Is the boundaryless career an organisational benefit, liability or irrelevance?

An investigation into boundaryless career competencies, career success and intention to leave.

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ABSTRACT

This thesis asked whether contemporary organisations are faced with a paradox: are boundaryless career competencies linked to career success but also organisational turnover? Employees of a large New Zealand organisation (n= 568) were surveyed using an intranet based questionnaire. Through analysis using structural equation modelling, the best fit model showed that people who demonstrate a high level of investment in career competencies were also likely to show a high level of career success but, contrary to expectations, people who are successful in their careers are less likely to think about leaving the organisation. Therefore, contrary to boundaryless career theory, inter-organisational movement is not necessarily the goal for contemporary career actors. It may be that people stay in an organisation despite, or even *because,* they are investing in boundaryless career competencies. Furthermore, people who see internal opportunities for mobility are less likely to consider leaving, while people who see external opportunities for mobility will have a higher intention to leave. Hence whether people with high career success stay or go may depend on whether the organisation allows for expression of career competencies. It may be that internal opportunities 'trump' external opportunities, or vice versa. This research is valuable in three key ways, providing: (1) the operationalisation of career competencies, tentatively shown to link to career success, for use in career management and further research (2) findings which question the key boundaryless career assumptions of mobility and the end of the organisational career (3) an interpretation of results suggesting non-significant effects of age and gender may be due to allowance for shifting priorities and context in the model. In light of these findings

the 'Chameleon Career' is suggested as an alternative metaphor to the boundaryless career, to reflect the need for the individual and the organisation to adapt to the changing environment.

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Introduction

A career can be defined as "the unfolding sequence of a person's work experience over time" (Arthur, Hall, & Lawrence, 1989). Although this is now an established definition (Arthur et al, 2005) the concept of an unfolding career has not always had meaning. The term career did not appear in a work related context until 1803, when Arthur Wellesley the Duke of Wellington wrote,: "a more difficult negotiation than you have ever had in your diplomatic career" (Oxford English Dictionary, 1989). That the concept appeared so recently in our human history is surprising given the importance of the concept of career today (Arthur, et al., 1989). The career is essential for individuals not only as a means of income but also as an anchor for personal identity (Giannantonio & Hurley-Hanson, 2006). Beyond individuals the career is meaningful as the underlying structure of organisations and, at a macro level, society (Kanter, 1989).

The current study aims to test a model investigating boundaryless career competencies as predictors of career success and turnover. The contribution that this thesis makes is to address a gap in career literature by giving insight to organisations on underlying competencies and implications for career development initiatives in a boundaryless career world. By exploring careers in a New Zealand context this thesis contributes to the debate of whether the concept of boundaryless careers has currency outside of the North America (Hirsch & Shanly, 1996). More broadly this thesis places a critical lens on boundaryless career theory through an analysis and discussion of

empirical data, which has been limited in the literature to date (Arthur, Khapova, & Wilderom, 2005).

This thesis focuses on the possible benefits and risks that the organisation faces in supporting boundaryless career development. Boundaryless career theory postulates that self-generated career action creates organisations, and so, economic life (Inkson & Arthur, 2001). It follows that boundaryless career action and ensuing success should be in the organisation's interest and therefore be encouraged. However, in doing so the organisation acknowledges a paradigm where success highlights mobility over stability (Arthur & Rousseau, 1996). For this reason, contemporary organisations are faced with a paradox: boundaryless career competencies may be linked to career success but also organisational turnover.

As societies change, the way that we think about careers must also change. The evolution of career theories of the 20th century can be seen to reflect the differing contexts in which they occurred. The early career development models of Super (1957) and Levinson (1978) reflect the themes of structure, stability and continuity which were also perceived to be present in the environmental and business context at the time.

Super's (1957) conceptualisation of career stages over the life span highlighted the significance of the organisation in an individual's life and development into a productive member of society. The theory describes career development through a sequence of life-stages: growth, exploration, establishment, maintenance, and

disengagement. According to this theory, the goal of the establishment stage (age 25 to 45) is to seek stability and advancement. Within this, the organisation had a steady role, implying long term employment and an enduring psychological contract. While transitions between stages are said to be dependent on the individual's broad personal circumstances, the theory places little emphasis on the impact of environmental and organisational changes.

Levinson (1978) also found that adult development and occupational life are closely intertwined, suggesting a dependence on organisations. He argued that there are specific career stages based on chronological age through childhood, early adulthood, middle adulthood, and late adulthood. The stages were marked by crucial activities and psychological adjustments, such as developing a sense of identity (age 23 to 28) or setting personal and professional goals and making strong commitments (age 34 to 39). While each life stage tended to be marked by stability, transition would be surrounded by questioning and change before becoming stable once more (Ornstein, Cron, & Slocum Jr., 1989).

Parallels can be drawn to Lewin's (1951) classic model of organisational change which has three stages: unfreeze, change and refreeze. This model interprets change as planned, linear and goal-oriented towards an end-state, and then seeks to return to a stable state (Weick & Quinn, 1999). Lewin's theory of change is less relevant to the continuous, incremental change which is consistent with contemporary organisations operating 'at the edge of chaos' (McDaniel, 1997).

Along with stability another theme in the early career/ life stage theories was dependence of the individual on the organisation. But in the mid- 1970s, as the post-war baby boomers were starting work, there was " change was in the air" (Hall, 2004, p. 4). Hall (1976) noticed the shift away from organisational career, and described the protean career as a process which the person drives, rather than the organisation. The protean career is made up of all of the person's experience across different types of work, training and education. The criterion for success is internal psychological success rather than external factors, and core values drive career decisions.

At the same time Schein's (1978) longitudinal research was looking at career development as being influenced by individual choices. Schein developed a set of career anchors stemming from the patterns of motivations which guided decision making. These career anchors accounted for differences in an individual's orientation towards an organisation; that is, some people were drawn to an organisation as a way of achieving security while some felt the organisation was inconsistent with their career anchors around creativity or independence.

This increasing recognition of individual career ownership, the role of personal values and psychological satisfaction foreshadowed some of the key elements of the boundaryless career. These issues came more to the fore in the 1980s as organisations faced retention as a key problem for the first time. The oil embargo in 1979 triggered a recession which provided a landscape for organisational restructuring, delayering and

downsizing. Globalisation became an increasing reality with the emergence of new markets, the widespread use of technology and outsourcing of jobs to countries with lower labour costs and the emergence of new markets (Hall, 2004) . The resultant competitive marketplace meant that fluid structures and worker mobility became the status quo (Miles & Snow, 1996).

As societal changes became increasingly dynamic, the boundaryless career emerged as a theory to interpret careers in a global environment where perpetual organisational change is a given (Arthur & Rousseau, 1996). The theory moves beyond organisational boundaries and shifts the onus for career development firmly from the organisation to the individual (Baruch, 2002; King, 2004).

However, while it is clear that boundaryless career theory reflects very real changes in the organisational landscape, it has been criticised. Can the organisational career really be dead? The boundaryless career is positioned as the polar opposite to the traditional intra-organisational career; however for many individuals intra-organisational movement remains a worthy and desirable career goal (e.g. Arnold & Cohen, 2008; De Vos, Dewettinck, & Buyens, 2008). Moreover the theory rhetoric seems to exaggerate the extremity of chaos in the contextual landscape. Throughout history changes have seemed major and ambiguous to those experiencing it. Often it is only when we look at the past that we see stability and structure (Baruch, 2006).

Related to this, in emphasising constant mobility and independence from the organisation, boundaryless career theory positions itself as inconsistent with earlier prominent career theories, such as those discussed above. Boundaryless career actors are not distinguishable by the life stages described by Super (1957) and Levinson (1978), or career anchors (Schein, 1978). How does the boundaryless career account for a person who is committed to a long term professional goal inextricably linked to the organisation, or who values security as a career anchor? The 'new' career rhetoric suggests that the life stage theories (which, unlike the boundaryless career theory, are supported by empirical data) are no longer relevant.

A criticism with particular relevance to multi-cultural New Zealand is the failure of the boundaryless career concept to account for diversity: neither age nor motivation as discussed above, nor in gender, ethnicity or socioeconomic status (Pringle & Mallon, 2003). For example, it may be that the boundaryless career is accessible only to the highly educated and skilled sector of society (Hirsch & Shanly, 1996). Research into boundaryless careers has tended to focus on knowledge workers whose jobs are project based (Skilton & Bravo, 2008), rather than 'blue collar' workers who, with less disposable income, are less likely to take risks regarding job security. Indeed, it may be that rather than dissolving, boundaries are becoming increasingly complex and multi-faceted, stretching past the organisation to include other professional, economic and social confines (Gunz, Evans, & Jalland, 2000).

Such criticisms reflect an overarching shortcoming of boundaryless career theory – that it so far remains just a hypothesis (Gunz, et al., 2000). Although it provides a flexible framework for thinking about careers in light of environmental influences, the theory does not usefully explain the consequences for the groups within it. That is, the theory has not yet flowed through to the literature in terms of practical consequences for how organisations do and should, operate in relation to careers (Arthur, et al., 2005). We know very little about the competencies - the knowledge, skills and behaviours – that facilitate success in the boundaryless career world and the outcomes of such actions for organisations and individuals.

This is important in New Zealand, perhaps more so than anywhere else. Although levels of unemployment are rising in light of current market conditions (Statistics New Zealand, 2008) the migration of our skilled workers remains a constant concern (Jackson, et al., 2005). As the global economy heads towards a recession, the number of jobs may continue to fall but, in order to emerge resilient from the downturn, organisations will need to continue to focus on retaining high quality workers. The rhetorical imperative in New Zealand and overseas is that in order to attract and retain people, organisations must invest in their development (Baruch, 2002). It makes intuitive sense that organisations who demonstrate commitment to developing their employee's careers will have an advantage in the attracting people to work for them (Michaels, Handfield-Jones, & Axelrod, 2001). So it is clear that further guidance is needed about how New Zealand organisations and individuals can meet the challenges implied by the boundaryless career.

In sum, this thesis will explore the relationship between boundaryless career competencies, career success, and intention to leave. In doing so the research aims to give direction to organisations on whether boundaryless career competencies can form the basis of career development activity, while providing information on the risks and benefits of doing so. The research will also focus on the applicability of the concept of boundaryless careers to a New Zealand sample with more diverse characteristics than previously studied. A critical lens will be applied to the boundaryless career theory.

The models to be tested are presented in Figure 1 and 2 below. Model 1 represents the hypothesis that career competencies will be positively linked to both career success and intention to leave (as people who engage in boundaryless career competencies may also be more mobile). Alternatively it may be that, instead of linking directly to the career competencies, people leave once they are successful in their career (as other opportunities become available). For this reason Model 2 hypothesises that career competencies are linked to career success, which in turn links to intention to leave. The rationale for the models and hypothesised relationships are explored in more depth below.

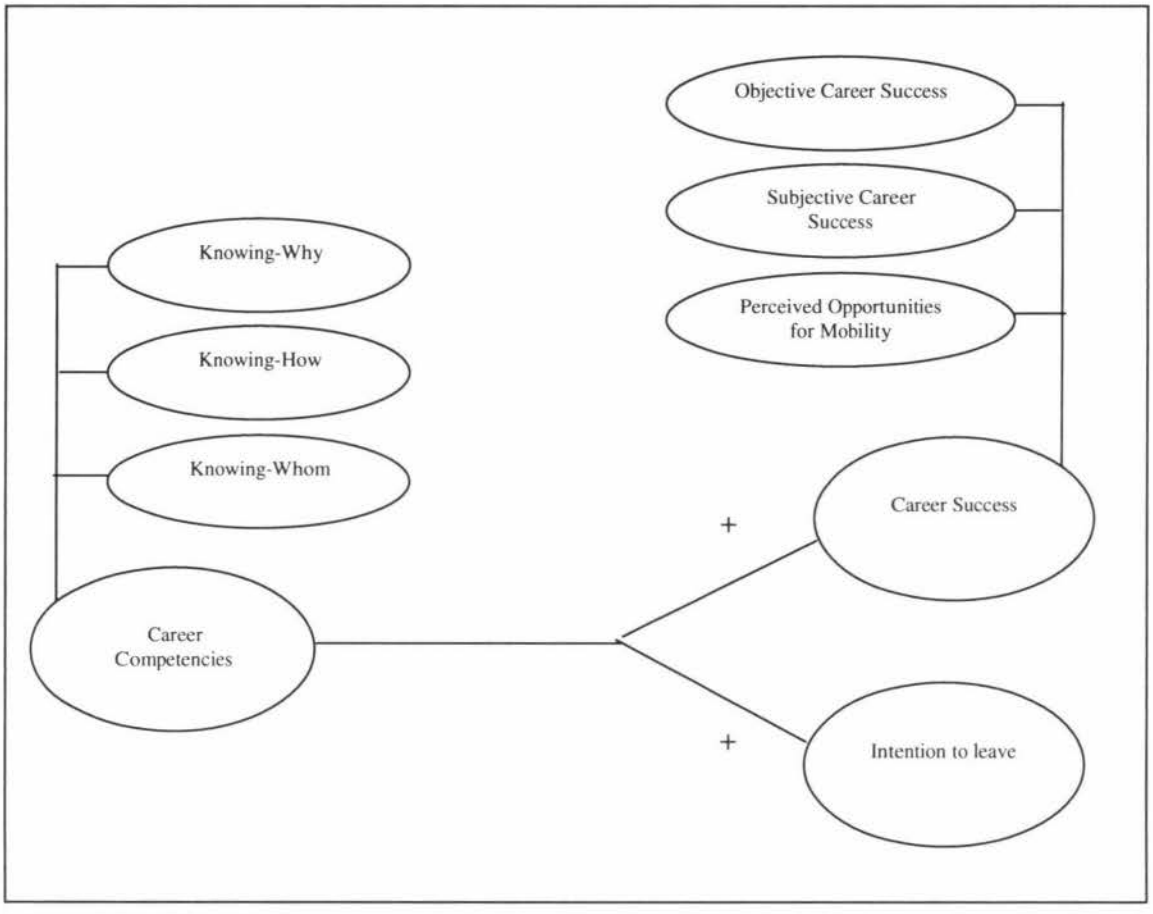

Figure 1: showing Model 1 hypothesised relationships between boundaryless career competencies, career success and intention to leave

