T values can vary between 0 and 1.0. Values close to 1.0 suggest the higher order factor does indeed account for the covariation between first order factors.

RMSEA point estimates and confidence intervals were also used to assess model fit. However, using MacCallum et al.'s (1996) formula for calculating power and determining sample size, it was determined that 953 cases would be required to achieve power of .80, given the relatively small number of degrees of freedom (df = 8). Power can be increased by increasing sample size or by increasing the number of degrees of freedom. MacCallum et al. argued that "where df is small, a very large N is needed to achieve adequate power for these model tests" (p. 143). Given that higher order models are more restrictive in terms of degrees of freedom, in this instance, opportunities were sought to increase the sample size. By combining validation sub-sample 2 (n = 416) with the cross-validation sample (n = 249), power of 0.65 was achieved (n = 665). Although less than ideal, this level of power is sizably greater than could be achieved by using sub-sample 2 by itself (power = 0.46).

For the first order model (see Figure 5.3), the factors are independent (exogenous) variables, so their covariance was freely estimated ($\Phi_{2,1}$). The variance of each factor was fixed at 1.0.

In the higher order model (Figure 5.4), Factors 1 and 2 are dependent (endogenous) variables. They, therefore, do not have variances or covariances as parameters to be estimated. The correlation between the two first order factors is explained by the higher order factor. To identify the model, the variance of the disturbance terms (or zeta 'ζ' terms) were constrained to be equal ($\zeta 1,\zeta 1 = \zeta 2, \zeta 2$). The variance of the second order factor ($\Phi_{1,1}$) was fixed at 1.0. To scale the second order factor, one indicator from each of the first order factors was also fixed at 1.0 ($\lambda 8,1, \lambda 4,2$), increasing the degrees of freedom by 2.

Table 5.5 shows the fit indices for Model 1 and Model 2. The NFI, NNFI, CFI, Robust CFI, RMSEA and RMSEA confidence intervals were identical across both models. All point estimates suggested good fit (Byrne, 1994; Marsh, Balla & Hau, 1996), and the RMSEA confidence intervals suggested that neither the hypothesis of "close fit" nor "not close fit" could be rejected (MacCallum, Browne & Sugarawa, 1996; Steiger, 1990).

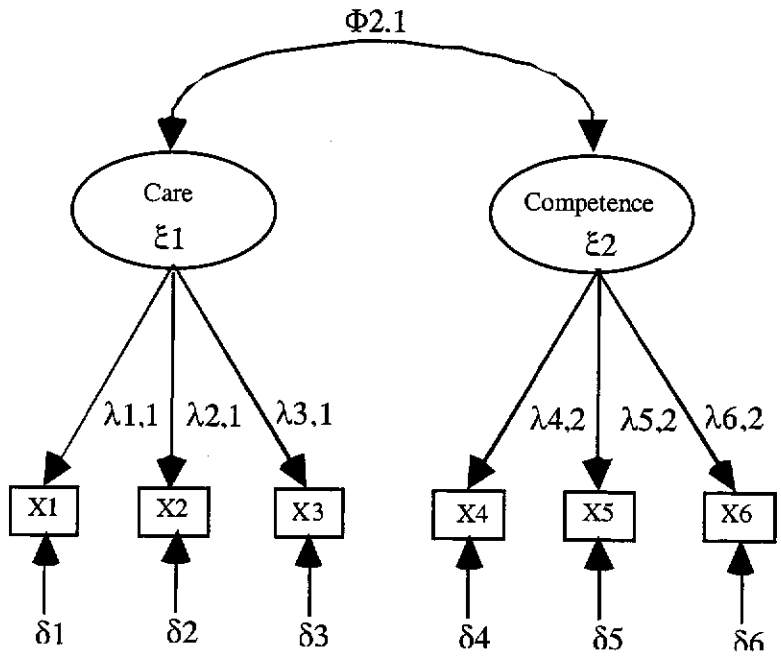

Fig. 5.3.
First order structural model for cognitive-care and cognitive-competence.

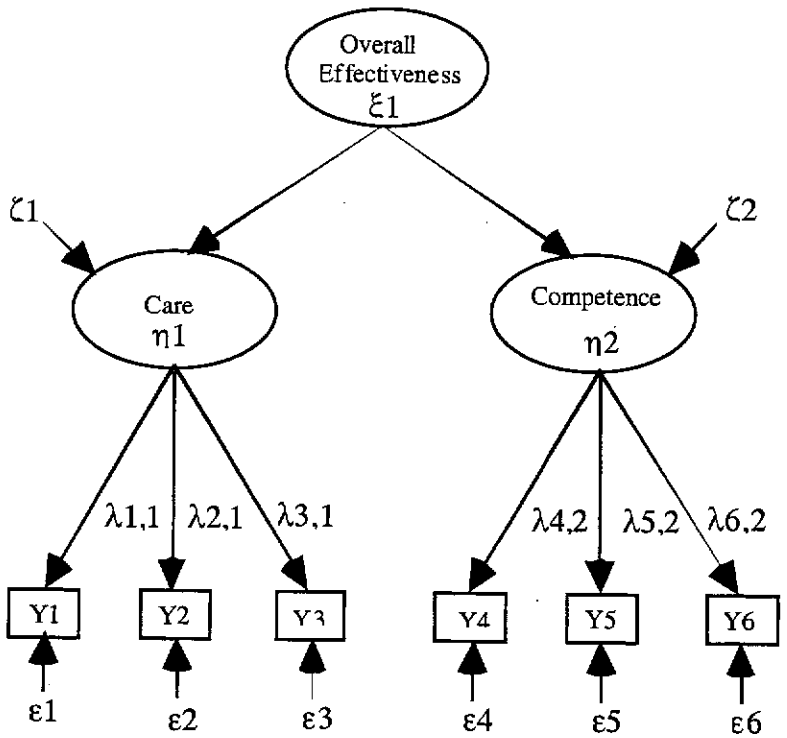

Fig. 5.4.
Higher order structural model for cognitive-care and cognitive-competence.

The Target coefficient (χ^2 first order factors/ χ^2 second order factor) equalled 1.0, indicating that the second order factor completely explained the covariation between the first order factors (Marsh & Hocevar, 1985). As shown in Table 5.4, the standardised path estimates between the first order "competence" factor and the higher order factor was very high. Overall, the results strongly confirm the existence of the higher order "effectiveness" factor subsuming the first order factors "care" and "competence".

Table 5.5
Fit indices of alternative first order and higher measurement models for cognitive-care and cognitive-competence (Organisation 1, sub-sample 2 + Sample 2 = 665)

Model	χ^2 (df)	S-Bχ^2	NFI	NNFI	CFI	RCFI	RMSEA (Conf Int)	Target Coefficient
1 First Order Structure	18.483 (8)	13.906	.992	.994	.997	.998	.045 (.041 - .058)	1.00
2 Higher Order Structure	18.483 (8)	13.906	.992	.994	.997	.998	.045 (.041 - .058)	

Note: S-Bχ^2 = Satorra-Bentler scaled chi-square, NFI = Normed Fit Index, NNFI = Non-Normed Fit Index, CFI = Comparative Fit Index, RCFI = Robust Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, RMSEA Conf Int = RMSEA confidence interval.
RMSEA Power for Model 1 and Model 2 = .66, minimum N = 953 for power = .80 (df = 8).

Mediation Effects

Figure 5.5 shows the proposed higher order model (Model 2). Figure 5.6 shows Model 2A, which has one additional path (γ 2,3). When path γ 2,3 is fixed to equal zero, Model 2A is equivalent to Model 2.

To test for mediation effects, chi-square difference tests are performed on competing models. The competing models are derived by systematically fixing and freeing paths gamma 1,2 (γ 1,2), gamma 2,2 (γ 2,2), and gamma 2,3 (γ 2,3).

The "comparison model" (M1), against which other models are tested, has gamma path γ 1,2, path γ 2,2 and path γ 2,3 freely estimated.

The "proposed mediator" model (M2) has path γ 1,2 and path γ 2,2 freely estimated, with path γ 2,3 constrained to zero. That is, the model assumes no direct effect from the higher order factor to trust. Rather, the effect of the higher order factor on trust is mediated by affect-based trust and social norms.

The "partial affect" mediation model (M3) has path γ 1,2 and path γ 2,3 freely estimated, with path γ 2,2 constrained to zero. The model assumes that the higher order factor directly influences trust and is also mediated by affect-based trust.

The "partial norms" mediator model (M4) has path γ 2,2 and path γ 2,3 freely estimated, with path γ 1,2 constrained to zero. The model assumes that the higher order factor directly influences trust and is also mediated by social norms.

The "direct effects" model (M5) has paths γ1,2 and path γ2,2 fixed to zero, with path γ2,3 being freely estimated. The model assumes that the higher order factor directly influences trust and is not mediated by either affect-based trust or social norms.

The results of the alternative tests are shown in Table 5.6. The addition of parameter $\gamma_{2,3}$ in M2 (where $\gamma_{2,3}$ is freely estimated) does not yield a better fitting model than the proposed model (where $\gamma_{2,3}$ is fixed to equal zero). Therefore, for reasons of parsimony, the proposed model is preferred. The results also show that the direct effects model, with no mediation ($\gamma_{1,2} = 0$, $\gamma_{2,2} = 0$ and $\gamma_{2,3} = *$), and the partially mediated models provide a significantly worse fit to the data than the proposed model. The evidence is therefore in support of the proposed mediation effect.

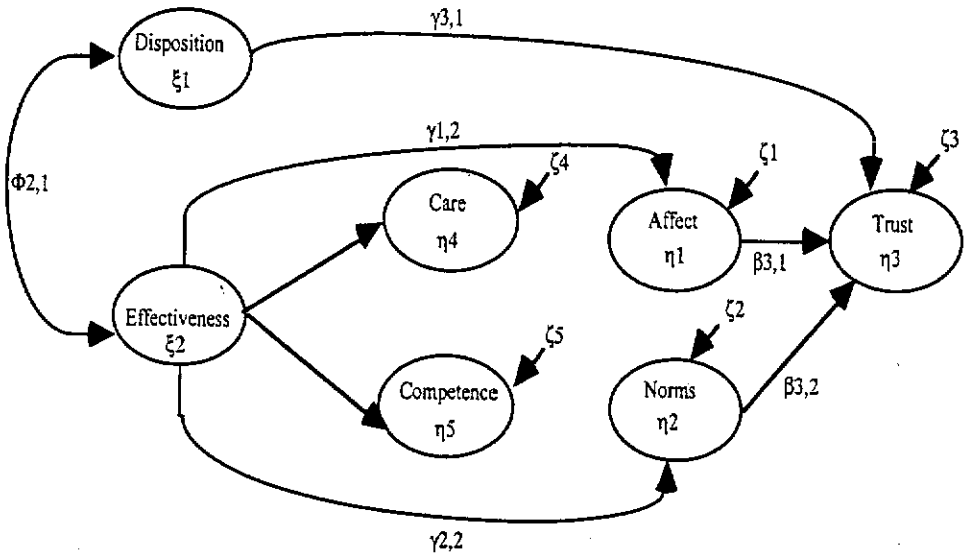

Figure 5.5. Model 2 Proposed higher order structural model.
Note: measured indicators, error terms, and disturbance terms not shown for ease of interpretation

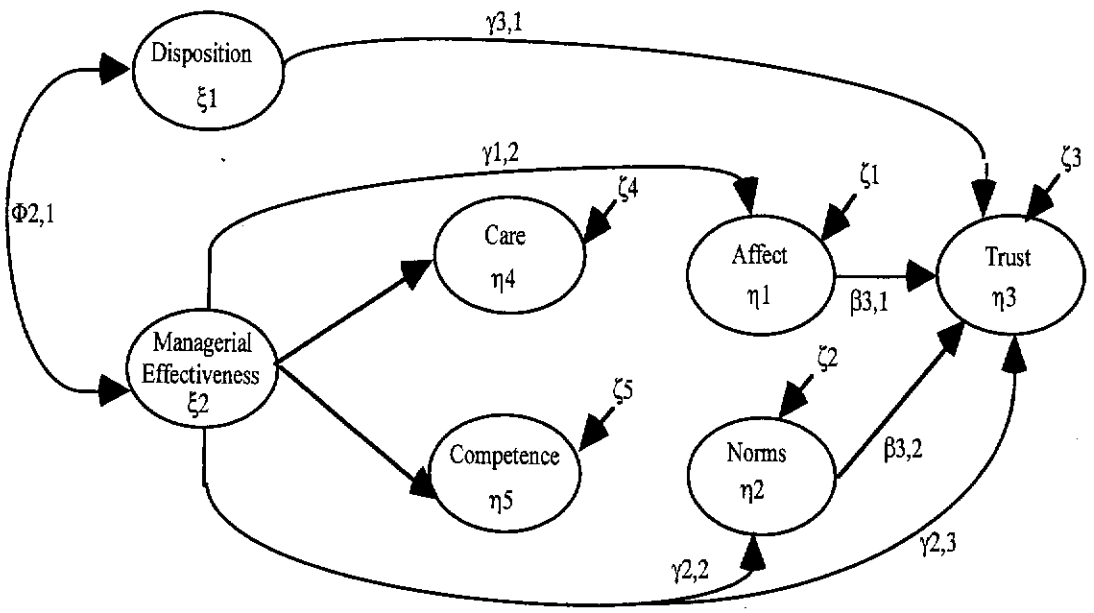

Fig. 5.6. Model 2A Structural model for testing mediation effects.
Note: measured indicators, error terms, and disturbance terms not shown for ease of interpretation

Table 5.6
Tests of mediation effects under competing models (Organisation 1, sub-sample 2, n = 416).

Model	χ^2	df	$\Delta\chi 2$	Δ df	Critical χ^2
M1 Comparison γ 1,2 = *, γ 2,2 = *, γ 2,3 = *	280.732	126	-	-	-
M2 Proposed Mediator γ 1,2 = *, γ 2,2 = *, γ 2,3 = 0	284.217	127	3.485 ns	1	3.84
M3 Partial Affect γ 1,2 = *, γ 2,2 = 0, γ 2,3 = *	467.786	127	187.054***	1	3.84
M4 Partial Social Norms γ 1,2 = 0, γ 2,2 = *, γ 2,3 = *	577.059	127	296.327***	1	3.84
M5 Direct Effects γ 1,2 = 0, γ 2,2 = 0, γ 2,3 = *	759.376	128	478.644***	2	5.99

Note: * = free parameter, 0 = parameter fixed to zero, *** = $p < 0.001$, ns = non-significant

Invariance

Invariance analysis was then used to establish whether the model (derived from the private sector validation sample) generalises to an independent sample (public sector organisation, Organisation 2, n = 249). Results of the invariance are shown in Table 5.7. The fit indices (CFI = 0.97, RMSEA = 0.041) suggested a good degree of fit in the baseline model. As previously mentioned, Bollen (1989) argued that the baseline model tests equivalence of form, that is, that the model, in each sample, "has the same parameter matrices with the same dimensions and the same location of fixed, free and constrained parameters" (p. 358). Having established fit in the base-line model, the loadings were constrained to be equal across the samples. This resulted in a non-significant change in chi-square relative to the baseline model ($\Delta\chi^2 = 16.349$, $\Delta df = 12$, $p > .05$). Next, while maintaining the equality condition for loadings, the path estimates were constrained to be equal across samples. This also resulted in a non-significant change in chi-square relative to the previous model ($\Delta\chi^2 = 2.862$, $\Delta df = 6$, $p > .05$). For the next step, while maintaining the constraints as previously imposed, the disturbance terms (ζ terms) were constrained to be equal. Again, a non-significant change in chi-square resulted ($\Delta\chi^2 = 3.892$, $\Delta df = 5$, $p > .05$). As a final test of invariance, an additional constraint was imposed, whereby the covariances among the exogenous variables were constrained to be equal. With one degree of freedom difference, the bonferroni adjusted increment in chi-square was not significant ($\Delta\chi^2 = 4.143$, $\Delta df = 1$, $p > .05$).

Overall, the non-significant differences in the chi-square statistic (Bonferroni adjusted), at each subsequent level of analysis, suggests that the model generalises across both sets of data.

The fit indices for all models were acceptable and the overall RMSEA (0.039) and confidence intervals (0.034 - 0.044) suggest a close fitting model. These results show that, despite the imposition of highly restrictive conditions, the proposed model of trust in senior management successfully generalises across two dissimilar organisations.

Table 5.7
Invariance of the structural model across two samples (n = 416, n = 249).

Invariance Model	χ^2	df	$\Delta\chi 2$	Δdf	CFI	RMSEA (CI)
Form / Baseline	529.645	254	-	-	.97	.041 (.036-.046)
Form and Loadings	545.994	266	16.349 ^{ns}	12	.97	.040 (.035-.045)
Form, Loadings and Paths	548.856	272	2.862 ^{ns}	6	.96	.041 (.038-.045)
Form, Loadings, Paths and Disturbances	552.848	277	3.892 ^{ns}	5	.96	.039 (.034-.044)
Form, Loadings, Paths and Disturbances and IV Covariances	556.991	278	4.143 ^{ns}	1	.97	.039 (.034-.044)

Note: CFI = Comparative Fit Index, RCFI = Robust Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, RMSEA CI = RMSEA confidence interval.
RMSEA Power for both samples 1 and 2 = 1.00; minimum sample (254 df) for power at .80 = 73.
ns = not significant (Bonferroni adjusted).

Discussion

The primary purpose of the present research was to identify structural relations between dimensions of trust in senior management. Using structural equations modelling, a model was derived which provided a good fit to data drawn from two organisations. The proposed model is compatible, in broad terms, with the theory of reasoned action and the tripartite

model of attitude structure. It, therefore, can provide insight about employee attitudes toward senior management and can assist practitioners and researchers understand the development and dynamics of trust in senior management. Beyond providing an overall framework, the results contribute to the literature on trust in organisational contexts in several specific ways.

First, it was shown that affective trust directly influences trust (defined as behavioural intention). The investigation of the affective dimensions of trust in organisational contexts has proved problematic for researchers. By operationalising the affective dimension of trust in senior management in terms of feelings of safety, security, and trust, it was shown that emotional engagement is an important precondition to trust. Previous research has shown that affective states can influence information processing, social judgements and behaviour (c.f. Crites, Fabrigar & Petty, 1994; Gasper & Clore, 2000). The results reinforce recent calls to acknowledge the importance of affect in organisational research and theory (Fox & Spector, 1999; Mossholder, Settoon, Armenakis & Harris, 2000; Wright & Doherty, 1998).

Secondly, it was shown that social norms are an important determinant of trusting intentions. The results show that beliefs about how others perceive senior management are likely to have an appreciable influence on employees' decisions to engage in trusting behaviour. Theoretical and empirical support for this view can also be found in the organisational climate literature (Reichers & Schneider, 1990; Schein, 1985), the group climate literature (Anderson & West, 1998), from research on group affective tone (George, 1996) and models of "shared reality" in organisational contexts (Snyder & Higgins, 1988). Recent literature from an attributional

perspective (Silvester, Anderson & Patterson, 1999) has also acknowledged that, beyond an individual level 'sense making' imperative, *shared* causal attributions for organisational experience are important. This is particularly so when employees can not access "first-hand" information to help them attribute motive or evaluate action. Although Ajzen and Fishbein's (1980) framework explicitly acknowledged subjective norms as an element of attitude, Azjen (1991) suggested that individual factors are more influential in determining intentions than social factors, and claimed that empirical research showed that subjective norms have limited predictive utility. The results of the present research are more consistent with calls to acknowledge the important role that perceived social norms can play in organisational contexts (Terry, Hogg & McKimmie, 2000). The results also accord with calls to reconceptualise the means of measuring Ajzen and Fishbein's notion of subjective norms (Terry & Hogg, 1996; Green, 1998; Warshaw, 1980). In this instance, conceptualising social norms as an individual level climate variable (c.f. Payne, 1990), yielded a significant and positive association with trust in senior management.

Third, it was shown that disposition has a direct influence on trust in senior management. This finding is consistent with Mischel (1977) who suggested that in general terms personality has more predictive power when situational influences are weak. With respect to dispositional trust, Payne and Clarke (1996) suggested that when the focal group for trust can be regarded as a "generalised class" (such as senior management), dispositional influences will be important. As a counterpoint, Mayer and Davis (1999) reported that dispositional trust did not predict trust (operationalised a behavioural intention) over time. However, given that their research was conducted in a small manufacturing firm where employees had,

"occasional, albeit limited, contact with top management" (p. 134), situational cues may have overshadowed more generalised responses. Mayer and Davis concluded that, "it is conceivable that this level of contact led respondents to assess trust differently than they would in a large organization in which contact with top management is less common" (p. 134). The results of the present research suggest that, at least cross-sectionally, trusting disposition does influence trust in senior management.

Fourth, evidence was found in support of a second order factor which subsumes attributions about care and competence. The higher order factor suggests an evaluation about the overall effectiveness or credibility of senior management. This overall appraisal is consistent with James and James (1992) construct of general psychological climate (PCg) and Lance, LaPointe and Stewart's (1994) "general impression" model. In a similar vein, Carless (1998) argued that, "trustworthiness and charisma may simply be very general categorizations of the leader that influence subordinate ratings [or assessments]" (p. 357). Although the finding of the single higher order factor contrasts to previous research findings where multiple cognitive trustworthy factors have been evidenced (e.g. Butler, 1991; Clark & Payne, 1997; Mayer & Davis, 1999), Mayer and Davis (1999) and others have acknowledged relatively high correlations between measures of trustworthiness. The results show that when appraising the generalised class of senior management in large organisations, an overall evaluative factor indirectly drives intentions to engage in trusting behaviour.

Fifth, it was demonstrated that the affective and normative dimensions mediate the relationship between the higher order factor and trust. In contrast to Terry and Hogg (1996),

who argued that social norms may *moderate* the effects of attitudes on intentions, the results from the present research provide evidence that social norms *mediate* the effects of attitude on intentions. The mediation process can be summarised as follows: individuals make a global evaluation about the extent to which senior management are beneficial or detrimental to their well-being. This global evaluation elicits feelings. Individuals check their overall evaluations against what others think. On the basis of their emotional response and consensual validation, they then decide to trust. It appears that unless the overall effectiveness assessment prompts an emotional response and is consensually validated, trust will not ensue. It is likely that the overall effectiveness evaluation, (developed over time through learning and experience), would be quite stable and enduring (Breckler, 1984). The affective and normative dimensions, on the other hand, may be more situationally responsive, labile and transient. Longitudinal analyses are required to test such conjectures.

Overall, the results support the proposed model of trust in senior management. Rigorous statistical methods were used to show that the model successfully generalises across different organisations. Further research is warranted to determine how the model holds up longitudinally and to determine the antecedents and consequences of trust in senior management. Further research might also focus on determining the extent to which the model applies with more specific focal groups (e.g. supervisors, managers, team members) in large, medium and small scale enterprises. The first of these questions, the extent to which the model holds up longitudinally, is examined in the next chapter.

CHAPTER V1

LONGITUDINAL MODEL OF TRUST IN SENIOR MANAGEMENT

In the previous chapter evidence was provided, based on cross-sectional data, in support of a structural model of trust in senior management. Trust, operationalised in terms of behavioural intentions, was found to be directly influenced by disposition, affect and social norms. Evidence was provided in support of a higher order trustworthiness factor corresponding to "overall effectiveness". The influence of the higher order factor on trust was found to be mediated by affect and social norms. The structural relations between the dimensions were shown to cross-validate across dissimilar organisations.

In this chapter, the structural relations within the model are tested longitudinally. Tests are conducted to determine whether the cross-sectional model can be replicated in a longitudinal data set. If the same relationships can be demonstrated with longitudinal data, the explanatory power of the model is strengthened.

The majority of trust studies in organisational contexts have used cross-sectional methods (e.g. Clark & Payne, 1998; Currall & Judge, 1995; McAllister, 1995; Tan & Tan, 2000). While clearly providing insight into relationships among factors, cross-sectional studies do not allow tests of causality, and at best only provide certain inferences about causality

(Hayduk, 1987). Results from cross-sectional studies need to be complemented with longitudinal studies so that the causal hypotheses can be tested more fully.

Mayer and Davis (1999) noted that, "longitudinal research on the development of trust is relatively rare" (p. 133). Mayer and Davis's study linking procedural justice and trust, and Robinson's (1996) study of the relationship between trust and psychological contract breach are among the few longitudinal studies looking at trust.

With longitudinal data sets, data is drawn from the same participants at differing points in time. Longitudinal analyses have advantages over cross-sectional analyses by controlling for the potential confounding effects of common method variance (Spector, 1987). That is, when all individual level data comes from the same source (e.g. self report questionnaires), the associations between variables tend to be inflated due to the effects of systematic and random error. With longitudinal studies, on the other hand, the systematic biases attributable to individual differences (e.g. positive affect) and situational influences (e.g. fatigue, mood) are diffused across time.

Although longitudinal analyses enable stronger insights to be drawn about the causal relations between variables, it should be noted that longitudinal analyses by themselves do not prove causal associations. Bentler and Speckart (1979) suggested that the word "cause" provides, "no philosophical meaning beyond a designation for a hypothesized unobserved process" (p. 456). Anderson and Gerbing (1988) also cautioned against over-attributing causation. Hair et al. (1992) noted that, "although in its strictest terms causation is rarely found, in practice

strong theoretical support can make empirical estimation of causation possible" (p. 427). Hair et al. suggested that cause can be "inferred" when there is sufficient association between the variables, when one variable clearly precedes the other, and when there is no plausible alternative cause for the outcome.

In order to most fully model causal relations, Willett (1988) suggested that 3 wave data provides the best test. Three wave data enables the modelling of reciprocal causal influences among a set of variables. With the present research, changing circumstances prior to the administration of third wave questionnaires (the resignation of the CEO), precluded against obtaining three-wave data.

Structural equations modelling (SEM) provides an appropriate means to test causal relations within longitudinal models. In contrast to alternative methods, SEM provides for the simultaneous assessment of the direct and indirect effects among a set of variables while taking measurement error into account. Curry et al. (1986) suggested that SEM has advantages over, "methods like multiple regression [because] ... it permits specification of latent and manifest variables, with explicit modelling of measurement errors" (p. 851). Conventional path analysis, although previously used to model longitudinal trust relations (Mayer & Davis, 1999), also does not take into account the biasing effects of measurement error.

Implicit in longitudinal analysis is the assessment of change over time. To determine, with confidence, whether change has, or has not, occurred on a set of measured variables across

time, certain criteria need to be invoked. Lance, Vandenberg and Self (2000) argued for three criteria: "(a) the nature of the construct that is operationalised by measured variables remains unchanged across measurement occasions – that is, that the measures demonstrate invariant construct validity (or 'configural invariance') … over time; (b) relations between measures and their corresponding constructs are invariant across measurement occasions – that is, that measures demonstrate (at least partial) metric invariance … over time and; (c) measures are calibrated equivalently to their underlying constructs with respect to location parameters across measurement occasions – that is, that measures demonstrate (at least partial) scalar invariance … over time" (p. 109). Lance et al. argued that the test of "configural invariance" is the most critical test because if the observed measures are shown to represent different constructs at different points in time, meaningful comparisons cannot be conducted.

The assessment of measurement invariance across time relates to Golombiewski, Billingsley, and Yeager's (1976) framework for conceptualising different forms of change. Alpha change refers to changes in the level of a variable across time when the meaning and calibration of the construct has remained constant. That is, differences in scores across time represent upward or downward movement on a stable metric. Beta change occurs when respondents recalibrate the measurement scale of the construct across time. In effect, the respondents alter how the rating scale is interpreted (Vandenberg & Self, 1993). Gamma changes refers to the situation when respondents reconceptualise the construct over time, such that the meaning of the construct changes over time.

In order to validly interpret the results of longitudinal analyses, it is important to determine

measurement equivalence across time. Vandenberg and Self (1993) argued that, "if beta changes, gamma changes, or both are present but unaccounted for in the analyses, any obtained differences in mean values on the instrument of interest may not necessarily be due to the desired form of change .... Rather, the existence of beta change could mean that observed differences in values are not real differences as perceived by the respondent ...." (p. 558).

Structural equation modelling can be used to assess measurement equivalence across measurement occasions. Schmitt (1982), Schaubroeck and Green (1989) and Vandenberg and Self (1993) developed procedures for operationalising alpha, beta, and gamma change where multi-item scales are used to measure latent variables. Thomas, Cunningham-Snell and Anderson (1998) stated that, "the overall assessment of the type of change occurring consists of a maximum of three phases. A preliminary phase assesses whether there is any change over time and hence whether further analysis is merited. Second, four hierarchical phases are employed, two assessing whether gamma change is present, followed by a further two assessing beta change. Last, if a researcher is interested in examining alpha change, this is assessed in a third phase provided no significant gamma or beta changes are present" (p. unnumbered).

However, in the present circumstances, the research question centred more on the issue of measurement invariance rather than on the assessment of change. No experimental manipulation or circumstances within the organisation suggested that changes in trust for senior management should have occurred over the one year time period. Key organisational

development personnel within the organisation suggested there were no major changes across the two time periods which would have impacted trust in senior management in terms of alpha, beta, or gamma change. A number of employees remarked, anecdotally, that given the ten year tenure and the possible pending retirement of the CEO, that the organisation remained on a course of "steady as she goes". Therefore, rather than assessing change per se, it was more important to assess the configural invariance of the structural model over time in the longitudinal data set. Although having previously established that the structural model is invariant across samples (see Chapter V), it is also important to establish whether the model is robust across time. Without evidence that the psychological experience of trust in senior management is stable over time, comparisons and causal associations cannot be legitimately drawn.

