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**People Matters: Attracting knowledge workers to technology start-ups (TSUs)
in South Africa**

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ABSTRACT

Companies within the high-technology industry are largely dependent on a specialised knowledge base to make advances in technological innovations and maintain a competitive advantage. Technology start-ups (TSUs) have limited resources and face various organisational challenges which place them at a disadvantage in the recruitment of skilled knowledge workers. This research investigates the factors which attract highly skilled knowledge workers to technology start-ups (TSUs) in South Africa, despite their numerous challenges.

This study used a mixed method design involving 129 knowledge workers. Exploratory interviews were conducted in the first phase to investigate which factors attracted knowledge workers to TSUs. An Adaptive Choice-Based Conjoint (ACBC) experiment in the second phase tested the relative importance of the attributes that were identified during the interviews and in the literature.

The findings revealed that intellectual challenge and financial package were the most important individual attributes while non-financial job attributes were most important overall. Different preferences existed between genders although not between job types. The entrepreneurial aspirations of the knowledge worker were also found to be a significant factor in their attraction to a TSU. Recommendations are made to TSUs for recruiting talent based on the findings.

KEYWORDS

Knowledge Workers, Recruitment, Employer Branding, Technology Start-ups

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

..... **Date:** 1 August 2011

Colin Daniels

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1. INTRODUCTION TO RESEARCH PROBLEM

1.1 RESEARCH PROBLEM

This research investigates the factors which attract highly skilled knowledge workers to technology start-ups (TSUs), despite their numerous challenges and limited financial resources.

1.2 PURPOSE

The purpose of this study is to investigate which factors attract knowledge workers to TSUs and to determine which job attributes, whether financial or non-financial, are most important to them.

The rationale for executing this research project is based on the theory that entrepreneurship has always been a vital ingredient in stimulating economic growth. However, in order for start-ups to be sustainable, they need to be able to recruit skilled workers and to compete with larger corporations that have better access to resources. The competition between companies for skilled workers is known as the 'war for talent' that has intensified in most parts of the world due to the spread of globalisation.

The findings of this research are particularly relevant to South Africa where a scarcity of skills and a high unemployment rate has restricted economic growth and where technology entrepreneurship is still an under-researched discipline. The South African government has acknowledged the important role that small businesses play in the economy by making billions of Rands in funding

available to support small businesses. It is envisaged that the findings will help to grow the body of knowledge in this field and that they will serve as a platform for further research.

The research objectives are as follows:

- Identify the main job attributes that attract knowledge workers to TSUs
- Confirm whether financial or non-financial attributes overall are more important to knowledge workers
- Determine whether individual differences between knowledge workers, such as job type and gender, affect their work preferences
- Establish whether any of the unique characteristics of start-ups attract certain types of knowledge workers

1.3 BACKGROUND

The most valuable assets of a 20th-century company were its production equipment. The most valuable asset of a 21st-century institution, whether business or non-business, will be its knowledge workers and their productivity (Drucker, 1999, p. 135).

The majority of new organisations had a very short life expectancy with just over half surviving eighteen months and only one quarter making it to six years (Van de Ven, Hudson, & Schroeder, 1984, p. 87). This high failure rate was largely attributed to the fact that start-ups typically had limited resources and faced greater challenges than mature organisations (Mazdeh, Moradia, & Mazdeh, 2010). Their small size and “newness” were significant liabilities and these factors impeded the recruitment process and made it difficult to attract human capital (Stinchcombe, 1965).

A study by Mehta (1996) found that 25 per cent of small businesses in the United States regarded a lack of skilled workers as a major threat, not only to their growth strategy, but also to their long-term survival. Brush, Greene, and Hart (2001) contended that, "attracting resources into a fledgling venture is perhaps the greatest challenge faced by entrepreneurs" (p. 71). Katz, Aldrich, Welbourne, and Williams (2000) were more specific when they claimed that a company's human resources was its greatest asset and ultimately would "spell success or failure for all firms, especially entrepreneurial ones" (p. 7). There was consensus amongst entrepreneurs and academic scholars that the recruitment of talented and highly skilled workers was a critical success factor for any start-up, especially in the high technology industry where knowledge was a key driver of innovation.

Despite the fact that human capital was at least as important as financial capital, we know relatively little about the dynamics of attracting skilled knowledge workers to small firms, which are unique and have different human resource challenges compared to mature organisations (Cardon & Stevens, 2004). This was partly due to the fact that existing academic research on how firms acquired resources had focused almost exclusively on financial resources. Therefore, it was important that new research was conducted that focused specifically on how small firms acquired knowledge workers.

An important difference between knowledge workers and traditional workers was that they were attracted to different job attributes and benefits. The findings from several focus groups and interviews conducted by InformationWeek, a

news resource for information technology (IT) professionals and business managers, suggested that non-financial attributes ranked higher amongst knowledge workers in the IT industry than financial attributes. This was part of a shift in value systems in the knowledge economy where the most critical pull factors for knowledge workers included “job challenge and responsibility, a flexible work schedule, and even job stability, all of which outrank base pay and benefits” (Florida, 2000). Similarly, Despres and Hiltrop (1995) argued that the traditional approach to compensation was no longer appropriate in a post-industrial knowledge economy and as such, “the ideal knowledge-age compensation programme should address the full range of factors that affect the individual’s performance, rather than only financial considerations and extrinsic sources of motivation such as cash and cash equivalents” (p. 20).

While start-ups faced serious challenges due to their size and limited access to resources, there were potentially many advantages to working at a start-up compared to a large corporation. Some of these advantages included: flexible working hours, high levels of job satisfaction, added responsibility, flat reporting structures, hands-on business experience, and lucrative employee equity packages.

Start-ups could significantly improve their chances of attracting the best talent by firstly, exploiting their strengths and minimising their weaknesses and secondly, through a better understanding of the job attributes and benefits that were most important to highly skilled workers. This could contribute to a

reduction in the start-up failure rate and ultimately, a more competitive economy.

1.4 SCOPE

The scope of this research paper is limited to the discussion and analysis of factors relevant to the recruitment of skilled knowledge workers at TSUs. The research is approached from an employer's perspective.

The findings are not applicable to semi-skilled or unskilled workers or to knowledge workers outside of the high-technology industry. Furthermore, while attraction and retention theory share the same body of knowledge, this study is concerned with how to attract knowledge workers and not how to retain them.

Finally, the study focuses only on knowledge workers and TSUs based in the Republic of South Africa, therefore the findings are not generalisable to knowledge workers in other countries. This is identified as an area for future research.

1.5 CONCLUSION

The 'war for talent' was fuelled by a combination of factors, including the global skills shortage and the additional demand that was placed on acquiring human capital in the knowledge economy. The high-technology industry felt this impact the most, especially since knowledge and innovation were inextricably linked. As a result, technology companies required a specialised knowledge base in order to maintain a competitive advantage. TSUs faced an even greater

challenge as they competed with large corporations that had better access to resources and the recruitment of highly skilled employees could thus best be described as a ‘war of survival’. While previous academic research in this area was valuable, it focused predominantly on resource acquisition in large firms and as a result, we knew relatively little about attracting skilled knowledge workers to start-ups, which had unique characteristics. Finally, compensation methods for knowledge workers in the technology industry were unique and extremely complex and as such, there was a definite need for this area to be investigated further.

In this chapter, the purpose of this research and its relevance to both local and international stakeholders was explained. The next chapter contains the literature review where critical aspects of this research within the current body of knowledge will be identified and discussed.

2. LITERATURE REVIEW

The previous chapter provided a brief synopsis of the research problem and outlined the specific research objectives. In this chapter, the literature review will clarify the research question and puts forward a detailed argument as to why this research is needed by drawing from supporting literature.

2.1 INTRODUCTION

This chapter is divided into six major sections. The first section provides a definition for ‘technology start-ups’ and discusses the five growth stages of a business. The second section introduces the concept of the ‘knowledge-based economy’ and describes the fundamental role that knowledge plays in the global economy. The third section defines ‘knowledge workers’ and explains why they are widely considered to be a company’s ‘greatest asset’. The fourth section identifies the job attributes and benefits that are most important to highly skilled knowledge workers and explains why this is influenced by individual differences between knowledge workers. This section also discusses the significant role that start-ups play in entrepreneurship by training new entrepreneurs and why this is a competitive advantage. The fifth section explores a relatively under-researched area, namely the strategies that small firms use to recruit talented knowledge workers. Three recruitment strategies that have been found to be particularly effective are identified in this section. Finally, the sixth section describes how firms can become preferred employers and consequently, how they can attract knowledge workers by converting their weaknesses into strengths with the aid of an employee value proposition (EVP).

2.2 TECHNOLOGY START-UPS

2.2.1 DEFINITION OF A START-UP

Start-ups were credited with employing the bulk of the national labour force in most countries and they consequently drove innovation and competition within the global economy (Colombo & Grilli, 2010). However, a universal definition of a ‘start-up’ or ‘small business’ was not available since small businesses were classified according to a myriad of attributes such as financial turnover, age, number of employees, and industry code (Van de Ven et al., 1984; Krakoff & Fouss, 2008).

The most appropriate definition of a small business for the purposes of this study is the version used by the *South African National Small Business Act 1996*, which defined a “small business” as “a separate and distinct business entity, including co-operative enterprises and non-governmental organisations, managed by one owner or more which, including its branches or subsidiaries, if any, is predominantly carried on in any sector or subsector of the economy” (Republic of South Africa, 1996).

The *South African National Small Business Act 1996* classified businesses according to sector, size (micro, very small, small, medium), number of full-time employees, and total asset value. Table 1 illustrates the criteria that were used in this research to classify technology start-ups in South Africa.

Table 1: Classification of small enterprises adapted from the *National Small Business Amendment Act (2003)*

| Size or class | No. of employees | Total annual turnover | Total asset value |
|---------------|------------------|-----------------------|-------------------|
| Micro | 5 | R0.2 million | R0.1 million |
| Very Small | 20 | R3 million | R0.5 million |
| Small | 50 | R13 million | R3 million |

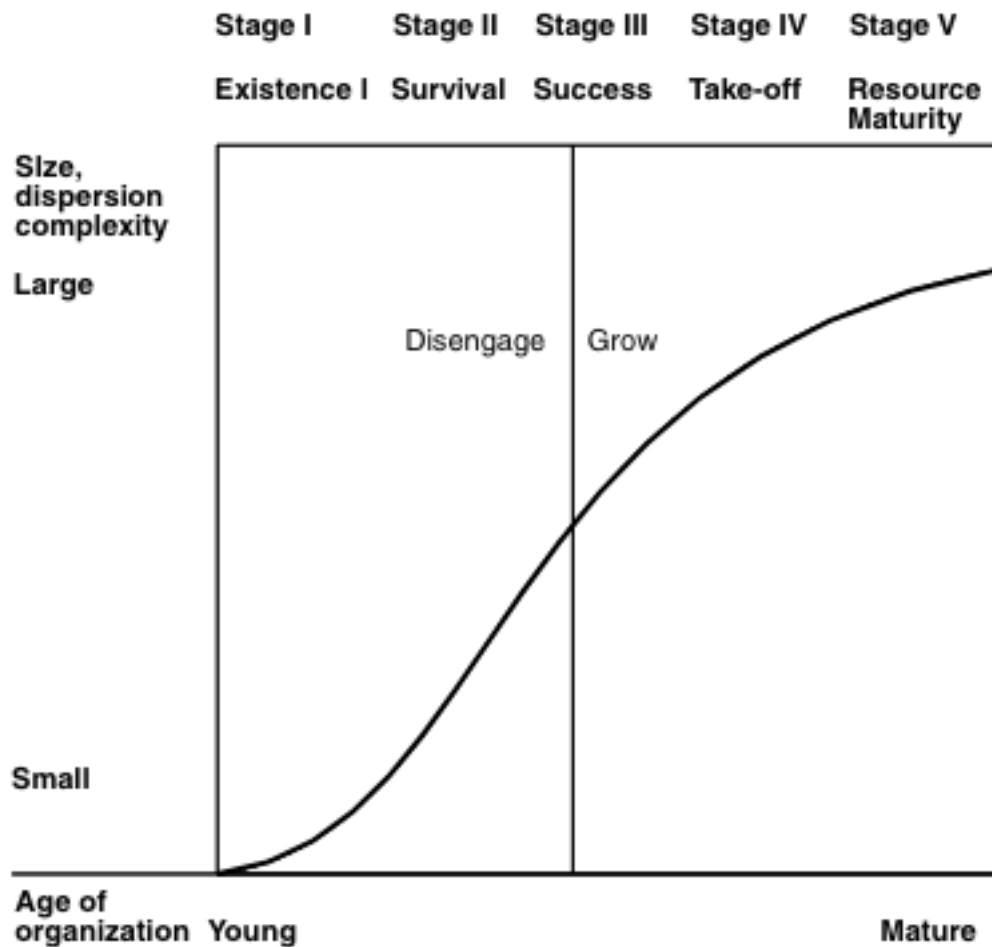
Therefore, a technology start-up in this research was defined as any entity that consisted mainly of persons carrying on small business concerns in the information technology (IT) sector that met all of the following criteria:

- Employed between one and 50 full-time employees;
- Had an annual turnover of between R0.2 million and R13 million;
- Operated within Stage I (Existence), Stage II (Survival), or Stage III (Success) of Churchill and Lewis’s (1983) “Growth Stages” framework.

2.2.2 THE FIVE STAGES OF SMALL BUSINESS GROWTH

Churchill and Lewis (1983) developed a framework that depicts the five stages of growth that most small businesses move through in sequential order. This framework is shown in Figure 1 and was widely used by scholars of entrepreneurship as a point of reference to analyse small businesses and conduct research on areas that were unique to a particular growth stage.

Figure 1: The five growth stages of a business (Churchill & Lewis, 1983)



Each of the five stages was characterised by differences in size, diversity, and complexity as well as several management factors; namely, managerial style, organisational structure, extent of formal systems, major strategic goals, and the founder(s)' involvement in the business. Churchill and Lewis (1983) stressed that not all businesses went through each and every stage of the framework and some may even have remained in a certain stage indefinitely or moved down stages. A summary of the five stages is as follows:

Stage I (Existence): The business was still in its infancy and heavily reliant on the founder(s) who performed most of the functions within the company.

Systems and formal planning were almost nonexistent and the company's vision was simply one of survival. The main challenges revolved around acquiring customers and delivering the respective product or service. In this stage, businesses were at their most vulnerable and often liquidated once the start-up capital was depleted.

Stage II (Survival): The business had demonstrated sufficient market potential. It still relied heavily on the founder(s), but there were a small number of full-time employees who performed specific functions within the organisation. System development and formal planning were still simplistic. The primary focus was on cash flow and remaining cash positive in order to finance future growth and justify the return on effort. Many businesses did not progress past the Survival stage, and eventually closed when the founder(s) retired. An example of this was a 'lifestyle business' where the founder(s) generated enough profit to sustain their desired lifestyle but had little intention of growing the business any further.

Stage III (Success): The business had managed to maintain a steady cash flow and generated profits that had allowed it to grow. Professional managers and full-time staff had been hired to relieve the founder(s) of many of their duties, and basic financial systems and marketing plans had been implemented. The founder(s) were faced with the dilemma of whether to continue re-investing capital in the business for continued growth or to maintain the business at current levels.

Stage IV (Take-off): The business had achieved great success but was now pre-occupied with finding a solution to the problem of how to expand rapidly and finance this growth. The organisation was decentralised and systems were more refined and extensive. This was a critical stage in the company's lifecycle and the founder(s)' course of action would ultimately determine how large the company would become.

Stage V (Resource Maturity): The business had reached the final growth stage and enjoyed the benefits of size, financial resources, and human capital. Sophisticated systems were in place and the company had the necessary resources to perform detailed operational and strategic planning. By this stage the founder(s) were operationally and financially removed from the business. The main challenges included managing rapid growth and remaining agile.

2.3 THE KNOWLEDGE-BASED ECONOMY

The origins of the knowledge-based economy, or KBE, date back to the 1980's when it emerged as the dominant, post-industrial economic development model. It emphasised the importance of knowledge creation and distribution as a primary driver of economic growth at a time when the U.S. economy was in the midst of a severe recession and traditional industries were looking for solutions to improve inefficiencies (Harris, 2001). Subsequently, 'knowledge' became the most meaningful economic resource in the 'knowledge age' and a company's knowledge base was its greatest asset – arguably more valuable than physical capital (Drucker, 1993; Switzer, 2008).

For the last three decades of the 20th century, firms concentrated on building their internal capabilities and establishing an internal ‘knowledge base’ in the hope that it would drive innovation and hand them a competitive advantage due to the fact that most competitive advantages in the 21st century were believed to be intangible, as numerous sources indicated (Carter & Scarbrough, 2001; Alavi & Leidner, 2001; Edvinsson, 2002). Since a firm’s ‘knowledge base’ was essentially comprised of ‘human capital’ (Mrinalini & Nath, 2008, p. 45), it was imperative that it placed an emphasis on the recruitment and training of talented knowledge workers in order to maintain a competitive advantage and for continued growth (Meisinger, 2006). This was especially relevant to start-ups since, “the process of acquiring resources such as financial, physical, human, and intangible capital from others is commonly acknowledged to be a vital entrepreneurial task” (Martens, Jennings, & Jennings, 2007, p. 1108).

An important characteristic of knowledge was that it changed frequently and it may therefore have had a different market value on any given day, depending on various factors such as geographical location (Edvinsson, 2002). In order for a knowledge-based competitive advantage to be maintained, firms were obligated to continuously seek out new knowledge from across the globe, which in turn significantly increased their operating costs (Chen & Edgington, 2005; Mrinalini & Nath, 2008). It was therefore crucial that the specialist knowledge of a firm’s workforce was adequately transferred into its respective goods and services in order for it to be effective (Grant, 1996).

2.4 KNOWLEDGE WORKERS

Globalisation and the advent of the knowledge age gave rise to a new breed of specialist worker who thrived in a knowledge-based economy. Legendary management guru, Peter Drucker, coined the term “knowledge worker” in his seminal work entitled *Landmarks of Tomorrow* (Drucker, 1959). The term since became widely popularised and was commonly used, especially in the IT industry, to describe highly skilled specialists who had domain expertise and who were the custodians of intellectual capital within an organisation. Experts in the knowledge age tended to be specialists, whereas generalists became less important to mature organisations. According to Grant (1996), this was because the “human brain has limited capacity to acquire, store and process knowledge” (p. 112). The greatest implication for organisations was that they would only experience real gains in efficiency when their employees had specialised knowledge in a particular field.

