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South Africa's Future Knowledge Workers: A Peep into their Goals and Motivations for Innovation

A. S. A. du Toit
adutoit@uj.ac.za

R. J. van Staden
roelof.van_staden@nsn.com

P. D. Steyn
piet.steyn@eskom.co.za

Centre for Information and Knowledge Management, University of Johannesburg, South Africa

Abstract

The demand for knowledge workers is on the increase, yet little is known about their career perceptions and what motivate them to innovate. This article explores issues with regard to perceptions and motivations for creativity and innovation in knowledge work. A survey was conducted amongst a sample of knowledge workers in South Africa to determine the role of innovation in career satisfaction. Most of the knowledge workers believed that innovation is a key prerequisite for achieving career satisfaction and expressed the desire to take control of their own careers and contribution to innovation.

Keywords

Knowledge workers, Innovation, Creativity, Research and development

Introduction

The knowledge economy can be described as one in which there is an increased reliance on knowledge and innovation to develop new products and services (Al-Hawamdeh, 2003; Waddock, 2007). Knowledge, skills and creativity provide the basis for competitive advantage in the global market (Harman and Brelade, 2000). Organisations realise competitive advantage through the use of knowledge and innovation, created and stored in the minds of their knowledge workers (Al-Hawamdeh, 2003; Alley, 1999; Davis, Subrahmanian and Westerberg, 2005; Danskin, Englis, Solomon, Goldsmith and Davey, 2005; Deng, 2008).

More than ten years ago, Drucker (1999) stated that managers needed to increase productivity through knowledge work. This in essence meant that managers needed to be supported by creative and innovative knowledge workers, and this unending desire for productivity increases has led to knowledge workers becoming invaluable to organisations. In the United States of America, knowledge workers make up more than a third of the workforce (Drucker, 2001). Taking into account that knowledge workers have only been acknowledged in the past 50 years (Rooney, Hearn and Ninan, 2005), this is clearly a significant number of workers. Even more recent information by Waddock (2007) suggests that knowledge workers in the United States of America make up almost 60% of all workers.

Research Problem and Objectives

Management initiatives previously ignored the needs of knowledge workers and only recently had such initiatives formally acknowledged knowledge workers

as potential contributors of large amounts of wealth for organisations. Yet, not much empirical literature exists about how the knowledge and creativity of individual knowledge workers and their motivations to innovate helps to provide a competitive advantage for organisations or the knowledge workers themselves. In South Africa, a high unemployment rate of approximately 40%, coupled with only 44.6% of skilled workers receiving any form of training, means that the country is not investing adequately in its knowledge worker population (Smith 2008). However, if it is true that prosperity, or even survival, depends on knowledge worker productivity, then organisations in South Africa need to address issues concerning their knowledge workers.

The above provides the context for this study, which explored issues concerning the career perceptions and motivations that influence knowledge workers in South Africa and whether the insight from the study could be used to promote the rate of creativity and innovation among such workers. The research questions for the study were:

(a) What issues and variables concerning the careers of knowledge workers influence their capacity and motivation to innovate?
(b) How can organisations address the identified issues and variables to promote constant innovation within the South African business environment?

Relevant Literature

Knowledge Work

Davenport (2005), in describing the knowledge worker in the present day organisation, argues that:

> Knowledge workers are responsible for sparking innovation and growth in your organization. They invent your new products and services, design your marketing programs, and create your strategies. In the current economy, they are the horses that pull the plough of economic progress. If our companies are going to be successful, if our society is going to become more advanced, it will be because knowledge workers did their work in a more productive and effective manner.

Kelloway and Barling (2000) postulated the view that knowledge work is a "discretionary behaviour focused on the use of knowledge", and that there are four forms of knowledge work which may or may not manifest themselves at all hierarchical levels -of the organisation the creation of new knowledge or innovation, the application of existing knowledge to current problems, the packaging or teaching of knowledge, and the acquisition of existing knowledge via research and learning.

