

# Role of knowledge workers in the knowledge economy: some empirical evidence from South Africa

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## Abstract

*This article reports on empirical results of the views of South African knowledge workers on how future changes in the knowledge economy will affect them. Respondents were asked to identify and prioritise trends in the knowledge economy for 2014 and 2019. The results highlight trends such as more sophisticated information or communication technology, growth of mobile business, greater concerns about the confidentiality of personal information, increased national/international competition, harnessing knowledge management and intellectual capital and globalisation of the economy. It concluded that the knowledge economy has created numerous opportunities and challenges for knowledge workers leading to changes in the nature of work.*

**Keywords:** knowledge economy, knowledge workers, South Africa

## Introduction

Managers know that in order to compete in the knowledge economy, it is critical for enterprises to be aware of changing business conditions. Enterprises are faced with a continuously changing decision-making environment and management should continually adapt their enterprises to the changing competitive business environment. The role of knowledge workers is not so prominent in developing countries since people do not have high levels of basic education (Waddock 2007:546) but the role of knowledge workers in the knowledge economy of developed countries is critical (Drucker 2002:124) since they require skills and education to be creative and innovative.

Utilising knowledge workers to identify future change trends in the knowledge economy provides a different reality perception of the role of knowledge managers in the knowledge economy. The knowledge economy is forcing knowledge workers to see new opportunities and challenges for their careers (Drucker 2001: 283). The objective of this article is to report on the results of an empirical survey undertaken to identify current challenges for knowledge workers in the knowledge economy and how the world of work is bound to change in 2019. According to Schwartz (1991: 3) it is not possible to predict the future but the results of the empirical survey can create a clear strategic future picture of challenges for knowledge workers that can help management of enterprises to take a long view in a world of uncertainty. The research results of this survey identified significant changes in the management of knowledge workers that will affect how South Africa will move to a knowledge economy. In the article the author attempts to answer the following question: What is the future role of South African knowledge workers in the knowledge economy?

In the following sections the characteristics of the knowledge economy and the activities of knowledge workers in the knowledge economy are discussed first. Thereafter the empirical part of the research will focus on results obtained through a questionnaire-based survey of knowledge workers. The article is concluded with some observations and conclusions as to the role of South African knowledge workers in the knowledge economy.

## Knowledge economy

The knowledge economy differs from the previous agricultural and industrial economies (Amidon 1999). In the knowledge economy knowledge is the main resource of production (Drucker 1993: 17). The traditional economic resources (land, labour and capital) did not disappear, but have become secondary. According to Drucker (1993: 51), if an enterprise wants to compete successfully in the knowledge economy, it should make knowledge productive. The industrial economy was based on scarcity, whereas the knowledge economy is one of abundance (Grulke 2000: 25). Information is abundant but what is scarce is the knowledge that is based on innovation (Van Zanten 2000). However, the value of knowledge as a resource is not depleted when it is used (McPhail 2009: 808) and the generation of new knowledge creates a competitive advantage for enterprises (Belkahla and Triki 2011: 650).

In the knowledge economy the strategic focus is on intangible assets. A knowledge economy can be described as an economy in which the generation

and exploitation of knowledge plays the dominant role in the creation of products and services (Al-Hawamdeh 2003: 2; Walczak 2005: 330-331). Weber (2011: 2590) states that a knowledge economy constitutes of:

- Economic and institutional incentives for the use of knowledge.
- Educational skills required for the creation and use of knowledge by individuals.
- An information and communications technology infrastructure.
- Ability to use global knowledge repositories for the creation of new technologies.

In a knowledge economy, innovation to ensure learning and training of knowledge workers is a prerequisite (Tremblay 2003: 4). Markets transform rapidly and the ability to constantly reinvent business is necessary. For a country to become a knowledge economy, highly skilled knowledge workers are essential (Blankley 2010). According to Blankley (2010) current policies to move South Africa to a knowledge economy are too broad. Globalisation removed barriers between local and regional markets and knowledge should be the basis for economic growth.