Drucker (1959) argued that since specialised knowledge was the lifeblood of an organisation, highly skilled professionals were a company’s greatest asset and the main role therefore of a management team should be to focus on putting systems in place that provided knowledge workers with the necessary freedom to perform at their best. However, before any systems could be put in place, managers needed to have a firm grasp of knowledge workers’ distinctive personality traits and behaviours. “Knowledge workers are characterized by unique skills, mobility, [they] like non routine work, [are] results-oriented, self motivated and self confident and they are believed to be motivated by autonomy, personalized rewards, recognition, due respect, challenging work,

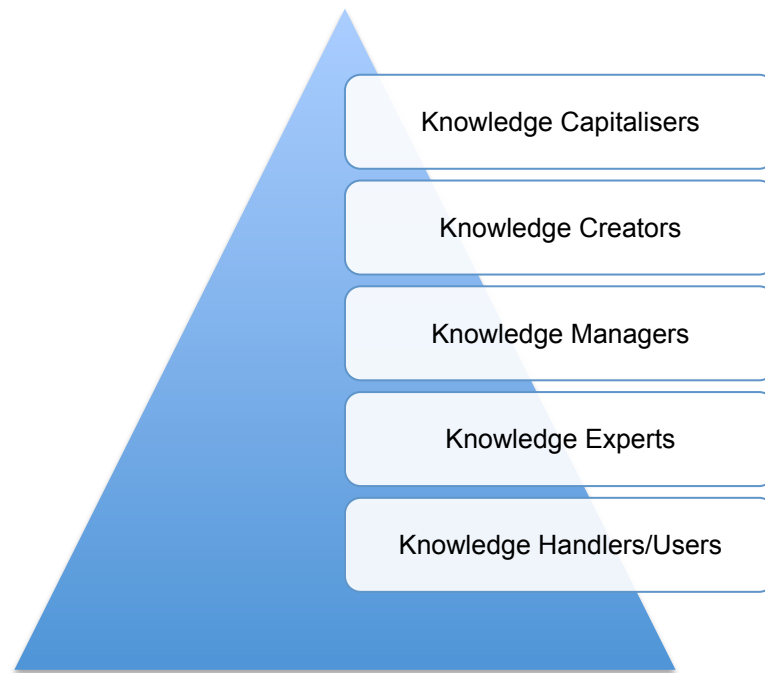
learning opportunities, career development opportunities, and better work environments” (Jalaldeen & Jayakody, 2006, p. 1). Horwitz, Heng, and Quazi (2003) concluded that knowledge workers had “the ability to observe, synthesise and interpret data, and to communicate new perspectives and insights that lead to more effective decisions, processes and solutions for the organisation” (p. 31).

Human resource management (HRM) emerged as a prominent discipline during the last few decades of the 20th century to accommodate the arrival of knowledge workers, who were more complex and difficult to motivate than traditional workers (Baron & Hannan, 2002). Chen and Edgington (2005) noted that it was the unique ability of knowledge workers to continuously adapt to change and to bring new information into organisations that distinguished them from traditional production-oriented workers. They also noted that a knowledge worker’s tasks typically included:

- Repetitive on-the-job processes, which in many cases were similar to traditional production work
- Sourcing of new information or knowledge, which often led to knowledge creation within the organisation

Brelade and Harman (2007) argued that the term ‘knowledge worker’ as a category of employee was too broad in its present context, which made it difficult, if not impossible, for firms to draft effective human resources and recruitment strategies. They therefore proposed a model that organised knowledge workers into different levels which is depicted in Figure 2.

Figure 2: Levels of knowledge worker (Brelade & Harman, 2007, p. 25)



Knowledge handlers/users were situated at the base of the pyramid and performed functions or roles that involved inputting information and generating outputs, which resulted in knowledge being utilised to deliver specific services. An example of a knowledge handler/user was a customer services associate in a call-centre environment where information inputs and outputs were used to resolve customer queries.

A knowledge expert is separated from a knowledge manager in the pyramid (although these two roles are often combined) since this level was used to describe a qualified professional who had a traditional vocation, such as an architect or engineer. The main difference between a knowledge expert and a knowledge manager was not remuneration, since it was possible for a knowledge expert to earn more than a knowledge manager, but rather the function that the employee performed within the organisation. A knowledge

manager essentially coordinated and managed the flow of information within an organisation through people and systems, whereas a knowledge expert was usually a consultant or contractor.

The final two levels at the top of the pyramid were reserved for knowledge creators and knowledge capitalizers. Knowledge creators were responsible for generating new ideas, which led to new products and services being developed within an organisation. Knowledge capitalizers, for example entrepreneurs, occupied the top level of the pyramid as they were defined by their ability to convert knowledge into financial or social wealth.

Edvinsson (2002) estimated that the vast majority of workers employed in the Swedish private sector could be categorised as 'knowledge-workers', since, "[i]n a high-tech modern factory, a cutting-machine supervisor is essentially a knowledge worker" (p. 73). While this may not be the case in all economies, especially in many parts of the developing world, the trend was moving towards knowledge work exceeding the production of capital goods in terms of gross national product in most developed economies (Chen & Edgington, 2005). Evidence of this was the dramatic increase in the amount of knowledge work that was 'offshored' to countries such as India and China (Brelade & Harman, 2007).

Drucker (1993) believed that the growth of the knowledge economy would eventually lead to at least one undesirable side effect: the formation of a second-class group of employees known as "service workers", who lacked the

necessary skills or education to become knowledge workers. “The social challenge of the post-capitalist society will thus be to ensure the dignity of service work and the service worker” (Drucker, 1993, p. 95).

In summary, the literature revealed that no standard definition for ‘knowledge work’ currently existed and neither did a robust method for identifying a ‘knowledge worker’. This was further complicated by the fact that scholars disagreed on the attributes that were broadly considered prerequisites for knowledge work, such as formal education, experience, and applied knowledge (Nickols, 2000). This study used a combination of education and work experience to define a ‘knowledge worker’ as considered most appropriate for the research. A ‘knowledge worker’ was therefore defined as somebody who:

- Held a tertiary qualification (degree or diploma)
- Had at least two years of work experience

Based on the above criteria, the following occupations were included in the knowledge worker definition for this study: managers, engineers, accountants, lawyers, financial analysts, system analysts, and programmers (Ramírez & Nembhard, 2004).

2.5 ATTRACTING AND MOTIVATING KNOWLEDGE WORKERS

Attracting, motivating, and retaining critical skills were the three most important functions of any human resources department. Motivation was defined in terms of ‘intrinsic’ and ‘extrinsic’ factors (Kohn, 1993). Intrinsic motivation referred to the levels of appreciation and enjoyment of the specified job function, whereas

extrinsic motivation referred to external factors such as rewards and compensation.

McGregor, Tweed, and Pech (2004) and Baron and Hannan (2002) discovered that knowledge workers were often more loyal to a specific project than to an organisation and were therefore more inclined to be intrinsically motivated by the intellectual stimulation of the job and the projects to which they were assigned. This had profound implications for attracting and retaining scarce skills as Kochanski and Ledford (2001) estimated that the cost to replace a research and development (R&D) knowledge worker was roughly three to six times more than to replace an administrative employee.

2.5.1 DIFFERENCES BETWEEN JOB TYPES

High technology companies were known to use different methods to attract and motivate employees compared to companies in other industries (Coombs & Gomez-Mejia, 1991; Diaz & Gomez-Mejia, 1997; Dockel, Basson, & Coetzee, 2006). For example, O'Neal, in Medcof and Rumpel (2006), surveyed over 500 North American and European business executives in various industries and discovered an overwhelming preference for financial incentives and benefits. Kochanski, Mastropolo, and Ledford (2003) on the other hand, found that work environment rewards (non-financial incentives) were more important than financial rewards to science and technology workers. More recently, Tumasjan, Strobel, and Welpel (2011) discovered statistical differences between the job attribute preferences of students with a business background compared to students with a technical background. Company shares, for example, were

more important to a higher percentage of students with a business qualification while team climate was more important to a higher percentage of students with a technical qualification (Tumasjan et al., 2011, pp. 11-12).

Switzer (2008) argued that as long as knowledge workers' basic financial needs were met, money lost its motivational appeal. This came from the fact that knowledge workers were generally found to be extremely self-confident and money was not as important as "their own career advancements and personal future needs" (Switzer, 2008, p. 24). Additionally, knowledge workers in the high technology industry had other distinctive characteristics such as "their strong achievement orientation, drive to succeed, willingness to take risks, tolerance for ambiguity, relatively weak allegiance to the employer and their high identification with the profession" (Medcof & Rumpel, 2007, p. 59). These characteristics distinguished them from traditional production-oriented workers and helped to explain why knowledge workers, particularly in the high technology industry, were not strictly motivated by financial job attributes and benefits, since they were more psychologically complex and had different value systems.

Kinnear and Sutherland (2000) noted that "knowledge workers reject traditional retention systems in favour of individualism, independence and personal achievement" (p. 111). As a result, retention strategies for knowledge workers should include the "freedom to act independently, financial reward and recognition, developmental opportunities and access to leading edge technology" (Kinnear & Sutherland, 2000, p. 111).

Horwitz et al. (2003) found that challenging work environments and the support of senior management were both important factors in motivating knowledge workers, as was having access to cutting-edge technology in IT environments. Baron and Hannan (2002) supported these findings in their study of 200 high-technology start-ups and discovered that working with cutting edge technology and being positioned at the curve of the “technological frontier” were important motivational drivers for technical workers (p. 10).

2.5.2 WORK-LIFE CONFLICT AND GENDER

Simons in Sutherland, Torricelli, and Karg (2002) found that work environment, work culture, and a healthy work-life balance were more important than money in attracting knowledge workers to an organisation. This was consistent with research by Martins, Eddleston, and Veiga (2002) who discovered a negative relationship between work-family conflict and career satisfaction, especially amongst women and older men. The implication for organisations that did not promote a healthy work-life balance was that they would be less likely to attract and retain skilled knowledge workers who had strong family values, regardless of how lucrative the compensation package (Martins et al., 2002).

Gender differences were a strong theme in studies that found contrasting perceptions of the workplace and in the effectiveness of different incentive schemes for knowledge workers. Freeman (2003) discovered significant differences between the degrees of importance that males and females placed on organisational attributes, most notably, that women placed a greater importance on work–family balance and non-financial attributes such as

standard working hours, while a high starting salary was more important to men. Marini, Fan, Finley, and Beutel (1996) reported similar findings in their research on gender differences and job values and found that males placed a greater importance on "a job which provides you with a chance to earn a good deal of money," while females placed a greater importance on "a job that most people look up to and respect" (p. 57). Olson (2002) used Adam Smith's compensating wage theory to estimate that married women would accept a 20 per cent reduction in salary in exchange for better company perks and benefits.

Konrad, Corrigan, Lieb, and Ritchie (2000) conducted a meta-analysis of 31 studies related to job attribute preferences and concluded that, "men considered earnings and responsibility to be more important than women did, whereas women considered prestige, challenge, task significance, variety, growth, job security, good coworkers, a good supervisor, and the physical work environment to be more important than men did" (p. 108). Various studies over the last few decades supported the view that gender was a predictor of job attribute preferences and that women typically placed a greater importance on non-financial attributes, while men placed a greater importance on financial attributes (Bigoness, 1988; Major & Konar, 1984; Reif, Newstrom, & St Louis, 1976).

The differences that existed between job attribute preferences and genders could partly be explained by the fact that women, especially those with dependents, generally followed a career-and-family path rather than a traditional career path, which required them to make a trade-off between a

balanced work and family life in exchange for a lower salary and fewer career advancement opportunities (Honeycutt & Rosen, 1997). A valid explanation as to why financial attributes were more important to men was due to the fact that they were usually the primary breadwinners in a nuclear family and it was therefore their duty to ensure that the household was economically productive (Marini et al., 1996).

2.5.3 THE ATTRACTION OF A START-UP

Hyytinen and Maliranta (2008) stated that knowledge workers who had aspirations of starting their own business ventures would forgo financial benefits in order to work for innovative start-ups where they could receive hands-on business experience and work closely with the start-ups' founder(s). Gompers, Lerner, and Scharfstein (2005) referred to this as the "Fairchild view" of entrepreneurial spawning, named after Fairchild Semiconductors whose former-employees went on to start other companies such as Advanced Micro Devices (AMD), Intel, and National Semiconductor. According to the "Fairchild view", start-ups create entrepreneurs "by educating them about the entrepreneurial process and by exposing them to a network of entrepreneurs and venture capitalists" (Gompers et al., 2005, p. 577).

In many industry sectors, start-ups were credited with providing a 'fertile breeding ground' for aspiring entrepreneurs and several studies found that small firms produced new entrepreneurs more frequently than large firms (Parker, 2009; Hellmann, 2007; Klepper & Sleeper, 2005). Elfenbein, Hamilton, and Zenger (2010) used panel data containing a large sample of science and

engineering graduates from American universities in their research and found that entrepreneurs who had previously worked at small firms were much better managers and more successful in their ventures than their counterparts who came from larger firms. The opportunity to learn vital business skills and establish key relationships with potential clients and suppliers was therefore another important extrinsic factor, apart from job attributes, that explained why knowledge workers with entrepreneurial aspirations were attracted to start-ups.

2.6 RECRUITMENT STRATEGIES AT SMALL FIRMS

Most of the existing literature on recruitment strategies and procedures for attracting talented workers to organisations was based on research conducted at large corporations and it was therefore not generalisable to small firms, since they had unique barriers and challenges (Carroll, Marchington, & Earnshaw, 1999; Williamson, 2000). Consequently, there was an obvious need for research on human resource management (HRM) practises in small firms and the effectiveness of the strategies they employed to attract, motivate, and retain employees (Heneman III & Berkley, 1999).

Williamson, Cable, and Aldrich (2002) found that, relative to large organisations, small firms faced two main disadvantages in the recruitment process, namely the job seekers' organisational knowledge and organisational legitimacy. Organisational knowledge refers to how much information job seekers have available on a prospective employer, and this tended to be less readily available for smaller firms than larger firms. Job seekers often evaluated prospective employers on their reputation and standing in the industry, therefore

“organizational legitimacy refers to job seekers’ perceptions or assumptions that an organization is a desirable, proper, and appropriate employer, given the system of norms, values, and beliefs within an industry” (Williamson et al., 2002, p. 84).

Heneman III and Berkley (1999) examined the recruitment practices within 117 small businesses in the U.S. and their influence on four “attraction outcomes” (applicants/vacancy, days to fill, acceptance rate, and retention rate) and discovered that there was no ‘one-size-fits-all’ or preferred approach to recruitment. Ultimately, the methods they used varied according to the size of the firm, the industry in which it competed, and the existence of a formal HR department. However, the four incentives most commonly used for attracting applicants were: a flexible starting date, promotion opportunities, training and skills development, and part-time work, while the two most popular benefits were medical insurance and paid annual leave (Heneman III & Berkley, 1999, p. 66).

Robertson and O’Malley Hammersley (2000) also examined recruitment practises in small consulting firms and noted that they often placed more of an emphasis on how well suited the candidates were to their organisational culture rather than their actual work experience or qualifications. In addition, they found that these firms often sought “homogeneity” across the organisation, since they believed that this was an important component of the knowledge creation process (Robertson & O’Malley Hammersley, 2000, p. 246).

Horwitz et al. (2003) proposed three highly effective recruitment strategies for attracting knowledge workers to a firm:

- Offering a compensation package that included the option of a sign-on bonus and funded studies
- Implementing a targeted recruitment programme which attracted applicants who complemented the company culture
- Positioning the company as an employer of choice and filling vacancies internally where possible based on a career plan

The above strategies required the support of senior management and it was critical that they endorsed them in order for them to have a chance of being successful. Furthermore, the extent to which they were effective may have varied according to factors such as industry type and organisational strategy, thus there was no 'one-size-fits-all' approach. Powell (1984) discovered that while recruitment strategies played an important role in attracting talented workers to organisations, it was the job attributes that ultimately had the greatest impact on acceptance rates. Firms should therefore focus on constructing compelling job descriptions and employee benefits in order to increase their chances of attracting talent.

2.7 EMPLOYEE VALUE PROPOSITION

Baron and Hannan (2002) argued that, "as companies of all stripes fight the war for talent, they would be well advised to devote as much careful thought to building a brand in the labor market as they do in the product market" (p. 32). This strategy reinforced the importance of organisational legitimacy, which

Williamson et al. (2002) identified as one of the major disadvantages that small firms faced in the recruitment process compared to larger firms which tended to have stronger brands. It was therefore an area that small firms should address in order to become more competitive in the 'war for talent'.

Becoming a so-called 'employer of choice', which meant that employees aspired to work for a particular company even when they were presented with other employment options, was an effective strategy for building a firm's brand reputation in the labour market and for attracting talented knowledge workers. This could be achieved by offering a strong employee value proposition (EVP), which Kochanski and Ledford (2001) defined as "the total set of rewards that the company offers in exchange for continued employment and dedicated effort" (p. 33). Sutherland et al. (2002) argued that in order for a firm to be considered an 'employer of choice', it needed to provide "personal and career growth opportunities" for knowledge workers (p. 15). Employers should emphasise their EVP to prospective employees during the recruitment process, especially if the employees who they were trying to recruit had scarce skills or multiple job offers, since this often played a decisive role in their decision-making process.

While many large corporations included the EVP strategy in their recruitment practises, the concept was still relatively new to most small firms and it was seldom used effectively. This could partly be explained by the fact that most small firms lacked a formal HR department, which traditionally focused on recruitment, and they were unable to offer the same range of incentives and

benefits. Small firms also faced other challenges such as low organisational awareness and legitimacy, which placed them at a disadvantage in the marketing of the organisation to potential employees (Williamson et al., 2002).

According to Williamson et al. (2002), small firms should focus on the attributes and characteristics that made them unique in order to compete more effectively with large corporations. In other words, small firms should promote any characteristics that distinguished them from large firms, such as an entrepreneurial culture and flat-reporting structures, in order to build a distinctive employer brand. In addition to focusing on unique characteristics, Tumasjan et al. (2011) suggested that start-ups should also identify and market any distinctive job attributes, which could be done via inexpensive Internet social media channels and personal networks.

2.8 CONCLUSION

A review of the literature revealed that since the early 1980's, there was a global shift from an industrial economy to a knowledge-based economy, which in turn gave rise to a new type of employee known as the 'knowledge worker'. Knowledge workers were responsible for creating and exploiting new knowledge within an organisation and they were considered by many to be a firm's greatest asset, since knowledge could provide a company with a strong competitive advantage. This however, could only happen if the knowledge was effectively transferred into the firm's respective products and services. Consequently, the extent to which firms were successful in attracting, motivating, and retaining knowledge workers also influenced their long-term

survival prospects. This was especially true for start-ups, which were handicapped by limited resources and other unique recruitment challenges.

An important consideration for firms was that knowledge workers possessed unique character traits and they were attracted to different job attributes and benefits than traditional production-oriented or so-called “service workers”. These incentives shifted over time and made human resource management an extremely complex and constantly evolving discipline.

The literature also revealed that financial incentives, in isolation of work environment rewards, were not effective in attracting knowledge workers to an organisation, especially in the high technology industry where challenging work, a strong team environment, brand reputation, and access to cutting-edge technology, were all considered more important. The knowledge workers’ educational backgrounds and fields of specialisation were believed to influence their preference for specific job attributes. Studies found that knowledge workers in technical positions were more attracted to non-financial attributes, whereas knowledge workers in business positions were more attracted to financial attributes.

Gender was also found to be a strong predictor of job attribute preference due to the nature of the family structure and the different career paths that men and women traditionally followed. Numerous studies over the past few decades reported that women were more attracted to non-financial attributes, whereas men were more attracted to financial attributes.