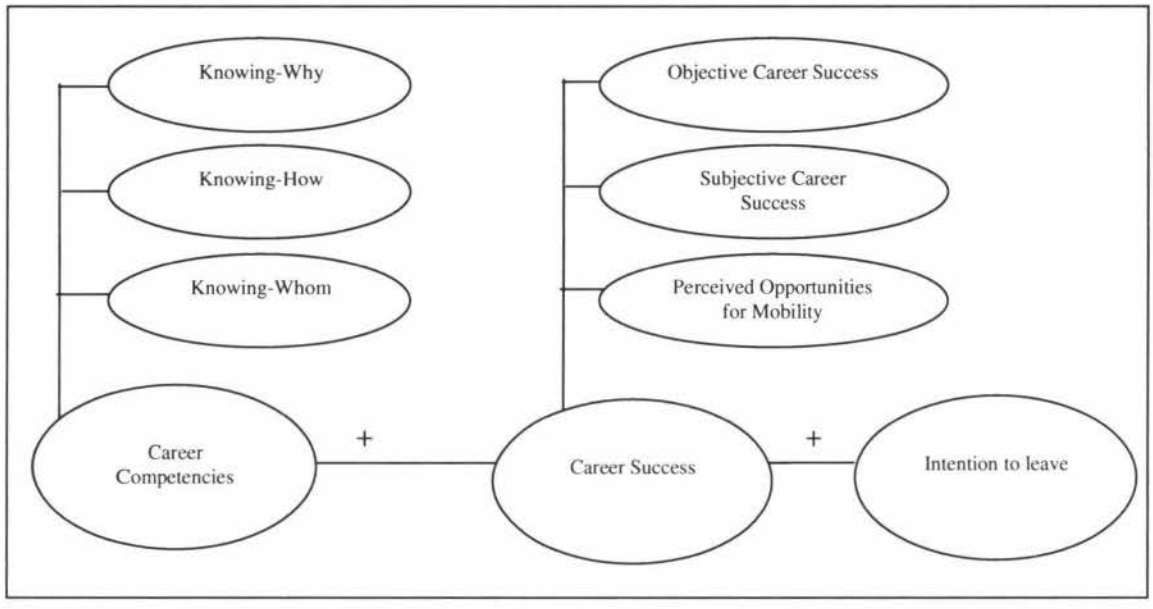

Figure 2: showing Model 2 hypothesised relationships between boundaryless career competencies, career success and intention to leave

Boundaryless career competencies

Inherent in the definition of careers as "the unfolding sequence of a person's work experiences over time" (Arthur, et al., 2005, p. 178) is the notion that an individual's career need not be 'bounded' to one organisation. This notion is the central tenet of the boundaryless career (Arthur & Rousseau, 1996). The broad concept of boundaryless careers involves several specific meanings, all of which encompass the themes of mobility, independence from the organisation and the inclusion of personal values, skills and networks. The six meanings suggested by Arthur and Rousseau (1996, p. 6) are:

1. where, based on their own interpretation, an individual perceives a boundaryless future regardless of structural constraints;
2. moving across organisations and employers;
3. drawing validation and marketability from outside the present employer;
4. where traditional organisational career boundaries (such as hierarchical promotion) have been broken;
5. being sustained by external networks;
6. where patterns of paid work are broken for family or personal reasons.

This thesis incorporates all of these definitions. Item one, while not specifically integrated, is referred to in the model tested: the individual who has been motivated to invest in boundaryless career competencies, is successful and sees opportunities for mobility, may be well equipped for a boundaryless future without relying on the confines of the organisation. More specifically, this thesis addresses items two to four in the exploration and measurement of less traditional dimensions of career success (discussed below). Items four and five relate to values and networks, which are evident in two of the three career competencies examined in the current research.

A competency framework contains competencies outlining the knowledge, skills or behaviours that a person needs for successful performance of a given outcome (Rudman, 2002). This thesis employs the boundaryless career competency framework presented by Defillippi and Arthur (1994), which is conceptualised as three ways of knowing: 'knowing-why', 'knowing-how' and 'knowing-whom'. 'Knowing-why'

reflects the individual's values, motivation and identity. This draws on the unique personal meaning and purpose that each person attributes to their careers (Parker, 2002). 'Knowing-how' reflects skills and expertise that may arise from all facets of the career, including training and experience and could refer to technical, interpersonal or conceptual know-how (Inkson & Arthur, 2001). 'Knowing-whom' reflects reputation and relationships that may include both work and personal associates who provide support and information (Parker, 2002). The ways of knowing have been described as the currency of career capital (Inkson & Arthur, 2001) because proficiency in these competencies demands that investments of time, energy, skills and relationships are made with the same objective of a financial investor. As such, this research will explore the extent to which individuals have invested in these career competencies in their career to date, using the framework 'knowing-why', 'knowing-how' and 'knowing-whom'.

The use of this competency framework ties into the broad purpose of this thesis to provide insight into the organisation's interest in investing in the boundaryless career. Defillippi and Arthur's (1994) view was drawn from a competency-based perspective of the organisation and proposed a matching organisational competency for each career competency. The authors mapped 'knowing-why' to organisational culture; 'knowing-how' is mapped to organisational know-how; and 'knowing-whom' is mapped to organisational networks. In this way, "competency accumulation through boundaryless careers can make a critical contribution to the unfolding competencies of firms" (Defillippi & Arthur, 1994, p. 308). Moreover, the authors' intention was for the competencies to be incorporated into organisational career development approaches

(Defillippi & Arthur, 1994, p. 310). Interestingly, despite clear direction in their article for future research grounded in the organisation, there has been scarce research done in this vein. Instead, the framework was picked up by career counselling literature as a means to integrate data for individual career decisions (Parker, 2002). This lapse is concerning given the acknowledgement by Defillippi and Arthur (1994) and subsequent endorsement by others (Inkson & Arthur, 2001), that individual competencies underlie organisational competencies. Therefore, it would seem important for the literature to give some direction about how the competencies can impact individuals and, ultimately, the organisation.

One notable exception is research conducted by Eby, Butts and Lockwood (2003). The authors used the career competency framework to inform variables investigated as predictors of career success in a survey of 458 alumni from a university in south-eastern United States. The variables investigated within 'knowing-why' were career insight, proactive personality and openness to experience. The 'knowing-how' variables were career/job related skills and career identity. The 'knowing-whom' variables were experience in a mentoring relationship, internal networks and external networks. The authors found a positive link between the variables associated with all three competencies and career success.

The current research builds on that done by Eby et al. but is distinguishable in several key ways. Firstly, a measure is developed to attempt to operationalise and capture investment in the career competencies themselves, rather than variables of them. For

example, Eby et al. distil 'openness to experience' from the 'knowing-why' competency. DeFillippi & Arthur (1994) state that this competency answers the question of 'why' the person's career exists in relation to their own motivation, meaning and identity. Eby et al. investigated whether people were high on openness to experience (i.e. who were curious, imaginative and were willing to entertain new ideas). However, this research is more interested in whether people have invested in understanding if their career is consistent with what motivates them and what they value, rather than a particular personality characteristic. In the same way, the competency 'knowing-whom' is directly concerned with whether individuals have invested in getting the support they need rather than, as in Eby et al.'s research, determining the existence of a mentoring relationship (which may be seen as a narrower perspective of support and is not necessarily relevant to all job levels or stages). Nevertheless there is some overlap with Eby et al.'s variables and the competencies investigated in this research. In particular, the 'knowing-how' variables used strongly align to the original competency definition of gaining career related skills and knowledge (Defillippi & Arthur, 1994) and are therefore more in line with the current research.

Secondly, Eby et al. warned against generalising their results due to the specificity of their population, who were highly educated, in the early career stage (i.e. had all graduated in 1995) and were younger and more homogenous in age compared to the general population. This research will seek a diverse sample of people based in a large New Zealand organisation, rather than the United States. As discussed above, 'who' is

studied has been a primary concern for boundaryless career research (Pringle & Mallon, 2003).

It can be seen that Eby et al.'s research is unique and significant to the boundaryless career literature and informs the current research. However there are important differentiators relating to the boundaryless career competencies and the sample population which are consistent with the contributions this thesis intends to make around utility for organisations. Further distinctions between Eby et al. and the current research in terms of career success are discussed below.

Career success

A review of career success literature (Arthur, et al., 2005) highlighted the failure to incorporate the new challenges implied by the boundaryless career. The authors of the article argue that while there has been a fundamental shift in the way that careers are viewed, recent research continues to draw on traditional career theory. This is reflected in the persistent operalisation of career success as either subjective or objective, without recognising their interdependence. The authors also stated that, as the boundaryless career may elevate subjective over objective career success, the possibility of multiple facets of subjective career success must be reflected in research. This thesis aims to address these issues, which are discussed in further detail below in relation to career success and intention to leave.

Career success can be defined as "the accomplishment of desirable work-related outcomes at any point in a person's work experiences over time" (Arthur, et al., 2005, p. 179). Objective career success are those outcomes that can be seen and evaluated by others and may be indicated by salary, promotions or performance (Boudreau, Boswell, & Judge, 2001). The boundaryless career questions the assumption that these are sufficient indicators of success (Heslin, 2005). The traditional career prevailed because organisational structures tended to support it (Sullivan, 1999). However the continued relevance of hierarchical progression has been questioned in light of trends such as downsizing, delayering and outsourcing (Frese, 2000). Indeed, promotions may now be a less desirable outcome in light of other options such as contracting or consulting (Inkson, Heising, & Rousseau, 2001). Evidence of the shift away from prototypical managerial advancement was seen in one study where 23 per cent of MBAs had early career gaps and 13 per cent had mid career gaps (Schneer & Reitman, 1993). The importance of pay as a gauge of objective career success is also being re-evaluated in light of other desirable tangible outcomes (Heslin, 2005). For example, school teachers may view their success in reference to their students' learning (Parsons, 2002). Notwithstanding all of this, objective career success is still evident in the literature as the sole career success measure (Chenevert & Tremblay, 2002; Dreher & Chargois, 1998; Hurley & Sonnenfeld, 1998; Jansen & Stoop, 2001; Lyness & Thompson, 2000; Orpen, 1998; Tharenou, 1999). While it supports Arthur et al's (2005) contention that recent career success research neglects boundaryless career theory, the continued prolific use of objective measures compels its use in this research if only to compare results with other career success literature.

Arthur et al. (2005) did not advocate entirely dispensing with objective career success as a measure. Instead they maintained that for theoretical adequacy it must be viewed alongside subjective career success as "...observing career success through either a purely objective lens or a purely subjective lens offers a limited picture. The depth of the career success construct can be better seen from looking through both lenses at the same time" (Arthur, et al., 2005, p. 180). Therefore, the current research will investigate both objective and subjective career success.

The second concern raised by Arthur et al. (2005) was that the traditional view of subjective career success is insufficient given its renewed importance in the boundaryless career. Subjective career success has been defined as the individual's own judgements about their career (Boudreau, et al., 2001) and is typically operationalised in terms of career satisfaction (Ng, Eby, Sorensen, & Feldman, 2005). However Arthur et al. argue that this seems an inadequate proxy for subjective career success, particularly given the prevalent use of the "one-dimensional" (Arthur, et al., 2005, p. 194) career satisfaction scale of Greenhaus, Parasuraman and Wormley (1990) as the sole measure (Arthur, et al., 2005; Heslin, 2005). As an extensive investigation into the myriad subjective career success components is beyond the scope of this research, the focus will be on just one of these possibilities: perceived opportunities for mobility.

Perceived opportunities for mobility was proposed by Arthur et al. (2005) as a salient issue in the rapprochement of boundaryless career and career success theory. The concept aligns with subjective career success as the focus is on whether an individual

believes there are other opportunities available to them, rather than an actual job change. According to Arthur et al. more frequent consideration of opportunities for mobility by an individual reflects the environmental instability and constant organisational change signalled by boundaryless career theory. In such conditions those individuals who continue to be seen as valuable by their employer and by other organisations can be considered successful in their career. In this way perceived opportunities for mobility is reminiscent of the concept of employability, where the organisation focuses on continuous development so that individuals are more attractive to employers while also contributing to organisational productivity and competitiveness (Waterman, Waterman, & Collard, 1999). Although the concept has not escaped criticism (e.g. Baruch, 2001; Brown, Hesketh, & Williams, 2003), the literature does highlight the benefits of employability for the organisation (Benson, 2006) as well as emphasising that, in today's environment, the success of an individual is inextricably connected to the organisation (O'Donoghue & Maguire, 2005). This linkage provides support for the notion that it is important for organisations to understand the relationship between career competencies and perceived opportunities for mobility.

Perceived opportunities for mobility was examined by Eby, Butts and Lockwood (2003), in research highlighted as the exception to the lack of empirical evidence connecting boundaryless career and career success (Arthur, et al., 2005). Although the language 'marketability' was used, the operalisation and discussion indicate that this is exchangeable with 'opportunities for mobility'. Participants were asked to indicate their perceived internal and external marketability by answering questions such as 'my

company views me as an asset to the organisation'. There was a positive relationship between perceptions of both types of marketability and the variables of career competencies. This aspect of Eby et al.'s research is described in more detail above. Marketability also correlated significantly with subjective career success, which was measured using Greenhaus et al.'s (1990) career satisfaction scale.

Again, this thesis is informed by Eby et al.'s approach to career success but can be substantively distinguished. Perceived opportunities for mobility and subjective career success will be explored in a similar way. However, objective career success will also be investigated in line with Arthur et al.'s emphasis on its interdependence with subjective career success. While Arthur et al. state that subjective career success is increasingly important in the boundaryless career, Eby et al. take the view that objective career success should be "de-emphasised" (p. 690) to the extent that they did not include measures of it in their study. This is unfortunate, as inclusion of both objective and subjective career success seems particularly important where there is a question around their relative salience in the context of the boundaryless career. For this reason the current study investigates objective and subjective career success as well as perceived opportunities for mobility as indicators of career success.