Efimova (2003) questions why little research has been done on trying to understand the actual work done by knowledge workers and how what they deliver can be improved. According to her, a paradox arises as effort and investment are expended on technology, improving knowledge flows and the like and yet we do not know enough about what knowledge work is. She postulates that this shortcoming or confusion is a result of the view that the outputs of a knowledge worker are "discretionary and invisible", and lists the following as sequential outputs of a knowledge worker: locating, understanding and integrating information considered to be germane; leveraging social interaction to find new meaning and new knowledge; and applying innovation to deliver new products and services.

Knowledge Workers in the Knowledge Economy

Knowledge workers can make a significant contribution to an organisation's sustainable advantage if they are able to interact with all participants in the knowledge economy (Alley, 1999). The value of knowledge workers lies in their ability to use, share and convert knowledge into new ideas, products and services (Lee-Kelley, Blackman and Hurst, 2007). In the knowledge economy, knowledge workers interact with communities, organisations and even industries with knowledge flowing between these entities (Defillippi, Arthur and Lindsay, 2006). Interacting with these different participants requires new skills and talents from knowledge workers (Waddock, 2007). The role of knowledge workers is more prominent in developed countries; as their economies are strong, people have high levels of basic education and they can provide solid evidence of the returns on knowledge use (Waddock, 2007).

Interacting with these participants requires that knowledge workers adjust to new structures and ways of working while still adding value by documenting problems solved, reporting best practices and disseminating information (Bergeron, 2003; Evans, 2003).

Baker and Badamshina (2005) make the salient point that the key to sustaining the knowledge organisation and the knowledge economy does not lie in the knowledge products and services themselves, but in the tacit knowledge which is used by the knowledge workers to create these knowledge-based products and services. Although knowledge workers spend 15% to 30% of their time gathering information, according to an IDC study (Ambrose, 2008), their role is not just that of an information gatherer. Knowledge workers take on the roles of creators of knowledge, disseminators of knowledge, and sharing knowledge with other participants such as communities, organisations and industries.

The diverse and highly valuable nature of the roles that knowledge workers play in the knowledge economy, coupled with increasing mobility in the labour market, leads to fragmented careers of these workers (Tremblay 2003; Tomlinson 2009). Social networks influence the role and professional development of knowledge workers, ultimately influencing the career of knowledge workers. In the next section, the demand for knowledge workers in the knowledge economy is discussed, as the demand for a specific type of worker places additional demands on the career expectations and development of such a worker.

Demand for Knowledge Workers

If one takes into account that knowledge workers will become the dominant group of workers in the future, then knowledge workers will appear to have borderless, upward career mobility with the potential for failure or success. The growth in certain economic sectors and competition, coupled with increasing rapid rates of obsolescence of knowledge and the inevitability of knowledge workers retiring, creates a constant demand for new and young knowledge workers. The computer, manufacturing and education sectors are set to see unprecedented growth, requiring even more knowledge workers (Drucker, 2002). Such growth requires knowledge workers to acquire formal education to enter these areas of knowledge work. Once knowledge workers enter these sectors, continuing education will be required to ensure that their knowledge is kept up to date.

Nevertheless, the older or retiring workers are often also of great importance in view of the education, tacit knowledge and skills that they had acquired over their lifetimes. Older knowledge workers (older than fifty years of age) have been noted to work in new and different ways. Older workers often take on part-time assignments, work as consultants or focus on special tasks, moving away from traditional nine-to-five jobs (Drucker, 2002). The choices available to older knowledge workers will combine traditional and non-traditional jobs and more leisure time. In the United States of America, 13% of the population was over 65 in 2009 and this figure is expected to expand to 19% in 2030 (Austin, 2011). The increase in the longevity of workers has also created a unique problem for organisations. Knowledge workers can no longer perform the same kind of work for fifty years. Second careers after retirement are seen as ways to keep mentally fit (Drucker, 2002).