Model development

The proposed longitudinal model (see Figure 6.1) replicates the relations in the cross-sectional structural model over time. That is, in addition to each Time 1 variable influencing its equivalent Time 2 variable (the horizontal paths in Fig 6.1), the same structural relations as found in the cross-sectional model were expected to apply from time one to time two (non-horizontal paths in Fig 6.1). Reasons as to why the longitudinal model was specified as such are outlined below.

Implicit in the conceptualisation of the longitudinal model is the assumption that "trusting disposition", "trustworthiness" and "trust" itself are relatively stable and enduring over time. Disposition is, by definition, relatively stable (Cattell, 1957). Rotter (1971, 1980) suggested

that dispositional trust is a stable individual difference. Therefore, in the longitudinal model, it was hypothesised that disposition at Time 1 would influence disposition at Time 2. It was previously shown (Chapter V) that Time 1 "disposition" influences Time 1 "trust". The finding was explained with reference to Payne and Clark's (1997) assertion that disposition will be influential when attributing trust to a 'generalised class'. Extrapolating from that argument, it was hypothesised that disposition at Time 1 would influence trust at Time 2 in the longitudinal model.

With respect to the stability of attitudes in general, Krosnick (1988), Eagly and Chaiken (1993), Pomerantz, Chaiken and Tordesillas (1995) and Bagozzi, Gopinath and Nyer (1999) argued that attitudes have the capacity to persist over long periods of time. Bagozzi et al. noted that, "attitudes seem to have the capacity to be stored during long periods of time and retrieved ..." (p. 188).

With respect to trust itself, McKnight, Cummings and Chervany (1998) noted that trust has been conceived of as both "fragile" (Worchel, 1979) and "robust" (Zand, 1972). There is, however, limited empirical evidence in the organisational literature as to the stability or instability of trust over time. Mayer and Davis (1999) reported test-retest reliabilities of 0.75 (5 month lag from time 1 to time 2) and 0.66 (9 month lag from time 2 to time 3) for their measure of trust. Robinson (1992) interpreted results from her longitudinal study of trust and breach of psychological contract as suggesting that attitudes about trustworthiness are stable over time. Robinson argued that, "people tend to seek out and recall information that confirms their prior beliefs and attitudes [regarding trustworthiness] while ignoring,

overlooking or forgetting evidence that disconfirms them" (p. 593).

On balance it appears from the literature that the attitude of trust is likely to be relatively stable. Consistent with the Azjen and Fishbein (1980) model, and the tripartite theory of attitude structure, the attitude of trust is here viewed as consisting of cognitive (higher order effectiveness), affective, and social normative dimensions, as well as behavioural intentions. Given that many attitudes are relatively stable, and given that no major events or changes occurred within the organisation during the period between Time 1 and Time 2, the cross-sectional relations (argued in Chapter 5) were expected to generalise to the longitudinal model. That is, Time 1 higher order effectiveness was expected to influence affect and social norms at Time 2. Affect and social norms at Time 1 were expected to influence trust at Time 2. Trust at Time 1 was expected to influence trust at Time 2. These relations are modeled in Figure 6.1.

The relative strengths of causal associations between Time 1 and Time 2 factors can be determined by examining the statistical significance and relative values of the standardised path coefficients. It was predicted that the horizontal paths for the "overall effectiveness" factor ($\xi 2$, $\eta 2$) and for "social norms" ($\xi 4$, $\eta 4$) would be relatively stronger than the horizontal path for the "affective" factor ($\xi 3$, $\eta 3$). It is well established within the social psychological literature that an individual's decisions, opinions and behaviours are influenced by their "reference groups" (Bem, 1970). Although there appears to be no direct empirical evidence to support the proposition, it is likely that attitudes toward senior management would be influenced by the climate of trust within the work group. As suggested by the work group socialization literature (see Anderson & Thomas, 1996 for a review), work group, and

team norms tend to be difficult to change once they are established. In contrast, an individual's generalised affective responses to senior management are more likely to be influenced by situational experience (Bagozzi, Gopinath & Nyer, 1999).

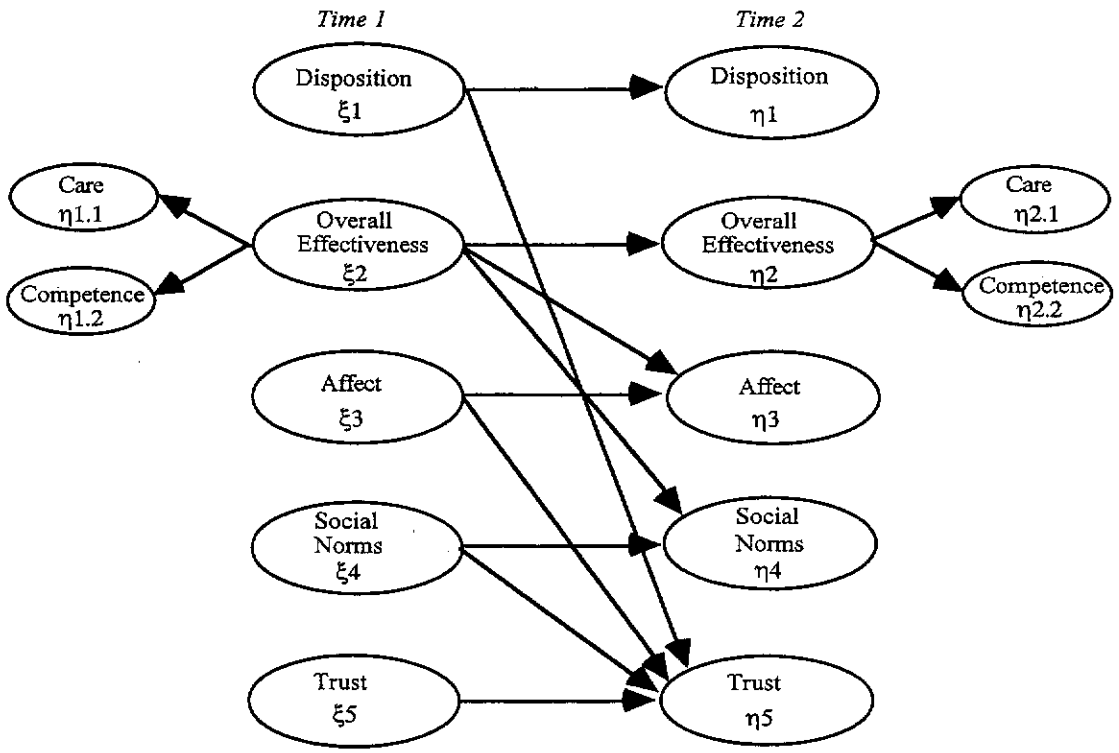

Figure 6.1. Longitudinal model of trust in senior management.

So, in terms of specifying the longitudinal structural model, it was determined that each Time 1 variable would directly influence its corresponding Time 2 variable. In addition, "disposition" at Time 1 would directly influence "trust" at Time 2 (ξ1, η5). "Overall effectiveness" at Time 1would directly influence "affective" trust (ξ2, η3) and "social norms"

(ξ2, η4) at Time 2. Time 1 "affective" trust and Time 1 "social norms" would directly influence "trust" at Time 2 (ξ3, η5; ξ4, η5). "Trust" at Time 1 would influence "trust" at Time 2 (ξ5, η5).

Structural equations modelling provides an appropriate methodology for assessing the proposed longitudinal model. In Lisrel terminology, Time 1 variables served as the exogenous (ξ or ksi) variables and Time 2 variables served as the endogenous (η or eta) variables. Exogenous indicators would be represented by "x" and endogenous indicators would be represented by "y". Factor loadings would be represented by lambda (λ). Exogenous measurement error would be represented by theta-delta (θδ), endogenous measurement error by epsilon (θε). Path coefficients are represented as gamma paths (γ) and error in the latent endogenous variables would be represented as zeta (ζ). For ease of interpretation, the measurement model component of the longituddinal model is not fully represented in Figure 6.1.

Hypotheses

The causal relations suggested by the model can be formulated as a series of structural equations. These equations correspond to hypotheses.

H6.1. Trust at Time 2 (defined as behavioural intention) is proportionally influenced by disposition (Time 1), affective-trust (Time 1) and social norms (Time 1), given trust at Time 1.

H6.2. Social norms (Time 2) and affective-trust (Time 2) are proportionally affected

by the higher order effectiveness dimension at Time 1, given social norms (Time 1) and affective-trust (Time 1).

H6.3. All Time 1 variables will influence their corresponding Time 2 variables.

Hypotheses 6.1 and 6.2 can be assessed by examining the path coefficients (γ) for the non-horizontal paths as shown in Fig 6.1. Hypothesis 6.3 can be assessed by examining the path coefficients (γ) of the horizontal paths in Fig 6.1. Statistically significant coefficients (e.g. $t > 1.65$ for one tailed test; $t > 1.96$ for two-tailed test) suggest that the causal relations are as specified and are important to the model.

Method

Sample and data collection

The longitudinal data set consisted of employees from the primary validation sample who completed both Time1 and Time 2 questionnaires. Cases were matched across time on the basis of matching identification numbers, date of birth, and gender. To ensure the integrity of the longitudinal data set, only those cases where a match could be established on the basis of all three criteria were included in the longitudinal analyses.

The time lag between Time 1 and Time 2 data collection was twelve months. Previous longitudinal trust research has been conducted with 5 month and 7 month time lags (Mayer & Davis, 1999), and 12 and 18 month time lags (Robinson, 1996). The twelve month time lag

was chosen, primarily, to fit with the needs of the client organisation. The senior management group had agreed to collect data twelve months apart. If the structure of trust in senior management was found to be invariant across this substantial time period, strong support for the robustness of the proposed model would be evidenced.

In all, 322 participants completed questionnaires at Time 1 and Time 2. After listwise deletion of cases, exclusion of questionnaires completed by senior management and deletion of multivariate outliers, 257 cases were found where a match could be established on the basis of identification number, date of birth, and gender. This is a relatively large longitudinal sample. Anderson and Gerbing (1988) argued that a sample size of 150 or more will be required "to obtain parameter estimates that have standard errors small enough to be of practical use" (p. 415). The longitudinal sample size exceeded this requirement.

Table 6.1 shows the demographics of the longitudinal sample and the demographics of the Wave 1 and Wave 2 cross-sectional samples. The longitudinal sample had similar characteristics in terms of gender ratio, age and education to the Wave 2 sample. The longitudinal sample had slightly longer tenure and a slightly higher proportion of full-time workers than the Wave 2 validation sample.

Measures

The same measures used in specification of the measurement model and the cross-sectional structural model were used in the longitudinal analyses. The same eighteen items (three items

per dimension) served as indicators for each of the dimensions at Time 1 and Time 2. Evidence was provided in Chapter IV to support the construct validity of the measures.

Table 6.1
Sample Characteristics of longitudinal sample compared with validation sample

	Sample 1 Wave 1	Sample 1 Wave 2	Longitudinal Sample
Responses #	1008	645	257
Males %	53	55	57
Females %	46	44	43
Mean Age Years	35	38	39
(Stnd Deviation)	(10.6)	(11.2)	(9.9)
Mean Tenure Years	5.3	6.3	7.2
(Stnd Deviation)	4.0	4.1	3.9
Highest Level Educn			
Secondary %	40%	44%	40%
Trade Qualifications%	16	14	16
Diploma%	28	26	26
Tertiary%	15	15	17
Full Time %	72	76	84
Part Time %	17	15	12
Casual %	11	8	4
Level			
Senior Management%	1	2	2
Middle	11	15	16
Supervisor	17	19	19
Front Line	56	48	46
Administration	12	16	16
Unspecified			

Specification of the Longitudinal Model

The full longitudinal model was shown in Figure 6.1. To assess the influence of the higher order factor from Time 1 to Time 2, the paths from "care" and "competence" at Time 1 to their equivalent constructs at Time 2 were fixed to zero. That is, "care" and "competence" were specified essentially as part of the measurement model (i.e., they acted as indicators for the higher order factor). However, their structural influence may be evaluated by looking at their indirect effects on themselves over time, shown as "indirect effects" in the EQS output.

The measurement part of the longitudinal model would ordinarily show the full set of indicators and the error terms for the five latent variables ("disposition", "higher order effectiveness", "affective-trust", "social norms", and "trust") at both Time 1 and Time 2. Covariances among the five Time 1 exogenous variables would also ordinarily be represented. For ease of interpretation, the indicators, error variances and covariances are not represented in Figure 6.1. It is also noteworthy, that because longitudinal analysis is concerned primarily with establishing causal connections over time, the contemporaneous influences of the five latent variables (beta paths) at Time 2 were not calculated. However, the correlated disturbance terms take account of these unstated influences in the model.

Ecob (1987) argued that the measurement errors of repeated measures covary and that the specification of correlated measurement errors over time is a relatively common feature of longitudinal modelling. Correlated errors reflect common method variance for a particular item (Kline, 1998). Hence measurement errors were set to covary across time. This procedure does not affect interpretation of the results (Byrne, Shavelson, Muthen, 1989; Hoyle & Panter, 1995; Millsap & Hartog, 1988). Disturbance terms were also set to covary. For ease of interpretation, covariances between the error terms at Time 1 and Time 2, and covariances among the disturbance terms at Time 2 are also not shown in Figure 6.1. The structural portion of the model is recursive in that no feedback paths are posited. As previously discussed, 3 wave data is required to fully test for nonrecursive effects (Willett, 1988).

Analyses

The primary purpose underpinning the longitudinal analyses was to assess whether or not the structural model, as described in Chapter V, is essentially invariant across time. That is, does the psychological configuration of the constructs remain constant over time, such that respondents conceptualise the constructs, and relationships between them, in similar terms across the time period. This process is an important precursor to any form of longitudinal analysis (Lance, Vandenberg & Self, 2000).

As previously mentioned, SEM can be used to assess the invariance of the constructs across time. The process, adopted here, follows that recommended by Bollen (1988) and that previously outlined in Chapter V when demonstrating the invariance of the structural model across samples.

First of all, to conduct a preliminary test of measurement and structural equivalence across time, the full longitudinal data file (n = 257) was disaggregated into two data files. One data file represented time 1 responses for the 257 cases, and the second data file represented time 2 responses for the same 257 cases. The fit of the model was assessed at both Time 1 and Time 2. Next, using the multi-sample procedure in EQS, fit indices and chi-square difference tests were used to assess the invariance across time. First, a baseline model, testing invariance of form, was estimated and evaluated for fit. Having established acceptable fit in the baseline model, the loadings at Time 1 were constrained to equal the loadings at Time 2. If the resulting chi-square is not significantly different from the chi-square of the baseline

model (given the difference in degrees of freedom), invariance is suggested. Next, the paths (*beta* and *gamma* paths) were constrained to be equal across the two time periods. Again, if the resulting chi-square is not significantly different from the chi-square where the loadings were constrained, invariance is suggested. Next, the disturbances (*psi* terms) were constrained to be equal across time. Finally, the construct covariances (*phi* terms) were constrained to be equal. If, at the end of this series of increasingly restrictive hypotheses, all chi-square difference tests yielded no significant results, invariance of model across time could confidently be assumed (Bollen, 1989).

Having thus established measurement and structural invariance across time, the longitudinal model (as shown in Fig 6.1) was assessed. As per Anderson and Gerbing's (1988) two-step approach to construct modelling, the measurement parameters (factor loadings at Time 1 and Time 2, and the covariances among the exogenous variables at Time 1) were constrained to be equal prior to estimating the fit of the longitudinal structural model.

The fit of the full longitudinal model was assessed with a number of alternative fit indices. Marsh, Balla, and McDonald (1988) recommended that multiple indices be used to model fit. As described in previous chapters, the Bentler-Bonnett Normed Fit Index (NFI), Bentler-Bonnett NonNormed Fit Index (NNFI), the Comparative Fit Index (CFI), the Robust Comparative Fit Index (Robust CFI) and the Root Mean Square Error of Approximation (RMSEA) were used to assess the model's overall goodness of fit of the model. Values of 0.90 or above suggest a good fit for NFI, NNFI and Robust CFI. CFI values of 0.93 and above (Byrne, 1994), and RMSEA values lower than 0.08 also suggest reasonable goodness

of fit (Browne & Cudeck, 1993). RMSEA values of .05 or less indicate good fit (Steiger, 1990).

RMSEA confidence intervals were also used to assess model fit (MacCallum, Browne & Sugawara, 1996). When both points of the confidence interval are below 0.05, the hypothesis of "not a close fit" can be rejected. When both points of the confidence interval are above 0.05, the hypothesis of "a close fit" can be rejected. When both points of the confidence interval straddle 0.05, neither the hypothesis of "close fit" or "not close fit" can be rejected

Power analysis for the RMSEA criterion (MacCallum, Browne & Sugarawa, 1996) showed that the sample size (n = 257) was more than adequate to minimise the possibility of committing Type II errors when assessing RMSEA. In fact, power was equal to "one" in this instance. A minimum sample size of n = 45 would be required to test hypotheses of model fit with 576 degrees of freedom and power = 0.80.

In addition to examining the fit indices, the statistical significance of all hypothesised paths was assessed. Beyond assessing the significance of hypothesised paths, it is useful to calculate the squared multiple correlations for each endogenous variable. Squared multiple correlations (R^2) provide a measure of the percentage variance explained in each endogenous variable. Tabachnick and Fidell (1996) provided a formula to calculate the percentage of variance explained: $R_j^2 = 1 - D_j^2$ (where D equals the standardised value of the disturbance term). R^2 for all endogenous variables was calculated.

Results

The fit indices for the preliminary tests of measurement equivalence in the Time 1 and Time 2 data sets are shown in Table 6.2. At both time periods the fit indices were above criterion values. The NNFIs (≥ 0.90), CFIs (≥ 0.93) and Robust CFIs (≥ 0.90) all indicated that the model provided a good fit at both Time 1 and Time 2.

The RMSEA point estimates being lower than 0.08 also suggested acceptable fit. The lower bound of the RMSEA confidence intervals at Time 1 exceeded 0.05, thereby suggesting that the hypothesis of close fit could be rejected. The RMSEA confidence intervals at Time 2 straddled 0.05, thereby suggesting that neither the hypothesis of close fit, nor the hypothesis of not close fit, could be rejected in either sample. Despite the RMSEA confidence intervals at Time 1, the overall evidence of model fit, at both times, provided sufficient grounds for proceeding to the invariance analysis.

Table 6.2
Fit indices of the structural model of trust in senior management in the longitudinal sample at Time 1 and at Time 2 (n = 257)

Model	χ^2	df	S-B χ^2	NFI	NNFI	CFI	RCFI	RMSEA (CI)
Time 1	257.061	123	214.868	0.920	0.946	0.956	0.962	0.065 (0.054 - 0.076)
Time 2	238.951	127	199.518	0.935	0.961	0.968	0.973	0.058 (0.046 - 0.070)

Note: S-B χ^2 = Satorra-Bentler scaled chi-square, NFI = Normed Fit Index, NNFI = Non-Normed Fit Index, CFI = Comparative Fit Index, RCFI = Robust Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, (Conf Int) = RMSEA confidence interval.

Having demonstrated model fit on both occasions with the preliminary analysis, an invariance analysis was performed. The results of the invariance analyses, aimed at determining whether the meaning of the constructs remained constant for respondents over the two time periods, are shown in Tables 6.3. The fit indices (CFI = 0.96, RMSEA = 0.045, RMSEA confidence intervals 0.039 - 0.050) suggested a good degree of fit in the baseline model. In all subsequent tests, the fit indices for all models were acceptable and there was a non-significant increase in chi-square. The RMSEA (0.044) and confidence intervals (0.038 - 0.049) in the final constrained model, again, suggested a close fitting model. These results show that, despite the imposition of highly restrictive conditions, the proposed model of trust in senior management successfully generalises across a twelve month time period.

Table 6.3
Invariance of the structural model across two time periods (n = 257).

Invariance Test	χ^2	df	$\Delta\chi^2$	Δdf	CFI	RMSEA (CI)
Base/ Form	505.413	254	-	-	.96	0.045 (0.039 - 0.050)
Form and Loadings	521.491	266	16.078 ^{ns}	12	.96	0.044 (0.038 - 0.050)
Form, Loadings and Paths	532.464	272	10.973 ^{ns}	6	.96	0.044 (0.038 - 0.049)
Form, Loadings, Paths and Disturbances	543.490	277	11.026 ^{ns}	5	.96	0.044 (0.039 - 0.049)
Form, Loadings, Paths, Disturbances and Covariances	543.632	278	0.142 ^{ns}	1	.96	0.044 (0.038 - 0.049)

Note: CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, (CI) = RMSEA confidence interval, ns = non significant chi-square difference (Bonferroni adjusted).

Having thus demonstrated that measurement and structural equivalence of the model at different points in time, a test of model fit for the full longitudinal model (see Figure 6.1) was

conducted. Fit indices for the longitudinal model are shown in Table 6.4. The NNFI (0.947), CFI (0.952) and Robust CFI (0.954) were all above their criterion values and indicated that the model provided a good fit to the data. The RMSEA point estimate (0.050) clearly suggests acceptable fit. The RMSEA confidence interval (0.043 - 0.055) straddled 0.05, thereby suggesting that neither the hypothesis of close fit nor the hypothesis of not close fit could be rejected. The relatively narrow band of the confidence interval however, suggested a good deal of precision in the RMSEA point estimate.

Table 6.4
Fit indices of the longitudinal model of trust in senior management (n = 257)

Model	χ^2	df	S-B χ^2	NFI	NNFI	CFI	RCFI	RMSEA (CI)
Longitudinal	909.653	576	845.482	.879	.947	.952	.954	.050 (0.043 - 0.055)

Note: NFI = Normed Fit Index, NNFI = Non-Normed Fit Index, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, (CI) = RMSEA confidence interval, ns = non significant chi-square difference (Bonferroni adjusted).

The standardised path coefficients, and the percent of variance explained (R^2) for each endogenous variable (η) in the longitudinal model are shown in Table 6.5. Consistent with hypothesis H6.3, all paths linking Time 1 variables to their corresponding Time 2 variables were significant. All but one of the hypothesised non-horizontal paths linking the Time 1 and Time 2 variables were significant, thereby supporting hypotheses H6.1 and H6.2. The higher order "overall effectiveness" factor at Time 1 influenced "affect" at Time 2. The "overall effectiveness" factor at Time 1 also influenced "social norms" at Time 2. "Affect" at Time 1 influenced "trust" at Time 2. Although the robust coefficient for the path from "social norms" (Time 1) to "trust" at Time 2 was marginally below the two-tailed 0.05 significance

level, the one-tailed test (as implied by the model) was significant ($t > 1.65$). The path linking "disposition" at Time 1 to "trust" at Time 2 was not significant.

Standardised coefficients can be compared to determine the relative strength of path associations (Saris & Stronkhorst, 1984). Kline (1998), although noting that they should not be rigidly interpreted, provided guidelines for interpreting the effect size of path coefficients. "Standardised path coefficients with absolute values less than 0.10 may indicate a 'small' effect; values around 0.30 a 'medium' one; and 'large' effects may be suggested by coefficients with absolute values of 0.50 or more" (p. 149).

Table 6.5
Standardised path coefficients for longitudinal model of trust in senior management

Time 1 KSI (ξ)		Time 2 ETA (η)	Standardised Coefficient
Disposition 1	→	Disposition 2	0.613 ***
Overall Effectiveness 1	→	Overall Effectiveness 2	0.716 ***
Affect 1	→	Affect 2	0.391 ***
Social Norms 1	→	Social Norms 2	0.535 ***
Trust (Behavioural Intent) 1	→	Trust (Behavioural Intent) 2	0.345 ***
Disposition 1	→	Trust 2	0.038 ns
Overall Effectiveness 1	→	Affect 2	0.377 ***
Overall Effectiveness 1	→	Social Norms 2	0.294 ***
Affect 1	→	Trust 2	0.180 *
Social Norms 1	→	Trust 2	0.171 *

Note: ns = non-significant, * $p < .05$, *** $p < .001$ based on Robust statistics and one-tail tests

The strongest horizontal paths, with values of 0.50 or more, were from the higher order "effectiveness factor", "disposition" and "social norms" (Time 1) to their corresponding

Time 2 factors. Statistical significance at the 0.001 level suggests that the factors are stable over time. Medium effect sizes resulted for the paths from "affect" and "trust" (Time 1) to their corresponding Time 2 factors. Although statistically significant at the 0.001 level, these 'medium' effect sizes suggest that the constructs may be more susceptible to situational influences.

With respect to the non-horizontal causal paths, the stronger paths were from 'overall effectiveness' at Time 1 to 'affect' and 'social norms' at Time 2. The standardised path coefficients were significant at the 0.001 level and with respect to Kline's guidelines, corresponded to 'medium' effects. The paths from "affect" and "social norms" (Time 1) to "trust" (Time 2) were significant at 0.05 and corresponded to small to medium effects. The path from "disposition" (Time 1) to "trust" (Time 2) was not significant.

To further assist with interpretation of the effects, the standardised path coefficients are represented diagrammatically in Figure 6.2. Also shown in Figure 6.2 is the amount of variance explained (R^2) in each of the endogenous (η) Time 2 variables. It can be seen that significant proportions of variance in the endogenous variables were explained by exogenous variables (singly and in combination). "Disposition" at Time 1 explained 38% of the variance in "disposition" at Time 2. "Overall effectiveness" at Time 1 explained 51% of the variance in 'overall effectiveness' at Time 2. 52% of the variance in "affect" at Time 2 was explained by "overall effectiveness" and "affect" at Time 1. 63% of the variance in 'social norms' at Time 2 was explained by "overall effectiveness" and "social norms" at Time 1. 37% of the variance in Time 2 "trust" was explained by "affect", "social norms" and "trust" at Time 1.

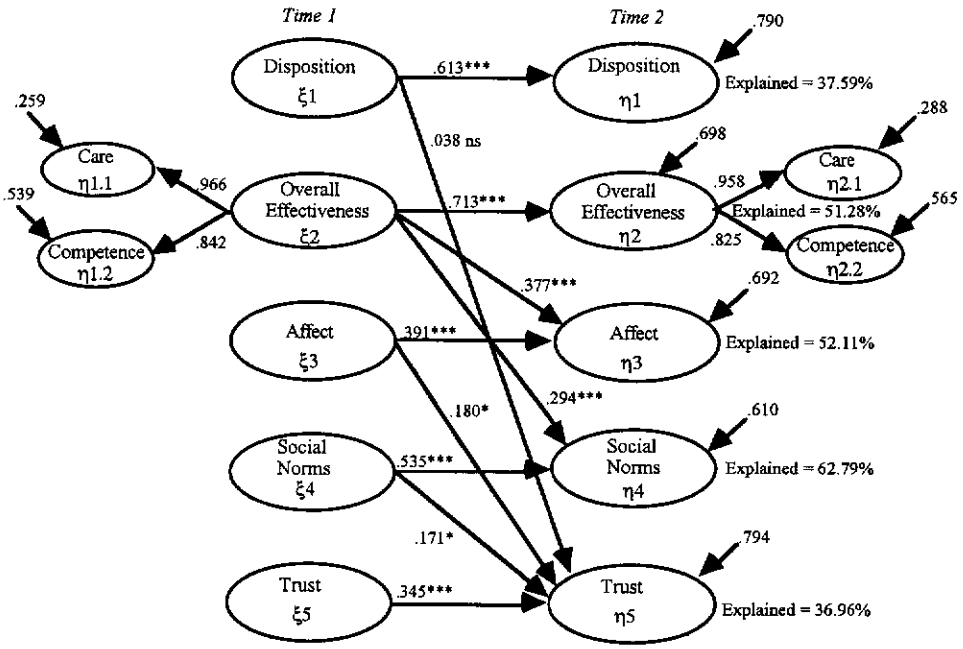

Figure 6.2. Standardised path coefficients and squared multiple correlations for endogenous variables in the longitudinal model of trust in senior management.

As a supplementary analysis, a MANOVA analysis was conducted to determine if levels of trust in senior management changed over the twelve month interval. Table 6.6 shows the mean scores and the standard deviations for each of the dimensions of trust in senior management at Time 1 and Time 2. Table 6.6 also shows the significance of the F statistics for univariate tests of differences between the two time periods.

The multivariate MANOVA analysis showed that there were significant differences between the Time 1 and Time 2 scores ($F(6,251) = 4.842, p < 0.001$). The univariate F statistics showed that levels of "care" ($F(1, 256) = 9.040, p = 0.003$), "competence" ($F(1, 256) = 5.559, p = 0.019$), "affect $F(1, 256) = 21.188, p = 0.000$), and "trust" $F(1, 256) = 13.411, p = 0.000$), increased significantly over the twelve month period.

Mean scores for "disposition" ($F(1, 256) = 3.356$, $p = 0.068$), and "social norms" $F(1, 256) = 1.197$, $p = 0.275$) did not change over the twelve month period. Generally, the means scores were in the mid-range of their scales, suggesting neither high nor low of trust. The mean values and standard deviations appear to be, in broad terms, consistent with those found by Mayer and Davis (1999) in a small manufacturing site.