In sum, although this study can be differentiated from the unique research of Eby et al, based on those findings, it is hypothesised that there will be a positive relationship between investment in career competencies and career success.

Intention to leave

This research seeks to investigate the possibility that, for those who invest in boundaryless career competencies, career success may coexist with turnover. While career success is seen as a positive outcome for the organisation (Feldman, 2002) turnover is generally viewed in a more unfavourable light. Indeed, turnover is seen as one of the key issues for any organisation (Campion, 1991), having been linked to such negative consequences as loss in productivity (Mowday, Porter, & Steers, 1982), retarded organisational growth and profitability (Hom & Griffeth, 1995) and increased human resources costs such as recruitment and training (Huselid, 1995). As a result, much literature has been devoted to identifying why people choose to leave organisations (for reviews see Griffeth, Hom, & Gaertner, 2000; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Hom & Griffeth, 1995). The ultimate aim of such research is to explain what is seen as the problem of voluntary turnover so that it may be avoided. The current research, however, seeks to question whether the view of turnover as an avoidable 'problem to solve' is misaligned with boundaryless career theory.

If voluntary turnover is a problem, it is becoming increasingly troublesome. In New Zealand the overall turnover rate in publicly listed companies for the year to June 2007 was 17 per cent (Statistics New Zealand, 2007), when rates of 15 to 18 per cent are said to be at the high end (Zenger, 1992). The problem for organisations is particularly salient when leavers are valuable to the organisation due to their unique skills, knowledge and networks (Baron, Hannan, & Burton, 2001). Traditionally turnover literature has

focused on the negative linear relationship between turnover and performance, where good performers stay and poor performers leave (McEvoy & Cascio, 1987). More recently however, commentators have questioned the legitimacy of such conclusions (Trevor, Gerhart, & Boudreau, 1997). This criticism is fuelled by findings that high and low performers are more likely than average performers to leave organisations (Salamin & Hom, 2005; Trevor, et al., 1997). The historical paucity of findings demonstrating this curvilinear performance-turnover relationship has been blamed on inadequacy of research design (Salamin & Hom, 2005). However it may also be the case that the phenomenon of successful people being more likely to leave has only recently transpired, in parallel with the boundaryless career.

Boundaryless career theory suggests that the factors influencing an individual's leaving decision may have changed. Whether a person leaves or remains in an organisation is determined by two opposing forces: the force to remain, versus the force to leave (Hom & Griffeth, 1995). Lee and Maurer (1997) argued that traditional turnover theories which focus on job dissatisfaction as the key force for leaving are unsuitable for the careers of knowledge workers, that is, people who rely on knowledge rather than skills to perform their jobs (Rudman, 2002). They noted that this emergent part of the workforce may leave in response to an objectionable organisational event, towards more attractive external opportunities, or as part of their career development plan. In the 'old' organisational career model high performers were rewarded for staying with hierarchical progression (Hall, 1996) whereas leaving may have resulted in a decrease in seniority (Mowday, et al., 1982). Conversely, a study of MBA alumni showed that those who

followed less traditional career paths are unlikely to have to sacrifice income, career satisfaction or job security (Reitman & Schneer, 2003). This suggests that an organisation may still lose a person who is high performing and satisfied with their job.

Another stream of traditional turnover literature is around what an organisation can do to strengthen the individual's 'force to remain'. A pertinent study to the current research is Ito and Brotheridge's (2005) investigation into organisational initiatives aimed toward building career adaptability through career development activities including participative decision making and providing career support. The authors surveyed 600 employees of the Canadian federal civil service to determine career resilience, involvement in career development activities, affective commitment and intention to leave. Their results showed what they termed a 'catch-22 situation' (p. 6): career adaptability was positively associated with organisational commitment, but also with intentions to leave. By demonstrating that organisations face benefits as well as the risk of turnover in facilitating boundaryless career development, Ito and Brotheridge's findings can be clearly linked to the current research.

Ito and Brotheridge's research also illustrates the use of intention to leave as an indicator for turnover. Intention to leave is well established in the literature as the best predictor of actual turnover (Baysinger & Mobley, 1983; Griffeth, et al., 2000). In addition to actual thoughts about leaving effort around job search is emerging as an important predictor (Griffeth, et al., 2000) as conversion to actual turnover is increasingly facilitated when there is a tight job market and ease of job pursuit via the Internet - trends

demonstrated in New Zealand by the government's Job Vacancy Monitor (2007). The extension of intention to leave to encompass job search is consistent with boundaryless career theory's emphasis on opportunities for mobility and is reflected in the intention to leave measure in the current study.

The evidence above supports the current research's hypothesis that total investment in career competencies may be positively related to both career success and intention to leave.

Method

Participants

The sample was drawn from telecommunications company Telecom New Zealand, one of New Zealand's largest organisations. Five hundred and sixty eight individuals responded to the questionnaire in May 2005. Table 1 shows sample characteristics. Respondents ranged from under 20 to over 60 years of age, with a mean age of 35 years (s.d. = 8.5). The gender split was 55 percent female (312 respondents) and 45 percent male (256 respondents). The largest reported functional area was the technology area of the business (153 respondents), followed by customer service (111 respondents). Although the largest number of respondents had a university undergraduate degree (182 respondents), this was closely followed by polytechnic or other qualification (153 respondents). The average work experience was 14 years (s.d. 9.2), ranging from zero to over 40 years.

Table 1: Sample characteristics

Variable	Frequency	Mean	Standard Deviation
Gender			
Male	256	-	-
Female	312	-	-
Education Level			
Secondary School	101	-	-
Polytechnic or other qualification	153	-	-
Undergraduate degree	182	-	-
Postgraduate degree	132	-	-
Age	-	34.66	8.606
Work Experience	-	14.18	9.215
Functional Area			
Administration/ Support	75	-	-
Customer Service	111	-	-
Finance	38	-	-
Human Resources	43	-	-
Legal	7	-	-
Marketing	62	-	-
Sales	48	-	-
Strategy	31	-	-
Technology	153	-	-

Materials

Data was collected through voluntary completion of a self-administered internet based questionnaire posted on the Telecom intranet which all employees have access to. The questionnaire (see appendix 1 for full questionnaire) was designed to measure investment in boundary career competencies, objective career success, subjective career success, perceived opportunities for mobility and intention to leave. These are detailed below.

Measures

Boundaryless career competency investment

In order to investigate individual investment in possible boundaryless career competencies, questions were developed around the three ways of knowing reflecting the definitions given by Defillippi and Arthur (1994). An initial draft was sent to Kerr Inkson who is a renowned researcher in the area (e.g. Arthur, Inkson, & Pringle, 1999; Inkson, 2004; Inkson & Arthur, 2001). Changes were made based on Inkson's (2006) feedback before finalising the questions.

Respondents were asked "To what extent have you actually invested (through time, effort, focus, or other purposeful actions) in each of the following areas in your career to date?" There were 15 items (5 for each of the 3 subscales) rated on a 5-point Likert scale where 1= strongly agree and 5 = strongly disagree. These are shown in Table 2 below.

Table 2: Items for investment in 'three ways of knowing'

	To what extent have you actually invested (through time, effort, focus, or other purposeful actions) in each of the following areas in your career to date?
1	Having jobs that are consistent with my core values (examples of core values may be integrity, learning, independence, helping others, etc)
2	Gaining qualifications (both academic and job related)
3	Developing relationships which provide me with the support I need (e.g. mentors and role models at work, or friendships/networks outside of work)
4	Getting my work-life balance right for me
5	Taking advantage of opportunities to build my skills
6	Getting to know the 'right' people (e.g. people who are important or could have a positive influence on my career)
7	Having a job which motivates me (e.g. a job which I enjoy or inspires me to do my best)
8	Gaining lots of relevant experience
9	Building my reputation (e.g. so that people see me as having influence or expertise in a given area)
10	Incorporating my values and interests into my job
11	Increasing my career related knowledge
12	Extending my work-related networks
13	Doing what I am really good at
14	Seeking out career related training and development
15	Establishing connections with others in my industry/ profession

Objective career success

Objective career success is an external viewpoint which incorporates relatively tangible indicators of an individual's career situation (Arthur, et al., 2005). For example, in an investigation into personality and career success (Boudreau, et al., 2001) the authors used income, ascendancy, CEO proximity and an employability rating (an accomplishment index developed for that study). This research used information about income, ascendancy and job performance. While an indication of job level would have been desirable this is difficult to assess due to unique factors of the organisation (i.e. a system which quantifies and describes this does not exist outside of restricted access remuneration banding information).

Total remuneration

Participants responded to the question "Please indicate your total remuneration for the last year (including base pay, short term incentives, long term incentives, shares and other benefits). This was a forced choice selection from the following ranges: Under 40,000; 40,000 – 60,000; Over 60,000 – 80,000; Over 80,000- 100,000; Over 100,000. Ranges were used instead of exact figures to facilitate participant comfort over this sensitive question.

Ascendancy

Participants were asked to indicate the total number of promotions (or changes to a better role in the same organisation) that they have had in their career.

Performance

Telecom's performance management system requires yearly performance reviews of employees to determine the extent to which they are meeting expectations for their role. Participants responded to the question "Please indicate your performance rating from the past year". The choices for performance ratings were 'outstanding', 'exceeds expectations', 'met expectations', 'met most expectations', 'requires improvement' and 'developing/ not at Telecom'. 'Developing' refers to the rating given to those who had only been at Telecom for three months at the time of the last performance review. 'Not at Telecom' was also necessary as employees who were not at Telecom at the time of the last Annual Review would not have had a performance rating.

Subjective career success

Subjective career success can be defined as the internal evaluation of an individual's career across personally significant components (Arthur, et al., 2005). Greenhaus et al's five item career satisfaction scale was used to measure subjective career success (Greenhaus, et al., 1990). Internal consistency for this scale has been reported as 0.91 (Eby, et al., 2003). The measure asks individuals to report their satisfaction with five aspects of their career (overall success, progress toward career goals, income, advancement, development of new skills).

Perceived opportunities for mobility

Perceived opportunities for mobility was measured with three items used by Eby et al. (2003), where the coefficient alpha was 0.73: "I could easily obtain a comparable

job with another employer"; "there are many jobs available for me given my skills and experience" and "given my skills and experience, other organisations would view me as a value-added resource".

While a boundaryless career is, by definition, not restricted to one organisation, Telecom can be seen as unique in New Zealand due to its size and status in the industry. For this reason, it was considered important to also examine intra-organisational mobility. This was measured with three items used by Eby et al. (2003) where the coefficient alpha was 0.74, modified to be organisation specific: "Telecom views me as an asset to the organisation"; "given my skills and experience, Telecom views me as a value-added resource"; and "there are many opportunities available for me at Telecom".

Intention to leave

Intention to leave was measured by five items based on two items developed by Fried, Tiegs, Naughton and Ashforth (1996): "If I have my own way, I will leave Telecom to work in another organisation one year from now" and "I am planning to search for a new job during the next 12 months." Internal consistency reliability of these items was reported as .72 in a recent study (Ito and Brotheridge, 2005). In order to further strengthen the measure for analysis, three items were added: "One year from now, it is likely that I will still be a Telecom" (reverse scored), It is unlikely that I will actively search for a new job in another organisation during the next 12 months (reverse scored) and "I am thinking of leaving Telecom to work elsewhere".

Additional variable information

In order to investigate influence of other variables on the results, information was sought on gender, age, education and years of work experience.

Procedure

Survey research was chosen as the research methodology, as this is appropriate for data collection looking at a range of concepts across a large number of people (Bryman, 1989). Survey research is subject to undesirable effects from issues such as sampling and social desirability bias (Krosnick, 1999). In addition establishing causality is difficult as data collection occurs at a single point (Bryman, 1989) . However, these concerns were outweighed by the practicality and utility of survey research for the purposes of this research. For example, alternatives such as experimental design would not enable direct applicability of the laboratory findings to the organisational environment (Bryman, 1989) .

The survey was loaded onto the data collection site Zoomerang (www.zoomerang.com). Although issues such as differential access to computers, response environmental effects and method bias have been recognised as possible adverse effects on intranet research (Stanton & Rogelberg, 2001), these were considered to be outweighed by the reach and convenience an intranet survey would achieve. The Telecom intranet is widely used by all employees to access company news and other information, as well as completing organisational wide questionnaires. A page was created on the Telecom intranet site outlining information about the research and

providing a link to the online questionnaire containing the instruments and survey questions described below. The page was up over a two week period in May 2006. At the end of the two week period the data was downloaded and used to test the theoretical model.

Results

Prior to analysis the data was "cleaned", that is, word answers[1] were converted to numbers and items which were reverse scored were inverted. There were no missing items; this was most likely a result of the alert given by the online survey tool if participants missed items on the questionnaire.

The approach to analysis was guided by Gerbing and Anderson's (1987) recommendation that prior to testing substantive hypotheses it is important to understand exactly what is being measured. In line with this, analysis was performed in two stages: firstly, measurement models were confirmed; secondly, hypothesised associations between constructs were tested.