The demand for knowledge workers will increase in the foreseeable future, with a corresponding need for better management of knowledge workers. Organisations should therefore adapt their knowledge management programmes to retain key expertise in an effort to reduce costs and develop new innovative products and services (Stankosky, 2005). Nevertheless, self-management and control are essential for knowledge workers themselves who are more than likely to move on to other, more innovative, challenging and remunerative projects or organisations. The desire to be their own managers often also lead knowledge workers to obtain more skills, education and training to stay creative and innovative (Drucker, 2001; Winslow and Bramer, 1994).

Knowledge Workers and Innovation

Key to the knowledge economy is the ability to re-invest knowledge, reinvent the business, and innovate constantly. Innovation can be defined as a knowledge process life cycle event that has been

completed. The cycle begins with a problem that emerges from a business process, moves through knowledge production, and ends in incorporation of knowledge structures (Firestone, 2003). A characteristic of innovation is that it leads to something that has an impact on business process behaviour. Nonaka and Takeuchi (1995) considered the mobilisation and conversion of tacit knowledge as the key to successful innovation processes. Innovation is the creation of new knowledge, but knowledge creation is not always innovative. Organisations cannot create knowledge without individuals, and should support and provide contexts for creative individuals to create knowledge in. Innovation occurs when the tacit and explicit knowledge interact and interchange into each other in the creative activities of people and organisations.

Knowledge and innovation are complementary issues and their impact on the organisation should not be viewed as two singular and mutually exclusive inputs. Murray and Rowan (2000) put this into perspective with the view that in the knowledge economy innovation, which is research-based, is critical in the generation of wealth, increased economic activity and economic diversification. "Research-based innovation is about expanding our ability to create new wealth." To illustrate the complementary relationship between knowledge management and innovation further, Murray and Rowan (2000) expand on the view of synergy between innovation and knowledge management by stating that knowledge capital is the "primary driver of innovation dynamics that create and maintain superior innovating power", and for an organisation to maintain this, it must be able to move beyond its existing paradigms and mindsets to meet the demands of competition and the growing needs for multidisciplinary knowledge.

The creative and innovative use of knowledge workers is emphasised by BRINT.com (2009), through the definition of knowledge management as a set of organisational processes that strive to achieve synergy between information systems and the nature of workers to innovate. Motivating and nurturing the professional skills of knowledge workers will enable them to generate and share knowledge. Influencing individual behaviour and aligning individual interests with organisational interest can create unique knowledge, which provides competitive advantage and differentiation in the knowledge economy (Carter and Scarbrough, 2001; Danskin et al., 2005; McKenna, 2006). The emphasis is on the conversion of ideas into commercial applications – the starting point being the creation of an idea. Effective knowledge management and knowledge creation thus become a precursor to innovation.

Innovation/creation-based knowledge management applications focus on providing an environment in which knowledge workers, often from differing disciplines, can come together in teams to collaborate in the creation of new knowledge. There is still a role for individual innovation; innovation generally happens in small teams of two but no more than seven individuals that apply holistic systems thinking. However, innovations are increasingly coming from the marriage of disciplines and teamwork. The innovation/creation of new knowledge is the most popular topic in today's management literature. The focus of the business and knowledge management applications in this element is on providing an environment in which knowledge workers of various disciplines can come together to create new knowledge. The most common application referenced in the literature is the creation of new products or company capabilities (Mercer, 2008).

Methodology

The population for the empirical survey consists of all knowledge workers in South Africa. Knowledge workers are considered to be people with considerable theoretical knowledge and learning (Drucker, 2002), and are usually responsible for their own learning and development (Gottschalk, 2005). However, because knowledge workers exist in all sectors of the economy, a sampling frame could not be built, and the population of knowledge workers had to be purposively defined for the study. Accordingly, the part-time students in a postgraduate business management course were defined as the sub-population of knowledge workers from which the study's sample was taken. The students were all enrolled at the University of Johannesburg for the M.Com (Business Management) course.