Table 6.6
Comparisons of trust in senior management at Time 1 and Time 2 (n = 257)

Dimension	Time 1		Time 2		*F* value
	Mean	SD	Mean	SD	
Dispositional Trust	4.90	1.13	5.02	1.07	3.356 ^{ns}
Care	4.09	1.58	4.32	1.64	9.040 **
Competence	4.83	1.31	5.00	1.33	5.559 *
Affect	3.93	1.46	4.29	1.47	21.188 ***
Social Norms	2.80	0.91	2.85	0.88	1.198 ^{ns}
Trust - Behavioural Intention	4.90	1.23	5.16	1.24	13.411 ***

Note: * = significant difference between Time 1 and Time 2, $*p < .05$, $**p < .01$, $***p < .001$; df = 256; ns = non-significant difference between Time 1 and Time 2 scores

Discussion

Overall, the results showed that the structural relations between dimensions of trust in senior management, as determined with cross–sectional data, also hold longitudinally. Structural equations modelling showed that the hypothesised longitudinal relationships between the factors, for the most part, were successfully summarised in the data. The validity and explanatory power of the framework was therefore strengthened.

Consistent with the cross-sectional model, global assessments about the credibility or

"overall effectiveness" of senior management were shown to have lasting consequences on how individuals feel about senior management and the social norms within the organisation. This influence was evidenced over a one year time lag. These results suggest that once established, cognitive assessments about trust in senior management may be difficult to change. This finding is consistent with conclusions drawn in the social psychological literature suggesting that attitudes are resistant to change (c.f. Eagly & Chaiken, 1993). Therefore, when trust levels are low, organisational development (OD) practitioners and senior management wishing to develop trust relations with employees, might expect progress to be slow. It is likely that the beliefs, scripts and schemata about the caringness, competence and overall effectiveness of senior management will be relatively resistant to change (Kotter & Schlesinger, 1979). When trust levels are relatively high, on the other hand, senior management might expect that minor and infrequent violations of trust may not have a significant impact on longer term trust relations.

Also consistent with the cross-sectional model, it was found that generalised affective responses to senior management influence the willingness of employees to engage in trust-related behaviour. The longitudinal analysis showed that these effects persist over time. Consistent with calls for the affective dimensions of organisational life to receive higher status (Ashforth & Humphrey, 1995; Fox & Spector, 1999), it was shown that emotional responses to senior management have a lasting impact on trust related behavioural intentions. Employees' willingness to act on the words and decisions of senior management appears, in part, to be determined by the extent to which senior management have previously engendered feelings of safety, security and trust.

Social norms were also shown to be important determinants of trust in senior management. Beliefs about how others perceive senior management were shown to have a lasting influence on individuals' willingness to engage in trusting behaviour. These findings are in line with recent research (Green, 1998; Terry, Hogg & McKimmie, 2000) which suggests that social norms serve an important role in the development of attitudes and the explanation of behaviour. Along similar lines, Anderson and Thomas (1996) and Kramer, Brewer and Hanna (1995) argued that co-workers have a key role in the social construction and maintenance of trust in work-groups. OD consultants and senior management may, therefore, need to consider group norms, team mental models (Klimoski & Mohammed, 1994) and group affective tone (George, 1996), when acting to develop trust relations within organisational contexts.

In addition to the longitudinal effects just described, all Time 1 factors were significantly associated with their corresponding Time 2 factor. That is, trusting "disposition", "social norms", "affect-based" trust, the higher order "overall effectiveness" factor, and "trust" itself at T1, were all strongly associated with their corresponding T2 factors. These results, again, suggest that trust-related constructs are relatively stable over time. The associations between T1 and T2 "disposition", "social norms" and "overall effectiveness" were particularly strong. The affective dimension was also stable over time, however to a lesser extent. This is consistent with the view that affective responses, are more likely to be influenced by situational and transient factors, than cognitively based attitudinal factors (Bagozzi et al., 1999).

In contrast to the cross-sectional model, disposition in the longitudinal model was found not to have a causal influence on trust in senior management. This finding is at odds with arguments proposed by Payne and Clarke (1996), and Van Dyne, Vandewalle, Kostova, Latham and Cummings (2000), suggesting that dispositional influences would be salient where situational cues are weaker (i.e. less contact with senior management), and where the focal group is representative of a general class (e.g. senior management). It appears that although disposition influences trust in senior management at a single point in time (cross-sectionally), over time, cognitive, affective and social normative influences override dispositional influences. Selection strategies, therefore, may not provide the most appropriate means to develop trust within organisational contexts.

Thus, in broad terms, in the absence of any major organisational changes or events, it appears that the dynamics among important aspects of trust and trustworthiness in senior management, remain relatively stable over time. Consistent with literature on attitude strength (Bagozzi, Gopinath & Nyer, 1999; Krosnick, 1988) and consistent with Mayer and Davis's (1999) results, the hypothesised relationships among the core attitudinal dimensions of trust in senior management were shown to hold across a twelve month interval. Although levels of trust in senior management may go up and down over time, the psychological meaning of the construct appears to remain relatively stable.

MANOVA analyses showed an increase in individual level attitudes of trust in senior management over the twelve month period. Given the absence of any major organisational changes or crises, and anecdotal accounts of senior managers making an effort to redress a

perceived lack of trust, this result was not unexpected. Lewicki and Bunker (1996) suggested that, "In a professional relationship, trust develops gradually from one stage to another" (p. 124). According to the model, as both senior management and employees obtain more information about each other's needs, preferences and priorities, and in the absence of trust violations, trust will incrementally develop. As trust develops, senior management may, in effect, be able to inoculate themselves against employee distrust through what Tyler and Degoey (1996) referred to as the "zone of indifference". That is, by drawing on a reserve of trust in senior management, employees will increasingly accept decisions and directives without "consciously questioning ...[their] authoritativeness" (p. 332). This interpretation is consistent with arguments raised by Robinson (1996) about the links between trust and psychological contract breach. Robinson suggested that, "firms that actively establish trusting relationships with their employees may inoculate them from the negative effects of potential contract transgressions" (p. 596). Consistent with the inherent stability of dispositions (Allport, 1937) and organisational climate (Reichers & Schneider, 1990; Rousseau, 1990), levels of "dispositional trust" and "social norms" did not change over the twelve month period.

With respect to the explanatory power of the longitudinal model, sizable proportions of the variance in Time 2 variables were accounted for by Time 1 variables. Thirty seven percent of the variance in "trust" (T2) was explained by "affect", "social norms" and "trust" at time one. This is a sizable proportion of variance to be accounted for in longitudinal attitude modelling, especially so, given that the cross-sectional influences of affect and social norms at time two on trust at time two were not estimated.

Unexplained variance in trust at Time 2 suggests the possibility of omitted variables. The present research focused only on the immediate trust-related antecedents of trust. Future research might usefully extend the model here proposed to include other, less proximal, antecedent variables. The literature would suggest that future research might also include measures of procedural justice (Mayer & Davis, 1999) and psychological contract breach (Robinson, 1996). Social exchange theory (Blau, 1964) would suggest that perceived organisational support (Eisenberger, Huntington, Hutchinson, & Sowa, 1986) might also influence levels of trust in senior management.

It should be noted that no *post hoc* modifications were made to improve the fit of the model. The integrity of the model, as originally specified, was maintained throughout. Jöreskog and Sörbom (1984), Kline (1998), Byrne (1994) and others have argued that it is acceptable to fix parameters that were previously free, or free parameters that were previously fixed when there are sufficient reasons to do so. Generally, "modification indices" provided in the statistical output are examined to determine which parameters, if modified, will improve the fit of the model (Jöreskog & Sörbom, 1996). The very large degrees of freedom in the present analysis would easily accommodate model fitting procedures. However, given that a number of researchers have cautioned against post-hoc model modification (Hoyle, 1995; MacCallum, 1995; Steiger, 1990), no such model fitting procedures were employed. Steiger argued that modified models would, at a minimum, need to be cross-validated on an independent sample before the modified model could be interpreted as reliable.

Although the results of the longitudinal analysis serve to confirm the cross-sectional model, future research needs to be conducted to cross-validate the model longitudinally in a different sample. Further research also needs to be conducted to determine the reciprocal effects among the variables. Three wave data is required to fully model the reciprocal relationships (Willett, 1988). In this instance, the resignation of the CEO of the host organisation just prior to the scheduled administration of the third wave of data prohibited this from occurring. Hence, potential reciprocal relations amongst dimensions of trust and trustworthiness could not be modeled. One could speculate, for instance, that "affect", "social norms" and "trust" at time two might well influence assessments of 'overall effectiveness' at time three.

Opportunities should also be sought to conduct further research using a quasi-experimental research paradigm. Mayer and Davis's (1999) research into the effects of performance appraisals systems on trust, provides a useful model for conducting such research. In order to more fully understand the dynamics, or the ebb and flow, of trust within organisational settings, further research using a range of alternative time lags (e.g. 3 month, 6 month, 9 month, 12 month lags) might also be considered.

Overall, the longitudinal character of the study and the use of rigorous statistical methods enables strong conclusions about the structure of trust in senior management to be drawn. Most previous studies of trust in organisational contexts have used cross-sectional data sets. Results must therefore be interpreted as indicative of contemporaneous relationships. Breckler (1990) pointed out that cross-sectional analyses cannot provide the basis for drawing causal inferences. Loehlin (1992) argued that the investigation of latent variable

causal models, where variables are sequenced in time, has the advantage of permitting a fairly unambiguous direction of causality, although this may not always be the case. The relatively large heterogenous longitudinal sample also lends confidence to the generalisability of the results. Researchers and practitioners can thus use the framework with a degree of confidence to understand the development and dynamics of trust in senior management.

In summary, the results support the proposed model of trust in senior management. Given the influence that senior management can have in organisational contexts, it is important to develop an understanding of how the relevant dimensions operate over time. The evidence suggests that prior trust, affect and social norms all operate to influence trust over time. What remains, is to show how trust relates to potentially important outcome variables. This is the subject of the next chapter.

CHAPTER VII

CONSEQUENCES OF TRUST IN SENIOR MANAGEMENT

Having developed a set of measures of trust in senior management and having identified a model of trust in senior management which is invariant across organisations and across time, this chapter focuses on identifying potential outcomes or consequences of trust in senior management. Although Whitener, Brodt, Korsgaard and Werner (1998) suggested that there is intrinsic value in developing trust in organisational contexts, it is also important to identify the organisational consequences of trust in senior management. Researchers, OD practitioners, and senior management will, no doubt, be interested to identify how trust impacts on organisational attitudes, behaviour, and outcomes. The development of a nomological net (Meyer, 1997; Spreitzer, 1995) which fully identifies both antecedents and consequences of trust in senior management will enable the design of organisational interventions that take account of the complex multivariate relationships between organisational factors.

This chapter begins by identifying, on the basis of previous research and theory, three potential outcomes or consequences of trust in senior management. Then, the process to develop construct valid measures of these consequences is described. Essentially, the process, based on Anderson and Gerbing's (1988) two-step framework, replicates that

described in Chapter IV. First, exploratory factor analysis is conducted to identify salient items for each of the constructs of interest. Next, confirmatory factor analysis (CFA) is conducted on an alternative sub-sample. The CFA tests the overall fit of a "measurement model" which defines specific item-construct relations. Having determined a satisfactory measurement model, tests of convergent and discriminant validity are conducted. Next, an invariance analysis is conducted on an independent sample to assess the generalisability of the measures.

Having established brief, robust measures of potential consequences, the "causal" structural relationships between trust in senior management and these potential consequences are assessed. Analysis of two-wave longitudinal data, using structural equations modelling, is used to establish the causal relationships between trust in senior management and the set of potential consequences.

Potential Consequences of Trust in Senior Management

Although there is abundant anecdotal evidence that trust is important to organisational effectiveness (e.g. Bennis & Nanus, 1985; Kouses & Posner, 1990; Shaw 1997), there has been little systematic research aimed at identifying where and how trust impacts on organisational outcomes. There is limited empirical evidence linking potential organisational consequences and trust in senior management.

Existing research suggests that trust in senior management may be associated with affective commitment (Tan & Tan, 2000), organisational citizenship behaviour (Robinson 1996; Robinson & Morrison, 1995), turnover intention (Konovsky & Cropanzano, 1991; Tan & Tan, 2000), and acceptance of change (Daley, 1991; Rousseau & Tijoriwala, 1999). However, for the most part, correlational methods, in cross-sectional designs, have been used to establish these associations. In line with recommendations for future research outlined by Tan and Tan (2000), the present analysis used more rigorous SEM methods, on longitudinal data, to derive robust "causal" relations between the variables.

Social exchange theory (Blau, 1964) predicts that when employees perceive that they are valued within their organisation, they are motivated to have positive reactions toward the organisation. According to Blau, social exchange, "involves unspecified obligations, the fulfillment of which depends on trust because it cannot be enforced in the absence of a binding contract" (p. 113). Researchers have drawn from social exchange theory to argue that outcomes such as increased commitment (Shore & Wayne, 1993), reduced intention to turnover (Wayne, Shore & Liden, 1997), reduced absence (Eisenberger, Fasolo, Davis & LaMastro, 1990), and increased citizenship behaviour (Robinson & Morrison, 1995; Rousseau, 1990) follow when employees perceive that they receive support and commitment from their organisation. The relational model of trust (Kramer, 1999) and the relational account of the psychological contract (Rousseau, 1995, 1998) are consistent with this view.

Therefore, on the basis of social exchange theory (Blau, 1964) and previous research findings, it was hypothesised that affective commitment, intentions to turnover and attitudes to change

would be likely outcomes of trust in senior management. Having briefly overviewed each potential consequence, arguments as to their association with trust in senior management are discussed. Then, analyses to demonstrate the construct validity of measures of the potential consequences are described. Next, analyses aimed at linking trust, in a longitudinal design, with the potential consequences are described.

Organisational Commitment

The extent to which an employee feels emotionally attached to an organisation has consistently been identified as a defining feature of organisational commitment. Allen and Meyer (1990) defined this "emotional attachment to, identification with, and involvement in, the organization" (p. 1) as "affective commitment". Allen and Meyer's affective commitment sub-scale (AC), Mowday, Steers and Porter's (1979) Organisational Commitment Questionnaire (OCQ), and a measure developed by Cook and Wall (1980) have been widely used as measures of affective commitment. These scales, and versions of these scales, appear, on balance, to have acceptable psychometric properties (see Cook & Wall, 1980; Meyer, 1997).

Beyond emotional attachment, alternative accounts of commitment have also been advanced. Allen and Meyer (1990) proposed that "continuance commitment" can be viewed in terms of employees' instrumental, calculative or cost-related attachment to their organisation. Continuance commitment is based on employees' assessments of alternative employment opportunities and/or the costs associated with leaving an organisation. Allen and Meyer proposed "normative commitment" as a third component of their three-component model of

organisational commitment. Normative commitment reflects organisational attachment based on the extent to which employees' feel a responsibility and moral obligation toward their organisation.

Although there is broad consensus as to the multidimensional nature of organisational commitment (Irving, Coleman, & Cooper, 1997; Mathieu & Zajac, 1990; Meyer, 1997; Randall & O'Driscoll, 1997), there is overwhelming evidence that the affective dimension is central to an understanding of organisational commitment. Factor analyses of the three component model have consistently found that the affective dimension accounts for the greatest proportion of variance (Allen & Meyer, 1990; McGee & Ford, 1987; Reilly & Orsak, 1991). Given the emphasis on the relational, as opposed to the calculative, consequences of trust in senior management in the present research, it was here decided to focus exclusively on the affective dimension of organisational commitment.

A number of researchers have examined the association between trust and organisational commitment. Cook and Wall (1980) argued that "faith in management" (measured as a sub-scale of trust in management) contributed to the formation of organisational commitment and reported a correlation of $r = 0.61$ between the variables. Konovsky and Cropanzano (1991) and Tan and Tan (2000) also reported sizable correlations between trust and organisational commitment ($r = 0.68$, $r = 0.70$, respectively). Laschinger, Finegan, Shamian and Casier (2000), on the basis of structural equations modelling of cross-sectional data, also reported that trust in management influences affective commitment. However, despite reporting acceptable goodness of fit indices (GFI = 0.98, AGFI = 0.89), the overall evidence in support

of their model was not strong. The RMSEA point estimate (RMSEA = 0.13) suggested that, rather than providing a "reasonably good fit" (p. 420), as claimed, the model provided a "poor" fit (Browne, Mels & Cowan, 1994). Nevertheless, Laschinger et al. reported a correlation of $r = 0.46$ between trust in management and affective commitment. Although correlation does not imply causation, on the basis of these studies, there is clear evidence of an association between trust in senior management and affective commitment.

Meyer (1997) also argued, albeit indirectly, for an association between trust in senior management and affective commitment. Meyer, in reviewing the evidence in support of the multiple-constituency view of commitment (see Becker, 1992; Reichers, 1985), concluded that, "when we measure commitment to the organisation as a whole, we are probably measuring employees' commitment to top management (Reichers, 1985), or to a combination of top management and more local groups (Becker & Billings, 1993; Hunt & Morgan, 1994)" (p. 186). This line of argument suggests a link between trust in senior management and commitment. Given that commitment to top management results from perceived organisational support (Eisenberger et al., 1990), and given that organisational support can, in part, be interpreted as trust in senior management (Wayne, Shore & Linden, 1997) therefore, organisational commitment results from trust in senior management.

Intention to Turnover

Intention to turnover has been defined as a conscious and deliberate willingness to leave the organisation (Tett & Meyer, 1993). Intention to turnover is an important outcome variable because intentions to turnover are strongly associated with actual turnover (Pierce &

Dunham, 1987; Prestholdt, Lane & Matthews, 1987; Steel & Ovalle, 1984; Konovsky & Cropanzano, 1991). Turnover costs, therefore, impact directly on indices of organisational performance.

Turnover intention has previously been associated with trust (Costigan, Ilter & Berman, 1998; Kanovsky & Cropanzano, 1991; Mishra & Morrisey, 1990). Konovsky and Cropanzano reported a corrected correlation of $r = 0.51$ between trust in management and intention to turnover (recoded such that higher scale scores represented decreased turnover intentions) in their study of employee reactions to drug testing. Costigan, Ilter and Berman reported a similar correlation ($r = - 0.54$) between trust in top management and intention to turnover. Such associations suggest that intention to turnover be included in research attempting to identify potential outcomes variables of trust in senior management. In addition, it has also been argued that employee perceptions of "organisational ineptitude" may lead to turnover intention (Abraham, 2000). Given that organisational ineptitude is largely within the province of senior management (Mishra & Morrisey, 1990), relationships between trust in senior management and turnover intention were predicted.

Attitudes to Change

Attitudes to change have recently emerged as a focus for research in the organisational literature (Armenakis, Harris & Mossholder, 1993; Judge, Thoreson, Pucik & Welbourne, 1999; Rousseau & Tijoriwala, 1999; Wanberg & Banas, 2000). A number of studies have focused particularly on cynicism toward change (Abraham, 2000; Andersson & Bateman, 1997; Dean, Brandes & Dhwardkar, 1998; Reichers, Wanous & Austin, 1997).

Dunham, Grube, Cummings and Pierce (1989) and Lau and Woodman (1995) have argued in support of a generalised attitude toward change. Lau and Woodman suggested that employees, "may have a general attitude or orientation toward change but at the same time possess different attitudes about specific changes. ... For example, they can be generally supportive of the overall thrust of an organizational change program yet vary in their enthusiasm about specific changes being undertaken" (p. 541). Lau and Woodman's results supported this suggestion. Cynicism toward change can be viewed in terms of generalised attitudes toward change.

Given that change figures so prominently in contemporary organisational environments (Shaw, 1997), it is important to understand which factors might facilitate and impede the adoption of change. Rousseau and Tijoriwala (1999) argued, from a social accounts perspective (Sitkin & Bies, 1993), that trust in management leads to acceptance of organisational change. They reported findings that, "support the argument that high trust creates a broad zone of acceptance to the exigencies of complex organizational change" (p. 525). The broad zone of acceptance overlaps with Tyler and Degoey's (1996) notion of the "zone of indifference", wherein employees might "voluntarily accept an order without consciously accepting its authoritativeness" (p. 332). Similarly, Kramer (1996) argued that management credibility, based on a history of good faith relations, is likely to contribute to positive responses to change.

Kanter and Mirvis (1989) also suggested a link between trust in management and attitudes to change. They argued that cynicism follows when employees lack trust in the motives of senior management. Similarly, Andersson and Bateman (1997) found that high levels of executive compensation, poor organisational performance, and insensitive downsizing strategies generated cynicism in white-collar workers. Therefore, on the basis of social exchange theory and the results of empirical work, overviewed above, it was hypothesised that trust in senior management would influence cynicism to change. Cynicism toward change, rather than openness to change (e.g. Miller, Johnson & Grau, 1994) was selected as an outcome variable because there is more empirical evidence in support of the psychometric properties of measures of cynicism toward change than there is for openness to change. Even though Wanous et al. (2000) conceded that they were in the initial stages of testing the cynicism construct, more rigorous confirmatory factor analytic methods have been applied to the construct validation of cynicism, while the psychometric properties of measures of openness to change have been derived with exploratory methods.

Wanous, Reichers and Austin (2000) defined cynicism about organisational change as, "a pessimistic viewpoint about change efforts being successful because those responsible for making change are blamed for being unmotivated, incompetent, or both" (p. 133). Wanous, Reichers and Austin thus defined cynicism as consisting of two dimensions: a pessimistic outlook on the likely success of change, and dispositional attributions about those responsible for effecting successful change.

With respect to measurement issues, it is interesting that Wanous et al. (2000) used a unidimensional measure of CAOC despite originally conceptualising the construct in two dimensions, and despite their data suggesting that a two factor conceptualisation provides a better fit to the data. The RMSEA point estimate for the unidimensional conceptualisation of CAOC (RMSEA = 0.085) was higher than the RMSEA point estimate for the two dimensional conception of CAOC (RMSEA = 0.076). Their results suggest that "pessimism" and "dispositional attribution" might best be treated as separate dimensions. The CAOC was therefore operationalised as having two dimensions in the present research.

Of the two dimensions, the "pessimism" dimension was deemed particularly salient for the present research purposes because it taps more closely into the construct of interest (i.e. generalised attitudes to change). The "dispositional attribution" dimension, for the present research purposes, lacked sufficient focal specificity. Responses to items such as, "The people responsible for making things better around here do not care enough about their jobs" could equally be based on consideration of union representatives, supervisors, or middle managers, rather than senior management.

As described below, a measure was also developed to assess cynicism toward change per se, in a more direct way. That is, rather than have respondents assess items describing "suggestions on how to solve problems", the self-developed items directly assessed "changes going on in this organization". In addition, the self-developed items attempted to capture a more "motives" based quality of cynicism. Although Wanous et al. (2000) defined cynicism in terms of pessimism, it is conceivable that an employee may be pessimistic about change

outcomes without necessarily being cynical. Meyer (J.P. Meyer, personal communication, November 21, 1997) suggested that pessimism may have more to do with assessments about outcome ("it will never work"), whereas cynicism may have more to do with assessments about "motive" ("they don't have good intentions"). The self-developed measures of cynicism toward change attempted to capture a slightly stronger sense of the motive component of cynicism.

Hypotheses

On the basis of the forgoing arguments, the following hypotheses were developed:

H4.1. Over time, trust in senior management leads to an increase in affective commitment.

H4.2. Over time, trust in senior management leads to a reduction in intention to turnover.

H4.3. Over time, trust in senior management leads to a decrease in cynicism toward change.

Method

Preliminary study to establish construct validity of outcome measures

In previous chapters it was argued that it is important to establish the construct validity of the trust-related measures before determining the structural relations between the measures. In a similar vein, in order to have confidence in any associations found between trust in senior management and a set of outcome variables, it is first necessary to establish the validity of the outcome measures.

To confirm the dimensionality of the outcome measures, a measurement model was developed which specified relationships between indicators and constructs. Tests were conducted to assess the extent to which the model provided a good fit with data derived from two independent organizations (Anderson & Gerbing, 1988).

As described in Chapter IV, data were drawn from two dissimilar organisations. The primary "validation" sample consisted of all full-time and part-time employees from a large (N = 3000 approx.) private sector organisation operating in the hospitality and gaming sector. The secondary "cross-validation" sample was drawn from a large public sector organisation (N = 1000 approx.), responsible for the administration and management of State public libraries, museums, performing arts centres and visual arts services.

Measures

A number of items were drawn or adapted from the literature, or were developed specifically for this study by the author, to indicate each of the potential consequences of trust in senior management. In terms of structural equation modelling (Bentler, 1995), each of the latent constructs was specified in terms of measured or manifest indicators. As previously discussed, Jöreskog and Sörbom (1998) noted that model fit is difficult to attain when models contain many factors and many indicators. Given that three items are sufficient to define a construct and meet the requirements for the identification of confirmatory factor analytic measurement models (Bentler & Chou, 1987; Kline, 1998), three items strongly associated with each of the consequence factors were sought.

Items assessing affective commitment were adapted from a 9-item revised version of Allen and Meyer's (1990) affective commitment scale (ACS). The revised version of the scale was suggested by Meyer (J.P. Meyer, personal communication, May 21, 1997). The revised version represents an attempt by Meyer to further refine the original 8-item ACS in response to research findings and to further accommodate cross-cultural generalisability. Meyer suggested that the revisions would not significantly alter the essence of the construct as measured. Acceptable reliability coefficients have been reported for the original scale (Allen & Meyer, 1990; Dunham, Grube & Castenada, 1994). In addition, because Magazine, Williams and Williams (1996), Schmitt and Stults (1985), and Barnette (2000) have found that negatively worded items tend to load on separate factors, irrespective of their semantic meaning, all negatively worded items were rephrased into the positive. For example, Meyer's item "I do not feel a strong sense of belonging to this organisation" was rephrased to read "I feel a strong sense of belonging to this organisation".

Eight affective commitment items were included in the questionnaire. Items included "I would be happy to spend the rest of my career with this organisation", "I really feel as if this organisation's problems are my own", "I feel a strong sense of belonging to this organisation" and "I feel emotionally attached to this organisation". Participants rated the extent they agreed with each statement on a 7-point scale ranging from strongly disagree to strongly agree.

Intention to turnover was measured with a three item scale. Two of the items were drawn from the Michigan Organisational Assessment Questionnaire (Seashore, Lawler, Mirvis & Cammann, 1982) and one was self-developed. Items included, "I often think about quitting",

"Sometimes I feel like leaving this organisation for good" and "I will probably look for a new job within the next year". The items were similar to those used by Konovsky and Cropanzano (1991). Participants rated the extent to which they agree or disagreed with each statement on a 7-point scale, ranging from strongly disagree to strongly agree. Albrecht (1998, 1999), in unpublished research, reported alpha reliabilities of $\alpha = 0.86$ and $\alpha = 0.87$ for the three item scale.

Thirteen items assessing employees' attitudes to change were included in the survey. The items were sourced or modified from existing measures (Lau & Woodman, 1995; Reichers, Wanous & Austen, 1997; Wanous, Reichers & Austen, 2000) or developed for the present research. The four items of the "pessimism" sub-scale of the Cynicism About Organizational Change (CAOC) scale were included in the analyses. In addition, as previously mentioned, five items developed by the author were designed to explicitly assess cynicism toward generalised "change". These items included "changes do us more harm than good", "there is too much chopping and changing going on in this organisation", "change usually means a lot of hard work and nothing to show for it" and "although we need to change, the strategies suggested will never get us there". The attitudes to change items were expected to load cleanly on two dimensions – pessimism (as measured by Wanous et al.) and generalised cynicism (as measured by the self-generated items). For both dimensions, participants rated the extent they agreed with each statement on a 7-point scale ranging from strongly disagree to strongly agree.

Analyses

As previously discussed in Chapter IV, the procedure to establish construct validity of measures involves a number of steps. Rather than fully reiterate the procedure, the procedure will here be described in summary form.

First, the 1003 cases in the validation sample were randomly assigned to one of two sub-samples, sub-sample 1(SS1) and sub-sample 2 (SS2). Anderson and Gerbing (1988) suggested that, "ideally, a researcher would want to split a sample, using one half to develop a model and the other half to validate the solution obtained from the first half" (p. 421). The randomisation was performed using the SPSS command "randomly select approximately 50%".

Second, exploratory factor analysis (EFA) of SS1 was conducted to determine the factor structure within the items and to identify items with high, unambiguous loadings. Maximum likelihood was used as the preferred extraction method and oblimin as the preferred rotation method (Fabregar, Wegener, MacCallum, & Strahan, 1999).

Third, the model resulting from the exploratory factor analysis was tested using confirmatory factor analysis (CFA) in sub-sample 2 (SS2). The CFA was conducted using EQS (Bentler, 1995). Overall model fit was determined with reference to the Bentler-Bonnett Normed Fit Index (NFI), Bentler-Bonnett NonNormed Fit Index (NNFI), the Comparative Fit Index (CFI), and the Robust Comparative Fit Index (Robust CFI). Values equal to or greater than 0.90 for NFI, NNFI, and Robust CFI, and CFI values equal to or greater than 0.93 suggest

acceptable levels of fit (Browne & Cudeck, 1993). As described in Chapter IV, the RMSEA point estimate and the RMSEA confidence intervals were also used to assess model fit. RMSEA model fit evaluations were based on the MacCallum et al. (1996) framework, after demonstrating adequate power and sample size requirements.