Structural equation modelling

For both stages of analysis structural equation modelling was performed using the Analysis of Moment Structures (AMOS) computer application (Arbuckle & Wothke, 1999). Rather than any single index, various criteria were used to gauge model fit, reflecting statistical, theoretical and practical matters (Byrne, 2001). Chi-square statistic (χ_2) was used to indicate absolute fit, or how well the model reproduces the data (Hu & Bentler, 1996), if the probability value (P) is below .05, the model is rejected. However, this statistic is seen as limited due to sensitivities to sample size and non-normality in the

[1] Pay, ascendency, performance, gender.

underlying distribution of input variables (Bentler, 1990). There is a lack of consensus in the literature for preferred indices of fit (e.g. Bentler, 1990; Byrne, 2001; Hu & Bentler, 1996, 1999), therefore multiple goodness-of-fit indices were chosen for the current study: the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA). The TLI and the CFI yield values ranging from zero to 1.00, with optimal values being close to .95 (Hu & Bentler, 1999). These are incremental fit indexes, meaning that they evaluate the extent to which the tested model improves fit compared to a more restricted baseline model and the TLI and CFI are among those recommended by Hu and Bentler (1996) as performing well under conditions relevant to this study (i.e. sample size and independent latent variables). The RMSEA is based on population discrepancy and takes into account model complexity (Arbuckle & Wothke, 1999). The RMSEA is described by Byrne as "one of the most informative criteria in covariance structure modelling" (p. 84), where values over 1.0 indicate poor fit, .08 to 1.0 mediocre fit and values around .05 good fit (Hu & Bentler, 1999).

Where these indices indicated poor fit, residual error terms, modification indices and their accompanying expected parameter change (Arbuckle & Wothke, 1999) were examined. Byrne (2001) warns that respecifications of the model by the researcher must be carefully considered, as there are dangers associated with doing so particularly given that post hoc model fitting is exploratory rather than confirmatory. As such, it was

decided prior to analysis that a cautious approach would be taken to model respecification.

Checking for normality

A fundamental assumption in structural equation modelling (SEM) is of multivariate normality in the data. Although it is typical that real data does not follow a multivariate normal assumption (Yuan & Bentler, 2006), researchers have tended to proceed with SEM without testing for or satisfying the normality assumption (Byrne, 2001). Violations of this assumption may result in inaccuracies due to (1) the chi-square goodness of fit test leading to rejection of true models; (2) parameter estimate tests, leading to overly optimistic significance results (3) underestimation of fit indexes (West, Finch, & Curran, 1995).

An assessment of normality was carried out in AMOS and showed that the data is nonnormally distributed. Skewness (SK) values ranged from -1.052 to .669, with 26 of the 30 variables showing critical ratios (C.R.) outside of the -2 to +2 range, thereby indicating statistically significant nonnormality. Kurtosis (KU) values range from -1.368 to 1.198, with 21 variables departing significantly from normality according to the C.R. criterion. Moderate nonnormality is suggested by the C.R. values as all except two are below 10, which is the threshold for severe non-normality. Particularly important for SEM is Mardia's normalized estimate of multivariate kurtosis (West, et al., 1995) which was found to be 91.157, where large estimated values indicate significant positive

kurtosis. Taken together, these indicators suggest that the data are multivariate nonnormal.

The remedy provided by AMOS for multivariate nonnormality is bootstrapping, where parameter estimates are taken from repeated samples (more than 1000 samples are recommended) from the population in the current study, resulting in an empirical sampling distribution (Arbuckle & Wothke, 1999). This describes an actual distribution rather than a theoretical sampling distribution (West, et al., 1995). The current study used bootstrapping with 2000 subsamples to provide information in addition to the regular output using maximum likelihood estimation; this information can be compared to reach conclusions about model fit while taking into account the nonnormality of data (Byrne, 2001). In this way a further model fit assessment was used: the Bollen-Stine corrected *p* value associated with the $\chi 2$ instead of the usual maximum likelihood *p* value. The Bollen-Stine approach modifies the $\chi 2$ goodness-of-fit statistic by transforming the sample data in such a manner as to fit the hypothesized model perfectly, however, it is subject to the same $\chi 2$ sensitivities and should not be relied on to evaluate model fit (Byrne, 2001).

Measurement models

The factor structure of each measurement model was assessed by Confirmatory Factor Analysis (CFA) to consider properties in light of sample and situation particularities, notwithstanding whether it has been used in other studies (Kline, 1994).

For the same reason, reliability of the measurement models was also assessed. The reliability estimate used was Cronbach's alpha, where values above the commonly accepted minimum of .7 indicate that the items are consistently measuring the same underlying construct (Cooper, 2002).

Career competencies

As the career competency scale was developed by the author of the current study, analysis in addition to the CFA was performed to ensure that items developed load appropriately onto the hypothesised factors. To this end, the underlying structure of the items within the scale was assessed using Exploratory Factor Analysis (EFA) in SPSS. In accordance with Froman's (2001) recommendation that EFA should use a data set which is independent from the subsequent CFA, the data pool was split in two with the 'select random cases' feature of SPSS. Random Group 1 (n=295) was used for the EFA and Random Group 2 (n=273) was used to confirm the factors within the scales.

The EFA was conducted by means of a maximum likelihood extraction, which is the appropriate approach when data has been obtained from Likert type rather than dichotomous scales. In line with Kline's (1994) recommendation Direct Oblimin was the oblique (which allows for correlation of the factors) rotation method. Factorability of the data was indicated by the Kaiser-Meyer-Olkin measure of sampling adequacy value of .910, well above the acceptable value of .6 (Brace, Kemp, & Snelgar, 2006). The total variance accounted for was 52.1 per cent. The number of factors was set to 3 to reflect

the hypothesised components of the structure, which were indicated by the scree plot (shown in appendix 2) showing 3 factors with eigenvalues greater than 1. The initial pattern matrix, seen in Table 3, showed most items loading onto the expected factor.

Table 3: Initial pattern matrix for the career competencies scale, with items to be removed highlighted

	Factor		
	1	2	3
kwhy3	.867	.040	-.010
kwhy5	.728	-.045	-.011
kwhat2	**.496**	**-.138**	**.318**
kwhat3	**.492**	**-.189**	**.232**
kwhy4	.477	-.131	.111
kwhy1	.449	-.004	.230
kwhy2	.439	.011	-.080
kwhom4	-.043	-.939	-.066
kwhom2	.036	-.759	-.057
kwhom5	-.114	-.735	.243
kwhom1	.179	-.638	-.045
kwhom3	**.379**	**-.465**	**-.054**
kwhat5	.118	-.088	.669
kwhat1	-.036	.042	.554
kwhat4	.224	-.269	.397

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.
Rotation converged in 8 iterations.

The items which did not load onto the hypothesised factors (highlighted in Table 3) were removed. These items were: 'knowing-how' item 2 (*Taking advantage of opportunities to build my skills)* and 'knowing-how' item 3 (*Gaining lots of relevant experience*), both of which did not load onto their hypothesised factor. 'Knowing-whom' 3 (*Building my reputation (e.g. so that people see me as having influence or expertise in a*

given area) was also removed as it cross loaded with more than one factor. This final pattern matrix is shown in Table 4.

Table 4: Final pattern matrix for the career competencies scale

	Factor		
	1	2	3
kwhom4	.913	-.023	-.060
kwhom2	.782	.020	-.067
kwhom5	.712	-.081	.268
kwhom1	.659	.164	-.055
kwhy3	.009	.813	-.005
kwhy5	.012	.760	.033
kwhy4	.112	.500	.134
kwhy1	.002	.483	.237
kwhy2	.003	.447	-.095
kwhat5	.100	.125	.664
kwhat1	-.033	-.031	.551
kwhat4	.279	.219	.371

The three factor, 12 item measure resulting from the EFA was then modelled in AMOS using Random Group 2. The output indicated a good fit of the model to the data, $\chi 2$ (51, N= 273) = 112.020, $p< .01$; TLI = .933, CFI = .949, RMSEA = .066 (see appendix 3.1 for the full table of fit indices). Based on these indicators it was not considered necessary to respecify the model so the measure was confirmed using the total data set. Again, a good fit of the model was indicated by the AMOS output, $\chi 2$ (51, N= 568) = 214.708, $p< .01$; TLI = .918, CFI = .937, RMSEA = .075 (see appendix 3.2 for the full table of fit indices). As the career competency scale was developed for the current study it was particularly important to assess reliability as well as validity. Cronbach's

alpha reliability estimate was acceptable at .862. The AMOS diagram and regression weights are shown in Figure 3.

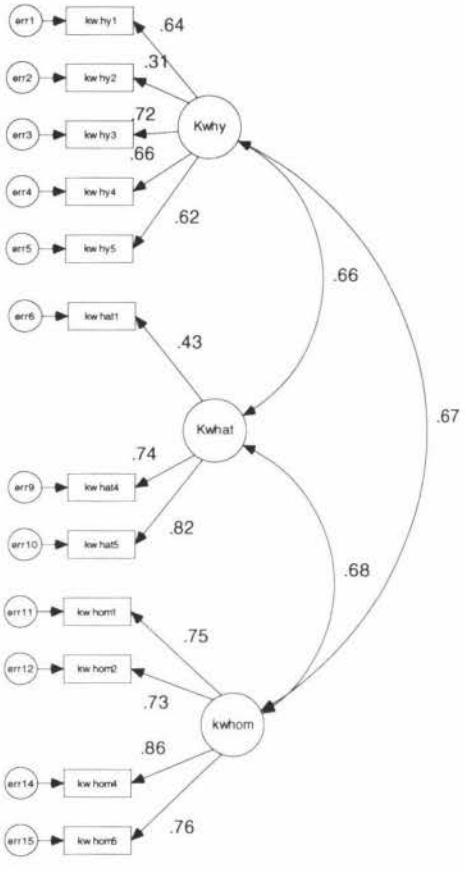

Figure 3: AMOS diagram for career competency measurement model

It is important to note that for the next stage of analysis the overall model incorporates second order latent constructs derived from the first order measurement models. That is, the three components of the career competency scale were represented by the second order latent construct 'career competencies'. The components showed statistically significant loadings onto the career competencies construct and the signs of

the obtained estimates were all in the expected direction. Moreover, the second order factor model resulted in a reasonable fit of the data, $\chi 2$ (51, N= 568) = 214.708, $p< .001$; TLI = .918, CFI = .937, RMSEA = .075 (see appendix 3.3 for the full table of fit indices). As such, the second order latent construct can be seen to meaningfully characterize the components underlying the career competency measurement model.

Career success

The output from the four factor, 14 item career success measure indicated an excellent fit of the model to the data, $\chi 2$ (71, N= 568) = 236.171, $p< .001$; TLI = .949, CFI = .960, RMSEA = .064 (see appendix 4.1 for the full table of fit indices). Cronbach's alpha was acceptable at .830. The AMOS diagram and regression weights for the second order career success scale are shown in Figure 4.

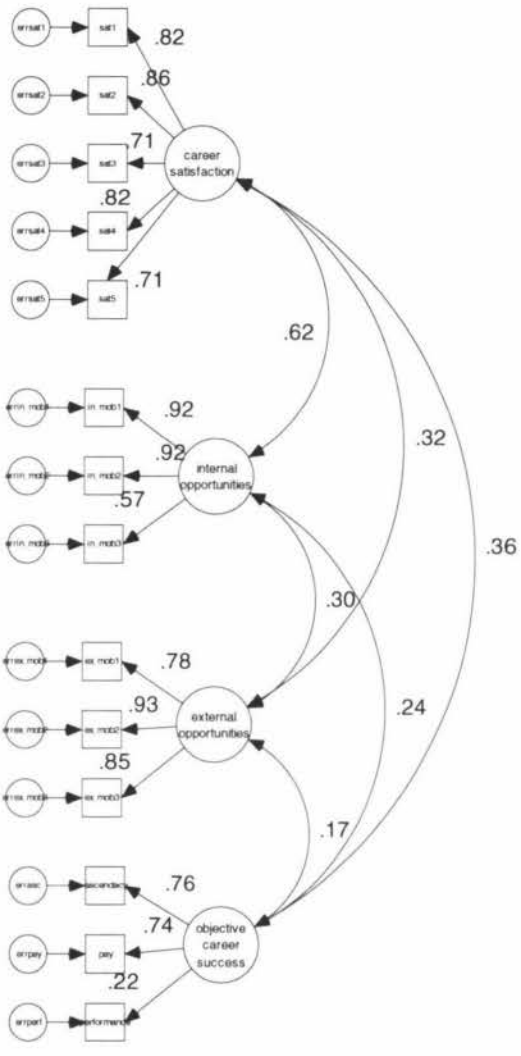

Figure 4: AMOS diagram for career success measurement model

A second order latent construct was modelled for use in the subsequent stages of analysis. The four components of the career success scale showed statistically significant loadings onto the 'career success' construct and the signs of the obtained estimates were all in the expected direction. As the second order factor model resulted in a good fit of the

data, $\chi 2$ (73, N= 568) = 239.787, p< .001, TLI = .950, CFI = .960, RMSEA = .063 (see appendix 4.2 for the full table of fit indices), it can be seen to adequately represent the components underlying the career success measurement model.

Intention to leave

The AMOS output for the single factor, 5 item intention to leave measure showed mixed results for the fit of the model to the data. While the TLI (.924) and CFI (.962) values were adequate, the RMSEA (.171) showed a poor fit to the model (see appendix 5.1 for the full table of fit indices). As such, the modification indices and expected change statistics related to the covariances for the model were inspected. The largest modification index values showed evidence of measurement error covariance. This misspecification was related to the pairings of item 4 (*I am planning to search for a new job during the next 12 months*) and item 2 (*One year from now it is likely I will still be at Telecom (reverse scored)*) and item 2 and item 1 (*If I have my own way, I will leave Telecom to work in another organisation during one year from now*), indicating elevated overlap in item content. On inspection of the items it was evident that, although there is a difference in wording, the item pairs essentially asked the same question. As item 2 was implicated in both misspecifications, it was excluded. The indices for the respecified model were excellent, $\chi 2$ (2, N= 568) = 27.816, p< .01, TLI (.952) and CFI (.984), except RMSEA (.151) still indicated poor fit (see appendix 5.2 for the full table of fit indices).

The RMSEA is sensitive to model complexity as it is articulated per degree of freedom and thus number of estimated parameters in the model (Byrne, 2001). Given that the single factor intention to leave measurement model only has 2 degrees of freedom, it makes sense that it was rejected by RMSEA. Notwithstanding the RMSEA value, it was considered prudent to proceed with the four item single factor measure on the strength of the other fit indices. Conceptual and practical considerations supported this decision, that is, the theory of intention to leave is well documented in the literature, as is measurement using a single factor model (e.g. Fried, Tiegs, Naughton, & Ashforth, 1996; Griffeth, et al., 2000; Hom, et al., 1992). Moreover, Cronbach's alpha was acceptable at .910. As intention to leave was operationalised with responses to single items, a second order model was not appropriate. The AMOS diagram for the Intention to leave measurement model is shown in Figure 5.