This sub-population is clearly not representative of all categories of knowledge workers in South Africa. However, the students in the course were drawn from a wide variety of educational and organisational backgrounds as shown in Table 1, which provide some confidence that their perceptions and opinions could provide insight into those of knowledge workers in South Africa. The rationale for the choice of study sample was that students registered for the course were seeking to improve their business knowledge and skills by furthering their education to the master's level, and also in order to enhance their knowledge, creativity or innovation in their current or future places of work, or to improve their personal value, competitiveness or employability.

Table 1: Educational and Employment Background of Respondents (N=82)

Educational background	**%**		**Employment background**	**%**
Accounting	10		Chemical industry	10
Arts	6		Community, social and personal services industry (including government sector)	7
Commerce	20		Education industry	9
Computer Science	15		Financial institutions industry	18
Economics	10		Health industry	5
Engineering	10		Legal industry	12
Law	12		Mining industry	14
Mathematics	8		Motor trade industry	6
Medical Sciences	5		Tourism industry	8
Physics	4		Transport industry	11
Total	**100**		**Total**	**100**

Data were collected from the sample of students through a questionnaire. The questionnaire was divided into two sections. Section A collected biographical data, such as gender and age. Section B was divided into smaller sections, each focusing on areas and variables that have been identified in the literature review as likely to affect creativity and innovation by knowledge workers. Items in this section featured five-point Likert response scales. The questionnaire was pre-tested on a small target group of knowledge workers in the information technology field who shared characteristics and backgrounds similar to the focal population.

In the main survey, the 266 students who were registered for the course were contacted by email by the Statistical Consultation Services (Statcon) at the University of Johannesburg. The email provided a covering letter that explained the purpose of the survey, as well as an URL that the students were required to use to access, complete and submit the questionnaire online. Ninety completed copies of the questionnaire were received, out of which 82 copies were usable, for a response rate of 31%. The data collected with the questionnaire yielded a Cronbach alpha of 0.777, indicating acceptable reliability.

In terms of the demographic and employment characteristics of the respondents, of the 82 respondents, 57 were males and 25 females. The majority of the respondents (78%) were between 26 and 40 years of age. The length of employment of the respondents with their current employer is quite interesting: 47.5% of the respondents had worked for their current employer for three years or less, while 17.0 % of them had been employed for three to four years by their current employer, and 35.4% of them had been employed by their current employer for more than five years.

Findings and Discussion

Importance of Knowledge from the Career Perspective

Figure 1 indicates that knowledge was seen as a key component in a knowledge worker's career, with more than 58% of the respondents indicating that they totally agree that knowledge was crucial to providing knowledge workers with a competitive advantage in their careers. The importance placed upon knowledge in career decisions was consistent with the proposition that knowledge workers would desire to create a competitive advantage in the knowledge economy through the use of knowledge (Harman and Brelade, 2000). The requirement that knowledge workers should possess the skill to be able to deal with large amounts of knowledge (Deng, 2008) was also acknowledged by the respondents.

