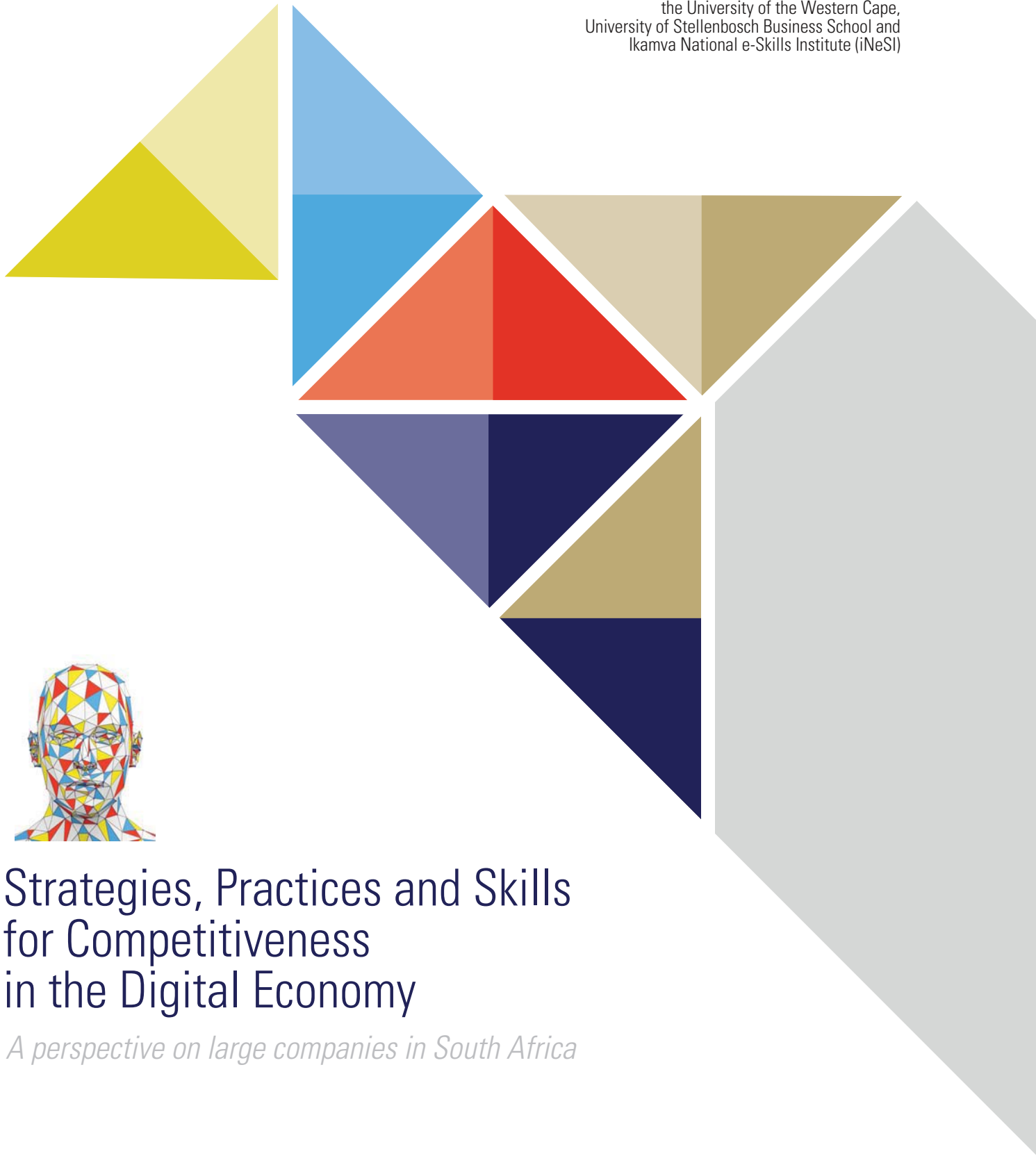


Research sponsored by
the University of the Western Cape,
University of Stellenbosch Business School and
Ikamva National e-Skills Institute (iNeSI)



Strategies, Practices and Skills for Competitiveness in the Digital Economy

A perspective on large companies in South Africa



The competitiveness of companies in the digital economy is a business concern. Eighty two large South African companies participated in a study on strategies, practices and skills for competitiveness in the digital economy - in that manner demonstrating their willingness and commitment to contribute towards the local understanding and exploration of this topic.