In the fourth stage of the analysis, model respecification procedures were employed to identify the three items which most clearly captured the constructs of interest. Items were retained which had high factor loadings and which, on the basis of Lagrange statistics, did contribute to multivariate non-normality.

Fifth, the convergent validity, discriminant validity and overall fit of the respecified model were established. Convergent validity was assessed by examining the parameter estimates (factor loadings) of the items on their specified factors. High and moderate to high loadings (0.30 to 0.50) suggest convergent validity (Kline, 1998).

As recommended by Anderson and Gerbing (1988), discriminant validity was assessed by comparing chi-square values when covariances between pairs of factors were fixed at one to when the covariances were freely estimated. A non-significant chi-square difference (with 1 degree of freedom) suggests that the constructs are indistinguishable. A significant difference in chi-square suggests non-equivalence and assures discriminant validity (Bagozzi & Phillips, 1982).

Sixth, the fit of the measurement model was examined in an independent sample. Bollen (1989) argued that an examination of model fit in an alternative sample is a sensible precursor to conducting invariance analyses.

Seventh, having established the viability of the model in the two samples, the invariance of the measurement model was tested in the cross-validation sample. Thus, the multi-sample procedure in EQS was used to "cross-validate" the statistical equalities between the two sets of data. This analysis helps establish the generalisability of the model.

To establish invariance, competing models (with increasingly restrictive conditions) are compared. Consistent with Bollen's (1989) recommendations, the invariance analysis was based on comparisons of form, loadings, and construct intercorrelations. A non-significant difference in the chi-square statistic, at each subsequent level of analysis, suggests that the model generalises across both data sets.

Results

Exploratory Factor Analysis

Exploratory factor analysis (EFA) using maximim likelihood extraction and oblimin rotations was conducted on validation sub-sample 1 (n = 493) from Organisation 1. Listwise deletion of cases with missing values, and deletion of records completed by senior management, resulted in 472 cases being included in the analysis. An initial factor analysis of the data set yielded 4 factors with eigenvalues greater than one, collectively accounting for 70.7% of the variance. Only one item cross-loaded and all items had factor loadings greater than 0.40. To

obtain an even cleaner solution, the three or four highest loading items that loaded exclusively on their target construct, were included in a subsequent analysis. Here, again, a four factor solution, accounting for 74% of the variance, resulted. No item cross-loaded. The pattern matrix is reproduced in Table 7.1.

As expected, one of the four factors corresponded to affective commitment, and another corresponded to intention to turnover. Items associated with attitude to change split into two separate factors. One factor corresponded to Wanous, Reichers and Austin's (2000) measure of "change pessimism". The second change factor, consisted of the self-generated items reflecting generalised cynicism toward change.

The affective commitment dimension accounted for 44% of the variance; the generalised cynicism factor accounted for 15% of the variance, intention to turnover accounted for 8% of the variance, and the pessimism factor accounted for 7% of the variance. The factor correlation matrix (Table 7.2) shows moderate correlations among the dimensions, ranging from 0.32 to 0.64. The signs of the correlations were in the expected directions.

Table 7.1
Pattern matrix of potential outcome factors using maximum likelihood extraction with oblimin rotation (Organisation 1, sub-sample 1, n = 472)

	Factor1	Factor2	Factor3	Factor4
Commitment 2	-.88473			
Commitment 4	-.83844			
Commitment 3	-.81550			
Commitment 1	-.72968			
Change Cynicism 1		.91654		
Change Cynicism 3		.67910		
Change Cynicism 2		.60089		
Change Cynicism 4		.46276		
Turnover Intention 1			.94570	
Turnover Intention 1			.82937	
Turnover Intention 1			.74711	
Change Pessimism 3				.81957
Change Pessimism 1				.72812
Change Pessimism 2				.71187
Change Pessimism 4				.69860

Table 7.2
Factor correlation matrix of potential outcome factors (Organisation 1, sub-sample 1, n = 472)

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.00000			
Factor 2	.31866	1.00000		
Factor 3	.57938	.42251	1.00000	
Factor 4	.40538	.64577	.46566	1.00000

Confirmatory Factor Analysis

Having established a theoretically viable structure with EFA, the next step in the analysis was to perform a CFA on the alternative sub-sample (sub-sample 2, SS2). Confirmatory factor analysis, using EQS (Bentler, 1995), was used to test the dimensionality of the outcome measures. Listwise deletion of cases, deletion of responses from senior management, and deletion of cases contributing to multivariate non-normality, resulted in 411 cases being included in the analysis.

The three items with the highest loadings in the EFA were included in the CFA. As previously mentioned, although Bollen (1989) suggested that two items are sufficient to identify a construct, Bentler and Chou (1987) suggested the use of three item measures. Thus, a 12 item, 4 factor measurement model was subjected to confirmatory analysis. (The scale items organised by their dimension are shown in Table 7.4). Figure 7.1 shows the full measurement model, where each of the observed indicators was hypothesised to load on a specified construct and the constructs were allowed to inter-correlate freely.

Table 7.3 shows that all but one of the "fit" indices were at, or above, criteria. The Bentler-Bonnett Normed Fit Index (0.95), Bentler-Bonnett NonNormed Fit Index (0.96), and the Robust Comparative Fit Index (0.97) were all above 0.90. The Comparative Fit Index (0.97) was higher than the criterion value of 0.93. The RMSEA point estimate (0.062) indicated "moderate fit" and was well below Browne, Mels and Cowan's (1994) criterion for a "mediocre fit" (between 0.08 and 1.00). The RMSEA confidence intervals (0.045 - 0.078) straddled 0.05 and thus suggested neither strong grounds for accepting nor rejecting the model (MacCallum, Browne & Sugarawa, 1996; Steiger, 1990). Fit statistics for the null model and for the 1 dimensional model are also shown for comparison purposes. Neither the 1 Factor model nor the Null model provided acceptable fit to the data.

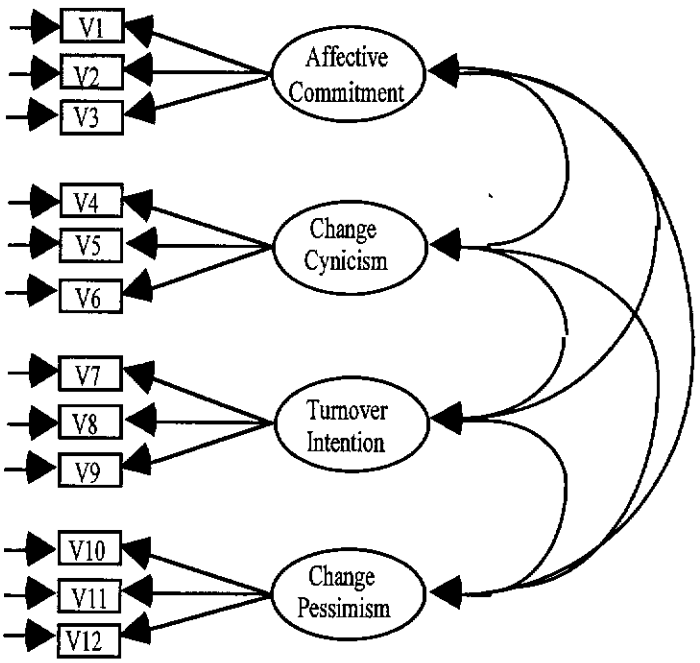

Figure 7.1. Measurement model of potential consequences of trust in senior management
Note: Covariances between all variables not fully represented

Table 7.3
Fit indices of the 4 factor measurement model of potential outcome variables (Organisation 1, sub-sample 2, n = 411)

Model	χ^2	S-B χ^2	DF	NFI	NNFI	CFI	Robust CFI	RMSEA (Conf Int)
Null	1981.99		66					
1 Factor	913.86	708.624	54	0.539	0.451	0.551	0.604	0.230 (0.217 – 0.243)
4 Factor	102.98	92.8309	48	0.948	0.961	0.971	0.973	0.062 (0.045 - 0.078)

Note: S-Bχ^2 = Satorra-Bentler scaled statistic, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, Conf Int = Confidence Interval.

Convergent validity was assessed by examining the parameter estimates (factor loadings) of the 12 items on their specified dimensions. Table 7.4 shows that the standardised parameter estimates ranged from 0.56 to 0.88 and that all the loadings were highly significant. Given that standardised values greater than 0.5 demonstrate reasonably high factor loadings (Kline, 1998), these results support the convergent validity of the measures.

Table 7.4
Convergent validities of 4 potential consequences of trust in senior management (Organisation 1, sub-sample 2, n = 411)

	Parameter	Standardised Coefficient	t Value
	Affective commitment		
1	I feel a strong sense of belonging to this organisation.	0.871	17.799
2	I feel emotionally attached to this organisation.	0.747	14.440
4	This organisation has a great deal of personal meaning for me.	0.858	17.426
	Intention to Turnover		
6	I often think about quitting.	0.874	18.130
7	Sometimes I feel like leaving this organisation for good.	0.878	18.240
8	I will probably look for a new job within the next year.	0.755	14.745
	Change Pessimism		
10	Attempts to make things better around here wont produce good results.	0.848	17.467
11	Suggestions on how to solve problems wont produce much real change.	0.832	16.984
12	Plans for future improvements wont amount to much.	0.841	17.246
	Change Cynicism		
13	Changes do us more harm than good.	0.560	9.619
14	There is too much chopping and changing going on in this organisation.	0.685	12.185
15	Change in this organisation usually means a lot of work and nothing to show for it.	0.862	15.957

The discriminant validity for each pair of constructs was assessed by comparing chi-square values when covariances were fixed at one, to when covariances between the constructs were freely estimated. Results of the tests of discriminant validity are shown in Table 7.5. For each comparison, the chi-square values, with 1 degree of freedom, were significantly different.

Consistent with the moderate correlations between the factors, these results support the discriminant validity between the four outcome measures.

Table 7.5
Discriminant validity among pairs of potential outcome variables (Organisation 1, sub-sample 2, n = 411).

	χ^2 covariance set free	df	χ^2 covariance fixed at 1	df	Prob. $\Delta\chi^2$
Affective Commitment with:					
Turnover Intention	21.907	8	335.366	9	$p < .001$
Change Pessimism	18.198	8	394.131	9	$p < .001$
Change Cynicism	20.997	8	217.609	9	$p < .001$
Turnover Intention with:					
Change Pessimism	11.425	8	363.423	9	$p < .001$
Change Cynicism	17.933	8	189.202	9	$p < .001$
Change Pessimism with:					
Change Cynicism	22.301	8	94.606	9	$p < .001$

Overall, the evidence supports the hypothesised measurement model. Although the RMSEA confidence intervals do not suggest a "close" fit, all of the other relevant indices were well above their required minimum values. Given evidence of model fit, convergent validity and discriminant validity, it was concluded that the four constructs and their indicators were successfully summarised in the data.

Next, the four factor "measurement model" was applied to an independent sample (Sample 2, n = 311). As with the validation sample, each of the observed indicators was hypothesised to load on a specified construct, with the constructs allowed to inter-correlate freely. Table 7.6 shows that the Bentler-Bonnett Normed Fit Index (0.95), Bentler-Bonnett NonNormed Fit Index (0.96), and the Robust Comparative Fit Index (0.97) were all above the 0.90 criterion level. The Comparative Fit Index (0.97) was higher than the criterion value of 0.93, and the

RMSEA point estimate (0.062) was well below MacCallum et al.'s (1996) criterion for a "mediocre fit" (between .08 and 1.00). Although the RMSEA confidence intervals (0.045 - 0.078) straddled 0.05, suggesting that the hypothesis of "close fit" nor the hypothesis of "not close fit" could be rejected (MacCallum et al.), overall, the fit statistics justified proceeding to the invariance analysis. Again, fit statistics for the null model and for the 1 dimensional model are shown for comparison purposes.

Table 7.6
Fit indices of the 4 factor measurement model of potential outcome variables (Sample 2, n = 311)

Model	χ^2	S-B χ^2	df	NFI	NNFI	CFI	Robust CFI	RMSEA (CI)
Null	2247.82		66					
1 Factor	1160.42	956.076	54	0.484	0.380	0.493	0.532	0.251 (0.239 – 0.244)
4 Factor	107.81	99.716	48	0.952	0.962	0.973	0.973	0.062 (0.046 - 0.077)

Note: S-Bχ^2 = Satorra-Bentler scaled statistic, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, CI = Confidence Interval.

Invariance Analyses

Having established the fit of the four factor measurement model in the validation sample and in an independent cross-validation sample, the next step in the construct validation process involved conducting a more rigorous test of the invariance of the model. Results of the invariance analyses across an independent sample (n = 311) are shown in Table 7.7. All hypotheses of invariance between nested models produced a non-significant increment in chi-square. The results show that the measures successfully generalised across two samples drawn from very different organisations.

Table 7.7
Test of invariance for the 4 factor measurement model of potential consequences (Organisation 1, sub-sample 2, n = 411; Organisation 2, n = 311)

Level of Analysis	$\chi 2$	df	$\Delta\chi 2$ (critical value)	Δ df	RMSEA (CI)
Form (Baseline)	225.723	96	-	-	0.046 (0.038 – 0.054)
Invariance of Loadings	241.830	108	16.107 ns (21.03)	12	0.044 (0.037 - 0.051)
Invariance of Loadings and Covariances	254.230	114	12.40 ns (12.59)	6	0.044 (0.037 - 0.051)

Note: ns = non-significant change in $\chi 2$; (critical value) = critical $\chi 2$ value; (CI)= RMSEA confidence interval.

To enable independent modelling of the effects here reported, descriptive statistics and factor correlations are reported in Table 7.8 and Table 7.9. Table 7.8 shows the means, standard deviations and alpha reliabilities for the hypothesised outcome measures across the two samples. Consistent with the results of the convergent validity analysis, all measures met, or exceeded, the accepted criterion ($\alpha = .70$) for alpha coefficients (Nunnally, 1978).

Table 7.8
Descriptive statistics for potential consequences of trust in senior management

	Organisation 1 Sub-Sample 2 n = 411			Organisation 2 n = 311		
	Mean	SD	Alpha	Mean	SD	Alpha
Affective Commitment	4.40^{ns}	1.57	0.88	4.43	1.61	0.89
Change Cynicism	3.32*	1.21	0.74	3.82	1.29	0.70
Turnover Intention	3.29*	1.84	0.88	3.70	1.46	0.82
Change Pessimism	3.26*	1.33	0.83	3.34	1.44	0.86

Note: * = significant difference in mean values across Organisation 1 & Organisation 2 with critical value p <.001

Table 7.9 shows the correlations among the four outcome measures across both samples. In the private sector validation sample, the correlations ranged from r = -0.26 to r = 0.71. In the public sector cross-validation sample the correlations ranged from -0.12 to 0.58.

Table 7.9
Correlations between potential consequences in Organisation 1, sub-sample 2 (n = 411, lower half of matrix) and Organisation 2 (n = 311, upper half of matrix)

	1	2	3	4
1 Affective Commitment	1.000	-.122	-.269	-.273
2 Change Cynicism	-.257	1.000	.504	.585
3 Turnover Intention	-.538	.355	1.000	.509
4 Change Pessimism	-.384	.709	.495	1.00

"Causal" associations between trust in senior management and consequences

Having demonstrated the psychometric validity of the outcome variables, the causal relations between trust and the outcome variables could be assessed. The same longitudinal data set (n = 257), as described in Chapter VI, was used to assess the causal relations. That is, the longitudinal sample consisted of the 257 cases from the primary validation sample who completed both Time 1 and Time 2 questionnaires (1 year apart), and where a "match" could be made on the basis of their identification number, date of birth and gender.

The causal relations are modeled in Figure 7.2. In structural equations terminology, the Time 1 factors represent exogenous factors (or EQS 'X' variables) and Time 2 factors represent endogenous factors (or EQS 'Y' variables).

As shown in Figure 7.2, each Time 1 factor is shown to influence its corresponding factor at Time 2. That is, trust at time one (T1) would influence trust at time two (T 2); turnover

intention at T1 would influence turnover intention at T2; change pessimism at T1 would influence change pessimism at T2; change cynicism at T1 would influence change cynicism at T2; and affective commitment at T1 would influence affective commitment at T2. In addition, and consistent with hypotheses 1 through 3, trust at T1 leads to turnover intention at T2, change pessimism at T2, change cynicism at T2 and affective commitment at T2. For ease of interpretation, although included in the analysis, Figure 7.2 does not show the Time 1 and Time 2 factor loadings, error terms, nor disturbance terms. As described in Chapter V, and in accord with recommendations outlined by Anderson and Gerbing (1988), measurement model parameters were fixed prior to estimating the structural model. Also, in order to take account of random and systematic error over time, measurement errors for the observed measures were allowed to covary over occasions (Ecob, 1987). Because the causal analysis takes account of measurement error, the estimate of the causal relations is more accurate than that provided by analyses such as path analysis, where no such adjustment is made.

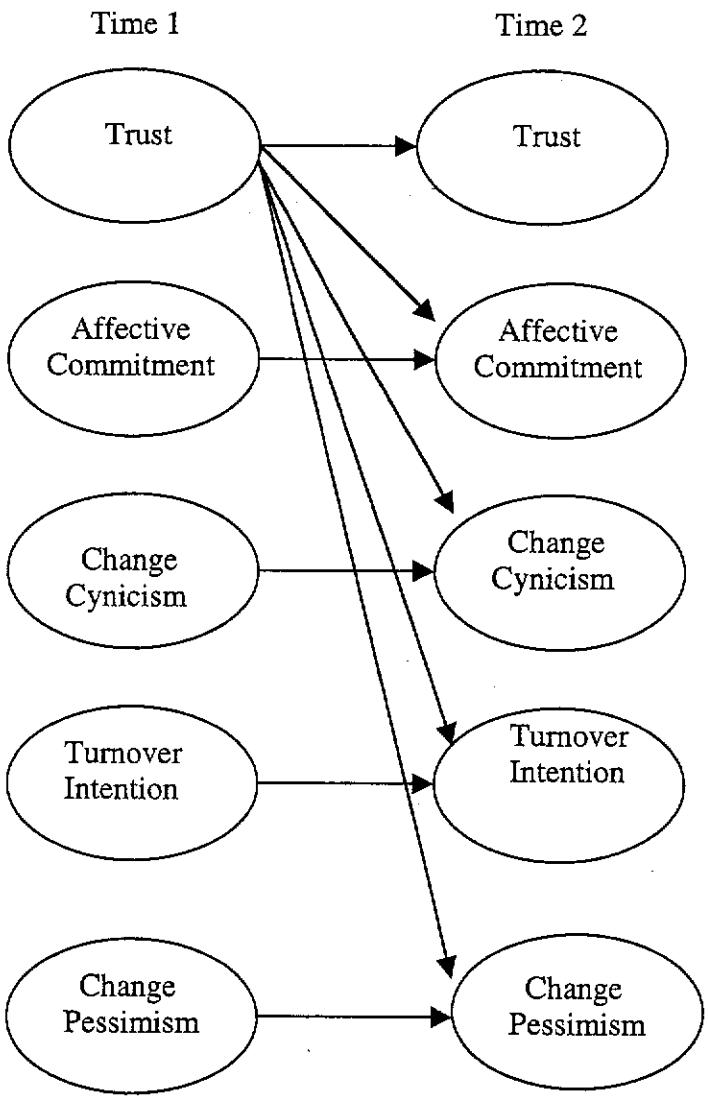

Fig 7.2.
Longitudinal causal model of the outcomes of trust in senior management.

Overall, the model provided a good fit to the data. Table 7.10 shows that the NNFI, CFI, and Robust CFI met criterion values. The RMSEA point estimate suggested "good fit" (Browne, Mels & Cowan, 1994). The NFI was marginally below criterion. Although the RMSEA confidence intervals straddled 0.05, thus suggesting that neither the hypothesis of close fit, nor not close fit could be rejected, the upper bound was close to the 0.05 criterion for "close fit".

Table 7.10
Fit indices for the longitudinal model of consequences of trust in senior management (Longitudinal sample, n = 257)

Model	χ^2	S-B χ^2	DF	NFI	NNFI	CFI	Robust CFI	RMSEA (CI)
Causal	591.911	519.092	396	0.889	0.956	0.960	0.967	0.045 (0.037 - 0.052)

Note: S-Bχ^2 = Satorra-Bentler scaled statistic, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, CI = RMSEA Confidence Interval.

The standardised coefficients for the paths (gamma paths, γ) showing the relationships between trust and the outcome variables over time are shown in Table 7.11. The only significant non-horizontal path was from trust to change cynicism (consistent with hypothesis 3). The negative sign suggests that, as hypothesised, high trust at Time 1 would promote low cynicism toward change at Time 2. Conversely, low trust at Time 1 would cause high cynicism toward change at Time 2. Path coefficients from trust to turnover intention, change pessimism, and affective commitment did not reach significance, suggesting that trust, in this sample, did not have an influence on these variables over time.

The strength of the relationship between trust and cynicism, while significant, was not strong. Kline (1998) characterised coefficients in the order of 0.3 as moderate. The proportion of variance accounted for (R^2 = 36%) also suggests that there is considerable variation in cynicism toward change at Time 2 not explained by trust in senior management nor cynicism at Time 1.

Table 7.11
Path coefficients for longitudinal model of consequences of trust in senior management (n = 257).

Time 1 X variable		Time 2 Y variable	Standardised Coefficient	t value
Trust 1	→	Trust 2	0.579***	9.428
Affective Commitment 1	→	Affective Commitment 2	0.786 ***	14.401
Change Cynicism 1	→	Change Cynicism 2	0.580 ***	9.311
Intention to Turnover 1	→	Intention to Turnover 2	0.697 ***	12.643
Change Pessimism 1	→	Change Pessimism 2	0.515 ***	6.787
Trust 1	→	Affective Commitment 2	-0.010 ns	-0.163
Trust 1	→	Change Cynicism 2	-0.155 *	-2.066
Trust 1	→	Intention to Turnover 2	0.006 ns	0.105
Trust 1	→	Change Pessimism 2	-0.078 ns	-1.149

Note: ns = non-significant, * $p < .05$, *** $p < .001$

As expected, the horizontal paths were all significant. The amount of commitment, cynicism, intention to turnover and change pessimism at Time 2 was predicted by their Time 1 counterpart. This suggests that the constructs remained relatively stable over time.

Discussion

Using longitudinal data and rigorous statistical analyses, trust in senior management was shown to lead to generalised cynicism toward change. This influence was shown to hold up over a twelve months time interval. As argued by Cohen (1993) and Wanous, Reichers and Austin (2000), long intervals between surveys make for a conservative test of antecedent factors, because most relationships studied in organisational contexts tend to weaken over time (Hulin, Henry & Noon, 1990).

The finding of a causal association between trust and cynicism toward change is consistent with social exchange theory (Blau, 1964). Social exchange theory predicts that as one party acts to benefit another, an implicit obligation for further reciprocity is established (Hofmann & Morgeson, 1999). In terms of the exchange between senior management and employees, the extent to which employees perceive senior management acting in a trustworthy way, will influence the extent to which employees have a generally positive attitudes toward senior management, and toward organisational changes promoted by senior management. In terms of the associations between trust in senior management and cynicism toward change, trust in senior management, over time, will influence the extent to which employees believe organisational changes are harmful, ill-considered and ultimately futile.

If the design and the implementation of change are two of the primary responsibilities of senior management (Conger & Kanungo, 1987; Kotter, 1990), it is clearly in the interests of senior managers to promote and maintain trust relations with employees. In order to effect

change efficiently (i.e. with a minimum of resistance and negativity) the longitudinal analysis suggests that trust relations need to be managed. Where senior management have established a "reserve" of trust, employees will be more likely to be positively predisposed toward change. To use a financial analogy, if the words, actions and decisions of senior management lead employees to perceive that the senior management "trust account" is in credit, long-term organisational dividends can take the form of reduced employee cynicism toward change. Conversely, if the trust account is perceived to be in debit, long-term cynicism toward change can be anticipated.

The results showed that while trust in senior management predicted change "cynicism", it did not predict change "pessimism". As previously mentioned, Wanous, Reichers and Austin (2000) operationalised pessimism in terms of "programs to solve problems", "suggestions on how to solve problems" and "plans for future improvements". Such items do not specifically address generalised change initiatives which are unambiguously within the ambit of senior management. Solving problems might be more within the control of the team or the supervisor. As such, the lack of association between trust in senior management and pessimism is not surprising. The cynicism items, on the other hand, corresponded more closely to general change issues, which employees can more clearly associate with senior management.

The results also showed that trust in senior management did not influence affective commitment over time. This finding is surprising given previous research findings (overviewed earlier) and claims that measures of commitment to the organisation as a whole

probably measure employees' commitment to top management (Becker & Billings, 1993; Hunt & Morgan, 1994; Meyer, 1997; Reichers, 1986). Perhaps, given that both organisations sampled were relatively large and had divisionalised structures, issues concerned with multiple constituency commitment might have impacted on the results. Lawler (1992) argued that employees have a fixed amount of affect to distribute among the various "nested collectives" (e.g. work group, section, division, organisation) which form the context for employees' organisational experience. Although Meyer (1997) suggested that Lawler's "choice process theory" has "yet to receive much empirical investigation" (p. 186), the theory helps to explain the results from the present study. Under Lawlers' model, it is possible that employees have invested more affective commitment in their division, department, section or work-group, relative to the amount invested in the organisation. Commitment at these lower level nested collectives, influenced by more proximal level factors, might have mitigated against organisational level effects. Meyer (1997) argued, on the basis of Lewin's (1943) field theory that "employees' reactions to their environment (e.g. commitment to the organization) should be primarily a function of their perceptions of, and reactions to, proximal elements in their environment or life space (e.g. work experiences and satisfaction)" (p. 189). Therefore, if employees were more committed to their division, department, section or team, an association between trust in senior management and organisational commitment may not have been evidenced.

Similar arguments could be forwarded to account for the lack of association between trust in senior management and intention to turnover. Given the lack of association between trust and commitment, and given that a clear association between affective commitment and intention

to turnover has been established (Mathieu & Zajac, 1990), it is therefore not surprising that trust in senior management did not predict intention to turnover.

Each of the horizontal paths in the longitudinal causal model was significant. This suggests that the constructs remained relatively stable over time. This finding is not surprising given that each of the potential outcome variables can be considered an "organisational level" variable (Mathieu & Zajac, 1990). Mowday, Steers and Porter (1979) reported that more globally focussed organisational level variables tend to be stable and develop slowly over time.

Beyond the primary purpose of determining consequences of trust in senior management, this chapter has contributed to the broader organisational literature in a number of ways. First, strong psychometric evidence was provided in support of the validity and reliability of brief measures of affective commitment, intention to turnover and attitudes to change. Three item measures of these constructs were shown to generalise across organisations and to be stable over time. Given that researchers often acknowledge the pressure from organisations to use brief measures and contain questionnaires to the minimum number of items (Pond et al., 1997), these measure should prove useful as measures of organisational climate.

The three items used to assess affective organisational commitment (adapted from Meyer, 1997), beyond having good face validity, each had high factor loadings. They correspond with items found in previous research to have high factor loadings (Allen & Meyer, 1990). Given that three items are sufficient to capture a construct (Bentler & Chou, 1987), researchers

might therefore give consideration to using the three item measure, as opposed to the eight or nine item measures recommended by Allen and Meyer (1990) and Meyer (personal communication, May 27, 1997), respectively.

This study also makes a contribution with respect to the measurement of organisational cynicism. Wanous, Reichers and Austin (2000) acknowledged that their research on cynicism was in its formative stages, and that measures of the construct may need refinement. Evidence was here provided to support the discriminant validity of two forms of negative response to change: change cynicism and change pessimism. The two measures might well prove useful to researchers and practitioners interested in assessing different aspects of organisational climate. For instance, Abrahams (2000) argued that there are different forms of change cynicism, defined in terms of societal cynicism, employee cynicism, organisational change cynicism, work cynicism and dispositional cynicism. The two measures, here described, may be differentially sensitive to the different forms. The measure of change pessimism may tap more closely in to "work cynicism", while the self-developed change cynicism measure may tap more closely in to "organisational cynicism". The change cynicism items, assessing generalised responses to change, appear to have been understood by survey respondents in a way that links to trust in senior management.

Overall, one of the key strengths of this study resides within the longitudinal design. Many of the previous studies which have assessed associations between trust and outcomes have used cross-sectional designs. Longitudinal designs provide stronger tests of causal relations

and, as previously described, help to circumvent problems of common method variance with self-report data.

Although the longitudinal data set provided the strongest evidence to date about the causal impact of trust in senior management, a limitation of the current research centres on the lack of three wave data. Three-wave data enables assessment of reciprocal causation (Willett, 1988). Due to the resignation of the CEO of the validation sample prior to the administration of third-wave data, this was not possible. Beyond examining reciprocal effects, future research might also look to cross-validate the longitudinal effects in an independent organisation and to examine the relationship between trust and cynicism using more controlled experimental or quasi-experimental designs. Lastly, given the moderate strength of association between trust and cynicism, future research should look to identify other factors, beyond trust, which impact on cynicism toward change. The influence of dispositional traits, as suggested by Judge, Thoresen, Pucik and Welbourne (1999), and organisational support might usefully be modelled.