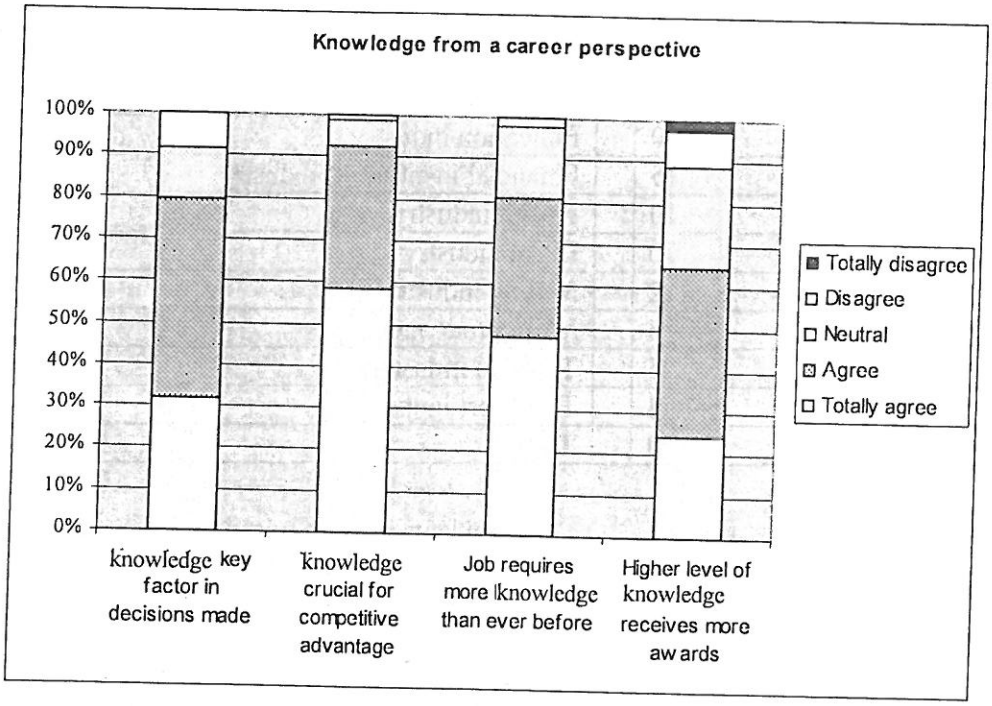

Figure 1: Perspectives on role and impact of knowledge in modern economies

Motivators for Knowledge Work Career

Figure 2 shows that challenging work assignments were seen by most (87.6%) of the respondents to a large extent or some extent as the greatest motivational factor in their careers. Monetary rewards were also recognised by 80.3% of the respondents to a large extent or some extent as a key career motivator. This could be a cause of concern, as other career motivators such as autonomy and personal growth which have an impact on innovation might be considered less important than monetary rewards. Too much emphasis placed by knowledge workers on monetary rewards might affect their capacity and motivation for creativity and innovation, which could harm the competitive advantage of their employer organisations. Social status was considered the least important career motivator by the respondents. Recognition by peers was noted as an important motivator by Bergeron (2003), Defillipi et al. (2006), Drucker (2002) and Thite (2004), and was seen by 79.1% of the respondents as having a large or some effect as a career motivator.