04 August 2014
Copyright © UWC, USB, iNesI



UNIVERSITY of the
WESTERN CAPE

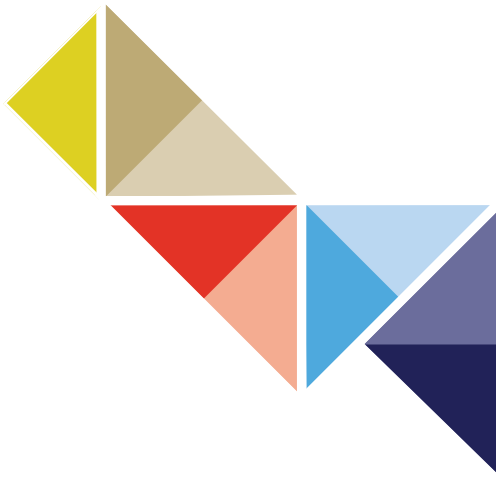


University of Stellenbosch
Business School



Ikamva National eSkills Institute

ISBN: 978-0-86808-751-1



Acknowledgements

In the first instance, we need to acknowledge the participation of the executives of 82 large South African companies that shared their opinions, knowledge, views and challenges with us. Their contribution has helped us in developing an understanding of the landscape that underpins our state of preparedness for the digital economy, none of which would have been possible. We owe them our gratitude as they took the first steps in opening this conversation regarding our future.

We trust that the input by the participating companies and our comments will contribute towards building our collective knowledge on ways and opportunities to unlock the rich potential of people in and around companies for competitiveness in the digital economy. We trust that the contribution of this report will not only stimulate the debate and further research on improving the competitiveness of large business organisations, but also increasingly the preparation for the impact of the digital economy on small and medium-sized enterprises.

Finally, we need to acknowledge and express our appreciation to MarkData (Pty) Ltd and its team of experienced researchers and interviewers in assisting us with planning the research study, mapping the process and applying the proper statistical criteria to execute this business survey on time. They are to be commended for completing a series of telephonic interviews on a thought-provoking subject matter across a broad spectrum of large business enterprises representing the different industries of the South African economy.

Contents

1.	Introduction and background	1
2.	Rationale for the study	4
2.1	Structure of the report	6
3.	Methodology	7
3.1	Study design	7
3.2	Process of sample selection and construction	7
3.3	Intended respondents	8
3.4	Interviewing process	8
4.	Profile of the participating companies	9
4.1	Description of participating companies	9
4.1.1	Distribution of participating companies according to industry sector	9
4.1.2	Description of the designations of the participating respondents per company	10
4.1.3	Number of employees per companies	11
4.1.4	Age distribution of employees of participating companies	11
4.2	ICT Landscape of participating companies	12
4.2.1	ICT management approach	12
4.2.2	Nature of access to particular digital resources	12
4.2.3	Level of investment in particular practices	13
5.	Discussion of the people and organisational practices	15
5.1	Overview	15
5.2	Inclusion of digital economy in current and future corporate strategies	15
5.3	Involvement of key functionaries in strategic digital business initiatives	17
5.4	Integration of digital capabilities into human resources practices	17
5.5	e-Skills and mobile e-skills capability	18
5.6	Challenges pertaining to participation in the digital economy	20
5.7	Practices to ensure sufficient e-skills talent in companies	21
5.8	Availability of learning initiatives/material in an online format	23
5.9	Practices to increase e-skills and digital readiness of stakeholder network	23
5.10	Monitoring of indicators to determine digital progress	25
5.11	Sources of e-Innovation	26
5.12	Rating of digital maturity	26
6.	Summary of findings and take-forwards	27
6.1	Key findings and take-forward themes	27
6.1.1	Digital strategies and practices	27
6.1.2	Integration of digital capabilities into people practices	29
6.1.3	Skills and practices in support of digital strategies	29
6.1.4	Harnessing the flows of knowledge for innovation	31
6.1.5	Practices to increase digital readiness of stakeholder networks	32
6.1.6	New way of thinking about and leading companies	32
6.2	Conclusion	33
7.	Appendix A: Glossary	34
8.	References	35