Finally, the literature showed that start-ups played a leading role in developing entrepreneurship in society and there were many cases of successful entrepreneurs who were previously employed at a start-up. One of the key reasons why aspiring entrepreneurs joined a start-up before starting their own business venture was so that they could gain practical business experience and learn a range of different skills. This was a competitive advantage for start-ups since most corporate environments were rigid and highly specialised and therefore, not very attractive to aspiring entrepreneurs. Start-ups should capitalise on this competitive advantage by building a distinctive employer brand and constructing a strong employee value proposition (EVP) – one that emphasised their unique characteristics and differentiated them from larger firms. This would help them to become more successful in attracting talented knowledge workers.

In this chapter, the research question and the relevance of the research were established from supporting literature. The next chapter will define the specific purpose of this research and examine the research question and hypotheses.

3. RESEARCH HYPOTHESES

In the previous chapter, the research question and the relevance of the research were established from supporting literature. In this chapter, the purpose of this research will be summarised and the hypotheses will be examined.

3.1 INTRODUCTION

This study aimed to establish what attracted knowledge workers to TSUs by examining the importance of eight key job attributes (financial package, equity, career advancement, brand reputation, technology and innovation, people, intellectual challenge, and work schedule) and exploring the significance of individual differences in knowledge workers by testing several hypotheses that were developed from central themes in the literature.

3.2 HYPOTHESIS 1

Despres and Hiltrop (1995) argued that non-monetary rewards in the knowledge age were more important to knowledge workers today than they were to traditional workers in the past and therefore “compensation and reward systems must shift from objective and rational, to subjective and ‘soft’ performance measures” (p. 20). Research by Simons in Sutherland et al. (2002) and Kochanski et al. (2003) found that intellectual challenge outweighed financial attributes in terms of overall importance. This was because knowledge workers were more intrinsically motivated and self-confident than traditional production workers and they had different value systems. Therefore, as long as

their basic financial needs were met, money lost its motivational appeal (Switzer, 2008).

H₁: All else being equal, non-financial job attributes (career advancement, brand reputation, technology and innovation, people, intellectual challenge, and work schedule) are more important overall to knowledge workers that are attracted to TSUs than financial attributes (financial package and equity).

H₀: All else being equal, non-financial job attributes *are not* more important overall to knowledge workers that are attracted to TSUs than financial attributes.

3.3 HYPOTHESIS 2

Various studies have found that high technology companies used different methods to attract and motivate employees compared to other companies. The main reason was because technical workers tended to respond differently to incentives and reward programmes than other types of knowledge workers (Medcof & Rumpel, 2007; Diaz & Gomez-Mejia, 1997; Coombs & Gomez-Mejia, 1991). O'Neal in Medcof and Rumpel (2006) surveyed over 500 North American and European business executives in various industries and found an overwhelming preference for financial incentives and benefits while Kochanski et al. (2003) found that work environment rewards were more important than financial rewards to science and technology professionals in their study. Tumasjan et al. (2011) discovered statistical differences in the job attribute preferences of students with a business background compared to those with a

technical background. Company shares were more important to employees with a business qualification, whereas a strong team climate was found to be more important to employees with a technical qualification (Tumasjan et al., 2011, pp. 11-12). TSUs typically required both business and technical skills, so it was essential that any differences between job types were identified and tested in order for the research objectives to be accomplished.

H₂: The relationship between financial and non-financial job attributes and the attraction to a technology start-up is moderated by the knowledge worker's job type, such that knowledge workers in business-related positions will place a greater importance on financial attributes, whereas knowledge workers in technical positions will place a greater importance on non-financial attributes.

H₀: The knowledge worker's job type *does not* moderate the relationship between financial and non-financial job attributes and the attraction to a technology start-up.

3.4 HYPOTHESIS 3

A prevalent theme in the literature was that differences existed between male and female knowledge workers in terms of their preferences for job attributes and benefits. Men placed a greater importance on "a job which provides you with a chance to earn a good deal of money," while females placed a greater importance on "a job that most people look up to and respect" (Marini et al., 1996, p. 57). Konrad et al. (2000) did a meta-analysis of 31 studies on job attribute preferences and found that men were mostly concerned with earnings

and responsibility while women were mostly concerned with prestige, challenge, task significance, variety, growth, job security, co-workers, supervisors and the physical work environment. These differences were explained by the fact that women generally followed a career-and-family path and therefore preferred job attributes that provided them with a healthy work-life balance, whereas men typically followed a traditional career path and therefore tended to be more focused on career advancement and financial benefits (Honeycutt & Rosen, 1997; Marini et al., 1996).

H₃: The relationship between financial and non-financial job attributes and the attraction to a TSU is moderated by the knowledge worker's gender such that women will place a greater importance on non-financial attributes, whereas men will place a greater importance on financial attributes.

H₀: The knowledge worker's gender *does not* moderate the relationship between financial and non-financial job attributes and the attraction to a TSU.

3.5 HYPOTHESIS 4

Start-ups have been credited with providing a 'fertile breeding ground' for aspiring entrepreneurs and they were found to produce new entrepreneurs more frequently than large firms (Parker, 2009; Hellmann, 2007; Klepper & Sleeper, 2005). Knowledge workers were attracted to start-ups because they received practical business experience and had the opportunity to work closely with the start-ups' founder(s), which was extremely uncommon in a specialised corporate environment (Hyytinen & Maliranta, 2008). Consequently, knowledge

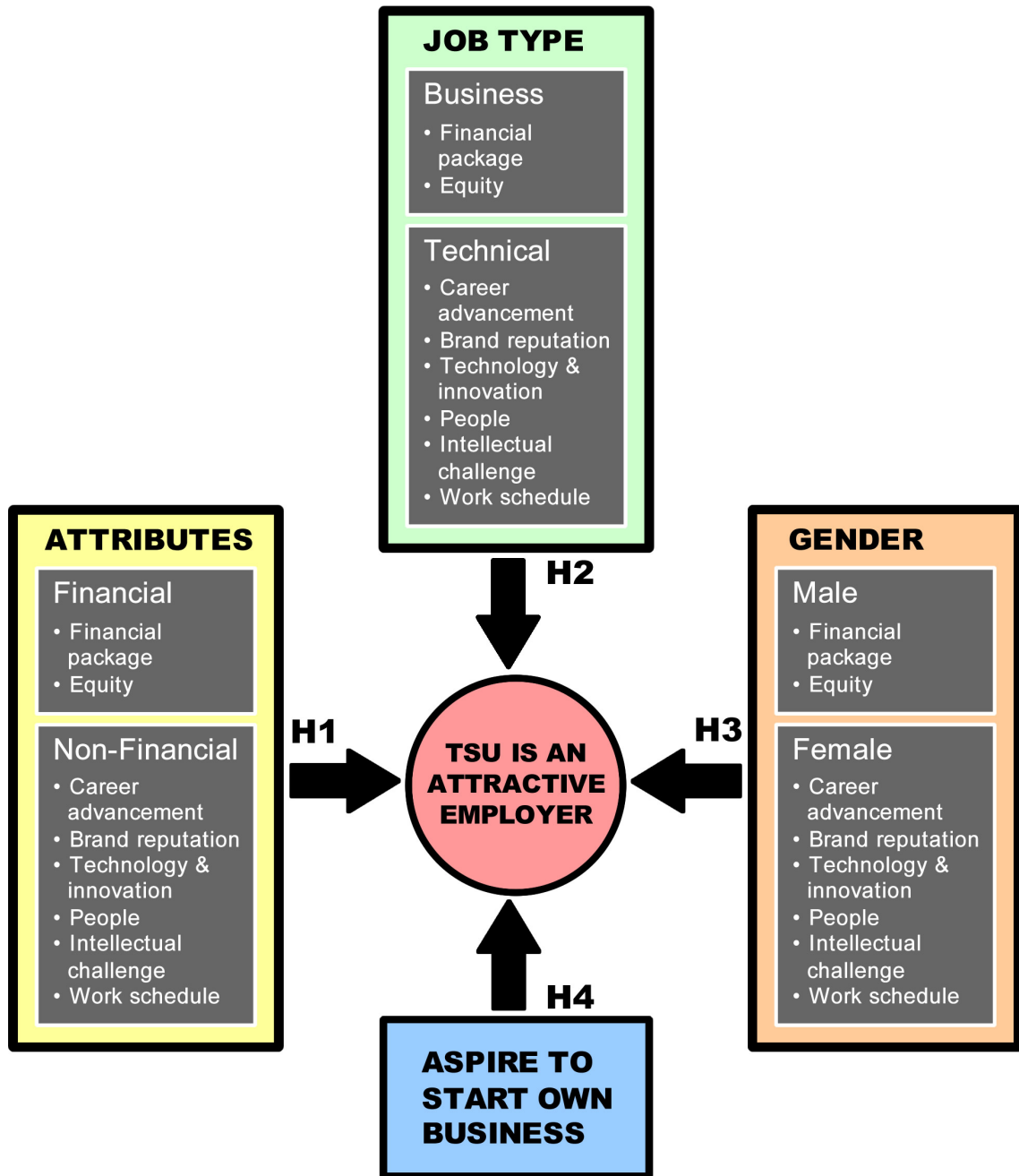
workers gained valuable business expertise and acquired a balanced set of skills while working at a start-up. This made the transition to entrepreneurship much easier and it was one of the main advantages that start-ups had over large firms.

H₄: The relationship between knowledge workers and the attraction to a TSU is moderated by the knowledge worker's entrepreneurial intent such that it is significantly stronger for those with short-term aspirations of starting their own business venture.

H₀: The relationship between knowledge workers and the attraction to a TSU is *is not* moderated by the knowledge worker's entrepreneurial intent.

In this chapter, the purpose of this research was summarised and the hypotheses were examined. The research aims and objectives are depicted in the conceptual model that is shown in Figure 3. The next chapter will describe the research methodology and it will also discuss the research limitations.

Figure 3: Conceptual model depicting research aims



4. METHODOLOGY

In the previous chapter, the purpose of this research was summarised and the research question and hypotheses were examined. In this chapter, the research methodology will be described and the research limitations will be discussed.

4.1 RESEARCH METHOD & DESIGN

Bryman (1996) highlighted the key differences between research methods and stated that “quantitative research is hard and reliable”, whereas “qualitative research is deep and rich” (p. 94). This research used a mixed method design whereby quantitative and qualitative techniques were integrated into a single study. This design was chosen based on its suitability to the research problem and the objectives. This is known as “triangulation” where two independent sources of data are used within a single study in order to increase its construct validity (Saunders, Lewis, & Thornhill, 2009).

The first phase of the research was exploratory in nature and consisted of nine separate interviews with knowledge workers employed at South African TSUs. Each interview lasted approximately 30 minutes. The knowledge workers were all permanent employees and had been employed at their current companies for ten months or less. This ensured that their experiences and reasons for joining the TSU were still in recent memory. The purpose of these interviews was to gain a better understanding of the research problem and to isolate the constructs that were used in the next phase.

The second phase of the research consisted of a Web-based conjoint experiment which incorporated the constructs identified in the literature review and revealed during the interviews. Conjoint analysis is a dependence technique that has been widely used in marketing research since the 1970's to accurately capture the trade-offs that are made by consumers in their purchasing decisions (Green & Srinivasan, 1990). More recently, academic scholars have adopted it as a decompositional research approach across various disciplines such as cognitive psychology and organisational behaviour (Montgomery & Ramus, 2007; Murnieks, Haynie, Wiltbank, & Harting, 2011). Conjoint analysis is most commonly used to conduct research where some form of decision-making is involved.

A major advantage of conjoint analysis is that it is one of the most effective methods for translating human choice behaviour into empirical or quantitative measurements (Hair, Anderson, Tatham, & Black, 1998). Traditional research instruments and methods of analyses are not able to assign any "importance" or "value" to the different factors that influence people's decision-making, which is crucial since humans "think in terms of concepts, objects or solutions, rather than relative numerical values" (Smith, 2004, p. 2). Conjoint analysis, therefore, facilitates the process of converting a respondent's preferences into a quantitative measurement. Studies have confirmed that conjoint analysis has a high level of external validity and its results are consistent with other methodologies for predicting customer preference such as traditional concept testing (Hair et al., 1998).

The conjoint method that was used in this study was an Adaptive Choice-Based Conjoint (ACBC), which is a relatively new technique that was invented by the leading conjoint software developer, Sawtooth Software Inc. ACBC uses the trusted full-profile method of presenting product concepts and it is particularly effective at revealing respondents' preferences for the combination of features that form products or services, which closely resembles real-world scenarios (Sawtooth Software, 2009). ACBC questions are usually incorporated into a general survey that may include other questions related to demographics, for example. The survey experience is unique for each respondent since the algorithm adapts the questions according to their answers in real-time as the survey progresses. As a result, ACBC experiments tend to be more realistic and engaging than other types of conjoint methods and it is also better at handling small sample sizes, as well as large numbers of attributes (five or more), which improves the validity and reliability of the data (Sawtooth Software, 2009).

4.2 POPULATION

Saunders et al. (2009) defined a 'population' as "the full set of cases from which a sample is taken" (p. 212). The population for the exploratory phase of this research was defined as knowledge workers within the high technology industry in South Africa, who were permanently employed at an early stage TSU for less than ten months.

The population for the conjoint experiment was defined as knowledge workers in South Africa, excluding business founders and owners, who would consider

leaving their current jobs within the next twelve months to join a TSU. The rationale for selecting this population group was based on the theory that TSUs desperately required skilled workers, not only in order to grow, but also to survive, and consequently this population group most closely resembled its recruitment base. Secondly, this definition of the population was more likely to give reliable results because the responses were less hypothetical than they would have been if leaving one's job within the next twelve months to join a TSU had not been a pre-requisite.

The total size of the knowledge worker population in South Africa is difficult to estimate because the definition varies considerably. However, in 2005 there were approximately 2.1 million tertiary qualified graduates in the workforce, which accounted for ten per cent of the total working population (Pauw, Oosthuizen, & van der Westhuizen, 2006, p. 7). This provided the best indication of the total size of the knowledge worker population in South Africa but the size of the sample frame was unknown since there were no statistics available on how many knowledge workers would consider working at a TSU.

4.3 SAMPLING

Sampling refers to the selection of a subset of elements from a large group of objects for the purpose of being able to draw general conclusions about the entire population (Saunders et al., 2009). It is a more cost effective means of collecting data than trying to reach the entire population, yet it can be equally as effective when executed correctly.

Judgemental sampling, which is also known as purposive sampling, is a type of non-probability sampling that was used in both research phases. The rationale for selecting this technique was based on the fact that the target population was extremely specific and there were no known databases containing contact details for suitable respondents. Furthermore, the strict timeframe and limited budget meant that this sampling method was considered to be most appropriate.

There is no scientific formula for selecting a suitable sample size in non-probability sampling. Saunders et al. (2009) recommended selecting a sample size according to the logical relationship between the sampling method and the research questions and objectives (p. 233). The knowledge workers that were interviewed during the exploratory phase met the population criteria and were discovered through the researcher's own network. The risk of introducing bias into the findings was negligible, since the purpose of this phase was to help the researcher gain a better understanding of the topic and to validate the constructs identified in the literature review. After the ninth interview, the researcher decided that a "saturation point" had been reached as no new information was revealed in the last interview. This signalled that an appropriate number of interviews had been conducted in order to achieve the objectives for phase one of the research. A summary of the demographic profiles of the interviewees is displayed in Table 2.

Table 2: Demographics of qualitative participants

| # | Age | Gender | Marital status | Employment term | Current Position |
|---|-----|--------|----------------|-----------------|-----------------------|
| 1 | 21 | Male | Single | 4 months | Support Engineer |
| 2 | 25 | Male | Married | 3 months | Lead Developer |
| 3 | 26 | Female | Single | 2 months | Reputation Specialist |
| 4 | 28 | Female | Married | 5 months | Customer Support |
| 5 | 28 | Male | Married | 3 months | CTO |
| 6 | 28 | Male | Single | 10 months | Developer |
| 7 | 28 | Female | Single | 1 month | Developer |
| 8 | 29 | Male | Single | 1 month | Lead Developer |
| 9 | 29 | Male | Married | 9 months | Business Development |

The sample for the second research phase was drawn from four South African mailing lists which were considered to be suitably representative of the target population. These lists are described below:

- Second-year Master of Business Administration (MBA) students that were registered with the Gordon Institute of Business Science (GIBS) at the University of Pretoria
- MyBroadband.co.za – a technology news and information website with a strong technical community
- Bizcommunity.com – an industry news portal with a strong business community
- MBAconnect.net – a mailing list targeting MBA students and graduates

The sample size in the second research phase was 129, which represented a total response rate of 33 per cent. This sample size and response rate was consistent with other academic studies that have used conjoint-based methodologies in their research. For example, Murnieks et al. (2011) argued that their sample size of 126 respondents and response rate of 47.6 per cent was well above average for their study on the factors that influenced venture capital decision-making. Similarly, DeTienne, Shepherd, and De Castro (2008) argued that their sample size of 89 entrepreneurs from high-technology companies in the U.S. and response rate of 20 per cent was sufficient for their study on why under-performing firms persisted despite their poor performance. The sample size used in this research was also significantly larger than conjoint studies by Shepherd (1999) and Zacharakis and Meyer (1998), who used sample sizes of 67 and 51, respectively. The ACBC technique used in this research has been proven to be particularly effective at reducing measurement error and accurately predicting respondents' individual preferences, even when small sample sizes are used (Orne, 2010), which added further validation.