## Knowledge workers in the knowledge economy

Knowledge workers originate from areas as diverse as business, engineering, information technology and science. Drucker (2002: 238) defines a knowledge worker as an individual with theoretical knowledge such as lawyers, teachers, medical doctors and IT specialists. According to Gottscalk (2005: 27) knowledge workers understand and use knowledge independent of other employees. Changes in the global business environment are often noted prompting South African enterprises to become more attuned to the role of knowledge workers in the knowledge economy. Knowledge workers play an important part in the knowledge economy and contribute to the competitive advantage of enterprises. Bergeron (2003: 58) defines knowledge workers as individuals who contribute to the intellectual capital of their organisation. According to Gottscalk (2005: 27) knowledge workers find, understand and use knowledge independent of other employees. Lee-Kelley, Blackman and Hurst (2007: 205) define knowledge workers as employees "possessing specialist knowledge or know-how who is involved in consultancy based on their specialist knowledge or know-how, or research and development work for new products, services or processes." Knowledge workers use knowledge to generate a living through thinking and not necessarily manual labour whilst taking responsibility for their own learning and development. Knowledge workers do

intangible work that is collaborative and iterative in nature (Zuber-Skerritt 2005: 62).

Baker and Badamshina (2005) state that knowledge workers should use their tacit knowledge in the knowledge economy to gain a competitive advantage for an enterprise. Enterprises in South Africa need to understand the role of knowledge workers if they want to enhance their global competitiveness in the knowledge economy.

## Empirical survey

Includes the following:

### Methodology

There is no recognised list of knowledge workers available in South Africa. For this reason the research population of this survey was a purposive sample of attendees of seminars held by the Department of Information and Knowledge Management at the University of Johannesburg and the Department of Information Science at the University of Pretoria. At these seminars a variety of topics have been covered, dealing with numerous issues that have contributed to a deeper and more advanced understanding of the information and knowledge industry. A questionnaire was compiled containing 15 questions in total and the questionnaire was sent to 745 South African knowledge workers. The topics covered in the questionnaire included roles and activities of knowledge workers, and implications of changes for management in the knowledge economy. The final section of the questionnaire sought to obtain demographic information from respondents. The questionnaire was distributed to the knowledge workers by email. The response cut-off date was the end of April 2013. Of the sample of 745 knowledge workers, 207 respondents (27.8%) returned completed questionnaires.

The use of an online survey allowed knowledge workers to answer questions anonymously without introducing any interviewer bias. Even though the online survey had a low response rate of 27.8 per cent, it is still valid as Welman, Kruger and Mitchell (2005:153) note that the response rate easily falls under 50% of the target population. Another reason for such a low response rate could be due to the timing of the survey as there were numerous public holidays during the period in which the survey was active.

## Demographic responses and results

Table 1: Profile of respondents by profession

<b>Profession</b>	<b>%</b>
Academics	15
Business (line managers to CEO)	20
Consultants	10
Data analysts	8
Engineers	5
Information technology specialists	10
Knowledge managers	20
Librarians	8
Marketing researchers	3
Records managers	1
<b>Total</b>	<b>100</b>

The particular set of respondents in the study spanned a diverse range of types of knowledge workers and organisation sizes (see Tables 1 and 2), and thus their opinions would potentially offer valuable insights into future trends in the multifarious knowledge work undertaken in the country. Any difference that might exist could safely be attributed to the perception of the respondents regarding the current or future situation with regard to the research result issues.

Table 2: Profile of respondents by organisation size

<b>Number of employees in organisation</b>	<b>%</b>
Fewer than 10	12
10 – 49	33
50 – 99	25
100 – 499	24
500 or more	6
<b>TOTAL</b>	<b>100</b>

## Current and anticipated changes in the knowledge economy

The respondents had to identify and rank the five most significant changes with respect to each other from a provided list of 12 items in the questionnaire, in terms of the current situation and 2019 plus. To identify the 12 change items, three books on the knowledge economy and knowledge workers were consulted (OECD (1999), Rooney, Hearn and Ninan (2005) and Winslow and Bramer

(1994)). In terms of ranking, the most important choice made by a respondent for the future was 1 being the highest impact, 2 the next highest and so on. The top six change impacts are listed and reported in Table 3. The list of change items is as follows excluding the top six change impacts, which are listed and reported on in Table 3 to save space in this article.

- Increase in multiple assignments;
- Changing attitudes of society towards business;
- Heightened focus on customer satisfaction;
- Changing composition of the workforce with respect to gender, age and/of ethnicity, and
- Increased governmental regulation.

Table 3: Current and anticipated changes in the knowledge economy as perceived by knowledge workers

<b>2014 Ranking %</b>	<b>Knowledge economy areas</b>	<b>2019 Ranking %</b>
38 <sup>1</sup>	More sophisticated information or communication technology	36 <sup>1</sup>
35 <sup>2</sup>	Growth of mobile business	15 <sup>3</sup>
12 <sup>3</sup>	Greater concerns about the confidentiality of personal information	30 <sup>2</sup>
10 <sup>4</sup>	Increased national/international competition	4 <sup>5</sup>
3 <sup>5</sup>	Harnessing knowledge management and intellectual capital	7 <sup>6</sup>
2 <sup>6</sup>	Globalisation of the economy	8 <sup>4</sup>

The percentage figures in each column in Table 3 represent the number of respondents who ranked the items according to their choice. Only the top six changes as impacts are presented for analysis purposes and are presented in descending order of importance from 1 to 6 in Table 3. In order to include the analysis for both time periods for comparative purposes, the 2014-year is regarded as current for the purpose of the article.