List of Figures, Tables and Graphs

Figure 1:	Systemic perspective on the interrelatedness between digital infrastructure/technologies, people and organisational capabilities and digital opportunity realisation	5
Table 1:	Description of respondent positions (n=82) (Based on 88 respondents)	10
Table 2:	Skills levels and organisational foci	19
Diagram 1:	Structure of the report	6
Graph 1:	Representation by industry sector	9
Graph 2:	Number of employees	11
Graph 3:	Average distribution by age of employees versus age of executives across the participating companies	11
Graph 4:	ICT Management approach	12
Graph 5:	Employee access to digital resources	13
Graph 6:	Current investment in particular business areas and practices	14
Graph 7:	The extent to which digital economy reflected in current and future strategy	16
Graph 8:	Level of involvement	17
Graph 9:	Integration of digital and e-skills capabilities into people practices	18
Graph 10:	Rating of e-skills and mobile e-skills capability for job categories	19
Graph 11:	Challenges experienced pertaining to participation in the digital economy	21
Graph 12:	Practices to build digital or e-skills talent	22
Graph 13:	Percentage of learning initiatives available in online format	23
Graph 14:	e-Skills practices in relationships with the broader stakeholder network	24
Graph 15:	Monitoring of strategic indicators	25
Graph 16:	Estimated digital maturity of companies	26



1. Introduction and background

The impact of the digital developments of our time - new digital devices, new software, and new areas of applications - can be felt in more and more areas of life and work. In fact, in some areas of business the impact is transformational, changing an area or business sector to such an extent that it is hardly recognisable from what that area was like a decade or more ago. For example, the music industry, where the development towards music in digital format has changed an entire industry and distributed many roles in the industry anew; or the publishing industry, where publishers of print products morphed into multi-media information houses that provide their information in a variety of media and formats, with updates not only daily or weekly, but regularly throughout the day.

In other areas of business, the impact is less transformational, but the effect over time can clearly be seen. Business introduced information and communication technologies (ICTs) to automate certain processes, to achieve economies of scale (and the benefits associated with that) to involve both suppliers and customers, etc.

Most areas of manufacturing and production benefited extensively from the use of ICTs; even more so, did the areas of supply and distribution; and even the customer interface of today's supermarkets and shops can hardly be imagined without the link to ICT systems for check-out and payment. Many of the benefits brought about by ICTs relate in the first instance to business effectiveness and efficiency, which of course also brings direct benefits to customers.

The introduction of digital mobile devices (especially smartphones) over the past eight to ten years, and the current ubiquitous presence of these devices, brought about more changes to users' interaction with suppliers. Not only do these devices lead to improved communication with business and within business, but increasingly so in the areas of business these devices are used to establish new relationships with customers, both existing ones and potentially new ones. In such an increasingly hyperconnected world, employees become participants in a world beyond the boundaries of companies, thereby being in a position to gauge sentiments outside, to influence opinions and to make a contribution to the positioning of companies.

Despite all the commonalities in the way users experience ICTs, the impact is dissimilar in different sectors of business. Even within one sector, the impact could be different, depending on the business model followed and the potential of ICTs to bring about significant benefits within the scope allowed by that model. To both business experts and ordinary users of services it is clear that areas such as finance and banking, media and tourism (to mention but a few) have changed substantially and irrevocably; the future in these and many other areas will be building on these new foundations, even with new services that can currently not be imagined.

Innovation has become a key driver of change in many businesses; however, in the minds of many people, the concept of innovation still mainly relates to physical artefacts and industrial processes. In the meantime, the

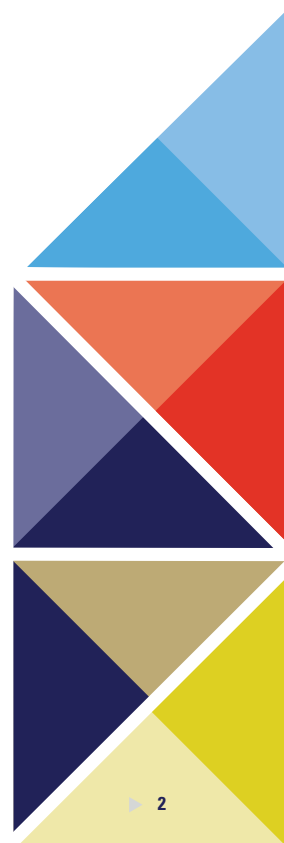
concept of innovation has morphed into one that nests itself in nearly all dimensions of business models, particularly very strongly in the relationship between manufacturer/dealer and customer in the last few years. At the same time, the concept of social innovation, which by now informed and motivated widespread change in society at large, has also increasingly found recognition as a core component of the ecosystem within which business functions.