Overall, the results should be of interest to researchers and practitioners alike. Beyond anecdotal conjecture and correlational results, this longitudinal analysis is one of the few studies to show that trust in senior management can make a difference to organisational functioning. Given that change is such a fundamental quality of organisational life, and predicted to become more so (Hamel, 1992, 2000; Limerick & Cunnington, 1993), this research makes a significant contribution to the change and leadership literatures. The use of rigorous analytical methods lends credibility to the results. In contrast to other longitudinal

studies involving trust in management (e.g. Mayer & Davis, 1999), measurement error was accommodated when estimating the causal relations. The results, therefore, make a unique contribute to the literature on trust and change in organisational contexts.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

In this Chapter a summary of the major research findings is provided, conclusions are drawn, implications are discussed, and recommendations for future research are considered. It is argued that the research makes a unique contribution to the trust literature by presenting evidence in support of the construct validity of a model of trust in senior management. The analytical rigor invested in establishing the construct validity of the model and measures associated with trust in senior management, through the use of confirmatory factor analytic and structural modelling techniques, across two large samples and across time, will afford confidence to practitioners and researchers who may wish to extend or use the results of the research.

Measurement Model

One of the major contributions of the research centers on the confirmation of a measurement model which identified, in a parsimonious way, relevant dimensions of underpinning employee trust in senior management. Using confirmatory factor analysis, clear evidence was forwarded in support of the construct validity of dispositional, cognitive, affective, social-normative, and behavioural-intent dimensions of trust and trustworthiness in senior management. Schwab (1980), Currall and Judge (1995), and Anderson and Gerbing (1998)

argued that it is important to establish the construct validity of measures before undertaking substantive research on the structural relations between constructs. Currall and Judge noted that trust researchers have, in the main, focused less on construct validation processes than on identifying predictors or outcomes of trust. For the present program of research, strong evidence in support of the construct validity of the measures was provided in Chapters IV and V. Rigorous analytical methods were used to establish the convergent validity and discriminant validity of measures, and measurement model invariance was demonstrated across two dissimilar organisations.

Construct validation, as a process, needs to be grounded in a sound theoretical base (Byrne, 1994; Hair, Anderson, Tatham, & Black, 1992). For the present research, the development of the measurement model was theoretically grounded in research frameworks previously used in the attitude literature (e.g. Ajzen & Fishbein, 1980; Rosenberg & Hovland, 1960), the trust literature (e.g. Mayer, Davis & Schhorman, 1995; Currall & Judge, 1995), and the literature on affective well-being (Warr, 1990). More specifically, confirmatory factor analysis conducted on two large samples showed that, consistent with the theory of reasoned action (Ajzen & Fishbein) and the tripartite model of attitude structure (Rosenberg & Hovland), trustworthiness and trust in senior management could be defined in terms of a measurement model consisting of dispositional, cognitive, affective, social normative and behavioural intent dimensions.

The findings that the affective, cognitive and behavioural intent dimensions can be partitioned when examining trust in organisational contexts, informs a long-standing debate in the attitude

literature about the multi-dimensionality of attitude structure. Eagly and Chaiken (1993) advocated treating the terms cognitive, affective, and behavioral "as convenient labels for three classes of evaluative response that would not necessarily sort out into three components on an empirical basis. ... [Rather], the terms merely provide a heuristically convenient language for discussing various issues relevant to attitudes" (p. 666). In this research, clear empirical evidence was provided in support of the discriminability between the three components.

Similarly, although previous research work has been directed toward differentiating the relative influence of cognitive versus affective dimensions of attitudinal responses (Brief & Roberston, 1989; Organ & Konovsky, 1989; Organ & Near, 1985; McAllister, 1995; Sevastos, 1996), and the relative influence of cognitive versus behavioural responses (Bentler & Speckart, 1979; Currall & Judge, 1995), the present study is one of the few in the organisational literature, which has simultaneously examined the influence of the cognitive, affective, social normative and behavioural intent dimensions of attitude structure. Based on confirmatory factor analysis, evidence was provided in support of the discriminant validity and the generalisability of cognitive, affective, social normative, and behavioural intent dimensions of trust in senior management. Future researchers may find value in adopting a similar conceptual framework when attempting to understand and differentiate different dimensions of attitudinal responses.

A definition of trust in senior management was offered which was consistent with the attitudinal perspective. Drawing on definitions offered by Mayer, Davis and Schorrman (1995), Currall and Judge (1995) and McAllister (1996), trust in senior management was

defined in terms of a "willingness to act". Consistent with Fishbein and Ajzen's (1975) assertion that the intention to engage in behaviour is the most proximal cause of behaviour, trust in senior management was defined in terms of behavioural intent. More specifically, trust in senior management was defined in terms of a *willingness to act on the words, actions, and decisions of senior management under conditions of uncertainty or risk.* As argued by Mayer, Davis, and Schoorman (1995) and Clark and Payne (1997), defining trust in terms of behavioural intent enables a clear distinction to be drawn between trust and trustworthiness. Attributions about trustworthiness are grounded in the dispositional, cognitive, affective and social normative dimensions of the model. As previously mentioned, trust, itself, is operationalised in terms of behavioural intent.

In contrast to previous attempts at operationalising trust in these terms, evidence was provided in support of the internal consistency, convergent validity and discriminant validity of a three item measure of trust in senior management. Cross validation of the measurement model showed the measure of trust in senior management was understood in similar terms across two organisations. On the basis of these results, researchers can use the measure, in both private and public settings, with a considerable degree of confidence.

The cognitive dimensions of trustworthiness attributions were shown to be grounded in employee perceptions of the competence and caringness of senior management. These dimensions, in general, are consistent with those identified by Butler (1991), Clark and Payne (1997), Mayer, Davis and Schoorman (1995), Mishra (1996), and others - even if as part of a larger set. Mishra (1996), for example, conceptualised trustworthiness in terms of

competence, concern, openness and relaibility. Consistent with calls for parsimony in the measurement of constructs (Cook & Wall, 1980; Mayer & Davis, 1999; Warr, 1990), the results for the present research suggested that the two factors accounted for the majority of the variance in cognitively weighted assessments about the trustworthiness of senior management.

As described in Chapter V, it was found that employee attributions about the caringness and competence of senior management could be conceptualised under a higher order factor. Confirmatory factor analyses showed that the higher order factor provided an acceptable, and theoretically more plausible account of the data, in both samples, than did a model where caringness and competence were treated as separate first order factors. More specifically, the results of a second order factor analysis showed that, although the discriminant validity between the caringness and competence factors had previously been demonstrated, a high proportion of the variance of the separate scales was explained by a single "higher order" construct. Contrary to previous conceptualisations of trustworthiness (e.g. Mayer & Davis, 1999), the results suggest that, at least in large organisations, employee attributions about the trustworthiness of senior management are grounded in an overall evaluative response (James & James, 1989, 1992) or an overarching "general impression" (Lance, LaPointe & Stewart's, 1994). This conceptualisation is consistent with Kouzes and Posner's (1993) and Tinsley-Dillard's (1996) claims that employees assess senior management in terms of their overall "credibility". It is also consistent with McKnight, Cummings, and Chervany's (1986) suggestion that beliefs about the competence, honesty, predictability and benevolence of a trustee can be modeled through a second order factor. Overall, it appears that, rather than

making additive assessments over a range of discrete dimensions about the trustworthiness of senior management, employees make an overall or global assessment, which, in turn, influences their assessments of more discrete dimensions. Their overall evaluation, operationalised in terms of a higher order factor, influences or "drives" attributions about more differentiated or discrete dimensions. This finding suggests that interventions or responses, designed to increase levels of trustworthiness in organisational contexts, need to be broad and encompassing in their focus, rather than being targeted at particular dimensions of employee perceptions or experience.

With respect to the affective dimensions of trust, recently, there have been calls to greater acknowledge the importance of the affective and emotional dimensions of organisational experience (Fisher & Ashkenasy, 2000; Fox & Spector, 1999; McAllister, 1995; Muchinsky, 2000; Wright & Doherty, 1998). By using a well-established theoretical formulation about the structure of affective space and psychological well-being (Warr, 1990), a psychometrically robust measure of the affective dimension of trust in senior management was developed. Previous attempts to operationalise the affective dimensions of trust have, to a large extent, been less theoretically grounded (Clark & Payne, 1997; Cummings & Bromiley, 1995; McAllister, 1995).

To more clearly specify the affective dimensions of trust, and with reference to the orthogonal dimensions of pleasure-displeasure and high arousal-low arousal which underpin Warr's (1990) and Russell's (1980) models of affective well-being, the affective experience of employees' trust in senior management was "located" in psychological space characterized by

"pleasure"(versus displeasure) and "low arousal" (versus high arousal). Within this psychological space, the affective experience of trust was operationalised in terms of feelings of "safety" and "security". Given that trust has consistently been defined in terms of the "willingness to act under conditions of uncertainty or risk" (Mayer, Davis & Schoorman, 1996; Mishra, 1996), the relevance of these affective indicators is intuitively appealing. Empirical evidence was provided support of this intuition. Defining affect-based trust in terms of feelings of safety and security is consistent with Shaw's (1997) speculation that trust is associated with feelings of "comfort", Fairholm's (1994) suggestion that trust connotes feelings of security and confidence, Creed and Miles' (1995) suggestion that feelings of security and stability engender trust, and Laschinger, Finegan, Shamain, and Casier's (2000) suggestion that trust in management will be associated with feelings of safety and comfort.

Overall, the development of a theoretically based conceptualisation, and psychometrically defensible measure, of affective-based trust, extends the trust literature considerably. As argued by George (2000), "in order for leaders to generate and maintain excitement and enthusiasm, they must be able to appraise how their followers feel, and be knowledgeable about how to influence these feelings" (p. 1041). Along similar lines, Jones and George (1998) argued that leaders need to recognise, appropriately respond to, and influence followers' emotions in order to generate high levels of trust. The model and measure presented in this thesis can be used in pursuit of such objectives. For example, organisational surveys could be conducted on a regular basis to monitor employee affective reactions to senior management, and to gauge affective reactions to changes in policy, practices, strategies, technologies and systems.

Previously, researchers have reported high correlations between cognitive and affective measures of trust (Clark & Payne, 1997; Cummings & Bromiley, 1995). McAllister (1995) argued that although the affective experience of trust may be often alluded to by researchers, very little theory or data exists which helps understand that experience, or which distinguishes affect-based trust from cognition-based trust. In the present research, the correlations between cognitive and affective dimensions in the validation sample and the cross-validation across were only moderately high ($r = 0.61$; $r = 0.74$, respectively), and were lower than the value of $r = 0.80$, identified by Christiansen, Lovejoy, Szymanski and Lango (1996) as suggesting potential higher order effects. Further, discriminant validity between the cognitive and affective dimensions was demonstrated using a process recommended by Anderson and Gerbing (1988) and previously used in the trust literature by McAllister (1995). Clear empirical evidence was provided in support of the independence and the utility of cognitive and affective dimensions of trust in senior management. The research extends the work of McAllister by grounding a cross-validated measure of affect-based trust more clearly in theoretical models of affect, and by focusing on employee-senior management relations, as opposed to dyadic relations.

Consistent with theorists who have argued in support of a "relational" or "socially constructed" view of trust (Kramer, Brewer & Hanna, 1996; Lewis & Weigert, 1985; Tyler & Degoey, 1996), Azjen and Fishbein's (1980) theory of reasoned action also suggests that social normative dimensions should be included in measurement models of trust in senior management. The development of a psychometrically defensible measure of a social-

normative dimension of trust in senior management was described in Chapter IV. Social norms were operationalised in terms of employee perceptions of their colleagues' assessment of the trustworthiness of senior management. The measure was shown to have acceptable internal consistency, convergent validity, discriminant validity and was shown to cross-validate over two organisations. Researchers and practitioners can therefore use the measure with confidence when attempting to assess perceptions of social-normative trust in senior management per se, or as part of broader climate analyses.

As previously noted, Festinger (1950) argued that, especially where there are limited opportunities to access information first hand, as may often be the case with respect to the motives and behaviour of senior management, "... an opinion, a belief, an attitude is 'correct', 'valid', and 'proper' to the extent that it is anchored in a group of people with similar beliefs, opinions, and attitudes" (p. 272). Subsequently, a considerable amount of literature has emerged which indicates that "work group climate" (Anderson & West, 1998) and "social information processing" (Salancik & Pfeffer, 1978) have a salient impact on employee attitudes and behaviour. Despite the additional empirical evidence which indicates that social norms can influence behavioural intentions (Bentler & Speckart, 1979; Currall & Judge, 1995), many trust researchers have neglected to examine the influence of social norms when their modelling trust in organisational contexts (e.g. Clark & Payne, 1997; Mayer & Davis, 1999; Tan & Tan, 2000). In this research, evidence was presented which showed the important role that social norms can play in influencing the willingness of employees to engage in trust-related behaviour.

When considering the measurement model in full, evidence was provided which showed statistically significant differences across two organisations in the mean scores associated with the cognitive, affective, social and behavioural intent dimensions of trust in senior management. The measures, therefore, appear capable of detecting differences in organisational environments, and therefore can be used in organisational climate research. That is, on the basis of survey data, decision makers in organisations can reliably assess changes in trust and the trustworthiness of senior management over time, and can determine whether their organisation is high or low in terms of trust in senior management, relative to other organisations. Measures of trust previously developed for use in organisational climate surveys (e.g. Koys & DeCotis, 1991) have not been subjected to the same level of psychometric testing as the present measures. Given the broad consensus that trust in senior management is a critical element of organisational effectiveness (Conger, Kanungo, & Menon, 2000; Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Shaw, 1997), it is important to develop psychometrically sound measures which enable confident diagnosis and meaningful comparisons across organisations. The brevity of the measures should also prove appealing to researchers and practitioners given the pressure often applied by client organisations to keep questionnaire length to a minimum (e.g. Pondy et al., 1997).

Within the research program, herein described, a measure of trusting disposition was developed. Again, a three item measure, adapted from the NEO PI-R (Costa & McCrae, 1992) and from McDonald, Kessell, and Fuller (1972), was shown to demonstrate acceptable levels of internal consistency, discriminant validity and convergent validity. The measure was also successfully cross-validated across two organisations. These results suggest construct validity

for the measure, and as such the measure could usefully and efficiently be employed in future trust research as a "control" for individual differences.

It is noteworthy that, in contrast to the attitudinal dimensions, there was no statistically significant difference in the mean scores for trusting disposition across the two organisations. Given that the researcher was not aware of any *a priori* reason why either organisation should attract or retain particularly trusting or distrusting individuals, this finding was not unexpected. Similarly, the longitudinal analysis described in Chapter VI, demonstrated that mean levels of dispositional trust did not change over time. This finding is consistent with the expectation that dispositional characteristics need to be, by their very nature, stable (Allport, 1937).

Structural Model

Another important contribution made by this program of research concerns the specification of the structural relations between the dimensions of trustworthiness and trust. Using structural equations modelling and theoretical perspectives, a model was derived which identified the patterns of influence between the dispositional, cognitive, affective, social normative, and behavioural intent dimensions. As described in Chapter V, structural equation modelling, on a model derived, in broad terms, from the theory of reasoned action and the tripartite model of attitude structure, provided a good fit to cross-sectional data drawn from two dissimilar organisations. The model, therefore, appears to provide general insight about employee attitudes toward senior management, and can assist practitioners and researchers understand the development and dynamics of trust in senior management. Importantly, the

specification of the causal influences within the broader model of trust can be used to design interventions aimed at influencing trusting intention.

Within the broader structural model, it was shown that affect-based trust, operationalised in terms of feelings of safety, security, and trust, directly influenced trust in senior management. At a general level this finding is consistent with previous research, showing that affective states can directly influence information processing, social judgements and behaviour (Crites, Fabrigar & Petty, 1994; Gasper & Clore, 2000). Focusing more specifically on the trust domain, in contrast to previous research where cognitively oriented accounts of trust have predominated (Clark & Payne, 1997; Currall & Judge, 1995; Mayer & Davis, 1999; Tan & Tan, 2000), affective engagement was here found to be an important precondition to trust. As previously noted, and as suggested by Jones and George (1998), senior management will therefore need to recognise, respond to, and influence followers' emotions in order to generate high levels of trust. In practical terms, organisational development interventions designed to influence employee trust in senior management, at least in part, will need to focus on employees' affective reactions to senior management.

Within the broader structural model, it was also shown that perceived social norms were an important determinant of trust in senior management. Beliefs about how others perceive senior management were found to directly influence individuals' trust in senior management. From a theoretical perspective, although the Ajzen and Fishbein (1980) framework explicitly acknowledged subjective norms as an element of attitude, Azjen (1991) suggested that individual factors are more influential in determining intentions than social factors, and

claimed that empirical research showed that subjective norms have limited predictive utility. The results of the present research are more consistent with calls to acknowledge the important role that social norms can play in organisational contexts (Terry, Hogg & McKimmie, 2000) and calls to reconceptualise Ajzen and Fishbein's notion of subjective norms as an individual level climate variable (Terry & Hogg, 1996; Green, 1998; Payne, 1990; Warshaw, 1980). The results of the present research suggest that strategies to develop trust in senior management should, at least in part, be focused at the level of the workgroup. If individuals perceive improvements in the general climate of trust in senior management within their workgroup, they will likely, at the individual level, similarly recalibrate their levels of trust. This is particularly likely when employees cannot access "first-hand" information about senior management, and instead, rely on others to help them attribute motive or evaluate action. Theoretical and empirical support for this view can also be found in the organisational climate literature (Reichers & Schneider, 1990; Schein, 1985), the group climate literature (Anderson & West, 1998), research on group affective tone (George, 1998) and research on "shared mental models" in organisational contexts (Snyder & Higgins, 1988). Anderson and Thomas (1996) and Kramer, Brewer and Hanna (1995), along similar lines, argued that co-workers have a key role in the social construction and maintenance of trust in work-groups. Organisational Development consultants and senior management may, therefore, be advised to more fully consider group norms, team mental models (Klimoski & Mohammed, 1994) and group affective tone (George, 1996), when acting to develop trust relations within organisational contexts.

Within the broader structural model, it was also demonstrated that both the affective and normative dimensions mediated the relationship between the higher order cognitive factor and trust. That is, evidence was presented which showed that affect-based trust mediated the relationship between the higher order cognitive dimension, on the one hand, and trust, on the other. Similarly, and in contrast to Terry and Hogg (1996) who argued that social norms *moderate* the effects of attitudes on intentions, social norms were shown to mediate the relationship between the higher cognitive dimension and trust. Structural equation modelling showed that the higher order cognitive dimension did not, in itself, directly influence trust, but rather had an indirect and more distal effect on trust.

The proposed model of the structural relations between the dimensions of trustworthiness and trust contrasts with the model proposed by Mayer, Davis and Schoorman (1995) and Mayer and Davis (1999). Mayer and Davis's model showed ability, benevolence and integrity directly influencing trust. The model proposed in the present research showed such cognitive dimensions *indirectly* influencing trust. The differences between the present results and those reported by Mayer and Davis, may be in part attributable to the different theoretical formulations which underpin the models tested, differences in the statistical analyses used, the use of different measures, differential reliabilities of the measures, and differences attributable to the characteristic experiences of employees from large versus small organisations. As argued in Chapters IV, V, and VI, and sometimes in contrast to Mayer and Davis, strong evidence was herein provided in support of the theoretical underpinning of the model, the reliability of the measures, the "fit" of the measurement model, and the "fit" of the structural model. For example, Mayer and Davis reported alpha reliabilities of $\alpha = 0.59$ and $\alpha = 0.60$ for

their measure of trust. Alpha reliabilities of $\alpha = 0.75$ (organization 1, sub-sample 2, $n = 416$) and $\alpha = 0.80$ (organization 2, $n = 249$) were reported in the present research. In addition, and in contrast to Mayer and Davis's paper, evidence in support of the cross-sectional, longitudinal and cross-organisational invariance of the structural model was provided in the present analyses.

With respect to the influence of dispositional trust, analysis of cross-sectional data showed that trusting disposition directly influenced trust in senior management. This result was not unexpected given that employees in large organisations generally have limited contact with senior management, and therefore do not have exposure to strong situational cues on which to base their attitudes. Mischel (1977) and Van Dyne, Vandewalle, Kostova, Latham and Cummings (2000) argued that, in general terms, personality has more predictive power when situational influences are weak. However, in contrast to the cross-sectional model, and consistent with Mayer and Davis's (1999) findings, disposition was found not to influence trust in senior management over time. It appears that over time, as individuals are exposed to and collect more information, situational influences predominate over dispositional influences. In particular, Davis-Blake and Pfeffer (1989) argued that, "organizational settings are strong situations that have a large impact on individual attitudes and behavior" (p. 387). In practical terms, this finding suggests that trust in senior management cannot be fully determined by recruiting, selecting and retaining dispositionally trusting employees. Rather, senior management need to operate at a number of levels to influence attributions of trustworthiness, affective responses, and social norms, in order to "shape" a climate of trust in their organization.

Longitudinal Model

In Chapter VI, evidence was provided which showed that the structural relations between the situational dimensions of trust in senior management, as determined with cross–sectional data, also held longitudinally over a one-year time lag. Prior to estimating the longitudinal effects, independent analyses of the Time 1 and Time 2 data showed that the proposed structural model provided a good fit to the data at both points in time. In addition, and as a more rigorous test of the robustness of the model, the structural relations within the model were shown to be invariant across the twelve month time period. The validity and explanatory power of the framework was therefore strengthened.

More specifically, and consistent with the cross-sectional model, the longitudinal analyses showed that global assessments about the credibility or 'overall effectiveness' of senior management had lasting consequences on how individuals feel about senior management and their perceptions of trust-related social norms within the organisation. Also consistent with the cross-sectional model, it was found that, over time, both generalised affective responses to senior management, and perceived social norms, influenced the willingness of employees to engage in trust-related behaviour. That is, the longitudinal analysis showed that generalised affective responses to senior management at Time 1, and perceived social norms at Time 1, influenced trust at Time 2. Thirty seven percent of the variance in "trust" at Time 2 was explained by "affect", "social norms" and "trust" at Time 1. This is a sizable proportion of variance to be accounted for in longitudinal attitude modelling, especially so, given that the cross-sectional influences of affect and social norms at Time 2 on trust at Time 2 were not estimated.

Overall, the longitudinal analysis of the structural relations within the model, the use of rigorous statistical methods, and the relatively large heterogeneous longitudinal sample, enabled strong conclusions to be drawn about the structure of trust in senior management. Most previous studies of trust in organisational contexts have used cross-sectional data, thereby restricting conclusions to be drawn about the causal relations between variables (Breckler, 1990). Given that Loehlin (1992), Willett (1993) and others have argued that latent variable causal modelling, where variables are sequenced in time, provides the strongest evidence in support of causality, researchers and practitioners can thus use the proposed framework with a degree of confidence to understand the development and dynamics of trust in senior management.

Consequences of Trust in Senior Management

Having established evidence in support of the measurement properties and the structural relations between theoretically grounded dimensions of trust and trustworthiness, further longitudinal analyses were conducted to identify outcomes or consequences of trust in senior management. These analyses were described in Chapter VII. Using large sample longitudinal data and rigorous statistical analyses, trust in senior management at Time I was shown to influence generalised cynicism toward change at Time 2 over a twelve month interval.

Given that the design and the implementation of change are primary responsibilities of senior management (Conger & Kanungo, 1987; Conger, Kanungo, & Menon, 2000; House, 1977; Kotter, 1990), it is clearly in the interests of senior managers to promote and maintain trust

relations with employees. In order for senior management to effect change with a minimum of resistance and negativity, the longitudinal analyses suggest that trust relations need to be managed. Where senior management have established a climate of trust, employees will be more likely to be positively predisposed toward change.

The finding of a causal association between trust and cynicism toward change is consistent with social exchange theory (Blau, 1964). Social exchange theory predicts that as one party acts to benefit another, an implicit obligation for further reciprocity is established (Eisenberger, Fasolo, & Davis-LaMastro, 1990; Hofmann & Morgeson, 1999). In terms of the exchange between senior management and employees, the extent to which employees perceive senior management acting in a trustworthy way, will likely influence the extent to which employees have generally positive attitudes toward senior management, and toward organisational changes promoted by senior management.

The longitudinal analyses showed that trust in senior management at Time 1 did not influence affective commitment nor intentions to turnover at Time 2. The absence of a causal association between trust in senior management and commitment contrasts with previous research findings (Laschinger, Finegan, Shamian, & Casier, 2000;Tan & Tan, 2000). As discussed in Chapter VII, given that the longitudinal sample was drawn from an organisation which had a divisionalised structure, it is possible that employees were more affectively committed to their division, department, section or work-group, than to the organisation as a whole. Consistent with Reichers (1985), who argued that employees can have multiple commitments within their organisational experience, Becker and Billings (1993) distinguished

between locally committed employees, globally committed employees and employees with differing degrees of both local and global commitment. If employees in the present research understood commitment in terms of their experience within their division, department, section or team, rather than to their organisation, trust in senior management, at a global level, would be less likely to influence commitment at the local level. Local level commitment may be better predicted by trust in department head, supervisor or team-mates. Further research needs to be conducted where the focus for commitment is clearly specified.

Similar arguments could be forwarded to account for the lack of association between trust in senior management and intention to turnover. Given the lack of association between trust and commitment, and given that a clear association between affective commitment and intention to turnover has been established (Mathieu & Zajac, 1990), as with commitment, turnover may be better predicted by trust in department head, supervisor or team-mates.

Beyond determining causal relationships between trust in senior management and a number of outcome variables, the examination of potential outcome variables contributed to the broader organisational literature in a number of ways. First, strong psychometric evidence was provided in support of the validity and reliability of brief measures of affective commitment, intention to turnover and attitudes to change. The three item measures of these constructs were shown to generalise across organisations and to be stable over time. Given that many researchers have argued for parsimony and efficiency when using organisational diagnostics (Cook & Wall, 1980; Kraut, 1996), these new measures should prove useful as measures of psychological climate within organizational contexts.

Second, the research made a specific contribution with respect to the measurement of organisational cynicism. Wanous, Reichers and Austin (2000) acknowledged that their research on cynicism was in its formative stages, and that measures of the construct may need refinement. Evidence was provided to support the discriminant validity of two forms of negative response to change: change cynicism and change pessimism. The two measures might well prove useful to researchers and practitioners interested in assessing different aspects of organisational climate. Further research might be conducted to determine whether the dimensions have different antecedents or consequences.

Overall, the results of the longitudinal outcome analyses should be of interest to researchers and practitioners alike. Trust in senior management was found to influence cynicism toward change. Given that change is widely recognized as a fundamental quality of contemporary organisational life, and is predicted to become more so (Hamel, 1992, 2000; Limerick & Cunnington, 1993), results from this research make a significant contribution to the change and leadership literatures. The care taken in demonstrating the psychometric properties of the measures, and the use of rigorous analytical methods to systematically determine the relationships between the constructs, lend considerable credibility to the results. In contrast to other longitudinal studies involving trust in management (e.g. Mayer & Davis, 1999), measurement error was accommodated when estimating the causal relations. The heterogeneous and large samples also lend credence to the generalisability or external validity of the results. The results, therefore, make a unique and significant contribution to the literature on trust and change in organisational contexts.

Limitations and future research

Although the relatively large longitudinal data set enabled strong claims to be made about the causal impact of trust in senior management, a limitation of the current research centred on the lack of three wave data. Three-wave data enables the assessment of reciprocal causation (Willett, 1988). Due to the resignation of the CEO of the host organisation prior to the scheduled administration of third-wave data, potential reciprocal causation amongst dimensions of trust and trustworthiness could not be modelled. It was deemed that the resignation of such an important member of the senior management group would render the third wave of longitudinal data difficult to interpret. Irrespective of this issue, the incoming CEO decided to delay the administration of a subsequent survey.

Future research, thus, might usefully be directed toward identifying how dimensions of trustworthiness and trust mutually influence each other over time. One could speculate, for instance, that "affect", "social norms" and "trust" at Time 2 might well influence assessments of "overall effectiveness" at Time 3. On a similar theme, and at a more general level, Eagly and Chaiken (1993) noted criticism of Ajzen and Fishbein's (1980) theory of reasoned action, because of its emphasis on causation that flows in a single direction. Given the lack of three wave data, the causal associations among the set of dimensions should not be regarded as fully "mapped". Indeed, at a more general level, and as noted previously in Chapter VII, the word "cause" should not be overly interpreted on the basis of structural equation modelling (Anderson & Gerbing, 1988; Bentler & Speckart, 1979).

Beyond examining reciprocal effects, future research might also look to cross-validate the longitudinal effects in an independent organisation. Although within the present program of research, cross-validation of the measurement and the structural model was performed across two quite different organisations, testing the longitudinal influence of trust on attitudes to change in a second organisation would further confirm the robustness of the findings. Quasi-experimental research, capturing pre and post measures of trust and attitudes to changes, or where different groups within an organisation go through the same change processes at different points in time, might also provide useful additional insight about the specific influences of trust-related dimensions on attitudes to change. For instance, if particular decisions or actions taken by senior management were to significantly impact employee trust, flow-on effects may occur with respect to commitment, turnover intent and cynicism toward change. Future research using a range of alternative time lags (e.g. 3 month, 6 month, 9 month, 12 month lags) might also be considered when assessing the consequences of trust in senior management on a range of outcome variables. Williams and Podsakoff (1989) noted that there have been few systematic attempts to identify appropriate time lags when conducting longitudinal research.