In the conjoint sample, 67 per cent ($n = 86$) of respondents worked in business positions, and 33 per cent ($n = 43$) worked in technical positions. 34 per cent were female and 66 per cent were male and ranged in age from 22 to 53 years old with a mean age of 32.75 ($SD = 6.27$). 51 per cent were single, 47 per cent were married, and 2 per cent were divorced. 40 per cent had dependents and, out of those that had dependents, the mean number was 2.05 ($SD = 1.14$). The mean number of years of working experience was 10.67 ($SD = 6.55$, $Md = 10$). 82 per cent ($n = 106$) had ambitions of starting their own businesses in the

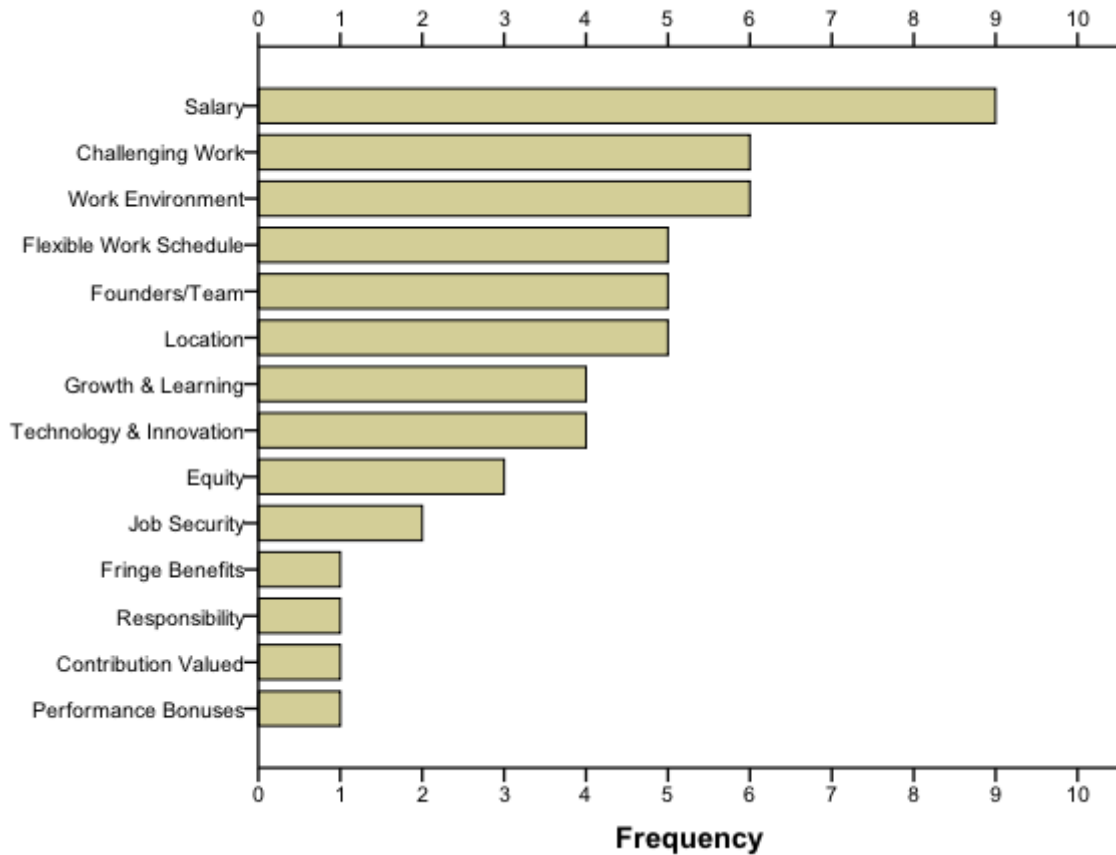
future and the mean timeline for starting their business venture was 3.44 years ($SD = 2.98$).

4.4 DATA COLLECTION PROCEDURE

For the exploratory phase of the research, semi-structured face-to-face interviews were conducted with seven out of the nine participants, while the other two interviews were conducted over Skype owing to the fact that the participants were located in a different geographic region. All of the interviews were recorded and the researcher took notes for each interview. Saunders et al. (2009) noted that one of the main advantages of using interviews to collect data was that subjects generally preferred them to questionnaires since they were more personal and they “add significance and depth” to the research (p. 324). However, under ‘normal circumstances’ such as when the participants were located in the same geographic region, telephonic interviews should be avoided since they could lead to issues of reduced reliability and misinterpretation (Saunders et al., 2009, p. 349). The interview schedule that was used in this study is attached as Appendix A.

After all the interviews were completed, the transcripts were processed using the content and frequency analysis technique to aggregate and categorise all the data. This involved coding the responses and performing a frequency count to determine which job attributes had the highest priority. Figure 4 shows the frequency of each attribute in rank order and a detailed interview table is attached as Appendix C.

Figure 4: Rank and frequency of constructs collected during interviews



The attributes with the highest frequencies were matched to constructs identified in the literature and other studies on attraction and retention, and then combined to form 12 discrete attributes (Montgomery & Ramus, 2003; Montgomery & Ramus, 2007). A final set of eight important attributes were short-listed from the original set of 12 attributes in order to reduce the cognitive burden placed on respondents during the experiment and to ensure that there was greater tension between the trade-offs. The final set of attributes and accompanying levels that were used in the conjoint experiment is shown in Table 3.

Table 3: Attributes and levels used in the conjoint experiment

| | Intellectual Challenge | Work Schedule | Career Advancement | Equity (Shares) |
|-------------------------|--|--|---|--|
| A Priori Order | High to Low | High to Low | High to Low | High to Low |
| Attribute Levels | Very stimulating job Moderately stimulating job Repetitive job | Extremely flexible work hours Semi-flexible work hours Set work hours | Rapid career advancement Moderate career advancement Slow career advancement | Large number of shares Small number of shares No shares |
| | Financial Package | Brand Reputation | Technology & Innovation | People (Team) |
| A Priori Order | High to Low | High to Low | High to Low | None |
| Attribute Levels | Market related + 20% Market related + 10% Market related Market related - 10% Market related - 20% | Company has an excellent reputation Company has a neutral reputation Company has a poor reputation | Full access to cutting-edge technology and/or projects Limited access to cutting-edge technology and/or projects No access to cutting-edge technology and/or projects | Dynamic team climate with a strong sense of community Formal team climate with a weak sense of community Competitive and cut-throat with no sense of community |

Once the attribute list was finalised, the survey was created using the ACBC module in Sawtooth Software’s SSI Web application and it was hosted on the researcher’s personal Web server. Because of the sensitive nature of the research, the survey was strictly confidential (no names or email addresses were requested), which enhanced data validity since respondents knew they could be completely honest under the protection of anonymity. The entire survey took approximately 10-20 minutes to complete.

The first part of the survey contained an introductory screen explaining the purpose of the study, followed by several demographic and psychographic questions. Five mandatory screening questions were also included in order to ensure that only those respondents who met the population criteria were included in the study.

The conjoint experiment appeared in the second part of the survey and it was designed to resemble a recruitment exercise. Throughout the experiment, respondents were asked to respond to questions as they would if they were in the market for a new job. As an added incentive, respondents were promised that they would be shown their individual preferences at the end of the experiment, which they could also print out and use for future reference. This created a sense of realism and it also encouraged more accurate responses.

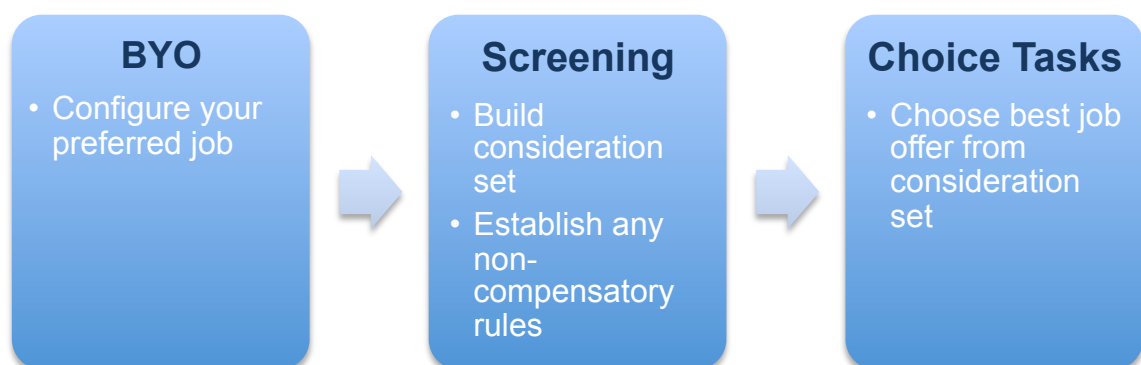
The experiment consisted of three main phases. In the first phase, known as “Build Your Own” (BYO), respondents were asked to design their ideal job package by selecting the best characteristics from pre-defined levels for six out of the eight job attributes. Financial package and equity were omitted from this phase since respondents would rationally select the best level for each attribute (“market related plus 20%” and “large number of shares” respectively).

In the second phase, known as the screening section, respondents were shown a series of screens containing four different job vacancies which were horizontally arranged next to each other. Each vacancy incorporated the entire range of levels, but most were clustered around the respondent’s preferred

levels based on their selections in the BYO phase. For each vacancy, respondents were asked to indicate whether they would consider accepting the job offer or not. The software used these responses to calculate the importance of different combinations that were subsequently validated through separate screens, which asked respondents to indicate whether particular features were “must haves” or “unacceptable”.

In the third and final phase, known as the “choice task tournament”, respondents were shown a screen containing three different job offers, which were horizontally arranged next to each other. They were then asked to select their favourite job offer out of the three available choices (triple comparisons). This process was repeated until the best job offer or “winning concept” was finally determined. A summary of the various stages in the ACBC survey is shown in Figure 5.

Figure 5: The ACBC survey process adapted from Sawtooth Software (2009)



The experiment was pre-tested several times on a small sample of ten people from the target population. It was also sent to conjoint specialists at a market

research firm in South Africa and it underwent several revisions before it was finally distributed via email to the sample under study. This process allowed the researcher to confirm that:

- The survey instructions and the phrasing of the questions were explicit
- The experiment worked properly and the individual preferences that were displayed at the end were accurate
- Data were captured correctly for analysis

4.5 DATA ANALYSIS

The data from the conjoint analysis were captured directly into a database on the researcher's personal web server as soon as the respondent completed the survey and it was imported into the Sawtooth SSI Web application for a preliminary analysis after enough responses had been collected. This reduced the risk of input errors since the data were collected electronically and there were no open-ended questions that needed to be manually coded.

A hierarchical Bayes (HB) analysis was performed on the data from within SSI Web in order to estimate the conjoint utilities or 'part-worth' values. Part-worths were unique to each respondent and were a measure of overall preference. HB is an effective analysis technique for ratings-based, full-profile conjoint studies and is consistently more accurate than purely individual-level analysis techniques such as Monotone Regression (Orne, 2010). HB works on the assumption that the population is composed of a sample of similar individuals which meant that their part-worths had a multivariate normal distribution. This

made it possible for information to be 'borrowed' from the entire population to estimate the part-worths for each respondent (Sawtooth Software, 2009).

The individual part-worth estimates, which are represented on a common scale, were used to calculate the individual importance scores and average importance scores for each attribute. This was achieved by dividing the range between the utilities of the most preferred and the least preferred levels of each attribute by the total sum of ranges across all attributes. The importance scores were essentially percentages that collectively summed to 100 per cent for each respondent. They were significant because they indicated the relative importance of each attribute for each respondent and consequently revealed how important the attributes were to the sample under study. The average importance score was chosen as the appropriate level of analysis to measure the 'aggregate behaviour' of the sample.

The statistical processing of the survey data was conducted using SPSS Statistics for Mac Version 19. A codebook was prepared in a spreadsheet that listed each variable and defined the values of the numbers assigned to categorical variables before importing the data into SPSS. After the data were imported, SPSS variables were assigned and the data were screened for errors. Categorical variables were checked via a frequency analysis to ensure that none of the values fell outside of the set range for each variable. The minimum, maximum, and mean scores for each continuous variable were also checked for errors. In both cases, no errors were identified.

Analyses were performed on the data to ensure that there was no violation of the assumption of normality. A normal distribution is bell-shaped and symmetrical and the mean, mode, and median are all positioned at the midpoint (Weiers, 2010). The Kolmogorov-Smirnov test was used to assess the normality of the sample distribution. The test returned a non-significant result ($p > 0.05$) for the entire sample, which indicated that there was no violation of the assumption of normality.

Data values that are extremely different from other values are known as 'outliers' (Weiers, 2010). Outliers can interfere with statistical tests and therefore it is recommended that they be removed before conducting a statistical analysis. Two outliers were identified in the conjoint data by using a combination of boxplot and scatterplot graphs. Both values were more than eight standard deviations from the mean, which may have been caused by respondent fatigue during the conjoint experiment. As a result, both of these cases were omitted from tests involving conjoint data (Hypothesis 1, 2, and 3). They were however included in tests where only general survey variables were used and they had no impact on the results (Hypothesis 4).

Descriptive statistics were first conducted after the data had been cleaned and the preliminary analysis was completed. This was done in order to describe the sample and compare all the survey variables numerically (Saunders et al., 2009). Frequency counts and cross-tabulations were two descriptive techniques that were used to describe the variables related to each hypothesis in the results (Chapter 5).

Inferential statistics were conducted after the data were described in order to answer the research question and test the hypotheses. There are two main groups of statistical techniques: parametric and non-parametric (Weiers, 2010). Parametric statistics are more powerful but they make more stringent assumptions about the data and require that the population from which the sample was drawn be normally distributed. Non-parametric statistics on the other hand, are less powerful but make fewer assumptions about the distribution of the population and are better suited to smaller samples and categorical data (Weiers, 2010).

Parametric techniques were used in cases where the sample size was sufficiently large to minimise the risk of the population not being normally distributed and the variables were all continuous as opposed to discrete categories (Weiers, 2010). A paired-samples t-test is a parametric technique that compares the values of two numeric variables for statistical differences (Saunders et al., 2009). This test was used to compare the average importance scores of attributes and to compare the differences between the financial and non-financial groups in Hypothesis 1. The significance level in this research was set at 95 per cent (0.05) and groups were therefore deemed to be statistically significant where the *p-value* of the test was less than or equal to 0.05.

Non-parametric techniques were used in cases where sub-samples were too small to minimise the risk of the population not being normally distributed and where categorical variables were tested. A Mann-Whitney *U* Test is a non-parametric test that compares two populations or groups on a continuous

measure by converting the continuous variable to ranks (Saunders et al., 2009). This test is the non-parametric equivalent of the Independent-samples t-test and was used to test for differences between the medians of the financial and non-financial groups (dependent variables) by job type (independent variable) in Hypothesis 2 and by gender (independent variable) in Hypothesis 3. It was also used to test for differences between the medians of three likelihood groups in Hypothesis 4.

A Chi-square test for independence is a non-parametric test that can be used to determine the relationship between two categorical variables (Saunders et al., 2009). This test was used as a post-hoc control to confirm the results of the Mann-Whitney *U* Tests in Hypothesis 2 and Hypothesis 3.

Finally, a Kruskal-Wallis Test was used to compare the business timeline (dependent variable) across three different likelihood groups (independent variable) in Hypothesis 4. This test converted scores into ranks so that the mean rank of each group could be compared since it was the non-parametric equivalent of the one-way between-groups analysis of variance (Weiers, 2010).

4.6 RESEARCH LIMITATIONS

This research had several known limitations, which are listed below:

- Judgemental sampling was a non-probability sampling technique and therefore could not be considered statistically representative of the total population and was also more prone to bias (Saunders et al., 2009, p. 213).

- The size of the target population was unknown, which limited the potential to generalise the findings based on the sample.
- Although conjoint analysis was an excellent model for predicting choice, like any research instrument, it was prone to error and reliability issues. Respondents may have behaved differently in the experiment compared to how they would have behaved if they were faced with the same situation in the real world. For example, there was a tendency for respondents to overestimate the importance of certain attributes in the experiment (Green & Srinivasan, 1990).
- The procedure for deciding on the final list of eight attributes for the experiment was partially subjective and may have been prone to bias. The attributes were limited due to logistical reasons, which also could have affected the findings. However, the risk of introducing bias into the findings was minimised by following a two-step process that used existing literature and primary interviews to identify the most important attributes. The experiment should ideally have incorporated a comprehensive list of job attributes but this would not have been compatible with the conjoint method.
- Finally, ACBC experiments take considerably longer to complete and they are more rigorous than other conjoint techniques. As a result, respondents may adopt a simplification strategy in order to complete the experiment faster, which introduces 'noise' into the data. Despite these downsides, research has shown that respondents typically find ACBC experiments more engaging and realistic than other conjoint techniques, which leads to more considered responses (Sawtooth Software, 2009).

In this chapter, the research methodology was described and the research limitations were discussed. The next chapter will present the results of this research.

5. RESULTS

In the previous chapter, the research methodology was described and the research limitations were discussed. In this chapter, the results of the research will be presented.

5.1 INTRODUCTION

The research question aimed to establish which factors attracted knowledge workers to TSUs. Eight job attributes were shortlisted from constructs identified in previous studies, as well as from nine exploratory interviews that were conducted during the first phase of this research. Four hypotheses were formulated based on several key findings in literature and tested for statistical significance. A detailed description of the data analysis procedure was presented in the previous chapter. A consistency matrix showing the relationship between hypotheses, literature, data collection, and analysis is attached as Appendix D.

5.2 AVERAGE IMPORTANCE OF ATTRIBUTES

The average importance scores (AIS's) for each job attribute were calculated from the conjoint data in order to establish the relative importance of attributes in the sample (see data analysis in Chapter 4). A paired-samples t-test was used to determine the statistical significance between the AIS for each attribute, and five groups were formed based on their p -values. The AIS's were not statistically different between attributes within the same group ($p > 0.05$) but they were statistically different between different groups ($p < 0.05$). In other

words, attributes in higher groups were statistically more important than attributes in lower groups, however attributes in the same group were not statistically more important than each other. The eight attributes are shown in their groups together with their importance scores and standard deviations in Table 4.

Table 4: Average and relative attribute importance for sample

| Attribute Name | Average Importance Score (AIS) | Relative Importance (RI) | Standard Deviation (SD) |
|---------------------------------------|--------------------------------|--------------------------|-------------------------|
| Group #1 | | | |
| 1. Intellectual Challenge | 16.83 | 1.000 | 8.20 |
| 2. Financial Package | 16.43 | 0.976 | 8.75 |
| Group #2 | | | |
| 3. Brand Reputation | 14.20 | 0.844 | 6.73 |
| 4. Technology & Innovation | 13.62 | 0.809 | 7.03 |
| 5. Career Advancement | 13.00 | 0.772 | 6.93 |
| Group #3 | | | |
| 6. People | 10.44 | 0.620 | 4.65 |
| Group #4 | | | |
| 7. Work Schedule | 8.72 | 0.518 | 4.63 |
| Group #5 | | | |
| 8. Equity | 6.78 | 0.403 | 4.21 |
| N | 127 | | |

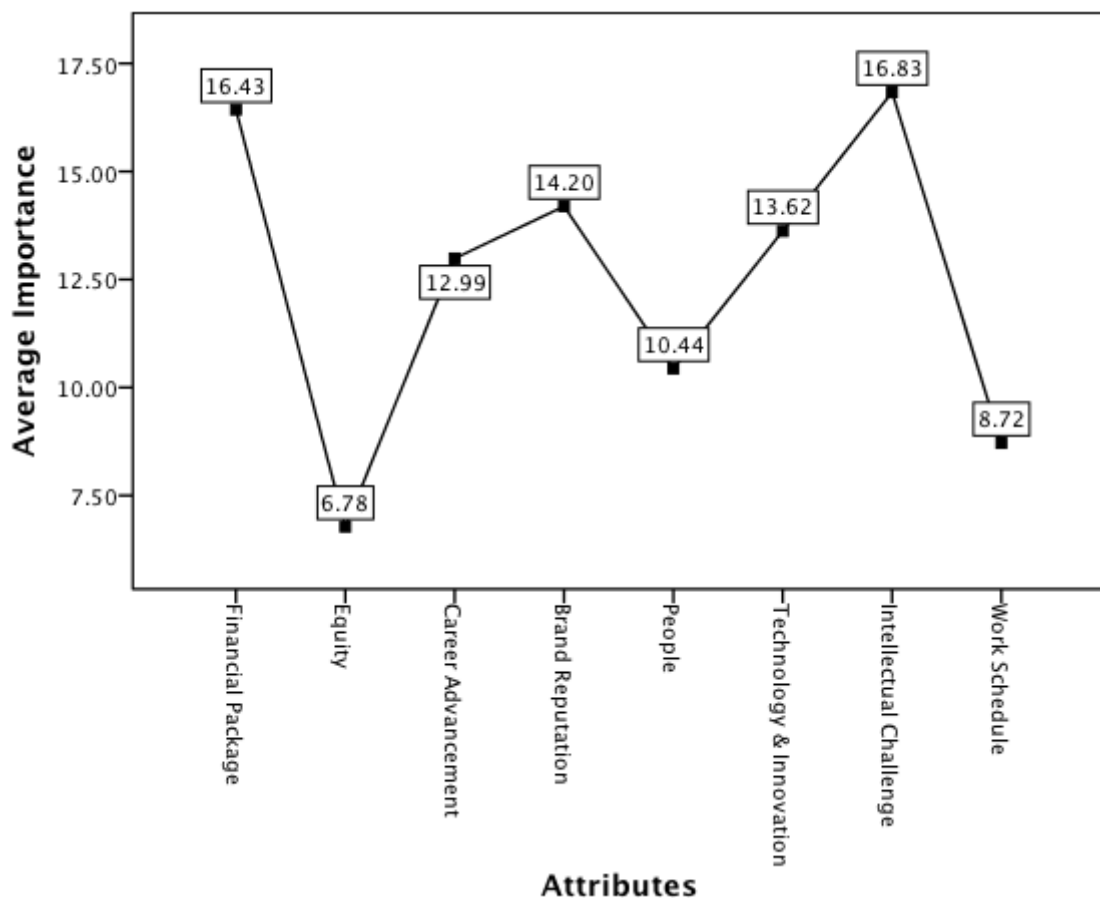
Attributes are ranked in descending order according to mean importance in the total sample.