In the knowledge society of today, the nature of knowledge itself is changing, thereby affecting the development of business and services; instead of being contented with stocks of knowledge built up over time and re-using it, we find that the increasing rate of change leads to knowledge rapidly becoming obsolete. This knowledge has to be replaced and expanded more rapidly than before. In many areas of business the real economic value now lies in the ability to manage and exploit the flows of new knowledge that we are able to acquire and to mine these purposefully towards achieving the objectives of the business or service.

Many recent studies and advice suggest that in principle modern ICTs, the internet and social technologies radically change industry and business and that commerce and industry should rethink many aspects of their business models and functioning in view of these developments. The point often made, is that the focus in many sectors should not only be on using ICTs as a tool for better performing operational activities, but also on the fact that a paradigm shift is rapidly taking place, one in which the digital dimension in fact changes the world within which business takes place. It is not sufficient to strive towards improving the use of conventional ICT solutions only; additionally, a rethinking is also required in which ICTs are used in a digitally-infused world, in the digital economy. In fact, this paradigm shift in business may be likened to the way the Copernican revolution changed our understanding of the universe.

A key factor that has to be taken into account is the wider availability of technology to all players in the ecosystem within which business functions, including the competition. Whereas at some earlier stage the investment in extensive IT systems ensured companies a competitive edge, that same - or better - technology is now available at lower cost. Cloud-based services enable rapid deployment of services and scalability according to need. Just as access to technology, especially in the form of digital technology, holds the possibility of innovation for existing businesses, the same technology also creates the possibility for disruptive innovation and for new competition in the market. "Digital disruption describes a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves 'up market,' eventually displacing established competitors"¹. Some commentators, as argued by Wladawsky-Berger², refer to this changing scenario of access to cloud-based services as one characterised by "new economies of unscale", a situation that could turn into a major disruption for established companies.

In this new paradigm - or the new "constellation of the planets" - the key issues cannot be addressed, and the key opportunities cannot be pursued, by the ICT practitioners and the CIO of a company only. An understanding of the nature of the change has to be present at all levels and functions of business, and a rethinking of the key activities should take place accordingly. This implies that all internal business functions (e.g. HR, Marketing, Business Development, Finance, and Community Relations/CSI) should have the necessary



digital capability to understand the potential impact of digital technologies on their respective functional areas, as well as the ability to apply these skills to unlock business value in the digital economy. Unlocking business value requires a more comprehensive digital skill than the mere proficiency in software packages and functional, or transactional systems.

In moving forward in this new context, the concept of e-leadership has become increasingly significant - a concept that is distinct from managing the ICT portfolio. "E-leadership skills" refers to a combination of skills of both using ICT systems and leading organisations, often graphically represented in a T-shape, whence it is also often referred to as T-shaped skills.⁹

Although the complexity of the changes in the use of ICT over a period of about five decades can hardly be encapsulated in a single framework of a few stages, it is useful to look at the overview from 2014 Gartner Survey of CIOs worldwide³:

"During the first era of enterprise IT, the focus was on how IT could help do new and seemingly magical things - automating operations to create massive improvements in speed and scale, and providing business leaders with management information they never had before. The last decade has represented the second era of enterprise IT, an era of industrialization of enterprise IT, making it more reliable, predictable, open and transparent. However, while this second era has been necessary and powerful, tight budgets and little appetite for risk left scant room for innovation.

Entering the third era of enterprise IT technological and societal trends, such as the Nexus of Forces and the Internet of Things, are changing everything; not only improving what businesses do with technology to make themselves faster, cheaper and more scalable, but fundamentally changing businesses with information and technology, changing the basis of competition and in some cases, creating new industries.

2014 will be a year of dual goals: responding to ongoing needs for efficiency and growth, but also shifting to exploit a fundamentally different digital paradigm. Ignoring either of these is not an option.

In 2014, CIOs must face the challenge of bridging the second and third eras" (Gartner³).

(Note: The term "nexus of forces" refers to the typology of Gartner of the current confluence of four forces: social, mobile, cloud, information & analytics.)



2. Rationale for the study

Against this changing paradigm towards a progressively digitalised economy and an increasingly digitally infused society, South Africa is reported to lag behind in terms of its digital readiness. According to the 2014 Global IT Report⁴ of the World Economic Forum (WEF), South Africa was rated in the 70th position (out of 148 countries).