The results indicated that 38 per cent of the respondents rated more sophisticated information or communication technology as the top change impact for the future of the knowledge economy in South Africa. This is in line with the perspective by Javalgi, Gross, Joseph and Granot (2011: 175) that a country needs government action to support infrastructural development of information and communication technology to move to a knowledge economy. The WEF Global IT Report (Billao-Osorio, Dutta and Larvin, 2014: 20) indicates that South Africa is improving in using ICTs and that the business

community seems to have taken the lead, using ICTs vigorously in interactions with other enterprises. The South African government's vision for 2020 is that South Africa should become a leading country in the information era (Gillwald, Moyo and Stork 2012: 6). However, while the ICT sector has grown (Gillwald, Moyo and Stork 2012: 1), the growth has not met the national objective of cheaper access to the community. Respondents also selected this as the top impact for 2019 with a response of 36 per cent. It therefore appears that the situation is similar for South Africa for 2019 concerning more sophisticated information or communication technology. From the higher response it may be deduced that they are anticipating improved capability to cope with this situation. It can, however, be concluded that more sophisticated information or communication technology will remain the greatest impact on enterprises for at least the next decade and knowledge workers must certainly learn how to cope with the changing environment.

Respondents rated the growth of mobile business as second highest with a response rate of 35 per cent in 2014, which clearly indicates that they perceive mobile businesses presently as high as an impact and change issue. "Access to mobile services continues to grow, and the prices of all communication services remain high by both African and global standards" (Eldis 2014). This is noteworthy in terms of the use of information and communication technology in the business environment. Respondents only rated this impact as the fifth highest for 2019 and beyond with a response of 15 per cent. The fact that South African government has been slow with digital migration projects to allow operators to enter for the exploding demand (McLeod 2014) may be a reason for this decline.

Mobile business appears to be less influential by 2019 in terms of its impact and has less impact on the world of knowledge work than is generally thought to be the case. It can also be deduced that the rapidly expanding mobile communication is envisaged to gain momentum up to and beyond 2019 with slightly increased mobile business being an outside change option. Ninety per cent of South Africans have a mobile phone and eighty per cent of Internet users in South Africa are only using their mobile phone to access the Internet (South Africa is hungry for mobile data n.d.). Mobile shopping is therefore becoming increasingly popular in South Africa.

The response rate was 12 per cent for greater concerns about the confidentiality of personal information in 2014, which is a clear indication that respondents view personal information as very important and that business structures must protect personal information. It could be due to South African enterprises only

realising now that the confidentiality of personal information requires structures to protect the information. This is supported by the first change impact discussed above mainly that use of more sophisticated information or communication technology (as the top impact priority) can only be effective if the protection of personal information is put in place. Respondents gave a rating at 30 per cent for 2019, which is the second highest impact for that period. It can be deduced that respondents believe that South Africa is a knowledge economy and will remain so even past 2019 and that knowledge workers take control of managing their own information.

A total of 10 per cent of respondents rated increased national/international competition as the fourth most important impact and therefore a possible trend for the future. This is in line with the identified priority of Sunter (1999) regarding much needed international competition. Because of the apartheid regime international competition in South Africa was limited before 1994 (Viviers and Muller 2004: 54) and South African enterprises still find it difficult to keep abreast of international market trends (Sewdass and Du Toit 2014: 189). It can be concluded that enterprises not only face more international competition but that global business and the accompanying structures will evolve in a truly international business fashion that operates throughout the globe in future. The change impact for 2014 had a response rate of 4 per cent and it was rated as the sixth highest impact for that period and further. It is surprising that it is such a low priority but the results concur with the research by Du Toit (2003: 117) on the use of competitive intelligence in the knowledge economy.