Mean importance weights are significantly different between groups ($p < 0.05$), but are not significantly different within groups ($p > 0.05$).

Relative importance (RI) indicates the mean importance of each attribute in relation to the most important attribute (i.e. Intellectual Challenge).

The results revealed that on average, *Intellectual Challenge* ($M = 16.83$, $SD = 8.20$) and *Financial Package* ($M = 16.43$, $SD = 8.75$), both in Group 1, were jointly the most important attributes as their AIS's were not statistically different in size. In Group 2, *Brand Reputation* ($M = 14.20$, $SD = 6.73$), *Technology and Innovation* ($M = 13.62$, $SD = 7.03$), and *Career Advancement* ($M = 13.00$, $SD = 6.93$) were all considered equally important as their AIS's were also not statistically different. *People* ($M = 10.44$, $SD = 4.65$) was ranked third in Group 3 followed by *Work Schedule* ($M = 8.72$, $SD = 4.63$) in Group 4. Finally, *Equity* ($M = 6.78$, $SD = 4.21$) in Group 5 received the lowest importance out of all the attributes. A visual representation of the attributes and AIS's for the entire sample is shown in Figure 6.

Figure 6: Average attribute importance for aggregated respondents



It should be noted however, that while these average importance scores serve as useful benchmarks for evaluating the importance of different job attributes and the difficult trade-offs that respondents made in the process, the standard deviation across all the attributes was relatively high, averaging over 6.0, which indicated that there was a wide range in individual preference for each attribute.

The relationship between job attributes was investigated using Pearson product-moment correlation coefficient. Pearson correlation coefficients range from -1.00 to +1.00 with 0 indicating that there is no relationship between variables (Saunders et al., 2009). A negative coefficient indicates a negative relationship while a positive coefficient indicates a positive relationship. The correlation coefficients between attributes are shown in Table 5.

Table 5: Pearson Product-Moment Correlations between attributes

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------------------------------|---|-------|-------|--------|---------|---------|---------|---------|
| 1. Financial Package | — | -.035 | -.154 | -.133 | -.150 | -.231** | -.394** | -.279** |
| 2. Equity | | — | -.117 | -.222* | -.247** | -.064 | -.003 | .098 |
| 3. Career Advancement | | | — | -.082 | -.252** | -.097 | -.101 | -.321** |
| 4. Brand Reputation | | | | — | -.194* | .067 | -.365** | -.003 |
| 5. Technology & Innovation | | | | | — | -.153 | -.162 | .090 |
| 6. People | | | | | | — | -.053 | -.137 |
| 7. Intellectual Challenge | | | | | | | — | -.043 |
| 8. Work Schedule | | | | | | | | — |

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

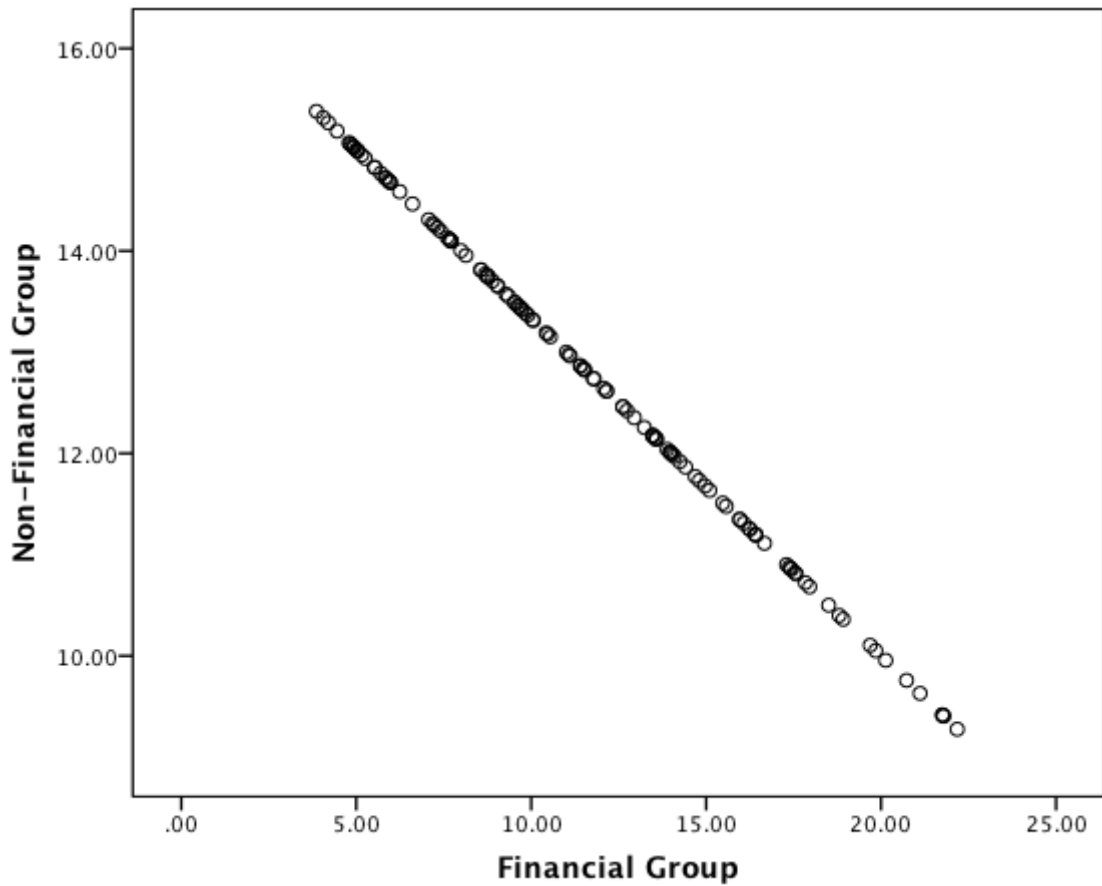
The correlation coefficients indicated that a statistically significant negative correlation existed between financial package and people ($r = -.231, p < .009$),

intellectual challenge ($r = -.394, p < .0005$), and work schedule ($r = -.279, p < .001$). This signified that as respondents placed more importance on financial package, they placed less importance on the other three attributes, and vice versa. The correlation coefficients also showed that a moderately strong negative correlation existed between career advancement and work schedule ($r = -.321, p < .0005$), and between intellectual challenge and brand reputation ($r = -.365, p < .0005$). This suggested that career-focused respondents were less concerned about the structure of their working schedules, and also that the company's brand reputation was not important if the job itself was challenging.

5.3 RESULTS FOR HYPOTHESIS 1

Hypothesis 1 predicted that non-financial job attributes overall would be more important to knowledge workers overall than financial attributes in the sample. The eight attributes were separated into two discrete groups, namely 'Financial' which included *Financial Package* and *Equity*, and 'Non-financial' which included *Career Advancement*, *Brand Reputation*, *Technology and Innovation*, *People*, *Intellectual Challenge*, and *Work Schedule*. A perfect negative correlation existed between both groups ($r = -1, p < .0005$), which was expected since the attribute importance scores were calculated as percentages that collectively summed to 100. This relationship is shown in Figure 7.

Figure 7: Scatterplot depicting the negative correlation between financial and non-financial groups



A frequency count showed that 57.5 per cent ($n = 73$) of knowledge workers in the sample preferred non-financial job attributes compared to 42.5 per cent ($n = 54$) that preferred financial attributes. The results of the frequency count are displayed in Table 6.

Table 6: Attribute frequency count (financial and non-financial groups)

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------------------|-----------|---------|---------------|--------------------|
| Valid | Financial Group | 54 | 42.5 | 42.5 | 42.5 |
| | Non-financial Group | 73 | 57.5 | 57.5 | 100.0 |
| | Total | 127 | 100.0 | 100.0 | |

A paired-samples t-test was conducted to determine whether there was a significant difference between the mean importance of the financial and non-financial groups. The test revealed a statistically significant difference between the financial group ($M = 11.61$, $SD = 4.79$) and the non-financial group ($M = 12.80$, $SD = 1.60$), $t(126) = -2.10$, $p < .05$ (two-tailed). The mean difference in average importance was 1.19 with a 95 per cent confidence interval ranging from -2.31 to -.07. In order to interpret the magnitude of the intervention's effect, an effect size statistic (eta-squared) was calculated. The eta-squared statistic (.03) indicated a relatively small effect size, according to Cohen (1992). Statistics from the paired samples-test are shown in Table 7.

Table 7: Paired samples statistics (financial and non-financial groups)

| | | Mean | N | Std. Deviation | Std. Error Mean | Sig. (2-tailed) |
|--------|---------------------|-------|-----|----------------|-----------------|-----------------|
| Pair 1 | Financial Group | 11.61 | 127 | 4.79 | .43 | 0.37 |
| | Non-financial Group | 12.80 | 127 | 1.60 | .14 | |

The results indicated that 57.45 per cent of knowledge workers preferred non-financial job attributes and that there was a statistical difference between the mean importance of the financial and non-financial groups in the sample. Non-financial job attributes were more important overall than financial attributes, thus Hypothesis 1 was strongly supported.

5.4 RESULTS FOR HYPOTHESIS 2

Hypothesis 2 predicted that knowledge workers in technical-related positions would prefer non-financial job attributes, whereas knowledge workers in business-related positions would prefer financial job attributes. In Table 8 the

attributes are shown in descending order according to their average importance in the sample. Columns labelled “Business” and “Technical” show differences by job type.

Table 8: Average and relative attribute importance between job types

| Attribute Name | Business | | | | Technical | | | |
|---------------------------------------|-----------|-------|------|----------|-----------|-------|------|----------|
| | AIS | RI | SD | Rank | AIS | RI | SD | Rank |
| 1. Intellectual Challenge | 17.30 | 1.000 | 7.89 | 1 | 15.90 | 0.852 | 8.82 | 2 |
| 2. Financial Package | 15.33 | 0.887 | 8.43 | 2 | 18.66 | 1.000 | 9.06 | 1 |
| 3. Brand Reputation | 14.70 | 0.850 | 6.47 | 3 | 13.18 | 0.706 | 7.19 | 4 |
| 4. Technology & Innovation | 13.41 | 0.775 | 6.57 | 4 | 14.04 | 0.753 | 7.94 | 3 |
| 5. Career Advancement | 13.41 | 0.775 | 6.55 | 4 | 12.14 | 0.651 | 7.67 | 5 |
| 6. People | 10.48 | 0.606 | 4.56 | 6 | 10.36 | 0.555 | 4.87 | 6 |
| 7. Work Schedule | 8.49 | 0.491 | 4.62 | 7 | 9.17 | 0.491 | 4.68 | 7 |
| 8. Equity | 6.88 | 0.398 | 4.44 | 8 | 6.56 | 0.352 | 3.75 | 8 |
| N | 85 | | | | 42 | | | |

Attributes are ranked in descending order according to mean importance in the total sample. Rank column indicates ranking of attributes between different groups (Business and Technical).

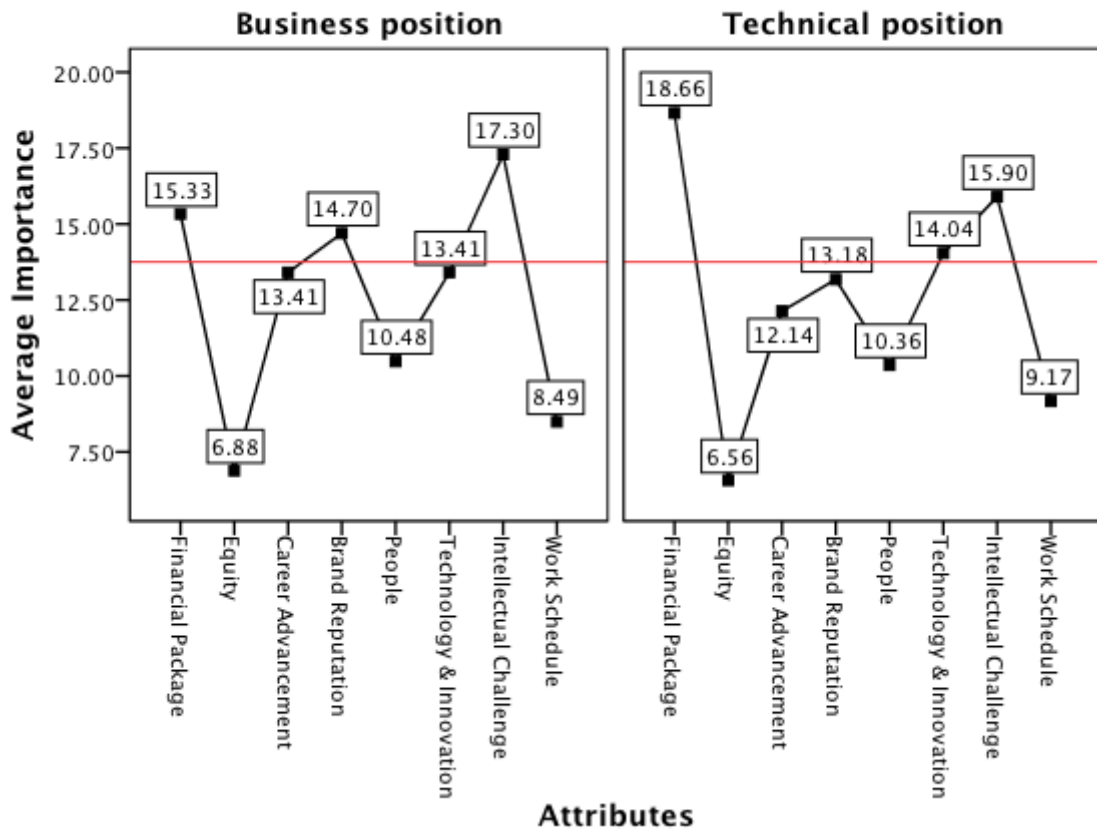
Relative importance (RI) indicates the mean importance of each attribute in relation to the most important attribute.

The results for respondents in business positions revealed that on average, *Intellectual Challenge* ($M = 17.30$, $SD = 7.89$) and *Financial Package* ($M = 15.33$, $SD = 8.43$) were jointly the most important attributes. *Brand Reputation* ($M = 14.70$, $SD = 6.47$), *Technology and Innovation* ($M = 13.41$, $SD = 6.57$), and *Career Advancement* ($M = 13.41$, $SD = 6.55$) ranked second. *People* ($M = 10.48$, $SD = 4.56$) ranked third and *Work Schedule* ($M = 8.49$, $SD = 4.62$)

ranked fourth. *Equity* ($M = 6.88$, $SD = 4.44$) received the lowest importance out of all the attributes for respondents in business positions.

The results for respondents in technical positions showed that on average, *Financial Package* ($M = 18.66$, $SD = 9.06$) and *Intellectual Challenge* ($M = 15.90$, $SD = 8.82$) were jointly the most important attributes. *Technology and Innovation* ($M = 14.04$, $SD = 7.94$), *Brand Reputation* ($M = 13.18$, $SD = 7.19$), and *Career Advancement* ($M = 12.14$, $SD = 7.67$) ranked second. *People* ($M = 10.36$, $SD = 4.87$) and *Work Schedule* ($M = 9.17$, $SD = 4.68$) ranked third. *Equity* ($M = 6.56$, $SD = 3.75$) received the lowest importance out of all the attributes for respondents in technical positions. A visual representation of the attributes and AIS's between job types is shown in Figure 8.

Figure 8: Average attribute importance between job types



A Mann-Whitney U Test was conducted to compare the means of each attribute for business and technical positions. The test found that there was a significant difference in the importance that technical respondents ($Md = 17.40, n = 42$) placed on *Financial Package* compared to business respondents ($Md = 13.84, n = 85$), $U = 1384, z = -2.10, p = .04, r = .19$. This result was the opposite of what was expected, namely that respondents in technical positions placed a greater importance on salary than respondents in business positions.

In order to test the hypothesis, a Mann-Whitney U Test was conducted to compare the means between financial and non-financial attributes for business and technical positions. The test showed that there was no significant difference at a 95 per cent confidence level in the importance that technical respondents

($Md = 12.55$, $n = 42$) placed on non-financial attributes compared to business respondents ($Md = 13.00$, $n = 85$), $U = 1458$, $z = -1.68$, $p = .09$, $r = .15$. The differences between financial and non-financial groups are shown by job type in Table 9.

Table 9: Differences in average attribute importance between job types

| | | Non-Financial | Financial |
|---------------------|-----------------------|---------------|-----------|
| 1. Business | Mean | 12.96 | 11.11 |
| | N | 85 | 85 |
| | Std. Deviation | 1.57 | 4.71 |
| | Median | 13.00 | 11.01 |
| 2. Technical | Mean | 12.46 | 12.61 |
| | N | 42 | 42 |
| | Std. Deviation | 1.62 | 4.86 |
| | Median | 12.55 | 12.36 |
| Total | Mean | 12.80 | 11.61 |
| | N | 127 | 127 |
| | Std. Deviation | 1.60 | 4.79 |
| | Median | 12.87 | 11.40 |

A Chi-square test for independence (with Yates Continuity Correction) was used to confirm that there was no significant difference in the importance placed on non-financial attributes between respondents in business and technical positions, $X^2(1, n = 127) = 1.02$, $p = .31$, $\phi = -.11$. The results of the Chi-square test are shown in Table 10.

Table 10: Chi-square test for independence between non-financial group and job type

| | Value | df | Asymp. Sig. (2-sided) |
|-------------------------------|-------|----|-----------------------|
| Continuity Correction* | 1.02 | 1 | .31 |

*Computed only for a 2x2 table

In descriptive terms, 50 per cent ($n = 21$) of technical workers placed a greater importance on non-financial attributes than on financial attributes, compared to 61 per cent ($n = 52$) of business workers.