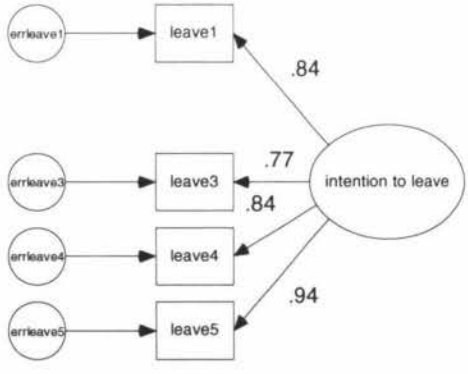

Figure 5: AMOS diagram for intention to leave measurement model

In sum, the factorial structures of the measurement models were confirmed; the fit indices and alpha levels for the first order models are shown in Table 4. The second order latent constructs for career competencies and career success were also shown to be valid. This suggests that items correspond sufficiently to their respective constructs and that testing of the structural model can proceed without concerns about misspecifications due to multicollinearity or conceptual redundancy.

Table 4: Fit statistics and alpha levels for each of the first order measurement models

Scale	*Number of factors*	*χ2*	*df*	*p*	*TLI*	*CFI*	*RMSEA*	*α*
Career competencies scale	3	214.700	51	.001	.933	.937	.075	.862
Career success scale	4	236.171	71	.000	.949	.960	.064	.830
Intention to leave scale	1	27.816	2	.001	.952	.984	.151	.910

Note: $\chi 2$= chi-square; df = degrees of freedom; p= Bollen-Stine bootstrap probability value; TLI= Tucker-Lewis Index; CFI = Comparative Fit Index; RMSEA = Root Mean Squared Error of Approximation

The structural model

A structural equation model hypothesises a pattern of linear relationships; the dual purpose of this model is to "provide a meaningful and parsimonious explanation for observed relationships within a set of measured variables" (MacCallum, 1996, p. 17) A two stage approach was used to infer support for the model (Byrne, 2001). Firstly, the

overall fit of alternative models to the data was investigated. Secondly, the relationships among the variables were investigated further in light of the hypotheses.

Overall fit of models

The analysis sought to test two models in order to investigate which was the best fit to the data. Bootstrapping was used for model comparison. This resulted in mean discrepancy figures and standard errors for each model representing the difference between the implied moments from the bootstrap sample and moments of the bootstrap population, where smaller average discrepancies are desirable (Arbuckle & Wothke, 1999). The fit indices AIC and ECVI were also examined; Byrne suggests that for model comparison smaller values in both indicate a better fit (2001). In addition, the fit indices already used ($\chi 2$, Bollen-Stine bootstrap p value, TLI, CFI and RMSEA) were examined.

Model 1, shown in Figure 6, posits direct paths from career competencies to career success and intention to leave. Model 2, shown in Figure 7, shows career success mediating the path from career competencies to intention to leave. In the interests of clarity, the errors of measurement and first order variables are not shown.

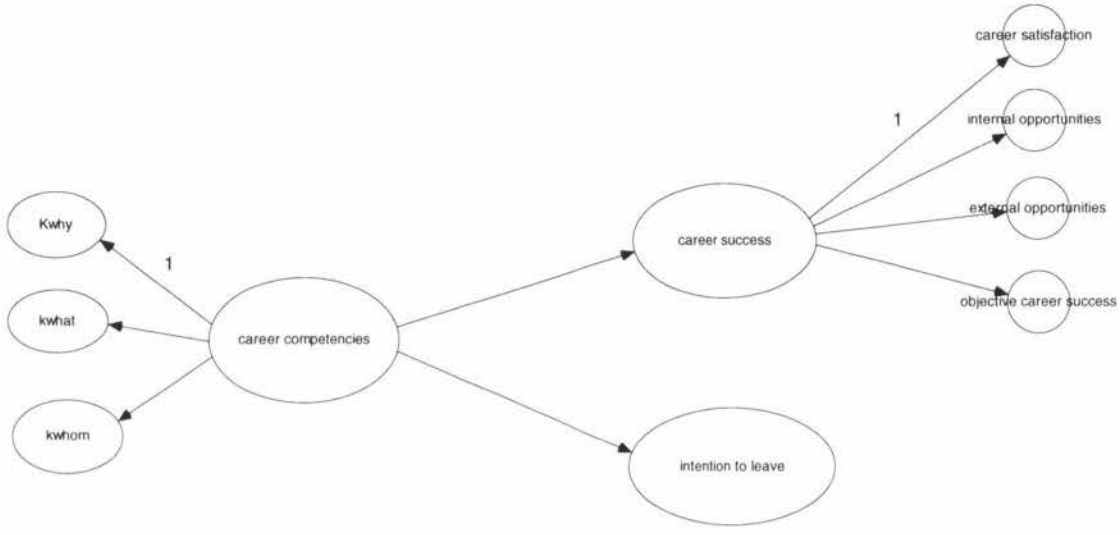

Figure 6: AMOS diagram showing Model 1

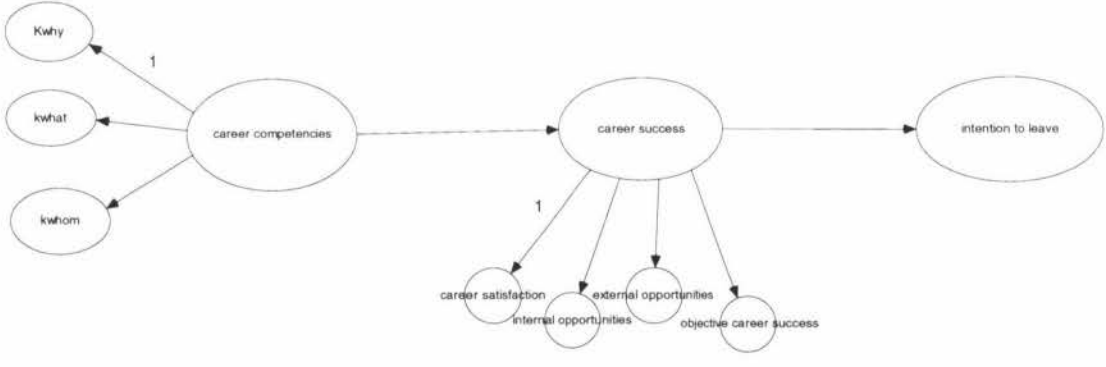

Figure 7: AMOS diagram showing Model 2

As seen by the fit statistics shown in Table 5, Model 2 is a slightly better fit to the data, suggesting that it should form the basis for subsequent analysis of the hypothesised paths. However on inspection of the Model 2 modification indices (MIs) showing

additional regression weights which may be considered for a well fitting model (Byrne, 2001), the paths between internal opportunities for mobility and intention to leave and external opportunities for mobility and intention to leave, were revealed as important parts of the causal structure. This is seen by the higher modification indexes and expected parameter change statistics shown for these paths over other paths associated with other second order variables (which are not already linked in Model 2). Theoretically speaking, these linkages make sense and are important in the context of this study. Therefore, these paths were added in and, when tested as Model 3 (shown below), fit statistics were enhanced further.

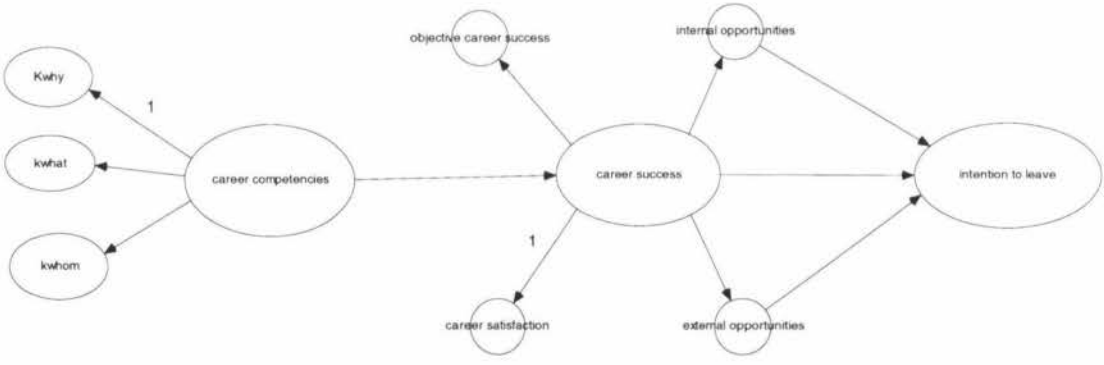

Figure 8: AMOS diagram showing Model 3, including added paths

Table 5: Fit statistics for each of the structural models

Model	*χ2*	*df*	*p*	*Mean discrepancy*	*AIC*	*ECVI*	*TLI*	*CFI*	*RMSEA*
Model One	1131.670	396	.0000	433.518 (.993)	1269.670	2.239	.908	.917	.057
Model Two	1047.153	396	.0000	443.902 (.991)	1185.153	2.090	.919	.926	.054
Model Three	1005.640	394	.0000	431.950 (.993)	1147.640	2.024	.923	.931	.052

Note: *χ2*= chi-square; df = degrees of freedom; p= Bollen-Stine probability value; Mean discrepancy (standard errors in parentheses) TLI= Tucker-Lewis Index; CFI = Comparative Fit Index; RMSEA = Root Mean Squared Error of Approximation

Table 6: Showing maximum-likelihood and bootstrap estimates for Model 3 relationships

Regression Path	*Estimate*	*S.E.*	*C.R.*	*Stand Regression Weight*	*p*	*Bootstrap S.E.*	*S.E.-Bootstrap S.E.*	*Mean*	*Bias*	*SE-Bias*	*lower*	*upper*	*p*
Career Competencies to Career Success	.735	.105	7.027	.45	.000	.123	.002	.739	.004	.003	.563	.969	.001
Career Success to Intention to leave	-.632	.173	-3.654	-.34	.000	.199	.003	-.650	-.018	.004	.216	.140	.001
Internal opportunities to Intention to leave	-.550	.147	-3.743	-.29	.000	.162	.003	-.539	.010	.004	-.550	-.792	.007
External opportunities to Intention to leave	.389	.079	4.930	.23	.000	.084	.001	.388	-.001	.002	.389	.259	.001

Relationships between variables

Table 6 shows the maximum likelihood and bootstrap estimates for the regression paths of interest in Model 3. Turning first to the maximum likelihood output, the information shows standardized estimates, standard error (S.E.) and critical ratio (C.R.) of regression paths. Estimates show the relative contributions of each predictor variable to the outcome variable. The C.R. is the estimate divided by the standard error. As all C.R. values are $>\pm 1.96$ (Byrne, 2001), estimates for hypothesised relationships can be seen as statistically different from zero and therefore significant. Moreover, the probability values indicate that all tested relationships are significantly different from zero and thus unlikely to have occurred by chance.

Although all variable relationships were supported in terms of significance the direction of the relationships shown in Table 6 are noteworthy. Career competencies and career success had a positive association, that is, people who demonstrate a high level of career competencies were also likely to show a high level of career success. This is consistent with the hypothesised model. However, the relationship between career success and intention to leave was negative, so that people who are successful in their careers are less likely to think about leaving the organisation. This finding is not consistent with the hypothesised model. In addition, there is a negative association between people who perceive that there are internal opportunities for mobility and their intention to leave, so that those who see career prospects within the organisation are also

less likely to leave the organisation. Conversely, those who see opportunities outside of the organisation are more likely to demonstrate a high intention to leave; there was a positive relationship between perceived opportunities for external mobility and intention to leave.

Age and gender effects

Due to the theoretical interest in exploring the effects of age and gender in the model, further analysis was conducted. The model was modified to reflect the particular relationship of interest: the role of age in predicting investment in boundaryless career competencies. The resulting Model 4 is shown in Figure 9. For the purposes of clarity, error and observed variables (except age) are not shown.

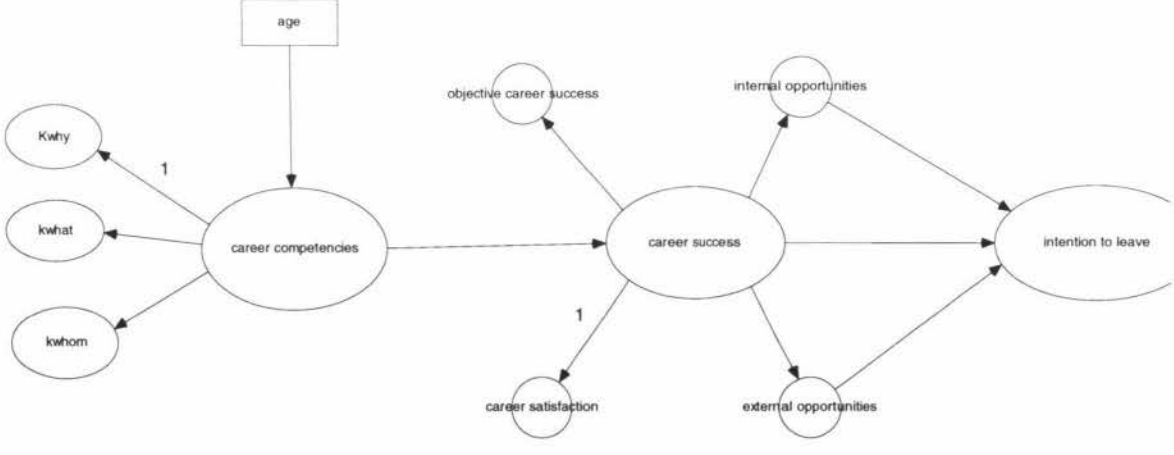

Figure 9: AMOS diagram showing Model 4, including age

The standardised regression weight for the age to career competencies relationship is .106 and the estimate is .006. Although compared to the values for the other relationships these values seem small, the C.R. (2.234) and the probability value (.026) are significant. However, the bootstrap S.E. is .057 compared to maximum likelihood S.E. of .003. When the bootstrap S.E. is used to calculate the C.R. the resulting 0.105 value suggests that the relationship is not significant. In addition, the bias corrected confidence interval (set at 90%) shows that the standardised regression weight is between .014 and .200, with a probability value of .065 which is not significant at a .05 level. It is important to note that including age into the model in this way decreases overall model fit $\chi 2$, (423, N= 568) = 1297.420, $p<$ .001, TLI = .894, CFI = .904, RMSEA = .060 (see appendix 6 for the full table of fit indices). Taken together, these findings suggest that age does not have a significant relationship with career competencies.