With a response rate of 3 per cent respondents rated the harnessing of knowledge management and intellectual capital as the fifth most important impact. It is surprising that it is such a low priority since knowledge management and the management of intellectual capital are dominating the business world thinking for more than a decade. In the knowledge economy intellectual capital is more important than physical assets and any enterprise should recognise and develop intellectual capital to achieve competitiveness (Pienaar and Du Toit 2009: 135). However, enterprises in South Africa do not regard knowledge assets as important and take an *ad hoc* approach to knowledge management (Du Toit and Steyn 2011: 5084). It is deduced that for South African knowledge workers it is critical for the future, which is consistent with world trends in this field identified by various researchers (Ferguson, Huysman and Soekijad, 2010: 1799, Mårtensson, 2000: 206, Steyn and Du Toit, 2009). The change impact for 2019 had a response of 7 per cent, which is higher



than 2014, although it was rated as the sixth highest impact for that period and further.

Globalisation of the economy is the sixth most important impact with a response rate of 2 per cent for 2014. In the knowledge economy knowledge workers must be mindful of strategies to compete globally and entry into global markets through repositioning of the economy is critical. This result appears to be in support with the view that the knowledge economy is driven by knowledge intensity and increasing globalisation (Houghton and Sheehan 2000: 2). Knowledge intensity refers to the extent an enterprise depends on knowledge for competitive advantage (Andreeva and Kianto 2007: 1368). It increased to a fourth priority in 2019 indicating a relative value for globalisation in South Africa in the future.

## Discussion and conclusions

Since South Africa's transformation to a knowledge economy in 1996, the knowledge economy has created numerous opportunities and challenges for knowledge workers leading to changes in the nature of work. From the analysis of the research results it is clear that the choice of impact trends change noticeably from 2014 to 2019 as perceived by South African knowledge workers. Knowledge workers play an increasingly important part in the knowledge economy and contribute to the competitive advantage and future potential of enterprises.

Competing in the global economy implies that South African enterprises should use more sophisticated information or communication technology to stay ahead of their competitors. South Africa as a country continues to rank low in the world of competitiveness (Schwab 2013) and keeping abreast of national/international competition is important. The South African government should strive to improve the information and communication technology infrastructure. If this happens, an increasing number of enterprises will use information and communication technology to gain a competitive advantage. With regard to increased national/international competition, understanding how competitors will respond to an enterprise's strategic actions is critical if South African enterprises want to compete successfully in the global economy. Currently few enterprises actually undertake competitor analysis seriously. Competitor analysis is an important component of strategic decision making and should be applied by all enterprises.

Growth of mobile business will require South African enterprises to apply competitive intelligence (where enterprises interpret signals from the environment to understand and anticipate change) to assist management to devise effective tactical and strategic plans. It also entails that information will be available to knowledge workers on environmental changes to increase the value chain.

The protection of personal information is a current issue in South Africa when the president signed a proclamation that some parts of the Protection of Personal Information Act (No 4 of 2013) in 2013 should be effective from April 2014 but the effective date of the other sections of the Act has not yet been proclaimed. This bill protects the personal information collected and processed by South African enterprises. It is foreseen that there will be greater concerns about the confidentiality of personal information in future because the consequences for the direct marketing industry is extensive.

Managers of South African enterprises should ensure that proper processes are in place to harness knowledge management and intellectual capital. They should have a knowledge management strategy (Du Toit and Steyn, 2011) to manage knowledge and intellectual capital. Knowledge assets are often lost because of retrenchment or downsizing and enterprises should make sure that they capture the knowledge of all employees. They should encourage external and internal stakeholders to challenge expert opinions to combat entrained thinking and force knowledge workers to think outside the box.

South African knowledge workers should learn to change their decision-making styles to cope with globalisation of the economy. Ongoing change places new demands on enterprises and they should create an environment to identify and quantify strengths and weaknesses which influence, or will influence the enterprise's activities. New markets can be created overnight in virtual spaces and enterprises should respond rapidly to changes in the global environment.

Key to the knowledge economy is the shift to knowledge as the centre of wealth production and the importance of knowledge work. A limitation of the study is that since the questionnaire was not sent to all knowledge workers in South Africa the findings cannot be generalised. The study is therefore intended to open up new areas of investigation as much as answer certain questions. In conclusion, the increasing importance of knowledge work and the knowledge economy for South Africa suggests that future research should examine how to manage knowledge workers. Further research is also suggested with respect to

knowledge workers as a key economic resource and how knowledge workers hold the key to competitiveness in the knowledge economy.

In the knowledge economy, knowledge workers have direct contact with the external environment of an enterprise and should translate the strategic vision of the enterprise into deliverables. As mentioned in the article, many enterprises have taken an *ad hoc* approach to managing knowledge but if knowledge workers are involved in the strategic planning process of South African enterprises, they can make a valuable contribution to future trends.

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