Despite the moderate strength of association between trust and attitudes to change, a considerable amount of variance remained unexplained. Future research should look to identify other factors, beyond trust, that might impact on cynicism toward change. The influence of dispositional traits, as suggested by Judge, Thoresen, Pucik and Welbourne (1999) and Wanberg and Banas (2000), and the influence of employee participation in change processes (Dirks, Cummings, & Pierce, 1996; Gagne, Koestner, & Zuckerman, 2000) might

usefully be considered. The simultaneous influence of commitment and trust on change might also usefully be modelled.

Future research may also look toward extending the attitudinal model of trustworthiness and trust. Bentler and Speckart (1979), for instance, suggested augmenting the Ajzen and Fishbein model (1980) to include the direct influence of past behaviour on behavioural intention. With respect to the proposed trust model, the influence of previous trust related behaviour on trust (defined as behavioural intention) would be modelled. With respect to social norms, research by Terry Hogg and McKimmie (2000) suggested that individuals may be differentially "prone" to normative influences, and that "norms should have the most influence on attitude-behaviour consistency when the group membership is personally relevant and when the normative information can be scrutinized carefully" (p. 341). Given that the present research identified social norms as an important antecedent of trust, future research may also be directed toward further understanding these more subtle aspects of social normative experience. The conditional or contextual factors which influence trust need also be more fully considered. Brockner, Siegel, Daly, and Tyler (1997), for example, identified that outcome favourability was an important determinant of "when trust matters". Brockner et al. found that trust matters more when outcomes were less favourable than when outcomes were favourable. Similarly, Ring (1995) identified interdependence, uncertainty and consequentiality as potential contextual variables which could influence the development or maintenance of trust.

As noted by one of the examiners of the thesis, alternative models could sensibly be

tested with the data available. For example, it is possible that the effect of trusting disposition on trust in senior management is mediated by perceptions of managerial effectiveness. That is the effects of dispositional trust might be indirect, as opposed to direct as examined in the thesis. Future research might be conducted to examine this and other theoretically plausible structural relationships among the set of trust-related variables.

Another area of future research would involve investigating the construct of distrust, using a similar conceptual framework here used to look at trust. As previously noted, the literature suggests that trust and distrust might best be viewed as different constructs rather than bipolar opposites of a unidimensional construct (Kramer, 1995; Sitkin & Roth, 1993). Future research could be conducted to empirically compare the bipolar versus unipolar models, to identify the cognitive and affective markers of distrust, and to ascertain whether the structural relations between the cognitive, affective, social normative, and behavioural intention dimensions of trust, also apply to distrust.

Future research may also look to more fully develop the nomological net amongst factors influencing, or influenced by, trust. With respect to antecedents of trust, the levels of unexplained variance in trust at Time 2 in the longitudinal analysis, suggested the existence of omitted variables. The present research focused only on the immediate trust-related antecedents of trust. Future research might usefully extend the model here proposed to include other, less proximal, antecedent variables. The trust literature would suggest that future research also include measures of procedural justice (Mayer & Davis, 1999) and

psychological contract breach (Robinson, 1996) as antecedents of trust in senior management. Mayer and Davis found that the implementation of an appraisal system which was perceived as being more fair by employees resulted in increased trust in senior management. With respect to the influence of psychological contract breach Robinson argued that if, "restructuring and downsizing continue to be facts of organisational life, then the challenge for managers is to learn how to navigate such changes in a way that preserves employees' sense of trust" (pp. 596-597). Consistent with this research, McAuley and Kuhnert (1992) and Carnevale (1988) have argued that, particularly in larger organisations, because employees do have opportunities to directly monitor the actions and behaviour of senior management, they monitor system-wide processes such as reward and performance management systems to assess trust in senior management.

The links between leadership and trust provide another potential area for future research. There is an extensive literature suggesting that the willingness of followers to be influenced by leaders is, in part, based on their trust in leaders (Conger, Kanungo & Menon, 2000; Fairholm, 1997; House, 1977; Kouzes & Posner, 1987; Yukl, 1989). The concept of transformational leadership, for example, has generated considerable interest among practitioners and academics (Bass, 1985; Bycio, Hackett & Allen, 1995; Carless, 1998). Podsakoff, Mackenzie and Bommer (1996) found that 28% of the variance in trust in management could be attributed to transformational leadership factors. Future researchers might usefully include transformational leadership factors in the set of first order cognitive trustworthiness dimensions. In parallel with the model proposed in the present research, Carless reported that a single higher order transformational leadership factor provided a good

account of the variance among the three first order factors originally proposed by Bass (1985). Beyond researching the influence of procedural justice, and transformational leadership dimensions, social exchange theory (Blau, 1964) would suggest that perceived organisational support (Eisenberger, Huntington, Hutchinson, & Sowa, 1986) might also influence levels of trust in senior management. Konovsky and Pugh (1994) and Konovsky and Organ (1996) argued that trust is a key element in the emergence and maintenance of social exchange relationships. Research might be directed toward identifying the relationship between perceived organisational support and trust.

With respect to the outcomes of trust, future research should be conducted which focuses on the relationship between trust and organisational citizenship behaviour (OCB). Research by McAllister (1995) and Podsakoff et al. (1996) suggested that trust can impact the extent to which employees are prepared to enact constructive or cooperative "extra-role" behaviours which go beyond those directly or formally required by the job (Organ & Konovsky, 1989). Although a number of researchers have identified advantages and disadvantages of using both employee self-report ratings of OCB and supervisory ratings of OCB (Organ, 1988; Schnake, 1991), typically, measures of employee organisational citizenship behaviour have been completed by supervisors. Supervisory ratings of OCB avoid potential self-report biases (Organ & Konovsky, 1989; Pond, Nacoste, Mohr & Rodriguez, 1997). For the present research program, the host organisation was not prepared to collect supervisory ratings of employee organisational citizenship behaviour. Future research could usefully be focused on exploring the relationship between trust in senior management and OCB.

Innovation may also be considered as a possible outcome of trust in senior management. Eisenberger, Fasolo, and Davis-LaMastro (1990) found that employee perceptions about being valued and cared about were related to organisational innovation. Although Bunce and West (1995) found that group-climate did not predict individual innovation, given that trust in senior management is associated with more open organisational climates (West & Anderson, 1996), high trust organisations will likely be more willing to risk, more tolerant of dissent (De Dreu & De Vries, 2000), and therefore, more innovative.

Conclusion

In conclusion, trust is increasingly being recognized as an essential element of organisational effectiveness. Kramer (1999) when concluding his review of some of the "prominent themes" and "enduring perspectives" on the nature and functions of trust in organisations, argued that, "Trust has rightly moved from a bit player to center stage in contemporary organizational theory and research" (p. 594). Given the "center stage" status of trust, it is important to operationalise the construct in valid and reliable ways. This program of research aimed to make a contribution to the trust literature by developing construct valid measures and models of trust in senior management. To a large extent, this aim has been met. The construct validation processes used throughout the thesis have yielded a model and measures which researchers and practitioners can use to understand the dimensions, development, dynamics and consequences of trust in senior management.

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APPENDIX I

ORGANISATIONAL SURVEY

FILLING IN THE QUESTIONNAIRE

There are several sections to the questionnaire. Please read the instructions at the start of each section carefully before answering. Although the questionnaire is quite long and some of the questions might appear to be repetitive, by completing all questions you will help ensure that we have accurately obtained your views. Many of the questions are from questionnaires widely used elsewhere. This will help us make comparisons.

- please read the instructions for each section.
- look carefully at the response alternatives for each section (eg 'strongly agree', 'much of the time')
- circle the best response for each question.
- please **answer all questions**, even if you are not completely sure of an answer.
- please answer each question honestly.
- don't spend too much time on one question. Your first response is usually the best.

**** BEGIN HERE ****

WHAT DO YOU THINK ABOUT YOUR JOB?

Please rate the accuracy of the following statements for your current job. (please circle the appropriate number)

	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
1. Most of the skills and abilities I use in my job are important to me.	1	2	3	4	5	6	7
2. My job usually makes use of very few of the work-relevant skills and knowledge I possess.	1	2	3	4	5	6	7
3. Performance on my job requires the use of all the work-relevant skills and knowledge I possess.	1	2	3	4	5	6	7
4. On my job, I seldom get a chance to use my special skills and abilities.	1	2	3	4	5	6	7

THE LEVEL OF YOUR WORKLOAD

The following four questions deal with the amount of workload in your job.
While working, on an average day at work, to what extent do you find yourself:

	To No Extent	Little Extent	Some Extent	Great Extent	Very Great Extent
1. Seeking relief from demanding work?	1	2	3	4	5
2. Under constant pressure to do work on time?	1	2	3	4	5
3. Having work piling up faster than you can complete it?	1	2	3	4	5
4. Having to work faster than you would like?	1	2	3	4	5
5. Being pushed by deadlines?	1	2	3	4	5

Please continue over page ☛

WHAT DO YOU THINK ABOUT YOUR JOB?

How accurate or inaccurate is each of the following statements in describing your job?
Please try to be as objective as you can in deciding how accurately each statement describes your job - regardless of whether you like or dislike your job. For each statement, please **circle** the appropriate number.

	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
1. The job requires me to use a number of complex or high level skills.	1	2	3	4	5	6	7
2. Just doing the work required by the job provides many chances for me to find out how well I am doing.	1	2	3	4	5	6	7
3. This job is one where a lot of other people can be affected by how well the work gets done.	1	2	3	4	5	6	7
4. The job provides me the chance to completely finish the pieces of work I begin.	1	2	3	4	5	6	7
5. The job gives me considerable opportunity for independence and freedom in how I do the work.	1	2	3	4	5	6	7
6. The job gives me a chance to use my personal initiative and judgement in carrying out the work.	1	2	3	4	5	6	7
7. The job is arranged so that I can do an entire piece of work from beginning to end.	1	2	3	4	5	6	7
8. The job is complex and varied.	1	2	3	4	5	6	7
9. The job itself is very significant and important in the broader scheme of things.	1	2	3	4	5	6	7
10. After I finish a job, I know whether I performed well.	1	2	3	4	5	6	7
11. The job provides me with a great deal of variety at work.	1	2	3	4	5	6	7
12. The job is arranged so that I often have the opportunity to see jobs or projects through to completion.	1	2	3	4	5	6	7
13. The job is relatively significant in our organisation.	1	2	3	4	5	6	7
14. The job permits me to decide on my own how to go about doing my work.	1	2	3	4	5	6	7
15. The job provides feedback on how well I am doing as I am working.	1	2	3	4	5	6	7
16. The work I do is very important to me.	1	2	3	4	5	6	7
17. I am confident in my ability to do my job.	1	2	3	4	5	6	7
18. My impact on what happens in my department is large.	1	2	3	4	5	6	7
19. My job activities are personally meaningful to me.	1	2	3	4	5	6	7
20. I am self assured about my capabilities to perform my work activities.	1	2	3	4	5	6	7

WHAT DO YOU THINK ABOUT YOUR JOB?

How accurate or inaccurate is each of the following statements in describing your job?

	Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
21. I have a great deal of control over what happens in my department.	1	2	3	4	5	6	7
22. The work I do is meaningful to me.	1	2	3	4	5	6	7
23. I have mastered the skills necessary for my job.	1	2	3	4	5	6	7
24. I have significant influence over what happens in my department.	1	2	3	4	5	6	7
25. I can decide on my own how to go about doing my work.	1	2	3	4	5	6	7

HOW YOU FEEL IN GENERAL

The following words describe different feelings and emotions. Please circle the number which best shows how you feel in general. How do you feel on an average day?

	Never	Occasionally	Some of the time	Much of the time	Most of the time	All of the time
interested	1	2	3	4	5	6
distressed	1	2	3	4	5	6
upset	1	2	3	4	5	6
scared	1	2	3	4	5	6
hostile	1	2	3	4	5	6
enthusiastic	1	2	3	4	5	6
proud	1	2	3	4	5	6
irritable	1	2	3	4	5	6
ashamed	1	2	3	4	5	6
nervous	1	2	3	4	5	6
determined	1	2	3	4	5	6
jittery	1	2	3	4	5	6
active	1	2	3	4	5	6
afraid	1	2	3	4	5	6
guilty	1	2	3	4	5	6
attentive	1	2	3	4	5	6

HOW SATISFIED ARE YOU WITH YOUR JOB?

The following set of statements deal with various aspects of your job. Please indicate how satisfied or dissatisfied you feel with each of these features of your present job.

HOW SATISFIED OR DISSATISFIED ARE YOU WITH:	Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Neither Dissatisfied nor Satisfied	Moderately Satisfied	Very Satisfied	Extremely Satisfied
1. The physical work conditions?	1	2	3	4	5	6	7
2. The freedom to choose your own method of working?	1	2	3	4	5	6	7
3. Your fellow workers?	1	2	3	4	5	6	7
4. The recognition you get for good work?	1	2	3	4	5	6	7
5. Your immediate boss?	1	2	3	4	5	6	7
6. The amount of responsibility you are given?	1	2	3	4	5	6	7
7. Your rate of pay?	1	2	3	4	5	6	7
8. Your opportunity to use your abilities?	1	2	3	4	5	6	7
9. Employee relations between management and workers in your branch/section/area?	1	2	3	4	5	6	7
10. Your chance of promotion?	1	2	3	4	5	6	7
11. The way your branch/section is managed?	1	2	3	4	5	6	7
12. The attention paid to suggestions you make?	1	2	3	4	5	6	7
13. Your hours of work?	1	2	3	4	5	6	7
14. The amount of variety in your job?	1	2	3	4	5	6	7
15. Your job security?							
16. Your career path?	1	2	3	4	5	6	7
17. Your access to formal training?	1	2	3	4	5	6	7
18. Your current level of productivity?	1	2	3	4	5	6	7
19. The prospects of your long-term employment with the organisation?	1	2	3	4	5	6	7
20. The level of service the organisation provides?	1	2	3	4	5	6	7
21. The level of service <u>you</u> provide?	1	2	3	4	5	6	7
22. The organisation's efforts to protect the health and safety of its employees?	1	2	3	4	5	6	7

BELIEFS ABOUT OTHERS

The following questions concern your beliefs about other people **in general.**
Please answer each question honestly. Remember, your responses will be totally confidential.

	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
1. My first reaction is to trust people.	1	2	3	4	5	6	7
2. I am more trusting than the average employee.	1	2	3	4	5	6	7
3. I have a good deal of faith in human nature.	1	2	3	4	5	6	7
4. I am cynical about other people.	1	2	3	4	5	6	7
5. I am suspicious of other people's intentions.	1	2	3	4	5	6	7
6. I have faith in the promises or statements of other people.	1	2	3	4	5	6	7
7. I feel that other people can be relied upon to do what they say they will do.	1	2	3	4	5	6	7
8. I feel that other people are out to get as much as they can for themselves.	1	2	3	4	5	6	7
9. I believe that most people have good intentions.	1	2	3	4	5	6	7
10. I think most people I deal with are honest and trustworthy.	1	2	3	4	5	6	7

RELATIONS WITH CO-WORKERS

Please circle the number which best describes your relations with your co-workers, that is the people in your work group, team or section.

	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
1. I can rely on those I work with in my group.	1	2	3	4	5	6	7
2. There is good team spirit in my group.	1	2	3	4	5	6	7
3. People in my work group are usually considerate of one another's feelings.	1	2	3	4	5	6	7
4. We have confidence in one another in our work group.	1	2	3	4	5	6	7
5. Members of my work group show a great deal of integrity.	1	2	3	4	5	6	7

Please continue over page ☛

SUPPORT FROM YOUR IMMEDIATE SUPERVISOR/MANAGER

Your immediate supervisor/manager is the person you report to. *Please circle the appropriate number to indicate how much you agree or disagree with each statement.*

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1. I can count on my supervisor/manager to keep the things I tell him/her confidential.	1	2	3	4	5
2. I can count on my supervisor/manager to help me when I need it.	1	2	3	4	5
3. My supervisor/manager has a lot of personal integrity.	1	2	3	4	5
4. My supervisor/manager is interested in me getting ahead in the organisation.	1	2	3	4	5
5. My supervisor/manager is the kind of person I can level with.	1	2	3	4	5
6. My supervisor/manager is behind me 100%.	1	2	3	4	5
7. My supervisor/manager follows through on his/her commitments to me.	1	2	3	4	5
8. My supervisor/manager is easy to talk to about job-related problems.	1	2	3	4	5
9. My supervisor/manager backs me up and lets me learn from my mistakes.	1	2	3	4	5
10. My supervisor/manager is not likely to give me bad advice.	1	2	3	4	5
11. My supervisor/manager consults with me and involves me in decisions to do with my work which affect me.	1	2	3	4	5
12. My supervisor/manager explains why decisions are made.	1	2	3	4	5
13. My supervisor/manager encourages me to talk with them about my job and other matters of concern to me.	1	2	3	4	5
14. My supervisor/manager listens to me.	1	2	3	4	5
15. My supervisor/manager shows a real interest in trying to be fair when evaluating my performance.	1	2	3	4	5
16. My supervisor/manager uses consistent standards when evaluating my performance.	1	2	3	4	5
17. I feel that my supervisor/manager and I are working toward shared or team objectives.	1	2	3	4	5
18. My supervisor/manager understands my job problems and needs.	1	2	3	4	5
19. I have a very good working relationship with my supervisor/manager.	1	2	3	4	5
20. My supervisor/manager uses accurate information when evaluating my performance.	1	2	3	4	5

ORGANISATIONAL SUPPORT

Please circle the number which best shows your feelings about working for your organisation.

The organisation where I work ...	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
1. ... has clear goals.	1	2	3	4	5	6	7
2. ... has a strong, independent identity.	1	2	3	4	5	6	7
3. ... has a clear set of values.	1	2	3	4	5	6	7
4. ... encourages people to develop and improve themselves.	1	2	3	4	5	6	7
5. ... demonstrates respect for employees.	1	2	3	4	5	6	7
6. ... values my contribution to its well-being.	1	2	3	4	5	6	7
7. ... fails to appreciate any extra effort from me.	1	2	3	4	5	6	7
8. ... is willing to help me when I need a special favour.	1	2	3	4	5	6	7
9. ... cares about my opinions.	1	2	3	4	5	6	7
10. ... takes pride in my accomplishments at work.	1	2	3	4	5	6	7
11. ... tries to make my work as interesting as possible.	1	2	3	4	5	6	7
12. ... strongly considers my goals and values.	1	2	3	4	5	6	7
13. ... helps when I have a problem.	1	2	3	4	5	6	7
14. ... cares about my general satisfaction at work.	1	2	3	4	5	6	7
15. ... would not ignore any complaint from me.	1	2	3	4	5	6	7

Please keep going!!! Or if you take a break, please come back to complete the questionnaire. We need you to answer all of the questions. It is important that everyone's views are taken into account.

Please continue over page ☛

WHAT DO YOU THINK ABOUT REWARDS & RECOGNITION?

The following questions ask you to rate how fairly you think you are rewarded at work. By fairness we mean the extent to which a person's contributions to the organisation are related to the rewards received. Money, recognition, and physical facilities are examples of rewards. The second set of questions on this page asks about the processes by which rewards are distributed. Please **circle** the appropriate number.

	Not at all fairly	With little fairness	With some fairness	Quite fairly	Very fairly
1. To what extent are you fairly rewarded, considering the responsibilities you have?	1	2	3	4	5
2. To what extent are you fairly rewarded in view of the amount of experience you have had?	1	2	3	4	5
3. To what extent are you fairly rewarded for the amount of effort you put in?	1	2	3	4	5
4. To what extent are you fairly rewarded for the work you have done well?	1	2	3	4	5

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1. The process used to assess my performance is fair.	1	2	3	4	5
2. The process used to determine my pay is fair.	1	2	3	4	5
3. I am satisfied with the process used to make decisions about promotions or job changes within this organisation.	1	2	3	4	5
4. My own hard work will lead to recognition as a good performer.	1	2	3	4	5
5. The decisions made about my promotions or job changes within this organisation are fair.	1	2	3	4	5
6. My performance ratings represent a fair and accurate picture of my actual job performance.	1	2	3	4	5
7. The process used to address any concerns or complaints I voice about this organisation is fair.	1	2	3	4	5
8. Standards and criteria are applied consistently across the organisation when evaluating people's performance.	1	2	3	4	5
9. In general, disciplinary actions taken in this organisation are fair and justified.	1	2	3	4	5
10. I am advised promptly when there is a change in policy, rules or regulations which affect me.	1	2	3	4	5

HOW YOUR WORK AFFECTS YOU

This section is concerned with how you have been feeling in yourself at work over the past few weeks. *Please answer the following questions by circling the answers that describe how things have been going in your work over the past few weeks.*

Thinking of the past few weeks, how much of the time has your work made you feel each of the following?

	Never	Occasionally	Some of the time	Much of the time	Most of the time	All of the time
anxious	1	2	3	4	5	6
calm	1	2	3	4	5	6
depressed	1	2	3	4	5	6
enthusiastic	1	2	3	4	5	6
fatigued	1	2	3	4	5	6
gloomy	1	2	3	4	5	6
miserable	1	2	3	4	5	6
motivated	1	2	3	4	5	6
optimistic	1	2	3	4	5	6
relaxed	1	2	3	4	5	6
tense	1	2	3	4	5	6
tired	1	2	3	4	5	6
worried	1	2	3	4	5	6
restful	1	2	3	4	5	6

CONTACT WITH SENIOR MANAGEMENT

Some of the questions which follow ask for your views about Senior Management. Senior Management includes the CEO, Vice Presidents and above, all of whom have an important say in the overall direction of the organisation.

1. How much contact do you have with Senior Management? (please circle the appropriate number)

Very Little	1
A Little	2
A Moderate Amount	3
Quite a Lot	4
A Lot	5
None at all	6

Please continue over page ☛

ATTITUDES TOWARD SENIOR MANAGEMENT

Senior Management includes the CEO, Vice Presidents and above. Please answer each question honestly. Remember, your responses will be totally confidential.

Senior management ...	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
1. ... can be counted on to look after the interests of employees	1	2	3	4	5	6	7
2. ... demonstrate integrity in their dealings with employees.	1	2	3	4	5	6	7
3. ... have this organisation headed in the right direction.	1	2	3	4	5	6	7
4. ... communicate openly with employees.	1	2	3	4	5	6	7
5. ... .are sincere in their attempts to understand the employees' point of view.	1	2	3	4	5	6	7
6. ... have a clear idea of where this organisation is headed.	1	2	3	4	5	6	7
7. ... are open and up-front with employees.	1	2	3	4	5	6	7
8. ... would not take unfair advantage of employees.	1	2	3	4	5	6	7
9. ... tell the truth to the employees.	1	2	3	4	5	6	7
10. ... have the knowledge and skills to effectively lead this organisation.	1	2	3	4	5	6	7
11. ... treat employees fairly.	1	2	3	4	5	6	7
12. ... deliver on the promises they make to employees.	1	2	3	4	5	6	7
13. ... have the courage to achieve the objectives they set.	1	2	3	4	5	6	7
14. ... do not hide important information from employees.	1	2	3	4	5	6	7
15. ... care about the well-being of employees.	1	2	3	4	5	6	7
16. ... are consistent in what they say and what they do.	1	2	3	4	5	6	7
17. ... have the ability to achieve the objectives they set.	1	2	3	4	5	6	7
18. ... can be counted on to look after the welfare of employees.	1	2	3	4	5	6	7
19. ... act ethically towards employees.	1	2	3	4	5	6	7
20. ... can be trusted to make sensible decisions for the organisation's future.	1	2	3	4	5	6	7
21. Overall, I trust Senior Management.	1	2	3	4	5	6	7

YOUR FEELINGS ABOUT SENIOR MANAGEMENT

Thinking back over the past few weeks, to what extent do the following words describe how you feel about senior management. Senior Management consists of the CEO, Vice Presidents and above.

When you think about Senior Management, to what extent do you feel ..... :

Please answer all questions.

		Not at all	Very Little	A Little	To Some Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent
.....	enthusiastic	1	2	3	4	5	6	7
	anxious	1	2	3	4	5	6	7
	miserable	1	2	3	4	5	6	7
	comfortable	1	2	3	4	5	6	7
	distressed	1	2	3	4	5	6	7
	secure	1	2	3	4	5	6	7
	upset	1	2	3	4	5	6	7
	uneasy	1	2	3	4	5	6	7
	sad	1	2	3	4	5	6	7
	motivated	1	2	3	4	5	6	7
	confident	1	2	3	4	5	6	7
	gloomy	1	2	3	4	5	6	7
	safe	1	2	3	4	5	6	7
	worried	1	2	3	4	5	6	7
	tense	1	2	3	4	5	6	7
	optimistic	1	2	3	4	5	6	7
	depressed	1	2	3	4	5	6	7
	dissatisfied	1	2	3	4	5	6	7
	distrust	1	2	3	4	5	6	7
	committed	1	2	3	4	5	6	7
	cynical	1	2	3	4	5	6	7
	fearful	1	2	3	4	5	6	7
	relaxed	1	2	3	4	5	6	7
	insecure	1	2	3	4	5	6	7
	inspired	1	2	3	4	5	6	7
	calm	1	2	3	4	5	6	7
	negative	1	2	3	4	5	6	7
	nervous	1	2	3	4	5	6	7
	positive	1	2	3	4	5	6	7
	exploited	1	2	3	4	5	6	7
	sceptical	1	2	3	4	5	6	7
	suspicious	1	2	3	4	5	6	7
	trust	1	2	3	4	5	6	7
	restful	1	2	3	4	5	6	7
	angry	1	2	3	4	5	6	7

HOW WOULD YOU RELATE TO AND BEHAVE WITH SENIOR MANAGEMENT?

Please answer these questions in terms of what you would actually do when interacting with Senior Management. Senior Management consists of the CEO, Vice Presidents and above. Please answer each question honestly. Remember, your responses will be totally confidential.

	Extremely Unlikely	Quite Unlikely	Slightly Unlikely	Neither Likely nor Unlikely	Slightly Likely	Quite Likely	Extremely Likely
1. I would be totally open when communicating with Senior Management.	1	2	3	4	5	6	7
2. I would confidently enter into an unwritten agreement with Senior Management.	1	2	3	4	5	6	7
3. I would double check that information I receive from Senior Management is accurate and complete.	1	2	3	4	5	6	7
4. I would document all communication I have with Senior Management.	1	2	3	4	5	6	7
5. I would seek expert advice before signing an agreement with Senior Management.	1	2	3	4	5	6	7
6. I would watch Senior Management closely to make sure they don't do anything against my interests.	1	2	3	4	5	6	7
7. I would be comfortable communicating to Senior Management what I think is wrong with this organisation.	1	2	3	4	5	6	7
8. I would enter into an agreement with Senior Management even if their obligations & responsibilities were not fully stated.	1	2	3	4	5	6	7
9. I would need to check on an ongoing basis whether Senior Management is treating employees fairly.	1	2	3	4	5	6	7
10. I would not deliberately withhold any information when communicating with Senior management.	1	2	3	4	5	6	7
11. I will act on the basis that Senior Management would honour any agreements they made with employees.	1	2	3	4	5	6	7
12. I would be willing to question Senior Management about the direction it is taking this organisation.	1	2	3	4	5	6	7
13. I will act on the basis that Senior management will keep the promises they make to employees.	1	2	3	4	5	6	7
14. I would support changes suggested by Senior Management.	1	2	3	4	5	6	7
15. I would be willing to help convince others that new ideas put forward by Senior Management are good ideas.	1	2	3	4	5	6	7

HOW YOUR WORK MATES FEEL ABOUT SENIOR MANAGEMENT

The following questions ask about how other people feel about Senior Management. Senior Management consists of the CEO, Vice Presidents and above.

Thinking about the people you work with on a regular basis, to what extent do you agree with each of the following statements. For each statement, please circle the number that best describes your view.

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1. Most people in my work group trust Senior Management.	1	2	3	4	5
2. Most people I work with think Senior Management do a good job of communicating with employees.	1	2	3	4	5
3. Most people I work with think Senior Managers have personal integrity.	1	2	3	4	5
4. Most people I work with think Senior Management look after the interests of employees.	1	2	3	4	5
5. Most people I work with think Seniors Management have a clear idea about where this organisation is headed.	1	2	3	4	5

WHAT DO YOU THINK ABOUT COMMUNICATION?

This set of questions deals with communication in at Burswood. *Please **circle** the number which best expresses your view of each statement.*

People in this organisation:	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1. Say what they mean and mean what they say.	1	2	3	4	5
2. Are encouraged to be really open and candid with each other.	1	2	3	4	5
3. Freely exchange information and opinions.	1	2	3	4	5
4. Are kept informed about how well work goals and objectives are being met.	1	2	3	4	5
5. Are provided with the kinds of information they really want and need to do the job.	1	2	3	4	5
6. Are kept up-to-date on developments that relate to future plans.	1	2	3	4	5
7. Are informed about the direction the organisation is taking.	1	2	3	4	5
8. Are kept informed about changes within the workplace.	1	2	3	4	5
9. Receive information through official channels before they hear it from colleagues 'on the grapevine'.	1	2	3	4	5
10. Receive timely advice on changes which might impact on their jobs.	1	2	3	4	5

Please continue over page ☛

ATTITUDES TOWARD THE ORGANISATION

The following statements ask about how it feels to be a part of the organisation.
Please **CIRCLE** the number which shows how much you agree or disagree with each statement.