To investigate gender effects, invariance testing was conducted on Model 3 in order to determine whether the structural model was the same for both males and females. Unlike the comparison of models above, where descriptive fit statistics were used for comparison, the models tested for invariance were nested. That is, as the sequence of tests proceeds increasingly restricted models are obtained by imposing further constraints. As such the chi-square difference test can be used, where a statistically significant χ^2 difference suggests that the more constrained model should be rejected (Bentler, 1990). The RMSEA has also recently been advocated as an important indicator in model comparisons (MacCallum, Browne, & Cai, 2006). In their review of

the invariance literature, Vandenberg & Lance (2000) outlined eight tests which are used to reach decisions about invariance and stated that, rather than using all tests, selections should be made as appropriate for the research. Four tests were chosen and conducted in the sequence recommended by Vandenberg and Lance (2000) .

First, configural invariance was tested by constraining the pattern of fixed and free factor loadings to be equal across the two gender groups. For subsequent tests to be meaningful, configural invariance must be established (Vandenberg & Lance, 2000). As can be seen in Table xx, fit statistics revealed that this constrained model was acceptable. Also, the χ^2 difference test between the baseline model and constrained model was not significant, suggesting that factor loadings of both gender groups were invariant (i.e. that any differences were not owing to differences in the variables being constrained as equal).

In addition to the factor loadings, a test of weak invariance was carried out by also constraining unique variances of each item to be equal across the two groups (Horn & McArdle, 1992). This test must be satisfied if subsequent invariance tests are to be considered meaningful (Vandenberg & Lance, 2000). Analysis showed that this constrained model was acceptable. Moreover, the χ^2 difference test between the two constrained models was not significant. This suggested that, aside from the factor loadings, unique variances of each item were also invariant across gender.

Finally, besides the constraints mentioned above, a strong invariance test was performed (Conroy & Coatsworth, 2004); factorial variances were also constrained to be equal across the two groups. Analysis revealed this constrained model was acceptable. Additionally, the χ^2 difference test between the two constrained models was not significant. In sum, as seen in Table 7, all results revealed that the factor loadings, unique variances and factor variances were invariant across gender.

Table 7: Fit indexes for invariance tests for Model 3

	df	$\chi 2$	df diff	$\Delta\chi 2$	p	TLI	CFI	ΔCFI	RMSEA
Default Model	790	1505.689	-	-	-	.911	.919	-	.040
Configural Invariance	820	1548.277	30	42.588	ns	.913	.918	.001	.040
Weak Invariance	850	1614.331	30	66.054	ns	.912	.914	.001	.040
Strong Invariance	850	1614.331	0	0	ns	.912	.914	0	.040

Discussion

Summary of findings

The central question of this thesis is whether boundaryless career competencies are linked to career success and intention to leave. This focus is relevant at both the individual career development level and organisational level strategic human resource management. The findings are important in relation to the career literature and in particular boundaryless career theory.

The best fit model found that investment in boundaryless career competencies had a significant connection with career success. Career success, internal opportunities for mobility and external opportunities for mobility had a significant connection with intention to leave. Therefore, while the data is from only one organisation, results provide some insight into possible competencies and implications for career development initiatives in the contemporary career environment.

Within the model, all hypothesised relationships were supported in terms of significance but the directions of these relationships were important. As expected it was found that people who demonstrate a high level of investment in career competencies were also likely to show a high level of career success. In contrast to the hypothesised model however, a negative relationship was found between career success and intention

to leave. That is, people who are successful in their careers are *less* likely to think about leaving the organisation, not more. In addition, the best fit model revealed that people who see internal opportunities for mobility are less likely to consider leaving, while people who see external opportunities for mobility will have a higher intention to leave. Hence it may be that whether people with high career success stay or go will depend on the opportunities to express career competencies within the organisation.

There were no significant gender differences identified across the model. In addition, there was not a significant relationship between age and investment in career competencies. This suggests that boundaryless career competencies are accessible across a broad demographic in the organisation sampled, notwithstanding work experience or gender.

Links to boundaryless career theory

These results provide mixed support for the boundaryless career theory. Investment in the 'three ways of knowing' career competency framework, derived from boundaryless career theory, was linked to career success. However, career success is not linked to turnover despite the assumption that mobility is desirable for a boundaryless career actor. Therefore, the results provide no evidence for the hypothesised paradox of both positive and negative outcomes. The boundaryless career actor may be successful, but they are also more likely to stay in the organisation. The results are discussed further with reference to boundaryless career theory below.

The connection between boundaryless career competencies and career success

Boundaryless career theory is supported by the results suggesting a positive linkage between career success and the 'three ways of knowing' career competencies. This suggests that the competencies may be an appropriate framework for self-generated career activity which, according to boundaryless career theory, can form the foundation of organisational and economic life (Inkson & Arthur, 2001), through facilitating culture and organisational learning and networks (Defillippi & Arthur, 1994). Therefore results may provide tentative support for using the competencies in individual and organisational career development. For example, career workshops could focus on developing self awareness of values and goals and planning how to build desired skills and relationships. These could be supported by the performance management process and conversations with managers and HR. Through enabling self and organisational awareness of career strategies, succession planning and internal job openings could take into account individual career priorities.

The connection between career success and intention to leave

That people with high career success may be more likely to stay seems to contradict boundaryless career theory, which asserts mobility as the desirable state for skilled and satisfied career actors. These results suggest that a career actor may stay in an organisation and behave in a 'boundaryless' way; it follows that someone may leave the organisation in an 'unboundaryless' manner.

However it may be that such an interpretation of mobility is unfair to boundaryless career theory. While the literature (and indeed this study) have placed emphasis on physical mobility (e.g. moving to a separate organisation), it has been argued (Sullivan & Arthur, 2005) that psychological (e.g. being sustained by external networks and information) mobility is also implicit in the six meanings of boundaryless career. In the attempts to emphasise the versatility of a boundaryless career over more narrow interpretations, this clarification seems almost defensive and, as noted by Arnold & Cohen (2008), broadens the concept so much as to nullify the analytical power of the metaphor. Has there ever been a career that is completely static and unreceptive to environmental stimuli? These results tentatively suggest that mobility for successful career actors is not necessarily inter-organisational movement.

Taken together findings suggest that individuals may stay in an organisation despite, or even *because*, they are investing in boundaryless behaviour. The attraction-selection-attrition model is relevant here, as particular organisations or industries may recruit those that 'match', who in turn are more likely to accept the job and stay, while those that do not fit will leave or be asked to leave (Schneider, Smith, Taylor, & Fleenor, 1998). In a similar way, career actors who invest in career competencies may be more attracted to work at a particular organisation, selecting that organisation as they know there is a fit with their values and motivations ('knowing-why'). Once they are working for the organisation, the career actor may invest in 'knowing-how' by becoming involved

in long term projects or organisational-wide issues, thereby increasingly building 'knowing-whom' networks across the organisation and even the industry. It makes sense that career actors who align themselves with the organisation in this way are less likely to leave, while a person who does not make these investments may be more likely to leave.

Internal and external opportunities for mobility

The finding of differential relationships between intention to leave and perceived opportunities for internal and external mobility was not specified in the hypothesised model. The mobility concepts were included in the study in order to investigate a wider definition of career success. However the best fit model compelled the addition of direct links: perceived opportunities for internal mobility had a negative relationship with intention to leave, compared to positive links between perceived opportunities for external mobility and intention to leave. Therefore while the boundaryless career rhetoric presumes that inter-organisational movement is the goal, these results suggest mobility decisions are more complex. It may be that whether a successful career actor stays or goes depends on whether the organisation allows for manifestation of boundaryless career competencies through movement into other roles and experiences.

The results suggest that opportunities to move internally in the organisation may 'trump' external opportunities, or vice versa. It makes sense that people who see options for movement within the organisation will want to stay, and where those options are external to the organisation this may compel them to think about leaving. As discussed above the career actor may face a tension between the force to leave and the force to remain (Hom & Griffeth, 1995). It becomes important to consider the decision making factors in weighing up attractiveness of internal opportunities ('pull' factors) versus external opportunities ('push' factors) in considering how the organisation can retain the successful career actors (presumably desirable as by definition these are satisfied high performers who progress through the organisation).

Boundaryless career theory may predict that external opportunities would trump internal opportunities. Inter-organisational mobility is desirable as a way to gather more skills ('knowing-how') and extend networks ('knowing-whom'). But such an analysis excludes very real variables. For example boundaryless career does not take account of other considerations which seem to play a significant part in mobility decisions, such as family (Valcour & Tolbert, 2003), the stress of leaving and joining organisations, (Cooper, 2002) or the desire to avoid risk or uncertainty (Gunz, et al., 2000). Hence it may be that stability and mobility are not the polar opposites that boundaryless career theory asserts them to be; successful career actors may well prefer movement to be incremental (for example doing a similar role in a larger team) rather than extreme (requiring movement to another organisation).

In light of the current study a more attractive hypothesis seems to be that for people who have invested in career competencies, internal may trump external opportunities. Investment in the 'knowing-why' competency, which seeks awareness and action around personal values and motivations, may have already led to the decision that the organisation aligns with their career goals. 'Knowing-why' investment may mean that the individual feels that the job or the organisation itself portrays an accurate message about them and is therefore a source of professional identity, which has been shown to be an important predictor of career change (Khapova, Arthur, Wilderom, & Svensson, 2007). In this case, internal may trump external opportunities as a 'match' has already been achieved. Conversely the attraction –selection –attrition model (Schneider, et al., 1998) discussed above suggests that those who have not achieved seen internal opportunities or found an identity 'match' may have already left. Parallels can be drawn to past research into motivational fit, for example, in a study of achievement motivation in a community, it was found that high school graduates with high achievement motivation remained as long as the community was achieving and vice versa (Matter, 1977).

The importance of internal mobility, coupled with the finding that high career success means people are less likely to leave, casts doubt on the boundaryless career theory's assumption that the organisational career is dead. A more realistic view may be that the organisational career, like organisations' themselves, has shifted and adapted in

response to the changing landscape. However as noted above, societies change and the way we think about careers also changes. It may be that the boundaryless career was a creature of the 1990's and is now unsuitable as a metaphor. Like the organisation, career actors must constantly re-evaluate strategy and goals to align with new challenges from markets and the global economy. Moreover, the organisational career may need to be positioned differently as it seems to have outgrown the staid descriptions of the past. Careers and organisations seem in one sense boundaryless, but at the same time are subject to increasingly complex constraints. As the world now faces unprecedented pressures brought about by the global economic crisis, career actors, organisations and indeed career academics and practitioners will again need to reinvent themselves. As the organisation and the individual must rapidly and effectively adapt to the ever-changing surroundings perhaps a better metaphor is of a 'Chameleon Career'.

Age and gender

Perhaps the most surprising results of this study are the invariance of the best fit model across gender, and non-significant impact of age on investment in career competencies. As discussed above a prevailing criticism of boundaryless career theory has been that it makes no predictions about age and gender, and commentators have argued that the different approaches women take to their careers are unaccounted for by the theory (Pringle & Mallon, 2003).

The gender perspective is a topic of interest in the career literature and in contrast to the current study many results indicate gender based differences. In a meta-analysis of predictors of career success, Ng et al. (2005) found a small but significant advantage for men over women. For example, research has shown a difference in men's and women's career advancement (Tharenou, 1999), and that women's career actions may be more likely to be influenced by family and work-life issues (Powell & Graves, 2003) as well as sexual discrimination and harassment (Bowes-Sperry & Tata, 1999) and inequities in salary and training (Powell, 1999). Therefore based on previous research showing gender differences in career actions and outcomes the model investigated here could have been expected not to fit both males and females. This, however, was not the case.

The results showing invariance of the model across gender may be explained by examining the substantive differences between the model tested and more traditional career research. Research suggests that women are typically disadvantaged by organisational career development frameworks (e.g. Crittenden, 2001; Crocitto, 2006) based on prominent career stage theories arising from studies of men's careers (e.g. Levinson, et al., 1978; Super, 1957), which do not take into account the complexities of the female career (Sullivan & Mainiero, 2008). Therefore it makes sense that career research based on traditional models will uncover gender differences. It may be that the model tested in this study is appropriate for both the male and female career; this can be investigated by looking at how the model can be differentiated from traditional career research.

The perspective on career success distinguishes this study, by not only looking at upward advancement and pay (which still have a male gender bias (e.g. Vinnicombe & Singh, 2003)) but also psychological satisfaction and opportunities for movement. It is possible that these variables may serve as gender equalisers. Self-justification theory (Aronson, 1992) suggests that if people have invested time incorporating their values and motivations into career decisions they will internally justify this investment with the outcome. If women have sacrificed career advancement for more time with their family they will draw validity internally, seen in subjective career satisfaction, rather than (for example) comparing themselves to their peers. Similarly, perceived opportunities for mobility may also serve as a gender equaliser. While women's career actions may be influenced by family responsibilities, satisfaction may be gained through knowing that they have the capability to move *if they wanted to.* It may be that measurement of actual mobility reveals a male bias. For example while options to move are present, women may choose not to pursue all opportunities available to them because of family commitments. If faced with a similar opportunity, men may be more likely to act on the opportunity for movement as increasing status or salary may be the priority.