The educational background of the knowledge worker also had no bearing on the results. A Mann-Whitney U Test showed that there was no significant difference in the importance that respondents with technical qualifications ($Md = 12.80$, $n = 56$) placed on non-financial attributes compared to respondents with business qualifications ($Md = 12.91$, $n = 66$), $U = 1569$, $z = -1.43$, $p = .15$, $r = .13$.

The results indicated that there was no statistical difference in the preference for financial and non-financial attributes between job types or educational background. In fact, almost two-thirds of respondents in business-related positions placed a greater importance on non-financial attributes compared to only half of the respondents in technical-related positions, which suggested that the trend was leaning more in the opposite direction. The results also showed that respondents in technical positions placed a statistically greater importance on *Financial Package* than respondents in business positions. Thus, Hypothesis 2 was rejected.

5.5 RESULTS FOR HYPOTHESIS 3

Hypothesis 3 predicted that female knowledge workers would prefer non-financial job attributes, whereas male knowledge workers would prefer financial job attributes. In Table 11 the attributes are shown in descending order according to their average importance in the sample. Columns labelled “Male” and “Female” show differences by gender.

Table 11: Average and relative attribute importance between genders

| Attribute Name | Male | | | | Female | | | |
|---------------------------------------|-----------|-------|------|----------|-----------|-------|------|----------|
| | AIS | RI | SD | Rank | AIS | RI | SD | Rank |
| 1. Intellectual Challenge | 16.56 | 0.956 | 8.01 | 2 | 17.37 | 1.000 | 8.64 | 1 |
| 2. Financial Package | 17.33 | 1.000 | 9.20 | 1 | 14.68 | 0.845 | 7.61 | 3 |
| 3. Brand Reputation | 13.23 | 0.763 | 6.52 | 5 | 16.08 | 0.926 | 6.79 | 2 |
| 4. Technology & Innovation | 13.63 | 0.786 | 7.56 | 3 | 13.59 | 0.782 | 5.94 | 4 |
| 5. Career Advancement | 13.41 | 0.774 | 7.34 | 4 | 12.16 | 0.700 | 6.06 | 5 |
| 6. People | 10.17 | 0.587 | 4.49 | 6 | 10.95 | 0.630 | 4.96 | 6 |
| 7. Work Schedule | 8.53 | 0.492 | 4.54 | 7 | 9.08 | 0.523 | 4.85 | 7 |
| 8. Equity | 7.14 | 0.412 | 3.97 | 8 | 6.08 | 0.350 | 4.62 | 8 |
| N | 84 | | | | 43 | | | |

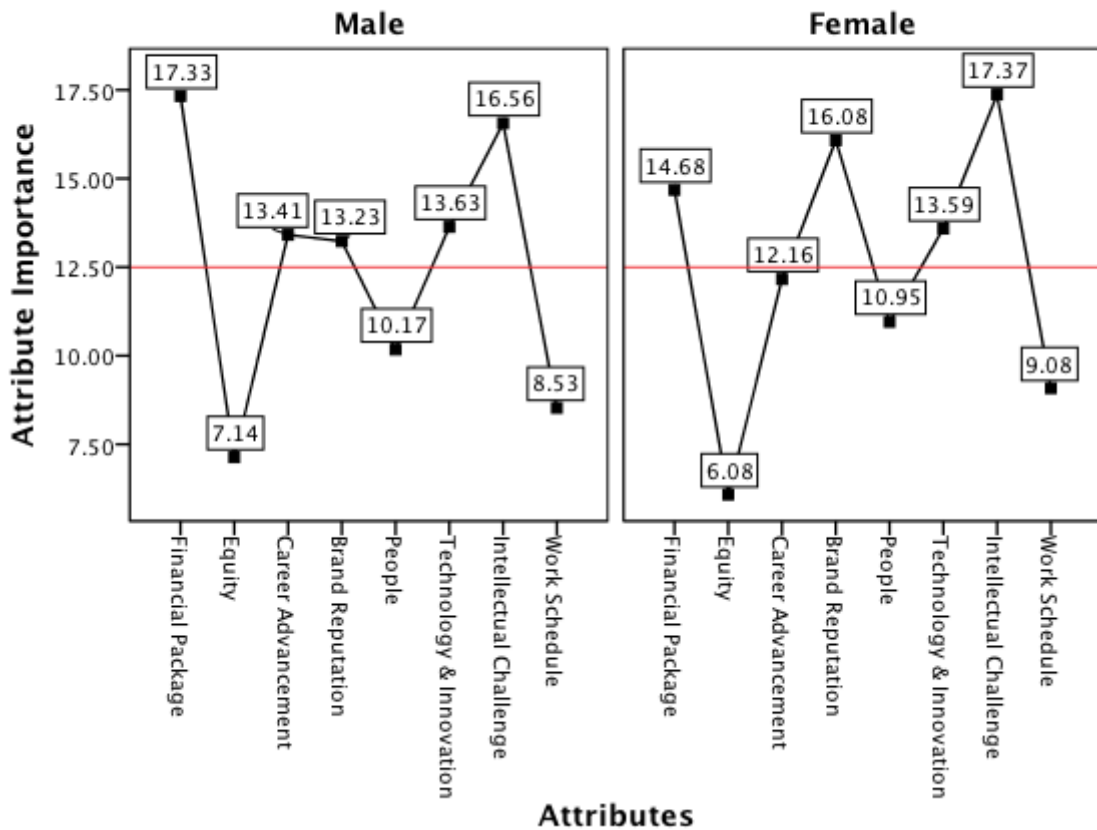
Attributes are ranked in descending order according to mean importance in the total sample. Rank column indicates ranking of attributes between different groups (Males and Females). Relative importance (RI) indicates the mean importance of each attribute in relation to the most important attribute.

The results for males revealed that on average, *Financial Package* ($M = 17.33$, $SD = 9.20$) and *Intellectual Challenge* ($M = 16.56$, $SD = 8.01$) were jointly the most important attributes. *Technology and Innovation* ($M = 13.63$, $SD = 7.56$),

Career Advancement ($M = 13.41$, $SD = 7.34$), and *Brand Reputation* ($M = 13.23$, $SD = 6.52$) ranked second. *People* ($M = 10.17$, $SD = 4.49$) ranked third and *Work Schedule* ($M = 8.53$, $SD = 4.54$) ranked fourth. Finally, *Equity* ($M = 7.14$, $SD = 3.97$) received the lowest importance out of all the attributes for males.

The results for females showed that on average, *Intellectual Challenge* ($M = 17.37$, $SD = 8.64$), *Brand Reputation* ($M = 16.08$, $SD = 6.79$), and *Financial Package* ($M = 14.68$, $SD = 7.61$) were jointly the most important attributes. *Technology and Innovation* ($M = 13.59$, $SD = 5.94$) and *Career Advancement* ($M = 12.16$, $SD = 6.06$) ranked second. *People* ($M = 10.95$, $SD = 4.96$) and *Work Schedule* ($M = 9.08$, $SD = 4.85$) ranked third. Finally, *Equity* ($M = 6.08$, $SD = 4.62$) received the lowest importance out of all the attributes for females. A visual representation of the attributes and AIS's between genders is shown in Figure 9.

Figure 9: Average attribute importance between genders



A Mann-Whitney U Test was conducted to compare the means of each attribute for males and females. The test showed that there was a significant difference in the importance which females ($Md = 15.91, n = 43$) placed on *Brand Reputation* compared to males ($Md = 12.80, n = 84$), $U = 1379, z = -2.18, p = .03, r = .19$. This suggested that female respondents were more concerned about the brand reputation of their employers than male respondents.

In order to test the hypothesis, a Mann-Whitney U Test was conducted to compare the means of financial and non-financial attributes for males and females. It showed that there was a significant difference in the importance that females ($Md = 13.45, n = 43$) placed on non-financial attributes compared to males ($Md = 12.55, n = 84$), $U = 1386, z = -2.14, p = .03$, although the effect

size ($r = .19$) was relatively small. The differences between financial and non-financial groups are shown by gender in Table 12.

Table 12: Differences in average attribute importance between genders

| | | Financial | Non-Financial |
|------------------|-----------------------|-----------|---------------|
| 1. Male | Mean | 12.23 | 12.59 |
| | N | 84 | 84 |
| | Std. Deviation | 4.78 | 1.59 |
| | Median | 12.35 | 12.55 |
| 2. Female | Mean | 10.38 | 13.21 |
| | N | 43 | 43 |
| | Std. Deviation | 4.62 | 1.54 |
| | Median | 9.64 | 13.45 |
| Total | Mean | 11.61 | 12.78 |
| | N | 127 | 127 |
| | Std. Deviation | 4.79 | 1.60 |
| | Median | 11.40 | 12.87 |

A Chi-square test for independence (with Yates Continuity Correction) was used to confirm that there was a significant difference in the importance placed on non-financial attributes between females and males, $X^2(1, n = 127) = 4.81, p = .03, \phi = .21$. The results of the Chi-square test are shown in Table 13.

Table 13: Chi-square test for independence between non-financial group and gender

| | Value | df | Asymp. Sig. (2-sided) |
|-----------------------------------|-------|----|-----------------------|
| Continuity* Correction | 4.81 | 1 | .03 |

*Computed only for a 2x2 table

In descriptive terms, 72 per cent ($n = 31$) of females placed a greater importance on non-financial attributes than on financial attributes, compared to 50 per cent ($n = 42$) of males.

The results indicated that there was a statistical difference between the overall importance that males and females placed on financial and non-financial attributes. Although it was not predicted, the results showed that females placed a statistically greater importance on *Brand Reputation* than males. While more than two-thirds of females preferred non-financial attributes to financial attributes, the ratios were equal amongst males. Therefore, Hypothesis 3 was only partially supported.

5.6 RESULTS FOR HYPOTHESIS 4

Hypothesis 4 predicted an interaction effect between the knowledge worker's entrepreneurial intent and the likelihood of joining a TSU, such that knowledge workers would be more attracted to a TSU when their business timelines were shorter.

The results showed that 82 per cent ($n = 106$) of respondents had business aspirations, which was a relatively high proportion of the sample. In order to test the hypothesis, a Kruskal-Wallis Test was conducted to compare the respondents' business timelines with their likelihood of joining a TSU. The test revealed that there was a statistically significant difference in the business timelines of respondents with business aspirations across three distinct likelihoods of joining a TSU in the next 12 months (GP1, $n = 33$: Very likely,

GP2, $n = 38$: Fairly likely, GP3, $n = 35$: Unsure), $X^2(2, n = 129) = 7.74, p = .02$. The test confirmed that the group with the strongest intentions of joining a TSU in the next 12 months (GP1) recorded the lowest median number of years in their business timeline ($Md = 2$) followed by “Fairly Likely” ($Md = 3$), and “Unsure” ($Md = 4$). The results of the Kruskal-Wallis Test are shown in Table 14.

Table 14: Business timeline in relation to likelihood of joining a TSU

| Business Timeline | | | | |
|------------------------------------|-------------|----------|-----------------------|---------------|
| Likelihood of joining a TSU | Mean | N | Std. Deviation | Median |
| 1. Very likely | 2.76 | 33 | 1.95 | 2.00 |
| 2. Fairly likely | 3.24 | 38 | 1.97 | 3.00 |
| 3. Unsure | 4.31 | 35 | 2.69 | 4.00 |
| Total | 3.44 | 106 | 2.30 | 3.00 |

Mann-Whitney U Tests were conducted as post-hoc controls to determine which of the groups were statistically different from each other. A Bonferroni correction was applied as a control for Type 1 errors and a new alpha level of $p = .017$ (.05 divided by 3) was used to evaluate the statistical significance. The post-hoc tests revealed that there was a significant difference in the business timelines of respondents who indicated that they were ‘Very likely’ to join a TSU in the next 12 months ($Md = 2.00, n = 33$) and those who indicated that they were ‘Unsure’ ($Md = 4.00, n = 35$), $U = 363, z = -2.69, p = .01$, with a medium effect size ($r = .33$).

The tests showed that there was no significant difference in the business timelines of respondents who indicated that they were ‘Very likely’ to join a TSU

in the next 12 months ($Md = 2.00$, $n = 33$) and those who indicated that they were 'Fairly likely' to join ($Md = 3.00$, $n = 38$), $U = 519$, $z = -1.28$, $p = .20$, $r = .15$, or between respondents who indicated that they were 'Fairly likely' to join a TSU in the next 12 months ($Md = 3.00$, $n = 38$) and those who indicated that they were 'Unsure' ($Md = 4.00$, $n = 35$), $U = 515$, $z = -1.70$, $p = .09$, $r = .20$.

The results indicated that there was a significant relationship between the attraction to work at a TSU and the entrepreneurial intent of the knowledge worker. Respondents with the shortest business timelines were most likely to work at a TSU in the next 12 months, and conversely, respondents with the longest business timelines were least likely to work at a TSU in the next 12 months. Thus, Hypothesis 4 was supported.

5.7 CONCLUSION

The results from the statistical analysis supported three out of the four hypotheses and the dominant themes in the literature were consequently validated. The results from the data analysis are summarised in Table 15 and briefly discussed below.

Table 15: Summary of results

| Description of Alternative Hypothesis | Result |
|---|---------------------------------------|
| H ₁ : Non-financial job attributes are more important overall to knowledge workers that are attracted to TSUs than financial attributes. | H ₁ was accepted |
| H ₂ : Knowledge workers in business-related positions will place a greater importance on financial attributes, whereas knowledge workers in technical-related positions will place a greater importance on non-financial attributes. | H ₂ was rejected |
| H ₃ : Women will place a greater importance on non-financial attributes, whereas men will place a greater importance on financial attributes. | H ₃ was partially accepted |
| H ₄ : The entrepreneurial intent of knowledge workers is significantly stronger for those with short-term aspirations of starting their own business venture. | H ₄ was accepted |

H₁: All else being equal, non-financial job attributes (career advancement, brand reputation, technology and innovation, people, intellectual challenge, and work schedule) are more important overall to knowledge workers that are attracted to TSUs than financial attributes (financial package and equity).

A paired-samples t-test confirmed that knowledge workers preferred non-financial job attributes overall and that there was a statistical difference between the mean importance of the financial and non-financial groups in the sample. Non-financial job attributes were more important overall than financial attributes, thus, Hypothesis 1 was strongly supported.

H₂: The relationship between financial and non-financial job attributes and the attraction to a technology start-up is moderated by the knowledge worker's job type, such that knowledge workers in business-related positions will place a

greater importance on financial attributes, whereas knowledge workers in technical positions will place a greater importance on non-financial attributes.

A Mann-Whitney *U* Test and Chi-square test for independence both confirmed that there was no statistical difference in the preference for financial and non-financial attributes between knowledge workers in business-related positions and knowledge workers in technical-related positions. Furthermore, the educational background of the respondent was also not significant. Thus, Hypothesis 2 was rejected.

H₃: The relationship between financial and non-financial job attributes and the attraction to a TSU is moderated by the knowledge worker's gender such that women will place a greater importance on non-financial attributes, whereas men will place a greater importance on financial attributes.

A Mann-Whitney *U* Test and Chi-square test for independence both confirmed that there was a statistical difference between the mean importance that males and females placed on financial and non-financial attributes. Females had a strong preference for non-financial attributes while males were equally split between financial and non-financial attributes. Therefore, Hypothesis 3 was partially supported.

H₄: The relationship between knowledge workers and the attraction to a TSU is moderated by the knowledge worker's entrepreneurial intent such that it is

significantly stronger for those with short-term aspirations of starting their own business venture.

A Kruskal-Wallis Test and Mann-Whitney *U* Test both confirmed that there was a statistically significant relationship between the attraction to work at a TSU and the entrepreneurial intent of the knowledge worker. Respondents with the shortest business timelines were most likely to work at a TSU in the next 12 months, while respondents with the longest business timelines were least likely to work at a TSU in the next 12 months. Thus, Hypothesis 4 was supported.

In this chapter, the results of this research were presented and analysed. The next chapter will discuss the results of this research in relation to the research question and hypotheses.

6. DISCUSSION

In the previous chapter, the results of this research were presented and analysed. In this chapter, the results of this research in relation to the research question and hypotheses will be discussed. The discussion relates directly to the literature review in Chapter 2.

6.1 INTRODUCTION

The research question and hypotheses were developed from central themes in the literature, which covered the knowledge economy, attraction and motivation theory, recruitment strategies, and employer branding. This research used a mixed method design incorporating quantitative and qualitative techniques based on its suitability to the research problem and the objectives.

Data gathered from nine exploratory interviews were used to validate the constructs identified in the literature and to short-list eight job attributes that were incorporated into the conjoint experiment in the second phase of the research. The purpose of the experiment was to reveal how important specific job attributes and benefits were to knowledge workers that were attracted to TSUs. The data analysis process was designed to enable the four hypotheses to be robustly tested in order to reach conclusive findings that would help answer the research question and achieve the research objectives. The research findings and their relevance to the literature are addressed in this chapter.

6.2 IMPORTANCE OF JOB ATTRIBUTES

The results of the conjoint experiment offered valuable insight into the importance that knowledge workers placed on individual job attributes. There was considerable variance in the sample with regards to job attribute preferences, which was evident by the relatively high standard deviation across all attributes. This can be explained by the fact that the knowledge worker population was heterogeneous and characterised by autonomous individuals with different tastes and preferences (Brelade & Harman, 2003).

It was predicted that intellectual challenge would be the most important job attribute, since various studies found that intellectual challenge and a challenging work environment outweighed financial job attributes and benefits in terms of overall importance (Sutherland et al., 2002; Montgomery & Ramus, 2003; Montgomery & Ramus, 2007). However, intellectual challenge and financial package were found to be equally important, in terms of statistical significance, which was somewhat unexpected.

The literature explained that salary had traditionally been an important attribute for job choice (Feldman & Arnold, 1978; Schwoerer & Rosen, 1989). For example, Feldman & Arnold (1978) discovered that “salary and fringe benefits” was the most important job attribute to graduate students that were preparing to re-enter the workplace, which the authors claimed was consistent with information-processing literature (p. 708). The results from this study suggested that salary was equally important to modern knowledge workers and this

implied that employers should do their best to offer market-related financial packages in addition to attractive non-financial benefits.

The statistically significant negative correlation between intellectual challenge and financial package was intriguing as this signalled that there was friction between the two job attributes and that a trade-off existed. In other words, respondents who placed a greater importance on financial package were prepared to accept a less intellectually challenging job, while respondents who placed a greater importance on intellectual challenge were prepared to accept a lower salary. This finding was consistent with the literature, which asserted that employees who received greater benefits were generally paid less than workers who received fewer benefits (Olson, 2002).

The second most important group of attributes consisted of brand reputation, technology and innovation, and career advancement. It was particularly surprising to find that brand reputation was rated so highly, especially amongst women. This could be explained by the fact that knowledge workers were well educated and socially aware and, for many of them, it was important to work for a trusted company with a credible reputation. This finding was also supported in the literature as previous studies found that the image of the organisation was an important attribute to women (Freeman, 2003).