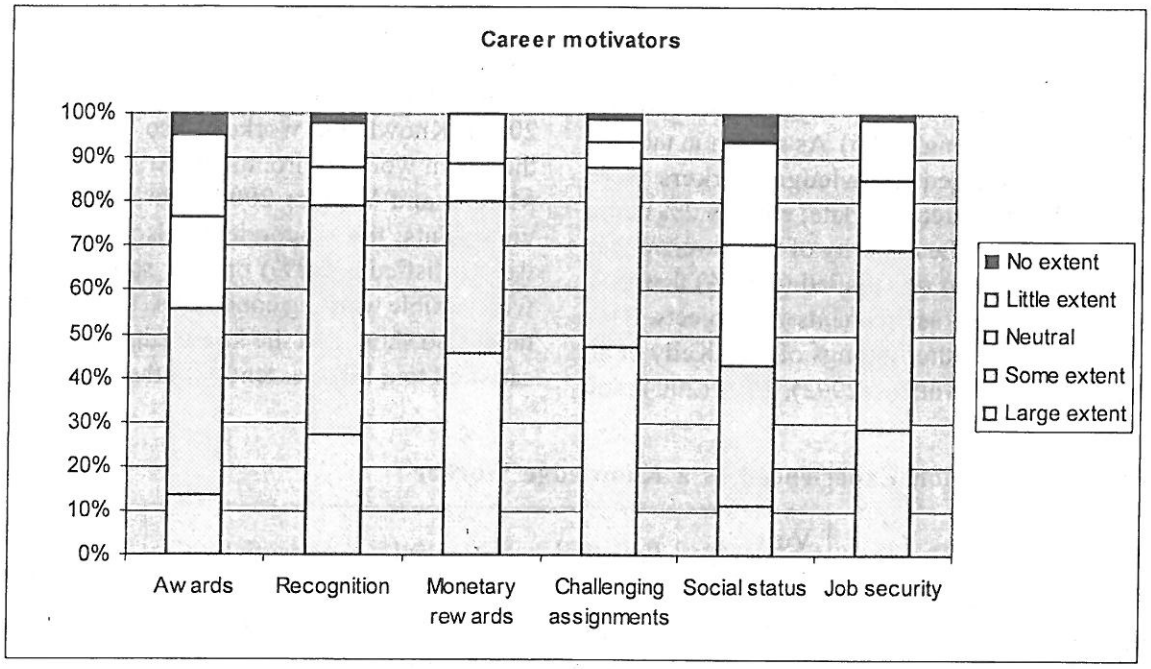

Figure 2: Perceptions of the importance of career motivators

Career Goals of Knowledge Workers

The data on the importance given to various career goals by the respondents are summarised in table 2. The table shows that 87.1% of the respondents felt that working independently was very important or important to some level, and this agrees with the findings of Nemeth and Nemeth in Nonaka and Teece (2001). This need for autonomy could be an indication of the need to innovate and create their own work environments, as was found out by Arthur, Inkson and Pringle (1999) and Marcus and Watters (2002). The next most important career goal was to match personal and organisational goals, which is indicative of knowledge workers being motivated for task achievement, and working towards achieving organisational and personal goals simultaneously (Kelly, 2007). The move away from traditional careers which emphasises organisational training (Robbins, 2005) can also be seen in the low importance placed on training programmes by respondents.

Table 2: Importance of Different Career Goals in Knowledge Work

	Very important	Important	Neutral	Unimportant	Very unimportant
Matching my career goals with the organisational goals	33 (42.9)	33 (42.9)	10 (13.0)	1 (1.3)	0 (0.0)
Working independently	33 (42.9)	34 (44.2)	7 (9.1)	2 (2.6)	1 (1.3)
Growing my career within my current organisation	28 (36.4)	27 (35.1)	13 (16.9)	8 (10.4)	1 (1.3)

Values in brackets are the row percentages, which may not add up to 100.0 due to non-responses.

Satisfaction as Knowledge Worker

Organisations should create work environments that are aligned with the expectations of knowledge workers to allow them to achieve job satisfaction by being innovative (Wong, 2005). As shown in table 3, 46.2% of the sampled knowledge workers were satisfied with their careers to date, with 19.2% being very satisfied. Also, the majority of them were either very satisfied (36.3%) or satisfied (47.5%) that they work on challenging assignments or projects. This finding corroborates the findings of Lee-Kelly et al. (2007), Marcus and Watters (2002), Thite (2004) and Tomlinson (2009). Most knowledge workers felt that they achieved a sense of accomplishment and are closely related to working on challenging assignments (Dovey and White, 2005; Drucker, 2001). Knowledge workers also strive to create their own work environment (Arthur et al., 1999; Marcus and Watters 2002). In line with these viewpoints, the respondents also cherished and were satisfied (38.8%) or very satisfied (40.0%) with flexible working conditions. The results in the table also show that the knowledge workers were satisfied to a large extent with their careers.