Another distinguishing factor of this study from more traditional career research is the use of investment in the 'three ways of knowing' career competencies as a career model. This is distinct from other career models which are unsuitable for women as they concentrate on completing necessary tasks for each stage of development, before the

individual can progress upwards in a linear way (Sullivan & Mainiero, 2008). Instead of focusing on organisational norms, the 'three ways of knowing' can be seen as a more flexible and individualistic model. In order to understand how the boundaryless career competencies may contribute to gender invariance, parallels can be drawn between the current study and the Kaleidoscope Career Model articulated by Sullivan & Mainiero (2008).

The Kaleidoscope Career Model (Sullivan & Mainiero, 2008), developed through interviews with 3000 people, depicts three parameters of careers: authenticity (being true to self), balance (achieving a coherent whole between work and non-work) and challenge (learning and growing). These can be linked to 'knowing-why' and 'knowing-how' in particular. As each parameter may come to the fore at different times, the model takes into account shifts which occur in career priorities in line with changing roles and relationships. Unlike traditional career models, the 'three ways of knowing' can also be seen to allow for changing priorities as the individual chooses which investments to make at which times.

Importantly, Sullivan and Mainiero (2008) note that such a model incorporates context, which is typically not included as a variable in the empirical study of careers. Interestingly this highlights both the potential for the 'three ways of knowing' as a framework for thinking about careers as well as the failure of the boundaryless career rhetoric to really take into account the wider personal picture. In describing what they

call the relationalist perspective Sullivan and Mainiero (2008) identify other aspects of an individual's physical and psychological well-being which impact the career, such as family, friends, leisure activities and spirituality. These may be included in 'knowing-why' and 'knowing-whom' thinking but do not seem to be considered within the key boundaryless assumptions, such as mobility and lack of job security.

In a similar vein, the career competencies' incorporation of context and shifting priorities may explain the findings that age does not significantly impact investment in career competencies. In contrast, previous career literature has by definition discriminated career activity and outcomes according to life stage career models (e.g. Levinson, et al., 1978; Super, 1957) which predict that career motivations and behaviours change with chronological age. A recent study (Segers, Inceoglu, Vloeberghs, Bartram, & Henderickx, 2008) supported life stage predictions, finding that values driven motivation increases and self-directed career learning decreases with age. Segers et al. (2008) note that this is consistent with previous research which has found that as people get older they seek to incorporate their own ideals rather than conform to social pressure (e.g. Ryff, 1995), may be more motivated by wider societal goals rather than their own career success (e.g. Levinson, et al., 1978), and be less motivated to pursue training and development activities (e.g. Warr, 2001). However, the three ways of knowing allow for these progressive changes in motivators, what matters for 'knowing-why' investment is awareness and action based on this.

Drawing again on the Kaleidoscope Career Model (Sullivan & Mainiero, 2008), it makes sense that people may put the same amount of energy into career investment over the course of their life, but that priorities will shift over time in terms of which way of knowing is emphasised and what form this takes. A person may invest in identifying and acting on their own values and motivations; whether this is through seeking, for example, independence over teamwork or contribution to society over personal financial security. An experienced manager may invest in 'knowing-whom' by gathering information from an industry wide network while a graduate's investment may be to seek a mentor. Similarly an older career actor may build new skills by presenting training programmes for new starters, while a younger person can invest in 'knowing-how' by leading a project for the first time. Again, while it sits well with the 'three ways of knowing' competency framework the boundaryless career metaphor seems ill-equipped for such a rich and contextual interpretation. The 'Chameleon Career' metaphor suggested in this thesis seems more fitting, as over time we may invest the same amount of energy in our career but the form this energy takes will depend on, and adapt, to the constantly changing environment.

Implications and value of the research

This research is valuable in three key ways, providing: (1) the operationalisation of career competencies for use in career management and further research, and findings that the competencies may be linked to career success (2) findings which question the key boundaryless career assumptions of mobility and the end of the organisational career (3)

an interpretation of results suggesting non-significant effects of age and gender may be due to allowance of shifting priorities and context in the model. The 'Chameleon Career' is suggested as an alternative metaphor.

Firstly, the study is unique in operationalising boundaryless career competencies and empirically linking them to career success. The findings suggest that career actors who invest in the three ways of knowing are more likely than those who do not to experience higher career satisfaction, pay, performance, promotions and perceive opportunities for movement within and outside of the organisation. The research informs individual career management, as proactive investment in the three ways of knowing can lead to positive outcomes. It provides a possible framework for organisational career management which may link to culture, organisational learning and organisational networks.

Secondly, the findings question key assumptions of the boundaryless career and thereby form an empirical basis for asking whether the usefulness of the concept has now past. In particular, people who are investing and succeeding in their careers will value internal opportunities to move and not necessarily leave. Contrary to the boundaryless career rhetoric, people do not necessarily wish to jump from organisation to organisation. Although the sample is from only one organisation (this limitation is discussed below), this thesis argues that the organisational career may not be dead; instead there should be recognition that the modern landscape of the organisational career has changed and will

continue to change. Results tentatively suggest that people want to stay and succeed within organisations.

Thirdly, this research contributes to career literature through the unexpected finding of no significant gender and age effects. Furthermore, the interpretation of this result highlights the importance of career models to incorporate contextual and environmental factors. It makes sense that a career model should not assume that the career occurs in a vacuum but should also take into account social and societal spheres. This means allowing for consideration of not only micro-factors such as personal motivations, friends, family, hobbies, goals but also macro-factors such as organisational strategy, competitive landscape, labour market and global economic trends.

This thesis has suggested that the boundaryless career may no longer be useful as a metaphor to reflect the contemporary career environment and related micro and macro-contextual factors. The 'Chameleon Career' is suggested as an alternative metaphor which addresses the tentative findings in this thesis. Here the context and the environment have a central role; like the animal that changes colour to match its surroundings, the individual and the organisation must be proactive in constantly adapting in order to survive.

Limitations and suggestions for future research

An important limitation in this study relates to diversity of the sample. Firstly, the sample was drawn from only one organisation, and therefore, the generalisability of findings may be limited. Surveying multiple organisations may have given more insight, as results may reflect a particular organisational or industry culture and there may be a bias towards homogeneity in the recruitment and reward processes, as predicted by attraction-selection-attrition theory. There may also be an element of bias from self-selection of the people who elected to complete the survey, for example people who are highly successful but do not invest in the career competencies may have been less likely to complete the survey as they are not interested in reflecting on their career. It is possible this could have impacted on the results but this should be minimised by the large sample size (568 respondents).

In addition, although gender and age were examined, further insights could have been gained by including ethnicity as a variable. It would be interesting to investigate the extent to which this study's findings of age and gender invariance could be replicated in different organisations or countries. More broadly, although this research is valuable in providing a view from New Zealand, the career literature remains largely Western based and few cross-cultural comparative studies exist. For example, it would be interesting to use Hofstede's (1980) dimensions (e.g. individualism/ collectivism) to look at career management in organisations and individuals across the world. It may be that people with a more individualist orientation are more likely to proactively invest in career

competencies. Future research looking at individual and organisational career investments and outcomes across organisations and cultures would be informative. For example it may be that knowledge workers in the technology industry are more likely than management in the manufacturing sector to invest in their own careers. However, it may be that this is because the manufacturing sector is more likely to support and provide a framework for the three ways of knowing at the organisational level, as part of human resource management strategies. Likewise cultures with a more collective orientation may be more likely to provide infrastructure for career investments, meaning that individual accountability is less pronounced but the energy invested by the individual is ultimately the same.

In addition, there are methodological limitations which may have influenced the results. This study used an intranet based survey as the data collection instrument, thereby providing self-report information which may be subject to bias. Participants may over or under report their investment, career success and intentions to leave. This could be for various reasons: from a peer or manager looking over their shoulder to more unconscious psychological self-justification. Again, the large sample size may minimise the impact of this. Surveys are also problematic as they restrict responses to the groupings provided by the survey, that is, people may invest in their career in more ways than the three ways of knowing but these were the only topics they were asked about. However this is less likely as the groupings are reasonably broad. Nevertheless future research could use different inquiry methods such as exploratory questionnaires or

discursive methods in order to understand in a broader way how people invest in their careers and the outcomes of this.

Another limitation is that as the research was exploratory in nature there are insights and hypotheses which need to be validated through future research. Future research should build on the link found between the career competencies and career success, by replicating the results across different organisations and investigating outcomes in addition to career success and turnover. Of particular interest is whether, all things being equal, internal opportunities may trump external opportunities for mobility, or vice versa. The factors which influence such a decision in the context of career investments and actions is worthy of further investigation.

In addition, the gender and age results are explained through the career competencies allowing for shifting personal priorities. This should be explored further, for example the extent to which the principles within the Kaleidoscope Career Model (Sullivan & Mainiero, 2008) apply to men, as it seems to make sense that the emphasis that men place on different aspects of their career will also change throughout their life but these may or may not be best named authenticity, balance and challenge. In addition future research could look at the similarities and differences for investments in the career competencies as approached by graduates and people approaching retirement. Moreover, it may be that the 'Chameleon Career' metaphor suggested in this research as an alternative to the 'boundaryless career' is a useful starting point for future research. For

example, it would be interesting to look at the way in which people reference environmental changes and stimuli in making career decisions around the 'three ways of knowing'. For example, it may be that people are more likely to take action around 'knowing-why' with reference to family changes, such as having a child, which may see them adjusting their career goals and working from home more often. 'Knowing-how' actions may be more likely to be in response to a change in organisational strategy, where an individual may take up a course of study in response to a business focus on a new line of product. Therefore the 'Chameleon Career' metaphor could help in understanding and predicting the types of career actions which may be taken in response to different contextual events.

CONCLUSION

This study aimed to investigate the concept of boundaryless careers and, in doing so, to provide a framework for individual and organisational career development initiatives in today's dynamic global environment. Overall, the findings indicate that using the 'three ways of knowing' framework can lead to positive benefits at an individual and perhaps an organisational level. The framework may have greater applicability to our diverse society than more traditional career development frameworks, particularly as it can take into account changing priorities and contexts. For this reason the boundaryless career metaphor may no longer be relevant to the contemporary career landscape; the Chameleon Career metaphor may better reflect the complex tapestry of micro and macro factors against which individuals and organisations must constantly adapt.

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APPENDICES

Appendix 1: Information sheet and questionnaire

Appendix 1.1
Information Sheet

[Massey University Logo]
You and Your Career Style
In my role on the Organisational Development team in Telecom HR I talk to a lot of people about their careers. I think that most people have different approaches to their careers. I think that by getting a better understanding of the way people approach their careers, we build and improve on existing organisational initiatives (like career development workshops or internal recruitment policy).
I have decided to investigate this further as my thesis topic for my Masters in Psychology at Massey University.
The following information should give you a good idea about the research I am conducting, but if you do have any questions at any stage please contact me:
Charlotte Boyd
[redacted]
[redacted]
Or my supervisor at Massey University:
Stuart Carr
+64 9 414 0800 x9073
S.C.Carr@massey.ac.nz

Because I think that people have unique approaches to their career, I would like to invite everyone at Telecom to participate in my research. I have put the questionnaire in an online format with a link from our intranet. The questionnaire consists of 39 questions and will take about 20 minutes to fill out. Participation is, of course, completely voluntary. I am interested in your approach or style when it comes to your career, so there are no correct answers.
What happens to my responses?
Your responses are confidential. After you fill in the online questionnaire your responses will be grouped with all the other people who respond - I will look at the information at a group level rather than focusing on your individual answers. I will only use this data for my Masters research – the individual data will not be available for use by Telecom.
I will analyse results at a group level and summarise my overall findings for you as a participant as well as for Telecom. I will publish the findings on the Telecom intranet, otherwise you can get in touch with me after July and I will happily provide you with this.
Please note:

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- *decline to answer any particular question;*
- *if you choose to provide your email address you can withdraw from the study (before May 1st 2006). If you complete the questionnaire without filling in your email details then completion and return of the questionnaire implies consent.*
- *ask any questions about the study at any time during participation;*
- *provide information on the understanding that your name will not be used unless you give permission to me as the researcher;*
- *be given access to a summary of the project findings when it is concluded.*

This project has been reviewed and approved by the Massey University Human Ethics Committee, ALB Application MUAHEC 05/087. If you have any concerns about the conduct of this research, please contact Professor Kerry Chamberlain, Chair, Massey University Campus Human Ethics Committee: Albany, telephone 09 414 0800 x9078, email humanethicsalb@massey.ac.nz.

Please print the above information and keep for your reference.

Appendix 1.2
Questionnaire, including with coding information

When responding to the questions below please be as honest as you can - there are no right or wrong answers. Think about your career in the broadest sense: think about work (e.g. this job and all previous jobs; voluntary and community work) and non-work (e.g. home life).