Organisational legitimacy and the job seekers' knowledge of the organisation were believed to be the two biggest disadvantages that small firms faced in relation to large firms in the recruitment process (Williamson et al., 2002). The

results seemed to support this theory based on the overall importance that knowledge workers placed on brand reputation. For start-ups that did not typically own established brands, this had dramatic implications for attracting knowledge workers.

The literature indicated that an effective strategy to attract talented employees was to build a strong employer brand in the labour market (Baron & Hannan, 2002) and to become an 'employer of choice', which signalled to employees that a firm was an attractive employment destination. Creating an appealing employee value proposition (EVP), which highlighted the complete set of rewards and benefits that the company offered, would be the first step to becoming an 'employer of choice' (Kochanski & Ledford, 2001). Small firms should market their EVP and the characteristics that made them unique to job seekers, such as their entrepreneurial culture and flat-reporting structures, in order to differentiate themselves from large corporations (Williamson et al., 2002). The results suggested that TSUs could improve their prospects of attracting talented knowledge workers by offering employees access to cutting-edge technology and career advancement opportunities, which were considered equally as important as brand reputation.

The third most important job attribute was people, which could also be classified as "team environment" or "team climate". Although this was a relatively high ranking, Tumasjan et al. (2011) found that it was the most valued job attribute to knowledge workers in their study. A possible explanation for this contradiction was that Tumasjan et al. (2011) used students and recent graduates in their

sample, who may have overemphasised team dynamics since it was an important part of academic life. Nevertheless, the results from this study suggested that while it was not the most important job attribute, a strong team environment was still a unique characteristic of start-ups that they should market to job seekers.

The literature suggested that work schedule was not as important to employees as salary and other benefits, yet it could be a deciding factor for many people depending on their work-life situation (Honeycutt & Rosen, 1997). More recently, Porter and Ayman (2010) found that inflexible work schedules in the healthcare sector were positively related to employees' intentions to resign from their jobs. However, the results from this study demonstrated that work schedule was not one of the most important job attributes to knowledge workers in the sample, although it was possible that work schedule was becoming increasingly important to certain groups of knowledge workers, such as working parents, as suggested in the literature.

The results showed that equity was the least important attribute, by a significant margin, across the sample. This finding was somewhat inconsistent with previous research that found that employee ownership initiatives were an effective strategy for motivating and retaining staff (Wagner, Parker, & Christiansen, 2003). The high failure rate of start-ups may have made equity a less appealing incentive than cash and cash equivalents, which were risk-free and offered employees instant gratification. Another valid explanation was that employee ownership initiatives usually had many restrictions attached regarding

the vesting period and size of the equity stake, which Kruse and Blasi (1997) referred to as the “1/N problem”. In those cases where there were many restrictions, equity compensation may become a disincentive for employees. TSUs should therefore not rely on equity as a reliable strategy for recruiting talented knowledge workers unless the offer was extremely lucrative.

6.3 HYPOTHESIS 1

H₁: All else being equal, non-financial job attributes (career advancement, brand reputation, technology and innovation, people, intellectual challenge, and work schedule) are more important overall to knowledge workers that are attracted to TSUs than financial attributes (financial package and equity).

The purpose of this hypothesis was to test whether knowledge workers preferred non-financial attributes to financial attributes as stated in the literature. Hypothesis 1 predicted that non-financial job attributes would be more important than financial attributes overall to knowledge workers.

6.3.1 FINDINGS

The results indicated that when the job attributes were grouped into non-financial and financial, 57 per cent of respondents in the sample preferred non-financial job attributes. This was an exciting discovery as it suggested that financial benefits were not as important to contemporary knowledge workers as they were to traditional workers. The literature supported this theory and explained that knowledge workers had unique value systems and they were

more concerned with career growth opportunities and high levels of work satisfaction, than with the financial benefits of the job (Switzer, 2008; Sutherland et al., 2002).

The results seemed to indicate that knowledge workers' personality traits dramatically shaped their preferences for non-financial attributes overall. The literature mentioned that knowledge workers needed to be constantly challenged and stimulated, as they thrived on personal growth and were intrinsically motivated (Baron & Hannan, 2002; McGregor et al., 2004). This personality trait was aligned to the need for self-actualization, which was the fulfilment of a person's purpose and potential, and the most advanced need according to Maslow's (1943) hierarchy of needs. Knowledge workers were therefore primarily motivated by personal growth and achievement since, according to Maslow (1943), all their "deficiency needs", namely esteem, love and belonging, safety, and physical needs, were satisfied for the vast majority.

This was an interesting finding for TSUs as it suggested that most knowledge workers would choose to work for a company that could fulfil their need for self-actualization rather than work for a company that offered better financial benefits. On the one hand, this outcome was to the advantage of TSUs since most were unable to compete with large corporations in terms of financial benefits. This implied that they would be able to attract knowledge workers through better non-financial job attributes, as an alternative to financial benefits.

The downside however of this finding from a TSU perspective, was that they would need to play an active role in their employees' career development, thereby ensuring that their employees were sufficiently stimulated and achieving their personal goals. This may increase the administrative burden placed on TSUs, which was something that they could not afford since agility was one of their main competitive advantages (Churchill & Lewis, 1983). However, if TSUs failed to remain actively involved in their employees' careers and provide them with challenging and rewarding work, they would struggle to attract and retain talented knowledge workers, even if they could offer them better financial benefits.

The literature suggested two effective strategies that TSUs could implement in order to assist their employees with advancing their careers and to retain talented knowledge workers. The first strategy was to adopt an internal promotion policy and reward employees by promoting them into positions of greater responsibility (Medcof & Rumpel, 2007). This would allow them to advance their careers and give them an opportunity to be challenged without leaving the organisation. The second strategy was to encourage talented employees to work on multiple projects simultaneously and actively participate in different aspects of the business (Kochanski & Ledford, 2001). This strategy addressed their need for personal growth and allowed them to gain valuable business experience, which benefited both the employee and the TSU.

6.3.2 CONCLUSION

The results supported the hypothesis that non-financial job attributes were more important than financial attributes overall to knowledge workers. This also substantiated the theory that compensation and reward systems should be perceived differently in the modern era (Despres & Hiltrop, 1995). Where possible, TSUs should structure their compensation packages and employee-branding initiatives around non-financial job attributes and play an active role in their employees' career development, in order to attract and retain talented knowledge workers. This may include offering employees a combination of non-financial attributes such as challenging work, access to cutting-edge technology, a strong team environment, and a flexible work schedule. This strategy would help TSUs overcome an inherent weakness, namely their limited access to financial resources.

6.4 HYPOTHESIS 2

H₂: The relationship between financial and non-financial job attributes and the attraction to a technology start-up is moderated by the knowledge worker's job type, such that knowledge workers in business-related positions will place a greater importance on financial attributes, whereas knowledge workers in technical positions will place a greater importance on non-financial attributes.

The purpose of this hypothesis was to understand whether differences existed between the job attribute preferences of knowledge workers and their job types as stated in the literature. Hypothesis 2 predicted that knowledge workers in

technical-related positions would prefer non-financial job attributes, whereas knowledge workers in business-related positions would prefer financial job attributes.

6.4.1 FINDINGS

The results showed that 50 per cent of technical workers placed a greater importance on non-financial attributes, compared to 61 per cent of business workers, although no statistical difference existed between the two groups. The relationship between the respondents' educational background and their job attribute preferences was also not significant. It was surprising to find that technical workers placed a statistically greater importance on financial package than business workers in the sample, which was the opposite of what was expected.

The relationship between job attribute preferences and job type was hypothesised based on the considerable amount of evidence in the literature that supported this theory (Kochanski et al., 2003; Medcof & Rumpel, 2006; Tumasjan et al., 2011). For example, Kochanski et al. (2003) found that R&D professionals valued the 'work itself' significantly more than pay, in their study of 1999 R&D and human resource leaders in the U.S., which was contrasted by O'Neal in Medcof and Rumpel (2006), who discovered that business executives had an overwhelming preference for financial benefits in a sample containing over 500 respondents from different industries. Furthermore, high technology firms were known to use compensation methods that were aligned to their

emphasis on innovation, which distinguished them from companies in other industries (Diaz & Gomez-Mejia, 1997).

A possible explanation for the discrepancy in this study could be due to cultural differences as the literature that supported this hypothesis came predominantly from Europe and North America. The finding that technical workers in this study placed a statistically greater importance on financial package compared to business workers, was also supported by a review of Asian literature, which revealed that fixed salary was the most preferred form of compensation for 1214 Korean scientists and engineers (Kim & Oh, 2002). Based on this evidence, there may be more similarities between African and Asian cultures with regards to the job attribute preferences of technical workers than between African and North American or European cultures.

An additional explanation for this discrepancy may be that “technical workers” as a category was too broad and ambiguous since it contained a host of smaller sub-categories that were distinctly different from one another. There could be a large variance in the job attribute preferences of so-called “technical workers” and a better approach therefore may have been to separate this group into sub-categories such as hardware engineers, software engineers, database administrators, and scientists before performing the statistical analysis.

6.4.2 CONCLUSION

The results did not support the hypothesis that business workers placed a greater importance on financial attributes and technical workers placed a

greater importance on non-financial attributes. Contrary to the research from Europe and North America, the findings in this research suggested that almost two-thirds of respondents in business-related positions placed a greater importance on non-financial attributes compared to only half of the respondents in technical-related positions. Technical workers also placed a significantly greater importance on financial package than business workers. Cultural differences and the broad categorisation of “technical workers” were proposed as possible explanations for the discrepancy between the results and the literature. TSUs should therefore market the same job attributes to attract both business and technical workers. In addition, they should also consider offering technical workers a competitive financial package, since it would appear from the results that this was an important attribute to this group.

6.5 HYPOTHESIS 3

H₃: The relationship between financial and non-financial job attributes and the attraction to a TSU is moderated by the knowledge worker’s gender such that women will place a greater importance on non-financial attributes, whereas men will place a greater importance on financial attributes.

The purpose of this hypothesis was to understand whether different job attribute preferences of knowledge workers existed according to gender, as stated in the literature. Hypothesis 3 predicted that female knowledge workers would prefer non-financial job attributes, whereas male knowledge workers would prefer financial job attributes.

6.5.1 FINDINGS

The results indicated that 72 per cent of women placed a greater importance on non-financial attributes compared to 50 per cent of men. There was a statistically significant difference between the job attribute preferences of men and women, which was supported by the literature. Previous studies found that women placed a greater emphasis on non-financial attributes such as work environment and work schedule, while men placed a greater emphasis on financial attributes such as salary (Konrad et al., 2000; Freeman, 2003). The results from this study seemed to suggest that women preferred non-financial attributes to men, however they did not suggest that men preferred financial attributes to non-financial attributes, as the ratios were equal.

The reason why women preferred non-financial attributes may be explained by their traditional roles in society. Women tended to have more onerous family responsibilities than men and as a result, they generally followed career-and-family paths rather than traditional career paths. Following a career-and-family path required employees to sacrifice financial benefits and career advancement opportunities in exchange for added flexibility and a balanced work and family life (Honeycutt & Rosen, 1997). This perspective was supported by Strober (1982) who conducted a survey of Stanford MBA graduates and found that discrimination and work-family conflict were identified as the greatest hurdles for women managers in achieving their career goals.

A second possible explanation as to why women preferred non-financial attributes was that men were usually the main providers in a nuclear family,

which allowed women to place a greater emphasis on non-financial benefits, since there was less pressure on them to bring in more money. This interpretation of the results was supported by studies that found that women were paid less than men in the same positions and they also had lower earning expectations. For example, Major and Konar (1984) discovered that the earning expectations of men were 16.5 per cent higher than women in entry-level positions and 46 per cent higher in executive positions. Studies have also shown that women were twice as likely as men to relocate in order to advance their partner's career (Rosen, Templeton, & Kichline, 1981). This suggested that women's careers played a supporting role to their spouses' careers in most families and they were less financially motivated, which may explain their preference for non-financial attributes.

While women's preference for non-financial attributes was supported in the literature, it was surprising to find that men did not have an overwhelming preference for financial attributes, considering that they played the role of breadwinner in the traditional family structure. A possible explanation for this finding could be that there was an increasing number of working fathers who were also affected by work/family conflicts. As a result, they may value flexibility and a balanced work and family life as much as some working mothers. In response to this phenomenon, Hall (1990) proposed that organisations adopt a flexible career path that supported the work-life needs of all workers and did not force them to choose between a traditional career and a career-and-family path. This included offering family friendly benefits, such as work flexibility and child-care services, to all employees. The flexible career

path was endorsed by Honeycutt and Rosen (1997) who found that all the respondents in their study from different backgrounds were attracted to the organisation where this policy featured.

6.5.2 CONCLUSION

The results partially supported the hypothesis that women placed a greater importance on non-financial attributes, whereas men placed a greater importance on financial attributes. The supporting literature suggested that societal roles and family responsibilities influenced the preference of women for non-financial job attributes. For some men, financial attributes were more important, presumably due to their role as the main provider, while for others, non-financial attributes were more important due to their family responsibilities.

The relevance of this finding for TSUs was that they could attract more female knowledge workers by offering them better non-financial attributes while they may need to emphasise both financial and non-financial attributes in order to attract the same proportion of males. The recommendation to TSUs is that they communicate these differences via their EVPs and vary them in order to appeal to both genders since a universal EVP was unlikely to be as effective. Despite the fact that certain attributes, such as office location may be unchangeable, where possible, TSUs should emphasise the attributes, such as work schedule or salary depending on the gender of the job seeker, and whether they were family or career focused. They should also consider adopting Hall's (1990) flexible career path and offer family friendly policies in order to attract the widest

pool of talented knowledge workers and to promote diversity within the organisation.

6.6 HYPOTHESIS 4

H₄: The relationship between knowledge workers and the attraction to a TSU is moderated by the knowledge worker's entrepreneurial intent such that it is significantly stronger for those with short-term aspirations of starting their own business venture.

The purpose of this hypothesis was to determine whether knowledge workers who had serious intentions of starting their own businesses would be more likely to work at a start-up as suggested in the literature. Hypothesis 4 predicted an interaction effect between the knowledge worker's entrepreneurial intent and the likelihood of joining a TSU, such that knowledge workers would be more attracted to a TSU when their business timelines were shorter.

6.6.1 FINDINGS

The results showed that 82 per cent of respondents had business aspirations, which was a relatively high proportion of the sample. Out of the respondents that had business aspirations, there was a significant relationship between their attraction to a TSU and their business timelines. Respondents with the shortest business timelines were most likely to join a TSU within the next 12 months while those with the longest business timelines were least likely to join within the same time period.

The findings suggested that knowledge workers were attracted to TSUs partly because of their unique characteristics and not solely because of any specific job attributes or benefits. This was an exciting discovery from a theoretical perspective, as it validated the literature on entrepreneurial knowledge building and the role of start-ups in developing entrepreneurship. It is possible, as Hyytinen and Maliranta (2008) suggested, that knowledge workers who had serious entrepreneurial aspirations may “self-select” into firms where they could acquire the prerequisite skills and training that would facilitate a smooth transition into entrepreneurship. The opportunity to work in a highly innovative environment and interact with the TSU’s founder(s) could be a major attraction for knowledge workers who were interested in starting technology-related businesses. This theory was consistent with Hellmann’s (2007) observation that entrepreneurs usually discovered their ideas while they were employed at firms in related industries.

A further explanation as to why aspiring entrepreneurs were more attracted to TSUs compared to other employees, was because it gave them access to an established network of entrepreneurs, customers, suppliers, and venture capitalists that would otherwise be difficult to assemble on their own or while working at a large firm. This explanation was supported in the literature by Gompers et al. (2005) who discovered that new entrepreneurs usually obtained their business skills from their co-workers and exploited the networks to which they were exposed while working at entrepreneurial firms.

The results of this hypothesis reinforced the popular theory that start-ups played a pivotal role in developing entrepreneurship in society (Parker, 2009; Klepper & Sleeper, 2005; Hyytinen & Maliranta, 2008). For example, Hyytinen and Maliranta (2008) found that small firms in Finland were responsible for spawning new entrepreneurs more frequently than large firms and this was also reported in other parts of the world (Gompers et al., 2005). More importantly, entrepreneurs who had previous working experience at start-ups were found to be more successful in their business ventures than entrepreneurs who came from larger firms (Elfenbein et al., 2010). This indicated that the quality of training and the networks to which entrepreneurs gained exposure were far superior while working at start-ups than at larger firms, and this appeared to be a critical success factor.

Based on the findings and the supporting literature, the business-training aspect was a unique and attractive characteristic that most start-ups possessed. Furthermore, aspiring entrepreneurs seemed to be aware of this benefit despite the fact that it was not explicitly communicated. This should be viewed as a defensible competitive advantage since large firms could not replicate the start-up environment or offer aspiring entrepreneurs the same level of access to valuable networks. TSUs could exploit this competitive advantage by marketing the unique benefits of working at a start-up, such as the practical business experience and access to powerful networks, in addition to the job attributes, in order to attract talented knowledge workers that had serious entrepreneurial aspirations.

6.6.2 CONCLUSION

The results supported the hypothesis that knowledge workers with serious entrepreneurial aspirations would be more attracted to TSUs. Access to valuable networks and practical business experience were proposed as possible explanations for this finding, which were supported in the literature.

The relevance of this finding for TSUs was firstly, that they should acknowledge the pivotal role that they played in developing entrepreneurship in society and view it as a competitive advantage. Secondly, TSUs should market the unique benefits of working at a start-up, such as the practical business experience and networking opportunities in order to attract talented knowledge workers that had serious entrepreneurial aspirations.

In this chapter, the results of this research in relation to the literature and hypotheses were discussed. The next chapter will highlight the main findings of this research and provide recommendations for future research.

7. CONCLUSION

In the previous chapter, the results of this research in relation to the literature and hypotheses were discussed. In this concluding chapter, the main findings of this research will be highlighted and recommendations for future research will be provided.

7.1 BACKGROUND AND OBJECTIVES

The 'war for talent' was fuelled by a combination of factors, including the global skills shortage and the additional demand that was placed on acquiring human capital in the knowledge economy. The high-technology industry felt this impact the most, especially since knowledge and innovation were inextricably linked. As a result, technology companies required a specialised knowledge base in order to maintain a competitive advantage. TSUs faced an even greater challenge as they competed with large corporations that had better access to resources and the recruitment of highly skilled employees could thus best be described as a 'war of survival'.

Previous research had focused predominantly on resource acquisition in large firms and, as a result, relatively little was known about the factors that attracted skilled knowledge workers to start-ups, which had unique characteristics. This research investigated what attracted highly skilled knowledge workers to technology start-ups (TSUs) despite their numerous challenges and limited financial resources.

The research objectives were as follows:

- Identify the main job attributes that attracted knowledge workers to TSUs
- Confirm whether financial or non-financial attributes overall were more important to knowledge workers
- Determine whether individual differences between knowledge workers, such as job type and gender, affected their work preferences
- Establish whether any of the unique characteristics of start-ups attracted certain types of knowledge workers

The findings of this research were particularly relevant in South Africa where a scarcity of skills and a high unemployment rate restricted economic growth and where technology entrepreneurship was an under-researched discipline. The findings provided valuable insight into the behaviours, motivations, and aspirations of knowledge workers that TSUs could use to improve their chances of attracting the best talent and increasing their likelihood of success. These findings are summarised in the section below.