	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
1. Right now, staying with this organisation is a matter of necessity.	1	2	3	4	5	6	7
2. I would be very happy to spend the rest of my career with this organisation.	1	2	3	4	5	6	7
3. I feel that I have too few options to consider leaving this organisation.	1	2	3	4	5	6	7
4. I really feel as if this organisation's problems are my own.		1	2	3	4	5 6	7
5. I have invested too much in this organisation to consider working elsewhere.	1	2	3	4	5	6	7
6. I feel a strong sense of belonging to this organisation.	1	2	3	4	5	6	7
7. I'm not willing to put myself out just to help the organisation.	1	2	3	4	5	6	7
8. I feel emotionally attached to this organisation.	1	2	3	4	5	6	7
9. I have no choice but to stay with this organisation.	1	2	3	4	5	6	7
10. I feel like 'part of the family' at this organisation.	1	2	3	4	5	6	7
11. It is only the lack of opportunities elsewhere that keeps me working at this organisation.	1	2	3	4	5	6	7
12. This organisation has a great deal of personal meaning for me.	1	2	3	4	5	6	7
13. For me, the costs of leaving this organisation would be far greater than the benefits.	1	2	3	4	5	6	7
14. I am proud to belong to this organisation.	1	2	3	4	5	6	7
15. I would not leave this organisation because of what I would stand to lose.	1	2	3	4	5	6	7
16. I often think about quitting.	1	2	3	4	5	6	7
17. I really feel I belong in this organisation.	1	2	3	4	5	6	7
18. If I decided to leave this organisation, too much of my life would be disrupted.	1	2	3	4	5	6	7
19. Sometimes I feel like leaving this organisation for good.	1	2	3	4	5	6	7
20. I will probably look for a new job within the next year.	1	2	3	4	5	6	7

ATTITUDE TOWARD CHANGE

When you think about the changes going on in this organisation, to what extent do you agree or disagree with each of the following statements:

	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
1. Most of the programs that are supposed to solve problems around here won't do much good.	1	2	3	4	5	6	7
2. The people who are responsible for solving problems around here don't try hard enough to solve them.	1	2	3	4	5	6	7
3. Attempts to make things better around here won't produce good results.	1	2	3	4	5	6	7
4. The people who are responsible for making improvements around here don't know enough about what they are doing.	1	2	3	4	5	6	7
5. Suggestions on how to solve problems won't produce much real change.	1	2	3	4	5	6	7
6. The people who are responsible for making things better around here don't care enough about their jobs.	1	2	3	4	5	6	7
7. Plans for future improvements won't amount to much.	1	2	3	4	5	6	7
8. The people responsible for solving problems around here don't have the skills that are needed to do their jobs.	1	2	3	4	5	6	7
9. I understand that there is a need for change if this organisation is to be successful.	1	2	3	4	5	6	7
10. I receive information about how changes will affect me personally *before* those changes occur.	1	2	3	4	5	6	7
11. I know how the changes that are happening now fit into the longer term direction of the organisation.	1	2	3	4	5	6	7
12. I have some say in changes which affect me.	1	2	3	4	5	6	7
13. I have some control over the changes which are occurring within this organisation.	1	2	3	4	5	6	7
14. Before changes are brought in, I am informed about why those changes are necessary.	1	2	3	4	5	6	7
15. Changes do us more harm than good.	1	2	3	4	5	6	7
16. This organisation provides staff with sufficient resources to make change happen smoothly.	1	2	3	4	5	6	7
17. There is too much chopping and changing going on in this organisation.	1	2	3	4	5	6	7
18. Change in this organisation usually means a lot of work and nothing to show for it.	1	2	3	4	5	6	7
19. Although we need to change, the strategies suggested will never get us there.	1	2	3	4	5	6	7
20. Staff understand why changes occur within this organisation.	1	2	3	4	5	6	7

BACKGROUND QUESTIONS

The following questions are very important for properly coding and analysing the data. As indicated earlier, **all responses will be kept strictly confidential to Curtin University.**

1. Your Employee Number : _____ (eg E12546)

   (We need this information for research purposes. Please remember that your responses will only be seen by researchers from Curtin University. No-one from Burswood will be able to view individual questionnaires. Please telephone Simon Albrecht on 9266 7983 if you would like more information about why this information is important).

2. **Gender:** *(Please tick)* Male ❑1 Female ❑2

3. **Date of Birth** : __ __/__ __/19__ __ (eg 28/05/1956; 03/10/1964)

4. **Length of service at this Organisation:** _____ yrs _____ months

5. **Educational Qualifications** : What is the highest level of education you have completed?

Primary school	❑1
Secondary school	❑2
Diploma/Certificate (TAFE or Business College)	❑3
Apprenticeship/Trade qualification	❑4
University Degree (BA, BSc, etc)	❑5
Post Graduate University Degree (Masters, etc)	❑6
Other	❑7

6. **Department/area** : *(Please tick)*

APPENDIX II

SPSS OUTPUT FROM EXPLORATORY FACTOR ANALYSIS

SPSS output from exploratory factor analysis of six dimensions of trust in senior management conducted on validation sub-sample 1 (n = 444)

---------- FACTOR ANALYSIS ----------

Analysis number 1 Listwise deletion of cases with missing values

Extraction 1 for analysis 1, Maximum Likelihood (ML)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
V69	.47883	*	1	17.09479	45.0	45.0
V71	.54432	*	2	3.04157	8.0	53.0
V74	.61242	*	3	1.96939	5.2	58.2
V75	.59652	*	4	1.64571	4.3	62.5
V77	.53240	*	5	1.37050	3.6	66.1
V78	.53083	*	6	1.23572	3.3	69.4
V80	.50243	*	7	.84163	2.2	71.6
V103	.75671	*	8	.81984	2.2	73.7
V104	.80342	*	9	.71131	1.9	75.6
V105	.74359	*	10	.63831	1.7	77.3
V106	.79576	*	11	.60205	1.6	78.9
V107	.79688	*	12	.54852	1.4	80.3
V109	.66507	*	13	.51380	1.4	81.7
V110	.74211	*	14	.50022	1.3	83.0
V111	.70965	*	15	.46371	1.2	84.2
V112	.76461	*	16	.42173	1.1	85.3
V113	.70342	*	17	.41501	1.1	86.4
V114	.68938	*	18	.39914	1.1	87.5
V117	.72561	*	19	.38327	1.0	88.5
V121	.73187	*	20	.34950	.9	89.4
V125	.74807	*	21	.34215	.9	90.3
V133	.68769	*	22	.32674	.9	91.1
V135	.68920	*	23	.32238	.8	92.0
V146	.64711	*	24	.28472	.7	92.7
V148	.71039	*	25	.26846	.7	93.4
V171	.62671	*	26	.25268	.7	94.1
V185	.73630	*	27	.24600	.6	94.8
V186	.27707	*	28	.23264	.6	95.4
V187	.38236	*	29	.21745	.6	95.9
V196	.66411	*	30	.21459	.6	96.5
V198	.66759	*	31	.19958	.5	97.0
V199	.59065	*	32	.19364	.5	97.5
V200	.60227	*	33	.18320	.5	98.0
V202	.64794	*	34	.16539	.4	98.5

- - - - - - - - - - - FACTOR ANALYSIS - - - - - - - - - - -

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
V203	.68196	*	35	.16074	.4	98.9
V204	.63531	*	36	.15361	.4	99.3
V205	.63722	*	37	.13900	.4	99.7
V206	.58720	*	38	.13133	.3	100.0

ML extracted 6 factors. 7 iterations required.

Test of fit of the 6-factor model:

Chi-square statistic: 1181.3525, D.F.: 490, Significance: .0000

OBLIMIN rotation 1 for extraction 1 in analysis 1 - Kaiser Normalization.

OBLIMIN converged in 16 iterations.

Pattern Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
V106	.72208	.05125	-.00210	.07007	.05382
V103	.67664	.06732	.08723	.06497	.04799
V112	.66896	.06160	-.01142	.08653	.11702
V104	.66234	.05889	.15162	.10210	.06294
V107	.65893	.04841	.11312	.07712	.04254
V110	.64166	.01228	.00219	.16129	.03829
V111	.55753	.05952	.16776	.05148	.02335
V71	.05131	.75243	.02517	-.02477	-.07784
V74	-.04455	.72191	-.00760	.10690	-.03620
V75	.05945	.72091	-.02802	.03598	-.07465
V80	.03164	.69359	-.01423	-.02615	.10197
V69	.08353	.69306	.04169	-.12021	-.01221
V77	-.15973	.67301	-.01486	.13151	.07576
V78	.00968	.66011	.00450	.00898	.12899
V135	.05183	-.00168	.81345	-.02566	-.02320
V133	.11083	.02867	.77024	.00609	-.03379
V148	.08257	-.00886	.76398	-.00865	.05895
V171	-.07710	.02083	.75710	.08047	.00492
V146	-.02446	.02137	.69479	.14562	.04559
V185	.09088	.01437	.55003	.08559	.12508
V117	-.03895	.12840	.13142	.75154	-.03727

- - - - - - - - - - - - FACTOR ANALYSIS - - - - - - - - - - - -

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
V113	.08002	.01501	.08292	.70494	.04394
V109	.23239	-.02400	-.03257	.70082	.03140
V125	.08573	.05481	.08840	.67519	.09778
V121	.07758	.06787	.13192	.64849	.07183
V105	.26929	.01538	.08581	.57341	.07897
V206	-.10174	.00006	-.04104	.48675	.02764
V114	.31994	.01672	.09746	.42036	.09574
V198	.05050	.07158	-.10618	-.01858	.88727
V196	.02369	-.00879	-.06813	.06782	.85495
V199	.04899	.05049	.19210	.03372	.45823
V200	.01105	.05091	.25066	.02859	.41072
V187	.01593	-.00141	.17221	.00052	.34577
V186	.03678	.00418	.17836	.00330	.28648
V203	.10480	-.02218	.00565	-.03212	.04631
V202	.06636	.06273	.11593	-.06854	.03037
V204	.02476	.07700	.04856	.01995	.07587
V205	.21438	.00254	-.03806	.06746	-.01040

	Factor 6
V106	.13067
V103	.06490
V112	.08738
V104	.02148
V107	.12814
V110	.11736
V111	.11201
V71	-.02194
V74	.07555
V75	.08429
V80	-.09152
V69	-.03349
V77	.07051
V78	-.00630
V135	-.01358
V133	-.00055
V148	-.01443
V171	.05215
V146	.01898
V185	.18332

	Factor 6
V117	.03442
V113	.03551
V109	-.06400
V125	.04233
V121	.01822
V105	-.03080
V206	.43715
V114	.04981
V198	.00802
V196	.00092
V199	.02501
V200	.07043
V187	.17603
V186	.02780
V203	.80068
V202	.73535
V204	.69357
V205	.63864

Structure Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
V106	.87342	.38845	.54850	.58062	.50692
V107	.87262	.39703	.62312	.60222	.52559
V104	.86861	.40375	.64268	.60505	.53275
V103	.84413	.39213	.58227	.56321	.49938
V112	.83484	.39416	.53359	.57001	.53085
V110	.81846	.34315	.52548	.60248	.47147
V111	.77433	.36873	.59339	.53422	.47254
V74	.28591	.74942	.26190	.34510	.30244
V75	.32441	.74199	.24985	.31062	.27736
V71	.26556	.73233	.22980	.22604	.23600
V78	.30583	.71682	.28646	.28891	.39707
V77	.21403	.70889	.24084	.32889	.34426
V80	.25067	.70276	.22199	.21293	.33019
V69	.25823	.67955	.22776	.15805	.25727
V148	.53352	.27667	.82837	.42875	.47901
V133	.54986	.29878	.82820	.44378	.43028

- - - - - - - - - - - FACTOR ANALYSIS - - - - - - - - - - -

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
V135	.48539	.25087	.81203	.38777	.40390
V185	.61700	.35531	.79442	.55927	.57810
V146	.49521	.30488	.79128	.51076	.47007
V171	.43993	.27810	.78470	.44698	.42456
V125	.60317	.39167	.55734	.84764	.50509
V117	.50297	.40527	.51650	.84012	.38973
V113	.56777	.33479	.51992	.83228	.43917
V121	.58435	.38881	.56310	.81907	.48069
V105	.66647	.35081	.55545	.78865	.48111
V109	.57887	.27490	.42716	.78686	.37673
V114	.68952	.35397	.56526	.71873	.50241
V206	.39388	.26380	.34804	.64655	.36124
V198	.43189	.40190	.39776	.35297	.88080
V196	.42808	.33827	.41792	.39904	.85613
V199	.42780	.32809	.50037	.37566	.62620
V200	.42229	.32756	.53026	.38208	.60981
V187	.37350	.25035	.43733	.32802	.52317
V186	.29401	.19610	.36257	.24635	.41195
V203	.53155	.27547	.42016	.45432	.44672
V202	.52316	.34265	.48011	.43905	.45761
V204	.49690	.35575	.44212	.47306	.47148
V205	.56697	.28482	.39552	.49494	.39595

	Factor 6
V106	.59208
V107	.60424
V104	.54199
V103	.54121
V112	.55724
V110	.56541
V111	.53954
V74	.31395
V75	.31451
V71	.20450
V78	.27264
V77	.29325
V80	.17080
V69	.17979
V148	.38669

	Factor 6
V133	.39501
V135	.34853
V185	.58092
V146	.41542
V171	.39545
V125	.53788
V117	.48266
V113	.50358
V121	.50698
V105	.48793
V109	.41422
V114	.52988
V206	.62874
V198	.41051
V196	.41030
V199	.38067
V200	.40724
V187	.41992
V186	.26135
V203	.85690
V202	.82028
V204	.79774
V205	.76703

Factor Correlation Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00000				
Factor 2	.34893	1.00000			
Factor 3	.57390	.31535	1.00000		
Factor 4	.56035	.33650	.49365	1.00000	
Factor 5	.47729	.39437	.51622	.41412	1.00000
Factor 6	.53348	.31454	.44126	.51607	.46150

	Factor 6
Factor 6	1.00000

APPENDIX III

MEASUREMENT MODEL SCALE ITEMS AND RESPONSE SCALES

Measurement model scale items and response scales

Dispositional Trust (1 = Strongly Disagree - 7 = Strongly Agree)*
I believe that most people have good intentions
I feel that other people can be relied upon to do what they say they will do.
I have faith in the promises or statements of other people.

Cognitive Trust - Care (1 = Strongly Disagree - 7 = Strongly Agree)*
Senior management ... communicate openly with employees.
... can be counted on to look after the interests of employees
... tell the truth to employees

Cognitive Trust - Competence (1 = Strongly Disagree - 7 = Strongly Agree)*
... have a clear idea of where this organisation is headed
... have the knowledge and skills to effectively lead this organisation.
... have the courage to achieve the objectives they set.

Behavioural Intention (1 = Extremely Unlikely - 7 = Extremely Likely)**
I will act on the basis that Senior Management would honour any agreements made with employees.
I will act on the basis that Senior Management will keep the promises they make to employees.
I would be willing to support changes suggested by senior management.

Affective Trust (1 = Not at All - 7 = To a Very Great Extent)***
When you think about Senior Management to what extent do you feel
... safe
... secure
... trust

Social Norms (1 = Strongly Disagree - 5 = Strongly Agree)****
Most people in my work group trust senior management
Most people I work with think Senior Management do a good job of communicating to employees.
Most people I work with think senior management have personal integrity

Scale *
1 = Strongly Disagree
2 = Moderately Disagree
3 = Disagree a Little
4 = Neither Agree nor Disagree
5 = Agree a Little
6 = Moderately Agree
7 = Strongly Agree

Scale **
1 = Extremely Unlikely
2 = Quite Unlikely
3 = Slightly Unlikely
4 = Neither Likely nor Unlikely
5 = Slightly Likely
6 = Quite Likely
7 = Extremely Likely

Scale ***
1 = Not at All
2 = Very Little
3 = A Little
4 = To Some Extent
5 = To a Moderate Extent
6 = To a Great Extent
7 = To a Very Great Extent

Scale ****
1 = Strongly Disagree
2 = Disagree
3 = Neither Agree nor Disagree
4 = Agree
5 = Strongly Agree

APPENDIX IV

EQS OUTPUT FROM CONFIRMATORY FACTOR ANALYSIS

EQS, A STRUCTURAL EQUATION PROGRAM
COPYRIGHT BY P.M. BENTLER

MULTIVARIATE SOFTWARE, INC.
VERSION 5.4 (C) 1985 - 1996.

PROGRAM CONTROL INFORMATION

```
 1
 2  /TITLE
 3  BSWD INVARIANCE OF LOADINGS;
 4  /SPECIFICATIONS
 5   DATA='split460del2.ESS'; VARIABLES= 36; CASES=  416;
 6   METHODS=ML, ROBUST;
 7   MATRIX=RAW;
 8   del=120,125,169,298,396,165,339,370,382,392,21,93,156,238,253;
 9   del=10,163,185,281,285;
10   /PRINT
11   FIT=ALL;
12  /LABELS
13  V1=V1; V2=V2; V3=V3; V4=V4; V5=V5;
14  V6=V6; V7=V7; V8=V8; V9=V9; V10=V10;
15  V11=V11; V12=V12; V13=V13; V14=V14; V15=V15;
16  V16=V16; V17=V17; V18=V18; V19=V19; V20=V20;
17  V21=V21; V22=V22; V23=V23; V24=V24; V25=V25;
18  V26=V26; V27=V27; V28=V28; V29=V29; V30=V30;
19  V31=V31; V32=V32; V33=V33; V34=V34; V35=V35;
20  V36=V36;
21  F1=TDISP; F2=TCOGCARE; F3=TCOGVISION;
22  F4=TBIPOS; F5=TAFFTST; F6=TSIP;
23  /EQUATIONS
24   V6=*F1+E6;
25   V2=*F1+E2;
26   V3=*F1+E3;
27   V8=*F2+E8;
28   V9=*F2+E9;
29   V11=*F2+E11;
30   V14=*F3+E14;
31   V15=*F3+E15;
32   V16=*F3+E16;
33   V19=*F4+E19;
34   V20=*F4+E20;
35   V21=*F4+E21;
36   V23=*F5+E23;
37   V25=*F5+E25;
38   V26=*F5+E26;
39   V33=*F6+E33;
40   V34=*F6+E34;
41   V35=*F6+E35;
42  /VARIANCES
43  F1 TO F6 =1;
44   E6=*;
45   E2=*;
46   E3=*;
47   E8=*;
48   E9=*;
49   E11=*;
50   E14=*;
51   E15=*;
52   E16=*;
```

1

TITLE: BSWD INVARIANCE OF LOADINGS;

```
  53   E19=*;
  54   E20=*;
  55   E21=*;
  56   E23=*;
  57   E25=*;
  58   E26=*;
  59   E33=*;
  60   E34=*;
  61   E35=*;
  62  /COVARIANCES
  63   F1 TO F6 =*;
  64  /LMTEST
  65  /END
```

65 RECORDS OF INPUT MODEL FILE WERE READ

CASE NUMBERS DELETED FROM RAW DATA ARE: 21 93 120 125 156 165 169 238 253 298 339 3

CASE NUMBERS DELETED FROM RAW DATA ARE: 10 163 185 281 285

DATA IS READ FROM SPLIT460DEL2.ESS
THERE ARE 44 VARIABLES AND 416 CASES
IT IS A RAW DATA ESS FILE

1

TITLE: BSWD INVARIANCE OF LOADINGS;

EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033

SAMPLE STATISTICS

UNIVARIATE STATISTICS

VARIABLE	V2	V3	V6	V8	V9
MEAN	4.5547	4.6545	5.4501	3.9513	3.7275
SKEWNESS (G1)	-.5989	-.5831	-1.2331	-.1099	.0207
KURTOSIS (G2)	-.6276	-.4532	2.0190	-1.1393	-1.0193
STANDARD DEV.	1.5551	1.5229	1.1537	1.8472	1.7596

VARIABLE	V11	V14	V15	V16	V19
MEAN	3.8978	4.6545	4.6886	4.6107	5.0535
SKEWNESS (G1)	-.0410	-.4952	-.5095	-.2986	-.9796
KURTOSIS (G2)	-.8783	-.3973	-.4463	-.2053	.2722
STANDARD DEV.	1.7375	1.5857	1.6156	1.4464	1.6116

VARIABLE	V20	V21	V23	V25	V26
MEAN	4.8467	4.9148	3.9903	3.5474	4.0292
SKEWNESS (G1)	-.7914	-.3913	-.0663	.1410	-.0830
KURTOSIS (G2)	-.1832	.1032	-.7090	-.9636	-.7300
STANDARD DEV.	1.6165	1.1708	1.6003	1.6776	1.6046

VARIABLE	V33	V34	V35
MEAN	2.5937	2.7129	2.9465
SKEWNESS (G1)	.2214	.0709	-.1324
KURTOSIS (G2)	-.7424	-.9228	-.4159
STANDARD DEV.	1.0087	1.0384	.9277

MULTIVARIATE KURTOSIS

MARDIA'S COEFFICIENT (G2,P) = 63.3660
NORMALIZED ESTIMATE = 23.9376

ELLIPTICAL THEORY KURTOSIS ESTIMATES

MARDIA-BASED KAPPA = .1760 MEAN SCALED UNIVARIATE KURTOSIS = -.1378

MARDIA-BASED KAPPA IS USED IN COMPUTATION. KAPPA= .1760

CASE NUMBERS WITH LARGEST CONTRIBUTION TO NORMALIZED MULTIVARIATE KURTOSIS:

CASE NUMBER	120	125	169	298	396
ESTIMATE	947.2926	1015.9575	1444.0584	875.5998	881.2101

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
COVARIANCE MATRIX TO BE ANALYZED: 18 VARIABLES (SELECTED FROM 44 VARIABLES)
BASED ON 411 CASES.

		V2 V 2	V3 V 3	V6 V 6	V8 V 8	V9 V 9
V2	V 2	2.418				
V3	V 3	1.724	2.319			
V6	V 6	.872	.810	1.331		
V8	V 8	.908	.825	.546	3.412	
V9	V 9	.849	.757	.516	2.555	3.096
V11	V 11	.881	.752	.492	2.461	2.409
V14	V 14	.609	.463	.441	1.773	1.681
V15	V 15	.646	.531	.448	1.990	1.861
V16	V 16	.626	.502	.456	1.605	1.523

V19	V 19	.934	.806	.556	1.305	1.144
V20	V 20	.693	.720	.396	1.285	1.068
V21	V 21	.472	.471	.280	.901	.845
V23	V 23	.664	.709	.446	1.436	1.300
V25	V 25	.739	.816	.451	1.849	1.579
V26	V 26	.525	.554	.406	1.282	1.159
V33	V 33	.597	.581	.300	1.085	1.030
V34	V 34	.504	.483	.293	1.257	1.107
V35	V 35	.466	.384	.261	.980	.895

		V11 V 11	V14 V 14	V15 V 15	V16 V 16	V19 V 19
V11	V 11	3.019				
V14	V 14	1.635	2.514			
V15	V 15	1.844	1.799	2.610		
V16	V 16	1.504	1.624	1.666	2.092	
V19	V 19	1.235	.862	1.007	.926	2.597
V20	V 20	1.167	.796	.947	.752	1.972
V21	V 21	.728	.727	.793	.716	.702
V23	V 23	1.228	.970	.987	.928	1.032
V25	V 25	1.546	1.316	1.476	1.289	1.178
V26	V 26	1.213	.839	.990	.926	.894
V33	V 33	.978	.671	.815	.646	.663
V34	V 34	1.112	.752	.845	.705	.774
V35	V 35	.855	.608	.744	.616	.561

		V20 V 20	V21 V 21	V23 V 23	V25 V 25	V26 V 26
V20	V 20	2.613				
V21	V 21	.736	1.371			
V23	V 23	.811	.655	2.561		
V25	V 25	1.106	.864	1.749	2.814	
V26	V 26	.709	.573	1.891	1.601	2.575
V33	V 33	.574	.402	.628	.850	.597
V34	V 34	.692	.402	.658	.889	.601
V35	V 35	.502	.398	.497	.732	.453

		V33 V 33	V34 V 34	V35 V 35
V33	V 33	1.017		
V34	V 34	.834	1.078	
V35	V 35	.622	.672	.861

BENTLER-WEEKS STRUCTURAL REPRESENTATION:

NUMBER OF DEPENDENT VARIABLES = 18
DEPENDENT V'S : 2 3 6 8 9 11 14 15 16 19
DEPENDENT V'S : 20 21 23 25 26 33 34 35

NUMBER OF INDEPENDENT VARIABLES = 24
INDEPENDENT F'S : 1 2 3 4 5 6
INDEPENDENT E'S : 2 3 6 8 9 11 14 15 16 19
INDEPENDENT E'S : 20 21 23 25 26 33 34 35

3RD STAGE OF COMPUTATION REQUIRED 30145 WORDS OF MEMORY.

PROGRAM ALLOCATE 1000000 WORDS

DETERMINANT OF INPUT MATRIX IS 0.29455D+01

1

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

IN ITERATION # 1,MATRIX W_CFUNCT MAY NOT BE POSITIVE DEFINITE

YOU HAVE BAD START VALUES TO BEGIN WITH.
IF ABOVE MESSAGE APPEARS ON EVERY ITERATION, PLEASE PROVIDE BETTER START VALUES AND F

IN ITERATION # 1,MATRIX W_CFUNCT MAY NOT BE POSITIVE DEFINITE

YOU HAVE BAD START VALUES TO BEGIN WITH.
IF ABOVE MESSAGE APPEARS ON EVERY ITERATION, PLEASE PROVIDE BETTER START VALUES AND F

CASE CONTRIBUTION TO PARAMETER VARIANCES (IN DESCENDING ORDER)

CASE	166=	.150	6.24%	CASE	125=	.129	5.35%
CASE	108=	.084	3.51%	CASE	93=	.064	2.64%
CASE	86=	.053	2.21%	CASE	256=	.052	2.15%
CASE	21=	.049	2.05%	CASE	231=	.045	1.86%
CASE	170=	.044	1.81%	CASE	120=	.031	1.30%
CASE	333=	.028	1.17%	CASE	398=	.028	1.16%
CASE	406=	.024	1.01%	CASE	392=	.024	1.00%
CASE	390=	.023	.97%	CASE	402=	.023	.95%
CASE	241=	.022	.90%	CASE	308=	.021	.88%
CASE	115=	.021	.86%	CASE	106=	.020	.83%
CASE	156=	.020	.82%	CASE	35=	.018	.74%
CASE	380=	.017	.72%	CASE	327=	.017	.71%
CASE	264=	.016	.68%	CASE	269=	.016	.67%
CASE	117=	.015	.64%	CASE	161=	.014	.60%
CASE	33=	.014	.57%	CASE	176=	.013	.55%
CASE	233=	.013	.54%	CASE	187=	.013	.54%
CASE	76=	.013	.52%	CASE	386=	.013	.52%
CASE	277=	.013	.52%	CASE	22=	.012	.51%
CASE	396=	.012	.50%	CASE	330=	.012	.50%
CASE	349=	.012	.49%	CASE	270=	.012	.49%
CASE	242=	.011	.47%	CASE	173=	.011	.46%
CASE	81=	.011	.45%	CASE	103=	.011	.45%
CASE	345=	.011	.44%	CASE	122=	.011	.44%
CASE	416=	.010	.43%	CASE	99=	.010	.42%
CASE	371=	.010	.41%	CASE	312=	.010	.41%
CASE	180=	.009	.38%	CASE	127=	.009	.38%
CASE	13=	.009	.37%	CASE	273=	.009	.37%
CASE	104=	.009	.37%	CASE	364=	.009	.36%
CASE	200=	.009	.36%	CASE	195=	.009	.36%
CASE	52=	.009	.36%	CASE	348=	.009	.36%
CASE	387=	.008	.35%	CASE	399=	.008	.35%
CASE	247=	.008	.35%	CASE	424=	.008	.35%
CASE	204=	.008	.34%	CASE	57=	.008	.34%
CASE	133=	.008	.34%	CASE	65=	.008	.33%
CASE	194=	.008	.33%	CASE	227=	.008	.33%
CASE	107=	.008	.33%	CASE	309=	.008	.33%
CASE	118=	.008	.32%	CASE	17=	.008	.32%
CASE	401=	.008	.32%	CASE	353=	.007	.31%
CASE	379=	.007	.31%	CASE	185=	.007	.31%
CASE	301=	.007	.31%	CASE	239=	.007	.31%
CASE	141=	.007	.30%	CASE	318=	.007	.30%

CASE	94=	.007	.29%	CASE	341=	.007	.29%
CASE	222=	.007	.27%	CASE	415=	.007	.27%
CASE	56=	.007	.27%	CASE	192=	.006	.27%
CASE	208=	.006	.26%	CASE	255=	.006	.26%
CASE	366=	.006	.26%	CASE	1=	.006	.26%
CASE	178=	.006	.26%	CASE	66=	.006	.26%
CASE	193=	.006	.25%	CASE	88=	.006	.25%
CASE	215=	.006	.25%	CASE	45=	.006	.25%
CASE	32=	.006	.25%	CASE	54=	.006	.24%
CASE	423=	.006	.24%	CASE	252=	.006	.24%
CASE	351=	.006	.24%	CASE	23=	.006	.24%
CASE	135=	.006	.24%	CASE	375=	.006	.23%
CASE	19=	.006	.23%	CASE	373=	.006	.23%
CASE	37=	.006	.23%	CASE	283=	.006	.23%
CASE	44=	.006	.23%	CASE	179=	.006	.23%
CASE	263=	.005	.23%	CASE	217=	.005	.22%
CASE	410=	.005	.22%	CASE	244=	.005	.22%
CASE	367=	.005	.22%	CASE	91=	.005	.22%
CASE	235=	.005	.22%	CASE	174=	.005	.21%

1

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

PARAMETER ESTIMATES APPEAR IN ORDER,
NO SPECIAL PROBLEMS WERE ENCOUNTERED DURING OPTIMIZATION.