Table 3: Satisfaction Experienced as a Knowledge Worker

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Being rewarded for your knowledge	21.3 (17)	46.3 (37)	17.5 (14)	12.5 (10)	2.5 (2)
Flexible working conditions	40.0 (32)	38.8 (31)	15.0 (12)	6.3 (5)	0.0 (0)
The contributions made by you as a knowledge worker	37.5 (30)	48.8 (39)	7.5 (6)	6.3 (5)	0.0 (0)
Working on challenging assignments or projects	36.3 (29)	47.5 (38)	13.8 (11)	2.5 (2)	0.0 (0)
A sense of accomplishment	41.3 (33)	40.0 (32)	12.5 (10)	5.0 (4)	1.3 (1)
Career progress to date	19.2 (15)	46.2 (36)	21.8 (17)	10.3 (8)	2.6 (2)

Values in brackets are the row percentages, which may not add up to 100.0 due to non-responses.

Conclusion and Recommendations

This study attempted to make a contribution to the body of knowledge on the issues affecting the career perceptions of knowledge workers. The study revealed that various issues affect the careers of a sample of knowledge workers in South Africa.

The findings of the study show that knowledge workers cherish autonomy to be able to take control of their own careers or assigned organisational tasks, which enables them to be creative and innovate. This, as confirmed by respondents in this study, is because the creation and use of knowledge provides them scope for competitive advantage and fulfilment in the work place and in the knowledge economy. This also explains why knowledge workers seek to take personal responsibility for personal development. Managing their own careers leads to better motivation for innovation and, ultimately, improvements in organisational performance. Personal development also leads to

a sense of achievement, providing personal and professional growth.

Most respondents in this study did not consider internal training by their organisations as an important means for gaining more knowledge, which could indicate that South African organisations do not invest enough in their knowledge workers or that knowledge workers do not attach a lot of value to such internal training. South African organisations need to assess their internal training and development programmes if they are to deliver appropriate value to their knowledge workers. Organisations should ensure that their training programmes are innovative enough to ensure that they respond to the demands of the knowledge economy.

Challenging work assignments were seen by the majority of respondents as the greatest motivational factor in their careers and organisations. Nevertheless, money was also considered to be a primary career motivator. As knowledge workers know that knowledge gives them a competitive advantage in the knowledge economy, promotions and monetary rewards alone would not be sufficient. Informal measures such as recognition are also starting to become more important for knowledge workers and should be used in conjunction with the traditional measures to ensure that knowledge workers are innovative and achieve a sense of career progress.

The results of the study show that the knowledge workers were satisfied to a large extent with their careers. Nevertheless, other areas should be looked at in order to ensure knowledge workers stay motivated. For instance, knowledge workers consider autonomy important, in order to be able to exercise creativity and control on the tasks assigned to them within their organisations (Mercer, 2008). The respondents considered autonomy important but that the requirements and constraints in their organisations did not always allow them the freedom to take control and innovate in the tasks assigned to them. They noted the conflicts between requirements to adapt to the organisational culture, while at the same time remaining autonomous and innovative as far as possible to ensure that they achieve fulfilling work and careers filled with creative and innovative opportunities.

In conclusion it must be admitted that this study however only assessed some of the determinants concerning innovation in knowledge work in a sample of knowledge workers drawn from a narrow population of knowledge workers. This limitation leaves scope for further empirical research with larger samples or other categories of knowledge workers.

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* **Prof. Adeline du Toit** is Director of the Centre for Information and Knowledge Management at the University of Johannesburg. She has published over seventy peer-reviewed articles, and presented papers at many national and international conferences. She also acts as consultant to various private enterprises.

** **Mr Roelof van Staden** is a Sales Engineer for Nokia Siemens Networks. He holds a bachelor's degree in Engineering (Electrical and Electronics), and master's degrees in Engineering Management and Business Management from the University of Johannesburg.

* **Dr Piet Steyn** is Strategic Sourcing Consultant, Group Commercial, South Africa, and Negotiation Team Leader on turbine, boiler and civil contracts for the Medupi and Kusile Power Stations at Eskom. He holds a PhD degree of the University of Johannesburg.