7.2 SUMMARY OF KEY FINDINGS

This study achieved all its objectives and revealed that since the early 1980's, there was a global shift from an industrial economy to a knowledge-based economy, which in turn gave rise to a new type of employee known as the 'knowledge worker'. Knowledge workers were responsible for creating and exploiting new knowledge within an organisation. They were also considered by many to be a firm's greatest asset, since knowledge could provide a company with a strong competitive advantage when it was effectively transferred into the

firm's respective products and services. Knowledge workers possessed unique character traits and they had different work preferences to their traditional production-oriented counterparts, which continue to shift over time.

Limited resources and organisational challenges placed start-ups at a disadvantage in the recruitment of talented knowledge workers. This was compounded by the 'war for talent', which was a global phenomenon that has made the labour market extremely competitive. The long-term survival prospects of start-ups and their level of competitiveness were largely dependent on their ability to attract, motivate, and retain knowledge workers.

This study made a valuable contribution to the literature by finding that non-financial job attributes overall were more important than financial attributes to knowledge workers that were attracted to TSUs. Intellectual challenge and financial package were the two most important individual attributes to knowledge workers in the sample, followed by brand reputation, access to technology and innovation, career advancement opportunities, team environment, work flexibility, and equity.

This study also contributed to the literature by concluding that there were distinct differences in job attribute preferences between genders, as women preferred non-financial attributes more than financial attributes overall, whereas the preferences for men were evenly distributed. This validated the findings of numerous studies over the past few decades that also reported gender differences in work preferences (Bigoness, 1988; Major & Konar, 1984; Konrad

et al., 2000). Traditional societal norms and roles and family responsibilities were put forward as the main reasons for this finding.

The results indicated that there were no significant differences between technical and business workers and their preferences for job attributes, which contradicted previous research (Tumasjan et al., 2011). This may have been due to cultural differences as the supporting literature came predominantly from Europe and North America. This was clearly an area in the literature that required further research.

Lastly, there was a significant relationship between the business timelines of knowledge workers and their attractions to a TSU. Knowledge workers who had short-term business aspirations were found to be more likely to work at a TSU than knowledge workers with longer-term aspirations. This added an important dimension to entrepreneurship literature and the theoretical underpinnings of entrepreneurial knowledge building. Furthermore, it substantiated previous research that showed that start-ups played a crucial role in training and incubating aspiring entrepreneurs.

7.3 RECOMMENDATIONS FOR TSUS

This research revealed a number of important implications for TSUs that would benefit from adopting the following recommendations. An advanced understanding of what attracted knowledge workers to TSUs would help them to compete better in the “war for talent” and ultimately improve their chances of

success. This would not only benefit technology entrepreneurship in South Africa, but also the economy in general.

Wherever possible, TSUs should structure their compensation packages and employee-branding initiatives around non-financial job attributes in order to attract talented knowledge workers. Not all companies however, would have the means to offer employees the same job attributes, so the founder(s) should identify the attributes that aligned best with their organisational cultures.

This strategy would help TSUs overcome an inherent weakness, namely their limited access to financial resources. The non-financial attributes that were found to be important to knowledge workers included challenging work, career advancement opportunities, access to cutting-edge technology, a strong team environment, and a flexible work schedule.

TSUs should avoid placing great emphasis on equity compensation in their recruitment strategies, unless the value of the equity was substantial and relatively risk-free, as it was found to be the least important attribute to knowledge workers across the sample. A better approach for most firms would be to use equity as a motivation strategy, rather than to use it as an attraction strategy, and thus link it to work performance or number of years with the company in order to encourage loyalty.

The results of this study indicated that TSUs should play an active role in their employees' career development and ensure that they were sufficiently

stimulated and achieving their personal goals, otherwise they may struggle to retain talent. The high importance that knowledge workers placed on financial package in the study, especially technical workers, suggested that remuneration was still an important consideration for many.

It is recommended that TSUs build a solid brand reputation as early as possible as it was found to be a very important job attribute, especially amongst women. This applied to brand reputation in the product market as well as in the labour market. Start-ups could use free Internet social media channels and personal networks to market the job attributes and characteristics that made them unique in order to differentiate themselves from large corporations.

Companies should strive to become 'employers of choice' so that employees chose to work for them as this was shown to be an effective strategy for building a company's brand reputation in the labour market and for attracting talented knowledge workers. This could be achieved by creating an attractive employee value proposition (EVP), which highlighted the complete set of rewards and benefits that the company offered.

Although the study found that no significant relationship existed between job attribute preferences and job type, TSUs should be aware of the fact that differences existed between genders. They may be able to attract more female knowledge workers by offering them better non-financial attributes while they may need to emphasise both financial and non-financial attributes in order to attract the same proportion of males. TSUs should also consider adopting Hall's

(1990) flexible career path and offer family friendly policies in order to attract the widest pool of talented knowledge workers and to promote diversity within the organisation.

Finally, TSUs should acknowledge the pivotal role that they played in developing entrepreneurship in society and view it as a competitive advantage. Emphasising the unique benefits of working at a start-up, such as practical business experience and access to powerful networks, would be most likely to attract the segment of knowledge workers that had aspirations of starting their own business ventures.

7.4 LIMITATIONS AND MITIGATIONS

All research has its limitations and this study was no exception. The limitations of this study were identified and the steps that were taken to mitigate the potential downsides, where possible, are discussed below.

7.4.1 SAMPLING

This research used judgemental sampling, which is a non-random sampling technique that was prone to bias and was not considered statistically representative of the total population (Saunders et al., 2009). Furthermore, the size of the target population was unknown, which limited the ability to generalise the findings outside of the sample under study. This could have been avoided by using a database of South African knowledge workers and adopting a random sampling technique, which would have allowed more accurate inferences to be made from the research.

7.4.2 DATA COLLECTION PROCEDURE

The procedure for short-listing the final eight job attributes for the conjoint experiment was partially subjective and this may have biased the findings. The attributes needed to be limited as each additional attribute would have added a further layer of complexity to the experiment and the survey response rate would have decreased. The risk of introducing bias into the findings was minimised by applying a two-step process that used existing literature and primary interviews to validate the constructs that were tested in the experiment.

7.4.3 CONJOINT ANALYSIS

Conjoint analysis, like all research instruments, is prone to error and reliability issues. Respondents have a tendency to overestimate the importance of certain attributes in conjoint experiments (Green & Srinivasan, 1990). It is also possible that they may have reacted differently if they were confronted with the same situation in the real world. Despite these limitations, conjoint analysis was widely recognised as an accurate predictor of human choice behaviour (Hair et al., 1998).

The validity of the experiment design was another possible limitation as it was not based on an established research instrument. This risk was mitigated to an extent by thoroughly testing the design in a series of pilot studies, which included researchers who were experienced in the conjoint methodology.

A well-known disadvantage of the Adaptive Choice-Based Conjoint (ACBC) technique that was used in this study was that it took longer and was more

mentally taxing than other conjoint methods. This may have led to respondents adopting simplification strategies in order to complete the experiment quicker, which could have affected the data quality. However, research has shown that respondents found ACBC experiments more engaging and realistic than other conjoint techniques, which resulted in more considered responses (Sawtooth Software, 2009). Respondents were also incentivised to give accurate responses by allowing them to see their results at the end of the experiment and the data were thoroughly screened for outliers prior to analysis, which reduced the limitations of the ACBC technique.

7.5 RECOMMENDATIONS FOR FUTURE RESEARCH

This aim of this research was to understand what attracted knowledge workers to South African TSUs. The findings unlocked several options for further research to be conducted, as mentioned below:

- Future research could adopt a confirmatory approach to test the validity of the study findings and the job attributes used in the experiment.
- This study did not reveal how much of the direct financial benefits respondents would be willing to trade in exchange for better non-financial benefits. Future research could investigate how much of their salaries knowledge workers would be willing to forego and what their financial threshold was.
- The role that race and culture played in attracting knowledge workers to TSUs and their job attribute preferences would be an interesting area for future research. This could take the form of ethnographic research across different demographics or a comparison between groups of

knowledge workers from different countries, using an identical conjoint experiment.

- Another unexplored area is the impact that marital status and gender had on job attribute preferences. Future research could investigate whether there was a relationship between marital status, gender, and work preferences.
- Finally, a comparison between the job attribute preferences of knowledge workers and traditional production workers would be intriguing as it may confirm whether differences truly exist between white-collar and blue-collar workers, as suggested by the literature.

7.6 CONCLUSION

Knowledge workers were responsible for creating and exploiting new knowledge within an organisation and they were considered to be a firm's greatest asset. Companies within the high-technology industry were largely dependent on a specialised knowledge base in order to make advances in technological innovations and to maintain a competitive advantage. Technology start-ups (TSUs) had limited resources and faced various organisational challenges which placed them at a disadvantage in the recruitment of talented knowledge workers. This affected their ability to remain competitive in the industry and posed a serious threat to their long-term survival. The findings from this research provided valuable insight into the behaviours, motivations, and aspirations of knowledge workers that would enable TSUs to attract the best talent and improve their success rates.

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9. APPENDICES

APPENDIX A: PHASE ONE INTERVIEWS

Informed Consent

My name is Colin Daniels and I am a MBA student, registered with the Gordon Institute of Business Science at the University of Pretoria. I am conducting research on what attracts and motivates highly skilled knowledge workers to join technology start-up firms. As part of this research, you are kindly requested to participate in an interview that will help me understand why talented workers choose to join start-ups rather than corporates. The interview will be kept completely confidential and should take less than 30 minutes of your time. Your participation is voluntary and you can withdraw at any time without penalty. If you have any concerns or questions, please contact my supervisor or me using the contact details provided below.

| | |
|--------------------------------|----------------------------------|
| Researcher: Colin Daniels | Supervisor: Greg Fisher |
| Email: colin.daniels@gmail.com | Email: gcfisher@u.washington.edu |
| Phone: 084 852 1491 | Phone: +1 206 909 3146 (US) |

Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

Discussion Schedule

1. Age
2. Number of months at present start-up
3. Current position
4. Educational background
5. What makes a start-up an attractive employer?
6. How is a start-up different from a large corporate as an employer?
7. What was your personal motivation for joining your present company?
8. What incentives attracted you to your present company?
9. Are financial or non-financial incentives more important to you overall?
10. Do you have any ambitions of starting your own business one day?
11. What would you do to attract talented employees to a start-up
12. How do recruitment practices at start-ups differ compared to those at large corporates?

APPENDIX B: PHASE TWO SURVEY

Informed Consent

My name is Colin Daniels and I am an MBA student, registered with the Gordon Institute of Business Science at the University of Pretoria. I am conducting research on what attracts and motivates highly skilled workers to join technology start-up firms. As part of this research, you are kindly requested to participate in an online survey. The survey is completely anonymous and should take between 10-15 minutes of your time. As an incentive, you will be shown at the end of the survey which job attributes are most attractive to you based on your responses.

By completing this survey, you accept that your participation in this research is voluntary. If you have any concerns or questions, please contact either myself or my supervisor using the contact details provided below.

| | |
|--------------------------------|----------------------------------|
| Researcher: Colin Daniels | Supervisor: Greg Fisher |
| Email: colin.daniels@gmail.com | Email: gcfisher@u.washington.edu |
| Phone: 084 852 1491 | Phone: +1 206 909 3146 (US) |

General Survey Instrument

1. Your age:

2. Gender

Male

Female

3. Marital Status

Single

Married

Divorced

4. Number of dependents:

5. Do you have a tertiary-level degree/diploma or equivalent?

Yes

No

6. Please specify the field or area of your main qualification below:

Business

Education

Engineering

Finance

Health Sciences

Humanities

Information Technology (IT)

Law

Marketing & Communications

Science

Other... [Respondent Specify]

7. Are you the business owner or a shareholder in the company you work for?

Yes

No

8. How many years of work experience do you have in total:

9. Select the area that *best describes* your current occupation or job category:

Accounting/Finance
Administrative/Clerical
Biotech/R&D
Business/Strategic Management
Consulting
Creative/Design
Customer Support
Editorial/Writing
Education/Training
Engineering
General Management
Human Resources (HR)
IT/Software Development
Legal
Marketing/Communications
Project Management/Operations
Sales/Business Development
Other... [Respondent Specify]

10. Which country do you currently work in?

South Africa
Other

11. How likely are you to leave your job in the next 12 months to join a technology start-up (assuming it was an attractive opportunity)?

A tech start-up is a company that provides a product or service that is built on advanced technology (e.g. computer software, Internet, telecommunications, biotechnology etc.)

Very likely
Fairly likely
Unsure
Fairly unlikely
Very unlikely

12. Do you have aspirations of starting your own business in the future?

Yes
No

13. What is your approximate timeline for starting your own business?

APPENDIX C: EXPLORATORY INTERVIEW TABLE

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|--|---|--|---|--|---|---|---|---|
| Age | 21 | 25 | 26 | 28 | 28 | 28 | 28 | 29 | 29 |
| Marital status | Single | Married | Single | Married | Married | Single | Single | Single | Married |
| Period employed at present company | 4 months | 3 months | 2 months | 5 months | 3 months | 10 months | 1 month | 1 month | 9 months |
| Position/ role in company | Support Engineer | Lead Developer | Reputation Specialist | Customer Support | CTO | Developer | Developer | Senior Developer | Business Development |
| What makes a start-up an attractive employer? | <ul style="list-style-type: none"> • Part of building something • Strong teams • Support structure • Learning • Career fast track | <ul style="list-style-type: none"> • Interesting industry • Interesting work • Making it big (IPO potential) | <ul style="list-style-type: none"> • Personal growth • Career fast track | <ul style="list-style-type: none"> • Small & intimate • Contribution is valued • Young & dynamic | <ul style="list-style-type: none"> • Part of building something • The Idea • Nurturing a product or service • Equity • Fun environment • Freedom | <ul style="list-style-type: none"> • Part of building something • Contribution is valued • Working with other larger companies • Interesting work • The Idea | <ul style="list-style-type: none"> • Progressive • The idea • Personal growth • Career fast track | <ul style="list-style-type: none"> • Exposed to various aspects of the business • Exciting projects • Personal growth • Flexibility • Less politics/ bureaucracy | <ul style="list-style-type: none"> • The idea • New and exciting work |
| Personal motivation for joining | <ul style="list-style-type: none"> • Growth & learning • Learn how | <ul style="list-style-type: none"> • Growth & learning • Respect | <ul style="list-style-type: none"> • Growth & learning • Interesting | <ul style="list-style-type: none"> • Unproductive at previous company | <ul style="list-style-type: none"> • Great opportunity to build a | <ul style="list-style-type: none"> • Paid better than previous | <ul style="list-style-type: none"> • Relaxed environment • Great | <ul style="list-style-type: none"> • Strong team • Professional network | <ul style="list-style-type: none"> • The idea • Potential market |

| | | | | | | | | | |
|--|--|--|--|---|---|---|--|--|--|
| present company? (Intrinsic) | to run a business | • Career fast track | company & industry • Strong team • Position created specially • Company image | • Didn't enjoy the work • Wanted a change | company • Founders | employers • Wanted to relocate • Founders | culture • Personality fit • Sufficiently established | • Founders | • Opportunity to add value • Founders |
| Ambitions of starting own business? | Yes | Yes | Yes | No | Yes | No | Yes | Yes | Yes |
| What incentives attracted to present company? (Extrinsic) | <ul style="list-style-type: none"> • Growth & learning potential • Salary • Innovation • Flexible work schedule • Contribution valued • Work environment | <ul style="list-style-type: none"> • Founders/ team • Innovation • Salary • Challenging work • Location | <ul style="list-style-type: none"> • Challenging work • Salary • Growth & learning potential • Work environment • Performance bonuses • Founders/ team • Flexible work schedule | <ul style="list-style-type: none"> • Work environment • Salary • Growth & learning potential • Challenging work • Location | <ul style="list-style-type: none"> • Equity • Salary • Work environment • Challenging work • Flexible work schedule • Fringe benefits | <ul style="list-style-type: none"> • Salary • Growth & learning potential • Location • Technology • Challenging work • Founders/ team • Flexible work schedule | <ul style="list-style-type: none"> • Challenging work • Job security • Salary • Work environment • Location | <ul style="list-style-type: none"> • Flexible work schedule • Founders/ team • Salary • Technology • Location • Work environment • Equity • Job security | <ul style="list-style-type: none"> • Equity • Founders/ team • Responsibility • Salary |
| Are financial or non-financial incentives more important overall? | Non-financial | Non-financial | Non-financial | Non-financial | Financial | Financial | Non-financial | Non-financial | Non-financial |

APPENDIX D: CONSISTENCY MATRIX

| HYPOTHESES | LITERATURE REVIEW | DATA COLLECTION | ANALYSIS |
|---|--|---|--|
| <p>Hypothesis 1</p> <p>All else being equal, non-financial job attributes (career advancement, brand reputation, technology and innovation, people, intellectual challenge, and work schedule) are more important overall to knowledge workers that are attracted to TSUs than financial attributes (financial package and equity).</p> | <p>Sutherland et al., 2002 Despres & Hiltrop, 1995 Kochanski et al., 2003 Switzer, 2008</p> | <p>Conjoint analysis developed from literature review and constructs identified from research phase 1</p> | <p>Descriptive & Inferential Paired-samples t-test Pearson Correlation</p> |
| <p>Hypothesis 2</p> <p>The relationship between financial and non-financial job attributes and the attraction to a technology start-up is moderated by the knowledge worker's job type, such that knowledge workers in business-related positions will place a greater importance on financial attributes, whereas knowledge workers in technical positions will place a greater importance on non-financial attributes.</p> | <p>Medcof & Rumpel, 2007 Diaz & Gomez-Mejia, 1997 Coombs & Gomez-Mejia, 1991 Tumasjan et al., 2011 Medcof & Rumpel, 2006</p> | <p>Conjoint analysis developed from literature review and constructs identified from research phase 1</p> | <p>Descriptive & Inferential Mann-Whitney U Chi-square</p> |
| <p>Hypothesis 3</p> <p>The relationship between financial and non-financial job attributes and the attraction to a TSU is moderated by the knowledge worker's gender such that women will place a greater importance on non-financial attributes, whereas men will place a greater importance on financial attributes.</p> | <p>Konrad et al., 2000 Honeycutt & Rosen, 1997 Marini et al., 1996 Freeman, 2003</p> | <p>Conjoint analysis developed from literature review and constructs identified from research phase 1</p> | <p>Descriptive & Inferential Mann-Whitney U Chi-square</p> |
| <p>Hypothesis 4</p> <p>The relationship between knowledge workers and the attraction to a TSU is moderated by the knowledge worker's entrepreneurial intent such that it is significantly stronger for those with short-term aspirations of starting their own business venture.</p> | <p>Gompers et al., 2005 Hyytinen & Maliranta, 2008 Parker, 2009 Hellmann, 2007</p> | <p>Conjoint analysis developed from literature review and constructs identified from research phase 1</p> | <p>Descriptive & Inferential Kruskal-Wallis Mann-Whitney U</p> |