Item	Question – To what extent have you actually invested (through time, effort, focus, or other purposeful actions) in each of the following areas in your career to date?	Rating 1 – no investment 2 –little investment 3 – some investment 4 – considerable investment 5 – significant investment
kwhy1	1. Having jobs that are consistent with my core values (examples of core values may be integrity, learning, independence, helping others, etc)	
kwhy2	4. Getting my work-life balance right for me	
kwhy3	7. Having a job which motivates me (e.g. a job which I enjoy or inspires me to do my best)	
kwhy4	10. Incorporating my values and interests into my job	
kwhy5	13. Doing what I am really good at	
Kwhat1	2. Gaining qualifications (both academic and job related)	
Kwhat2	5. Taking advantage of opportunities to build my skills	
Kwhat3	8. Gaining lots of relevant experience	
Kwhat4	11. Increasing my career related knowledge	
Know_what5	14. Seeking out career related training and development	
Kwhom1	3. Developing relationships which provide me with the support I need (e.g. mentors and role models at work, or friendships/networks outside of work)	
Kwhom2	6. Getting to know the 'right' people (e.g people who are important or could have a positive influence on my career)	
Kwhom3	9. Building my reputation (e.g. so that people see me as having influence or expertise in a given area)	
Kwhom4	11. Extending my work-related networks	
Kwhom5	15. Establishing connections with others in my industry/ profession	

Objective Career Success

Name	Question	Rating	Data Clean
Ascendancy	Please indicate the total number of promotions (any increases in job level and/or significant increases in job responsibilities or job scope) that you have received in your career.	0 to 1 2 to 4 5 to 7 8 to 10 10 and over	1 2 3 4 5
Pay	Please indicate your total remuneration for the last year (including base pay, short term incentives, long term incentives, shares, and other benefits).	Under 40,000 40,000 – 60,000 Over 60,000 – 80,000 Over 80,000- 100,000 Over 100,000 - 200,000 Over 200,000	1 2 3 4 5 6
Performance	Please indicate your performance rating from the past year:	Developing Outstanding Exceeds Expectations Met Met Most Requires Improvement	0 5 4 3 2 1

Subjective Career Success

Name	Question - Please indicate the extent to which you agree or disagree with each of the following statements regarding your career.	Rating 1 – strongly agree 2 - agree 3 – neither agree nor disagree 4 - disagree 5- strongly disagree
Sat1	I am satisfied with the success I have achieved in my career	
Sat2	I am satisfied with the progress I have made towards meeting my overall career goals	
Sat3	I am satisfied with the progress I have made towards meeting my goals for income	
Sat4	I am satisfied with the progress I have made towards meeting my goals for advancement	
Sat5	I am satisfied with the progress I have made towards meeting my goals for the development of new skills	

Perceived Opportunities for Mobility

Name	Question	Rating 1 – strongly agree 2 - agree 3 – neither agree nor disagree 4 - disagree

		5- strongly disagree
In_mob1	Telecom views me as an asset to the organisation	
In_mob2	Given my skills and experience, Telecom views me as a value-added resource	
In_mob3	There are many opportunities available for me at Telecom	
Ex_mob1	I could easily obtain a comparable job with another employer	
Ex_mob2	There are many jobs for me outside of Telecom, given my skills and experience	
Ex_mob3	Given my skills and experience, other organisations would view me as a value-added resource	

Intention to Leave

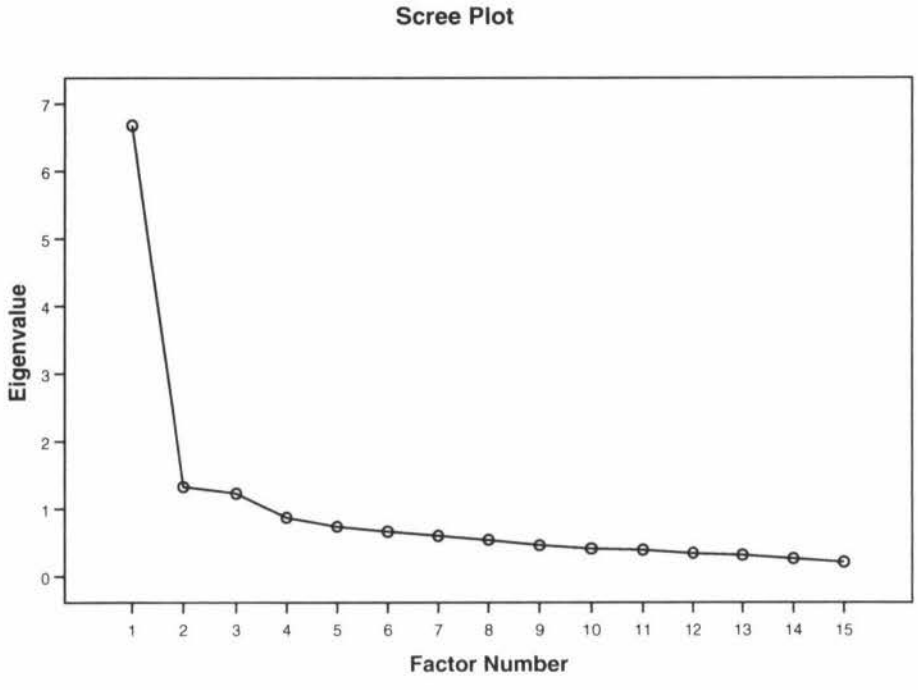
Name	Question	Rating 1 - strongly agree 2- agree to some extent 3- uncertain 4- disagree to some extent 5- strongly disagree	Data Clean
Leave1	If I have my own way, I will leave Telecom to work in another organisation one year from now		
Leave2	One year from now, it is likely that I will still be at Telecom		Reverse score
Leave3	It is unlikely that I will actively search for a new job in another organisation during the next 12 months		Reverse score
Leave4	I am planning to search for a new job during the next 12 months		
Leave5	I am thinking of leaving Telecom to work elsewhere		

Demographic Questions

Name	Question	Rating	Data Clean
Gender	Please indicate your gender	Male Female	Male = 0 Female = 1
Age	Please indicate your age	Select Years Less than 20 Actual numbers 21-60 Over 60	Less than 20 =19 Over 60 = 61
Work_experience	How many years of work experience do you have (in a full time role)?	Select Years Less than 1 Actual years 1-40 Over 40	Less than 1 =0 Over 40 = 41
Education	Please indicate your highest level of	Secondary School Polytechnic or other	1 2

	education	qualification University undergraduate University Postgraduate	3 4
Functional	Which of the following functional areas best describes your role?	Administration/ Support Customer services Finance Human Resources Legal Marketing Sales Strategy Technology	

Appendix 2: Scree Plot of factor analysis for career competencies



Appendix 3: Fit indices for career competency measure

Appendix 3.1
Fit indices for career competencies with Random Group 2

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	27	112.020	51	.000	2.196
Saturated model	78	.000	0		
Independence model	12	1252.723	66	.000	18.981

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.046	.936	.903	.612
Saturated model	.000	1.000		
Independence model	.315	.402	.293	.340

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.911	.884	.949	.933	.949
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.773	.704	.733
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	61.020	34.216	95.563
Saturated model	.000	.000	.000

Model	NCP	LO 90	HI 90
Independence model	1186.723	1075.491	1305.356

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.412	.224	.126	.351
Saturated model	.000	.000	.000	.000
Independence model	4.606	4.363	3.954	4.799

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.066	.050	.083	.053
Independence model	.257	.245	.270	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	166.020	168.730	263.476	290.476
Saturated model	156.000	163.830	437.539	515.539
Independence model	1276.723	1277.928	1320.037	1332.037

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.610	.512	.737	.620
Saturated model	.574	.574	.574	.602
Independence model	4.694	4.285	5.130	4.698

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	167	188
Independence model	19	21

Appendix 3.2
Fit indices for career competencies with full data set

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	27	214.708	51	.000	4.210
Saturated model	78	.000	0		
Independence model	12	2648.640	66	.000	40.131

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.045	.938	.905	.613
Saturated model	.000	1.000		
Independence model	.315	.392	.281	.331

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.919	.895	.937	.918	.937
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.773	.710	.724
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	163.708	122.179	212.795
Saturated model	.000	.000	.000
Independence model	2582.640	2417.999	2754.609

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.379	.289	.215	.375
Saturated model	.000	.000	.000	.000
Independence model	4.671	4.555	4.265	4.858

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.075	.065	.086	.000
Independence model	.263	.254	.271	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	268.708	269.975	385.945	412.945
Saturated model	156.000	159.661	494.685	572.685
Independence model	2672.640	2673.204	2724.746	2736.746

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.474	.401	.560	.476
Saturated model	.275	.275	.275	.282
Independence model	4.714	4.423	5.017	4.715

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	182	205
Independence model	19	21

Appendix 3.3
Fit indices for career competencies second order model

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	27	214.708	51	.000	4.210
Saturated model	78	.000	0		
Independence model	12	2648.640	66	.000	40.131

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.045	.938	.905	.613
Saturated model	.000	1.000		
Independence model	.315	.392	.281	.331

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.919	.895	.937	.918	.937
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.773	.710	.724
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	163.708	122.179	212.795
Saturated model	.000	.000	.000
Independence model	2582.640	2417.999	2754.609

FMIN

Model	FMIN	F0	LO 90	HI 90

Model	FMIN	F0	LO 90	HI 90
Default model	.379	.289	.215	.375
Saturated model	.000	.000	.000	.000
Independence model	4.671	4.555	4.265	4.858

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.075	.065	.086	.000
Independence model	.263	.254	.271	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	268.708	269.975	385.945	412.945
Saturated model	156.000	159.661	494.685	572.685
Independence model	2672.640	2673.204	2724.746	2736.746

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.474	.401	.560	.476
Saturated model	.275	.275	.275	.282
Independence model	4.714	4.423	5.017	4.715

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	182	205
Independence model	19	21

Appendix 4: Fit indices for career success

Appendix 4.1
Fit indices for career success first order model

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	34	236.171	71	.000	3.326
Saturated model	105	.000	0		
Independence model	14	4248.124	91	.000	46.683

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.066	.943	.916	.638
Saturated model	.000	1.000		
Independence model	.402	.374	.278	.324

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.944	.929	.960	.949	.960
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.780	.737	.749
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	165.171	122.319	215.629
Saturated model	.000	.000	.000
Independence model	4157.124	3947.406	4374.101

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.417	.291	.216	.380
Saturated model	.000	.000	.000	.000
Independence model	7.492	7.332	6.962	7.714

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.064	.055	.073	.005
Independence model	.284	.277	.291	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	304.171	306.019	451.803	485.803
Saturated model	210.000	215.707	665.923	770.923
Independence model	4276.124	4276.885	4336.913	4350.913

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.536	.461	.625	.540
Saturated model	.370	.370	.370	.380
Independence model	7.542	7.172	7.924	7.543

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	221	244
Independence model	16	17

Appendix 4.2
Fit indices for career success second order model

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	32	239.787	73	.000	3.285
Saturated model	105	.000	0		
Independence model	14	4248.124	91	.000	46.683

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.069	.943	.918	.656
Saturated model	.000	1.000		
Independence model	.402	.374	.278	.324

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.944	.930	.960	.950	.960
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.802	.757	.770
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	166.787	123.633	217.549
Saturated model	.000	.000	.000
Independence model	4157.124	3947.406	4374.101

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.423	.294	.218	.384

Model	FMIN	F0	LO 90	HI 90
Saturated model	.000	.000	.000	.000
Independence model	7.492	7.332	6.962	7.714

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.063	.055	.072	.007
Independence model	.284	.277	.291	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	303.787	305.526	442.735	474.735
Saturated model	210.000	215.707	665.923	770.923
Independence model	4276.124	4276.885	4336.913	4350.913

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.536	.460	.625	.539
Saturated model	.370	.370	.370	.380
Independence model	7.542	7.172	7.924	7.543

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	223	246
Independence model	16	17

Appendix 5: Fit indices for intention to leave

Appendix 5.1
Initial intention to leave fit indices with full data set

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	10	88.277	5	.000	17.655
Saturated model	15	.000	0		
Independence model	5	2199.703	10	.000	219.970

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.054	.943	.829	.314
Saturated model	.000	1.000		
Independence model	1.072	.330	-.005	.220

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.960	.920	.962	.924	.962
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.500	.480	.481
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	83.277	56.439	117.550
Saturated model	.000	.000	.000
Independence model	2189.703	2039.204	2347.537

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.156	.147	.100	.207
Saturated model	.000	.000	.000	.000
Independence model	3.880	3.862	3.596	4.140

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.171	.141	.204	.000
Independence model	.621	.600	.643	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	108.277	108.490	151.698	161.698
Saturated model	30.000	30.321	95.132	110.132
Independence model	2209.703	2209.810	2231.413	2236.413

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.191	.144	.251	.191
Saturated model	.053	.053	.053	.053
Independence model	3.897	3.632	4.176	3.897

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	72	97
Independence model	5	6

Appendix 5.2
Fit indices for intention to leave respecified model, excluding item 2

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	8	27.816	2	.000	13.908
Saturated model	10	.000	0		
Independence model	4	1608.127	6	.000	268.021

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.040	.977	.887	.195
Saturated model	.000	1.000		
Independence model	1.091	.391	-.016	.234

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.983	.948	.984	.952	.984
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.333	.328	.328
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	25.816	12.340	46.724
Saturated model	.000	.000	.000
Independence model	1602.127	1473.961	1737.649

FMIN

Model	FMIN	F0	LO 90	HI 90

Model	FMIN	F0	LO 90	HI 90
Default model	.049	.046	.022	.082
Saturated model	.000	.000	.000	.000
Independence model	2.836	2.826	2.600	3.065

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.151	.104	.203	.000
Independence model	.686	.658	.715	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	43.816	43.958	78.553	86.553
Saturated model	20.000	20.178	63.421	73.421
Independence model	1616.127	1616.198	1633.495	1637.495

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.077	.054	.114	.078
Saturated model	.035	.035	.035	.036
Independence model	2.850	2.624	3.089	2.850

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	123	188
Independence model	5	6

Appendix 6: Fit indices for Model 4, including age

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	73	1297.420	423	.000	3.067
Saturated model	496	.000	0		
Independence model	31	9550.911	465	.000	20.540

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.399	.874	.852	.745
Saturated model	.000	1.000		
Independence model	.522	.321	.276	.301

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.864	.851	.904	.894	.904
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.910	.786	.822
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	874.420	769.778	986.663
Saturated model	.000	.000	.000
Independence model	9085.911	8771.550	9406.656

FMIN

Model	FMIN	F0	LO 90	HI 90

Model	FMIN	F0	LO 90	HI 90
Default model	2.288	1.542	1.358	1.740
Saturated model	.000	.000	.000	.000
Independence model	16.845	16.025	15.470	16.590

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.060	.057	.064	.000
Independence model	.186	.182	.189	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1443.420	1452.153	1760.395	1833.395
Saturated model	992.000	1051.335	3145.692	3641.692
Independence model	9612.911	9616.619	9747.516	9778.516

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.546	2.361	2.744	2.561
Saturated model	1.750	1.750	1.750	1.854
Independence model	16.954	16.400	17.520	16.961

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	207	216
Independence model	31	32