RESIDUAL COVARIANCE MATRIX (S-SIGMA) :

		V2 V 2	V3 V 3	V6 V 6	V8 V 8	V9 V 9
V2	V 2	0.000				
V3	V 3	.007	0.000			
V6	V 6	-.006	-.017	0.000		
V8	V 8	-.004	-.034	.108	0.000	
V9	V 9	-.016	-.058	.099	-.006	0.000
V11	V 11	.038	-.042	.086	-.034	.040
V14	V 14	-.005	-.115	.146	-.020	-.021
V15	V 15	-.012	-.088	.131	.069	.038
V16	V 16	.058	-.033	.183	-.054	-.052
V19	V 19	.047	-.029	.130	-.026	-.119
V20	V 20	-.139	-.063	-.004	.037	-.117
V21	V 21	.134	.152	.117	.394	.364
V23	V 23	-.056	.031	.100	-.046	-.108
V25	V 25	.045	.163	.116	.419	.221
V26	V 26	-.151	-.083	.081	-.111	-.163
V33	V 33	.067	.082	.045	-.026	-.024
V34	V 34	-.070	-.057	.017	.054	-.035
V35	V 35	.033	-.024	.052	.072	.033

		V11 V 11	V14 V 14	V15 V 15	V16 V 16	V19 V 19
V11	V 11	0.000				
V14	V 14	-.024	0.000			
V15	V 15	.067	-.022	0.000		
V16	V 16	-.031	.050	-.019	0.000	
V19	V 19	.004	-.103	-.027	.033	0.000

V20	V 20	.012	-.110	-.022	-.085	.027
V21	V 21	.259	.359	.399	.375	-.087
V23	V 23	-.143	-.119	-.179	-.079	-.020
V25	V 25	.223	.266	.351	.318	.163
V26	V 26	-.076	-.183	-.106	-.020	-.095
V33	V 33	-.050	-.056	.035	-.027	-.032
V34	V 34	-.001	-.036	.001	-.024	.021
V35	V 35	.015	.013	.107	.065	-.007

		V20 V 20	V21 V 21	V23 V 23	V25 V 25	V26 V 26
V20	V 20	0.000				
V21	V 21	-.005	0.000			
V23	V 23	-.176	.255	0.000		
V25	V 25	.154	.477	-.065	0.000	
V26	V 26	-.218	.197	.123	-.104	0.000
V33	V 33	-.078	.137	-.053	.193	-.042
V34	V 34	-.014	.116	-.079	.179	-.091
V35	V 35	-.032	.181	-.059	.195	-.070

		V33 V 33	V34 V 34	V35 V 35
V33	V 33	0.000		
V34	V 34	.005	0.000	
V35	V 35	-.004	-.005	0.000

AVERAGE ABSOLUTE COVARIANCE RESIDUALS = .0838
AVERAGE OFF-DIAGONAL ABSOLUTE COVARIANCE RESIDUALS = .0937

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TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

STANDARDIZED RESIDUAL MATRIX:

		V2 V 2	V3 V 3	V6 V 6	V8 V 8	V9 V 9
V2	V 2	0.000				
V3	V 3	.003	0.000			
V6	V 6	-.003	-.009	0.000		
V8	V 8	-.001	-.012	.050	0.000	
V9	V 9	-.006	-.022	.049	-.002	0.000
V11	V 11	.014	-.016	.043	-.011	.013
V14	V 14	-.002	-.048	.080	-.007	-.008
V15	V 15	-.005	-.036	.070	.023	.013
V16	V 16	.026	-.015	.109	-.020	-.020
V19	V 19	.019	-.012	.070	-.009	-.042
V20	V 20	-.055	-.026	-.002	.012	-.041
V21	V 21	.074	.085	.087	.182	.177
V23	V 23	-.022	.013	.054	-.016	-.038
V25	V 25	.017	.064	.060	.135	.075
V26	V 26	-.060	-.034	.044	-.037	-.058
V33	V 33	.043	.054	.039	-.014	-.014
V34	V 34	-.043	-.036	.014	.028	-.019
V35	V 35	.023	-.017	.049	.042	.020

		V11 V 11	V14 V 14	V15 V 15	V16 V 16	V19 V 19
V11	V 11	0.000				
V14	V 14	-.009	0.000			
V15	V 15	.024	-.009	0.000		
V16	V 16	-.012	.022	-.008	0.000	
V19	V 19	.001	-.040	-.010	.014	0.000
V20	V 20	.004	-.043	-.009	-.036	.010
V21	V 21	.127	.193	.211	.222	-.046
V23	V 23	-.052	-.047	-.069	-.034	-.008
V25	V 25	.077	.100	.130	.131	.060
V26	V 26	-.027	-.072	-.041	-.009	-.037
V33	V 33	-.029	-.035	.021	-.019	-.020
V34	V 34	0.000	-.022	0.000	-.016	.013
V35	V 35	.009	.009	.071	.049	-.005

		V20 V 20	V21 V 21	V23 V 23	V25 V 25	V26 V 26
V20	V 20	0.000				
V21	V 21	-.003	0.000			
V23	V 23	-.068	.136	0.000		
V25	V 25	.057	.243	-.024	0.000	
V26	V 26	-.084	.105	.048	-.039	0.000
V33	V 33	-.048	.116	-.033	.114	-.026
V34	V 34	-.008	.095	-.047	.103	-.055
V35	V 35	-.021	.167	-.040	.125	-.047

		V33 V 33	V34 V 34	V35 V 35
V33	V 33	0.000		
V34	V 34	.005	0.000	
V35	V 35	-.005	-.006	0.000

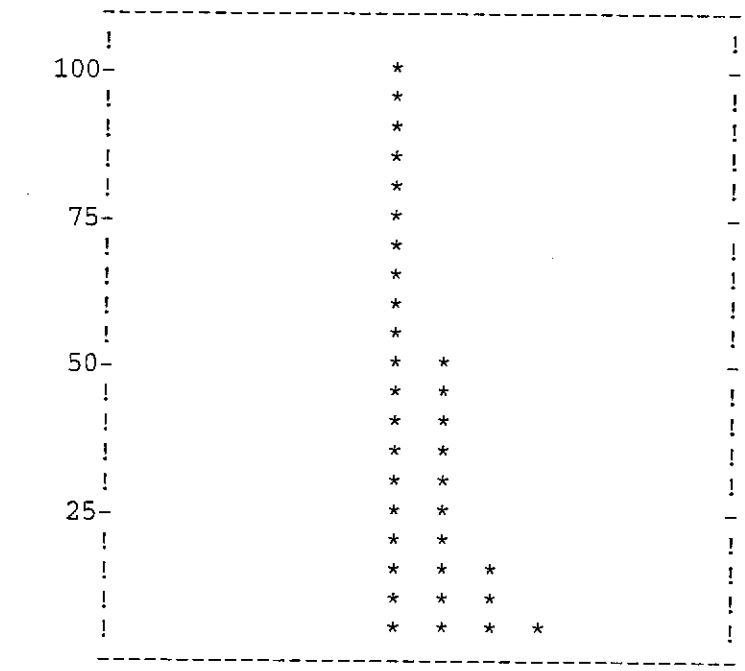
AVERAGE ABSOLUTE STANDARDIZED RESIDUALS = .0406
AVERAGE OFF-DIAGONAL ABSOLUTE STANDARDIZED RESIDUALS = .0454

LARGEST STANDARDIZED RESIDUALS:

V 25,V 21	V 21,V 16	V 21,V 15	V 21,V 14	V 21,V 8
.243	.222	.211	.193	.182
V 21,V 9	V 35,V 21	V 23,V 21	V 25,V 8	V 25,V 16
.177	.167	.136	.135	.131
V 25,V 15	V 21,V 11	V 35,V 25	V 33,V 21	V 33,V 25
.130	.127	.125	.116	.114
V 16,V 6	V 26,V 21	V 34,V 25	V 25,V 14	V 34,V 21
.109	.105	.103	.100	.095

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

DISTRIBUTION OF STANDARDIZED RESIDUALS



	RANGE			FREQ	PERCENT
1	-0.5	-	--	0	.00%
2	-0.4	-	-0.5	0	.00%
3	-0.3	-	-0.4	0	.00%
4	-0.2	-	-0.3	0	.00%
5	-0.1	-	-0.2	0	.00%
6	0.0	-	-0.1	100	58.48%
7	0.1	-	0.0	52	30.41%
8	0.2	-	0.1	16	9.36%
9	0.3	-	0.2	3	1.75%
A	0.4	-	0.3	0	.00%
B	0.5	-	0.4	0	.00%
C	++	-	0.5	0	.00%
	TOTAL			171	100.00%

EACH "*" REPRESENTS 5 RESIDUALS

1
TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

GOODNESS OF FIT SUMMARY

INDEPENDENCE MODEL CHI-SQUARE = 4963.324 ON 153 DEGREES OF FREEDOM

INDEPENDENCE AIC = 4657.32365 INDEPENDENCE CAIC = 3889.47887
MODEL AIC = 22.59726 MODEL CAIC = -579.63394

CHI-SQUARE = 262.597 BASED ON 120 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS LESS THAN 0.001
THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS 265.833.

SATORRA-BENTLER SCALED CHI-SQUARE = 226.9136
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS 0.00000

BENTLER-BONETT NORMED FIT INDEX= .947
BENTLER-BONETT NONNORMED FIT INDEX= .962
COMPARATIVE FIT INDEX (CFI) = .970

ROBUST COMPARATIVE FIT INDEX	=	.973
BOLLEN (IFI)	FIT INDEX=	.971
McDonald (MFI)	FIT INDEX=	.841
LISREL GFI	FIT INDEX=	.933
LISREL AGFI	FIT INDEX=	.904
ROOT MEAN SQUARED RESIDUAL (RMR)	=	.126
STANDARDIZED RMR	=	.062
ROOT MEAN SQ. ERROR OF APP.(RMSEA)	=	.054
90% CONFIDENCE INTERVAL OF RMSEA	(.045,	.063)

ITERATIVE SUMMARY

ITERATION	PARAMETER ABS CHANGE	ALPHA	FUNCTION
1	.917669	.50000	4.44247
2	.394853	1.00000	.76650
3	.024009	1.00000	.64336
4	.006454	1.00000	.64082
5	.001841	1.00000	.64054
6	.000805	1.00000	.64048

1

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

MEASUREMENT EQUATIONS WITH STANDARD ERRORS AND TEST STATISTICS
(ROBUST STATISTICS IN PARENTHESES)

V2 =V2 = 1.350*F1 + 1.000 E2
.070
19.345
(.069)
(19.507)

V3 =V3 = 1.271*F1 + 1.000 E3
.069
18.437
(.074)
(17.292)

V6 =V6 = .650*F1 + 1.000 E6
.056
11.571
(.069)
(9.476)

V8 =V8 = 1.642*F2 + 1.000 E8
.072
22.656
(.052)
(31.811)

V9 =V9 = 1.559*F2 + 1.000 E9
.069
22.529
(.057)

(27.369)

V11 =V11 = 1.519*F2 + 1.000 E11
.069
22.050
(.058)
(26.379)

V14 =V14 = 1.304*F3 + 1.000 E14
.066
19.670
(.065)
(20.109)

V15 =V15 = 1.397*F3 + 1.000 E15
.066
21.228
(.061)
(22.840)

V16 =V16 = 1.206*F3 + 1.000 E16
.060
20.090
(.063)
(19.164)

V19 =V19 = 1.440*F4 + 1.000 E19
.069
20.729
(.080)
(17.925)

V20 =V20 = 1.351*F4 + 1.000 E20
.071
18.988
(.090)
(14.973)

V21 =V21 = .548*F4 + 1.000 E21
.058
9.444
(.062)
(8.818)

1

MEASUREMENT EQUATIONS WITH STANDARD ERRORS AND TEST STATISTICS (CONTINUED)
(ROBUST STATISTICS IN PARENTHESES)

V23 =V23 = 1.372*F5 + 1.000 E23
.067
20.383
(.061)
(22.542)

V25 =V25 = 1.323*F5 + 1.000 E25
.073
18.115

```
                (   .064)
                ( 20.736)

   V26   =V26 =   1.289*F5    + 1.000 E26
                    .069
                  18.579
                (   .066)
                ( 19.639)

   V33   =V33 =    .875*F6    + 1.000 E33
                    .041
                  21.474
                (   .036)
                ( 24.562)

   V34   =V34 =    .947*F6    + 1.000 E34
                    .041
                  23.243
                (   .033)
                ( 29.144)

   V35   =V35 =    .716*F6    + 1.000 E35
                    .040
                  18.013
                (   .041)
                ( 17.635)
```

1

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

VARIANCES OF INDEPENDENT VARIABLES

V	F		
F1	-TDISP	1.000	
F2	-TCOGCARE	1.000	
F3	-TCOGVISI	1.000	
F4	-TBIPOS	1.000	

	F5	-TAFFTST	1.000
	F6	- TSIP	1.000

1

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

VARIANCES OF INDEPENDENT VARIABLES

	E	D
E2 - V2	.596*	
	.102	
	5.832	
	(.131)	
	(4.535)	
E3 - V3	.703*	
	.097	
	7.280	
	(.131)	
	(5.360)	
E6 - V6	.909*	
	.069	
	13.196	
	(.100)	
	(9.079)	
E8 - V8	.715*	
	.070	
	10.235	
	(.083)	
	(8.608)	
E9 - V9	.666*	
	.064	
	10.367	
	(.091)	
	(7.277)	
E11 - V11	.710*	
	.066	
	10.813	
	(.072)	
	(9.808)	
E14 - V14	.813*	
	.074	
	10.940	

```
                        (    .103)I                                   I
                        (   7.936)I                                   I
                                  I                                   I
 E15 -  V15                  .659*I                                   I
                             .069 I                                   I
                            9.508 I                                   I
                        (    .091)I                                   I
                        (   7.265)I                                   I
                                  I                                   I
 E16 -  V16                  .637*I                                   I
                             .060 I                                   I
                           10.611 I                                   I
                        (    .073)I                                   I
                        (   8.711)I                                   I
                                  I                                   I
 E19 -  V19                  .524*I                                   I
                             .099 I                                   I
                            5.300 I                                   I
                        (    .130)I                                   I
                        (   4.039)I                                   I
                                  I                                   I
 E20 -  V20                  .789*I                                   I
                             .098 I                                   I
                            8.020 I                                   I
                        (    .199)I                                   I
                        (   3.969)I                                   I
                                  I                                   I
 E21 -  V21                 1.070*I                                   I
                             .078 I                                   I
                           13.744 I                                   I
                        (    .081)I                                   I
                        (  13.183)I                                   I
                                  I                                   I
1
  TITLE:   BSWD INVARIANCE OF LOADINGS;
  EQS/MAC-PPC 5.4                                SERIAL NUMBER: B5006771838033
  MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

  VARIANCES OF INDEPENDENT VARIABLES (CONTINUED)
  ----------------------------------------------

 E23 -  V23                  .680*I                                   I
                             .081 I                                   I
                            8.374 I                                   I
                        (    .099)I                                   I
                        (   6.849)I                                   I
                                  I                                   I
 E25 -  V25                 1.064*I                                   I
                             .099 I                                   I
                           10.773 I                                   I
                        (    .125)I                                   I
                        (   8.487)I                                   I
                                  I                                   I
 E26 -  V26                  .914*I                                   I
                             .088 I                                   I
                           10.375 I                                   I
                        (    .126)I                                   I
                        (   7.282)I                                   I
                                  I                                   I
 E33 -  V33                  .251*I                                   I
                             .026 I                                   I
```

	9.773	
	(.029)	
	(8.556)	
E34 - V34	.181*	
	.025	
	7.311	
	(.026)	
	(6.855)	
E35 - V35	.349*	
	.028	
	12.290	
	(.034)	
	(10.273)	

1

TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

COVARIANCES AMONG INDEPENDENT VARIABLES

V		F	
F2	-TCOGCARE		.411*
F1	-TDISP		.048
			8.618
			(.050)
			(8.218)
F3	-TCOGVISI		.349*
F1	-TDISP		.051
			6.827
			(.057)
			(6.123)
F4	-TBIPOS		.456*
F1	-TDISP		.047
			9.611
			(.055)
			(8.331)
F5	-TAFFTST		.389*
F1	-TDISP		.050
			7.722
			(.053)
			(7.348)
F6	- TSIP		.448*
F1	-TDISP		.046
			9.642
			(.049)
			(9.231)
F3	-TCOGVISI		.837*
F2	-TCOGCARE		.021
			39.366
			(.025)
			(33.740)

```
I                                                 I
I F4  -TBIPOS                                 .563*I
I F2  -TCOGCARE                               .040 I
I                                            14.004 I
I                                          (  .048)I
I                                          ( 11.627)I
I                                                 I
I F5  -TAFFTST                                .658*I
I F2  -TCOGCARE                               .035 I
I                                            18.992 I
I                                          (  .037)I
I                                          ( 17.754)I
I                                                 I
I F6  -  TSIP                                `.773*I
I F2  -TCOGCARE                               .025 I
I                                            30.545 I
I                                          (  .030)I
I                                          ( 25.832)I
I                                                 I
I F4  -TBIPOS                                 .514*I
I F3  -TCOGVISI                               .044 I
I                                            11.728 I
I                                          (  .055)I
I                                          (  9.366)I
I                                                 I
I F5  -TAFFTST                                .609*I
I F3  -TCOGVISI                               .039 I
I                                            15.671 I
I                                          (  .043)I
I                                          ( 14.079)I
I                                                 I
I F6  -  TSIP                                 .638*I
I F3  -TCOGVISI                               .036 I
I                                            17.897 I
I                                          (  .038)I
I                                          ( 16.909)I
I                                                 I
```

1
TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4   SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

COVARIANCES AMONG INDEPENDENT VARIABLES (CONTINUED)

```
I F5  -TAFFTST                                .533*I
I F4  -TBIPOS                                 .044 I
I                                            12.235 I
I                                          (  .050)I
I                                          ( 10.612)I
I                                                 I
I F6  -  TSIP                                 .552*I
I F4  -TBIPOS                                 .041 I
I                                            13.425 I
I                                          (  .053)I
I                                          ( 10.335)I
I                                                 I
I F6  -  TSIP                                 .567*I
I F5  -TAFFTST                                .040 I
I                                            14.046 I
I                                          (  .044)I
```

```
                                         I                           ( 12.773)I
                                         I                                    I
1
 TITLE:   BSWD INVARIANCE OF LOADINGS;
 EQS/MAC-PPC 5.4                                    SERIAL NUMBER: B5006771838033
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)


 STANDARDIZED SOLUTION:



  V2     =V2  =    .868*F1    + .496 E2
  V3     =V3  =    .835*F1    + .551 E3
  V6     =V6  =    .563*F1    + .826 E6
  V8     =V8  =    .889*F2    + .458 E8
  V9     =V9  =    .886*F2    + .464 E9
  V11    =V11 =    .874*F2    + .485 E11
  V14    =V14 =    .822*F3    + .569 E14
  V15    =V15 =    .865*F3    + .502 E15
  V16    =V16 =    .834*F3    + .552 E16
  V19    =V19 =    .893*F4    + .449 E19
  V20    =V20 =    .835*F4    + .550 E20
  V21    =V21 =    .468*F4    + .884 E21
  V23    =V23 =    .857*F5    + .515 E23
  V25    =V25 =    .789*F5    + .615 E25
  V26    =V26 =    .803*F5    + .596 E26
  V33    =V33 =    .868*F6    + .497 E33
  V34    =V34 =    .912*F6    + .409 E34
  V35    =V35 =    .771*F6    + .636 E35
1
 TITLE:   BSWD INVARIANCE OF LOADINGS;
 EQS/MAC-PPC 5.4                                    SERIAL NUMBER: B5006771838033
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

 CORRELATIONS AMONG INDEPENDENT VARIABLES
 ---------------------------------------

                V                                F
               ---                              ---
                                         I F2   -TCOGCARE            .411*I
                                         I F1   -TDISP                    I
                                         I                                I
                                         I F3   -TCOGVISI            .349*I
                                         I F1   -TDISP                    I
                                         I                                I
                                         I F4   -TBIPOS              .456*I
                                         I F1   -TDISP                    I
                                         I                                I
                                         I F5   -TAFFTST             .389*I
                                         I F1   -TDISP                    I
                                         I                                I
                                         I F6   -  TSIP              .448*I
                                         I F1   -TDISP                    I
                                         I                                I
                                         I F3   -TCOGVISI            .837*I
                                         I F2   -TCOGCARE                 I
                                         I                                I
                                         I F4   -TBIPOS              .563*I
                                         I F2   -TCOGCARE                 I
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I                                   I
I F5  -TAFFTST                .658*I
I F2  -TCOGCARE                     I
I                                   I
I F6  -  TSIP                 .773*I
I F2  -TCOGCARE                     I
I                                   I
I F4  -TBIPOS                 .514*I
I F3  -TCOGVISI                     I
I                                   I
I F5  -TAFFTST                .609*I
I F3  -TCOGVISI                     I
I                                   I
I F6  -  TSIP                 .638*I
I F3  -TCOGVISI                     I
I                                   I
I F5  -TAFFTST                .533*I
I F4  -TBIPOS                       I
I                                   I
I F6  -  TSIP                 .552*I
I F4  -TBIPOS                       I
I                                   I
I F6  -  TSIP                 .567*I
I F5  -TAFFTST                      I
I                                   I
```

E N D O F M E T H O D

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TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

LAGRANGIAN MULTIPLIER TEST REQUIRES 38153 WORDS OF MEMORY.
PROGRAM ALLOCATES 1000000 WORDS.

LAGRANGE MULTIPLIER TEST (FOR ADDING PARAMETERS)

ORDERED UNIVARIATE TEST STATISTICS:

NO	CODE		PARAMETER	CHI-SQUARE	PROBABILITY	PARAMETER CHANGE
1	2	12	V25,F3	53.845	0.000	.661
2	2	12	V25,F2	46.303	0.000	.650
3	2	12	V21,F3	43.724	0.000	.447
4	2	12	V25,F6	40.392	0.000	.532
5	2	12	V21,F2	32.745	0.000	.397
6	2	12	V21,F5	29.217	0.000	.380
7	2	12	V25,F4	18.738	0.000	.355
8	2	12	V23,F3	18.416	0.000	-.372

9	2	12	V21,F6	16.584	0.000	.283
10	2	12	V23,F2	12.934	0.000	-.335
11	2	12	V23,F6	10.781	.001	-.262
12	2	12	V34,F1	9.178	.002	-.118
13	2	12	V20,F5	8.653	.003	-.265
14	2	12	V26,F2	8.611	.003	-.268
15	2	12	V33,F1	8.132	.004	.109
16	2	12	V26,F6	7.426	.006	-.217
17	2	12	V26,F3	7.077	.008	-.229
18	2	12	V21,F1	6.816	.009	.172
19	2	12	V15,F2	6.723	.010	.384
20	2	12	V26,F4	6.548	.010	-.200
21	2	12	V20,F1	6.507	.011	-.198
22	2	12	V6,F3	6.342	.012	.142
23	2	12	V25,F1	5.416	.020	.169
24	2	12	V35,F3	5.353	.021	.111
25	2	12	V26,F1	4.294	.038	-.143
26	2	12	V19,F2	3.795	.051	-.197
27	2	12	V20,F3	3.677	.055	-.165
28	2	12	V20,F6	3.532	.060	-.174
29	2	12	V9,F4	3.436	.064	-.128
30	2	12	V3,F3	3.332	.068	-.121
31	2	12	V6,F5	3.324	.068	.107
32	2	12	V35,F2	3.130	.077	.108
33	2	12	V6,F2	2.987	.084	.099
34	2	12	V8,F6	2.886	.089	.173
35	2	12	V8,F5	2.843	.092	.139
36	2	12	V33,F2	2.776	.096	-.109
37	2	12	V2,F5	2.721	.099	-.121
38	2	12	V15,F6	2.698	.100	.133
39	2	12	V6,F4	2.558	.110	.099
40	2	12	V16,F2	2.521	.112	-.205
41	2	12	V23,F4	2.421	.120	-.121
42	2	12	V19,F3	2.192	.139	-.134
43	2	12	V14,F6	1.840	.175	-.109
44	2	12	V14,F4	1.811	.178	-.094
45	2	12	V19,F1	1.654	.198	.105
46	2	12	V20,F2	1.507	.220	-.117
47	2	12	V16,F5	1.416	.234	.085
48	2	12	V33,F4	1.330	.249	-.049
49	2	12	V3,F2	1.280	.258	-.079
50	2	12	V9,F5	1.269	.260	-.089
51	2	12	V8,F4	1.205	.272	.079
52	2	12	V9,F6	1.174	.279	-.105
53	2	12	V6,F6	1.160	.281	.064
54	2	12	V16,F1	1.106	.293	.059
55	2	12	V34,F3	1.080	.299	-.052
56	2	12	V14,F2	1.055	.304	-.144
57	2	12	V14,F5	.887	.346	-.075
58	2	12	V34,F4	.846	.358	.040
59	2	12	V33,F3	.686	.407	-.040
60	2	12	V34,F5	.674	.412	-.037
61	2	12	V11,F4	.592	.441	.053
62	2	12	V16,F4	.558	.455	.047
63	2	12	V3,F4	.426	.514	-.050
64	2	12	V11,F6	.410	.522	-.062
65	2	12	V14,F1	.401	.526	-.040
66	2	12	V11,F5	.344	.558	-.046
67	2	12	V33,F5	.315	.574	.025
68	2	12	V3,F5	.314	.575	.039
69	2	12	V15,F4	.291	.590	.038

70	2	12	V9,F1	.252	.616	-.031
71	2	12	V9,F3	.218	.641	-.059
72	2	12	V35,F1	.216	.642	.018
73	2	12	V15,F1	.168	.682	-.025
74	2	12	V16,F6	.149	.699	-.028
75	2	12	V35,F5	.141	.707	.017
76	2	12	V3,F6	.137	.711	-.027
77	2	12	V2,F4	.131	.718	-.029
78	2	12	V11,F1	.127	.721	.022
79	2	12	V19,F6	.101	.750	-.031
80	2	12	V2,F6	.096	.757	-.024
81	2	12	V2,F3	.094	.759	.021
82	2	12	V11,F3	.092	.761	.038
83	2	12	V15,F5	.065	.798	-.020
84	2	12	V35,F4	.052	.820	.010
85	2	12	V23,F1	.031	.860	-.012
86	2	12	V8,F3	.028	.867	.022
87	2	12	V8,F1	.024	.877	.010
88	2	12	V19,F5	.014	.905	.011
89	2	12	V34,F2	.014	.907	.008
90	2	12	V2,F2	.003	.955	.004
91	2	0	F1,F1	.000	1.000	.000
92	2	0	F2,F2	.000	1.000	.000
93	2	0	F3,F3	.000	1.000	.000
94	2	0	F4,F4	.000	1.000	.000
95	2	0	F5,F5	.000	1.000	.000
96	2	0	F6,F6	.000	1.000	.000

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TITLE: BSWD INVARIANCE OF LOADINGS;
EQS/MAC-PPC 5.4 SERIAL NUMBER: B5006771838033
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

MULTIVARIATE LAGRANGE MULTIPLIER TEST BY SIMULTANEOUS PROCESS IN STAGE 1

PARAMETER SETS (SUBMATRICES) ACTIVE AT THIS STAGE ARE:

PVV PFV PFF PDD GVV GVF GFV GFF BVF BFF

	CUMULATIVE MULTIVARIATE STATISTICS				UNIVARIATE INCREMENT	
STEP	PARAMETER	CHI-SQUARE	D.F.	PROBABILITY	CHI-SQUARE	PROBABILITY
1	V25,F3	53.845	1	0.000	53.845	0.000
2	V21,F3	97.570	2	.000	43.724	0.000
3	V25,F6	110.585	3	.000	13.015	0.000
4	V34,F1	119.763	4	.000	9.178	.002
5	V15,F2	126.485	5	.000	6.723	.010
6	V6,F3	132.827	6	.000	6.342	.012
7	V21,F5	138.632	7	.000	5.805	.016
8	V35,F3	143.993	8	.000	5.361	.021
9	V20,F1	148.179	9	.000	4.186	.041

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Execution begins at 11:00:14
Execution ends at 11:00:16
Elapsed time = 2.00 seconds