This relatively low level of digital readiness can be attributed to challenges with respect to access to, and affordability of, broadband internet as well as to the shortage of skills and/or lack of appropriate skills. On the skills count, the WEF report places South Africa in position 102 (out of 148) on the ranking table.

The business sector is a critical role player in unlocking the opportunities posed by the digital economy and has, according to the WEF report, taken the lead. In this respect, South Africa rated much higher, namely 30th out of 148. However, despite such international studies that give South African businesses a reasonably fair rating in aspects such as setting trends and thinking about future practices, little more is available on how South African companies are responding to the opportunities and challenges posed by the digital economy.

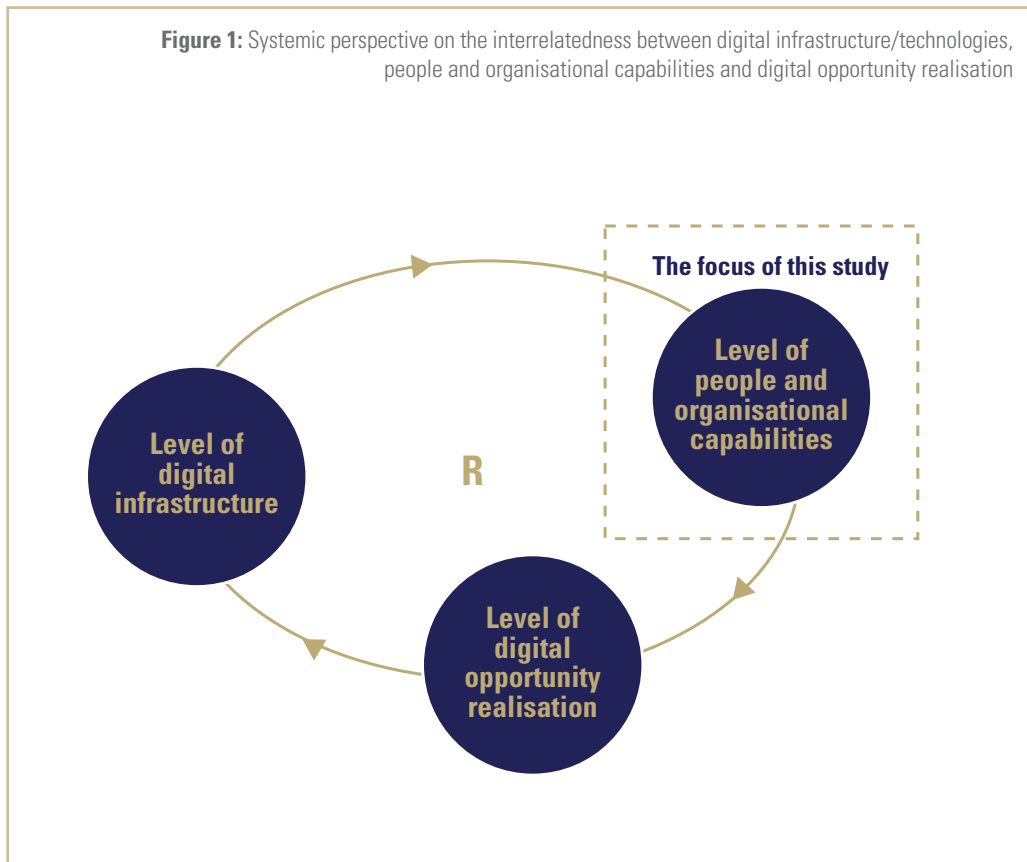
The intention with this research project was to understand, discover and learn more about the progress the South African business sector has made as a potential trend-setter in the quest for digital readiness by the country. Moreover, in cognisance of the paradigm shift accentuated before, this study was grounded in a particular focus, as is explained in Figure 1.

As presented in the figure, we take a systemic view on the interrelatedness of three domains or elements of the digital business ecosystem, namely (i) the level of digital infrastructure, (ii) the level of people and organisational capabilities, and (iii) the level of digital opportunity realisation.

Investment and advances in digital technologies everywhere create a new business (and social) landscape. In this landscape, efficiencies and productivity can be improved and new products and services can be created to respond to continuously evolving customer needs - to service known as well as yet unknown markets in a digital economy. In this systemic perspective, people and organisational capability play a critical role in utilising the digital technologies or infrastructure to unlock and realise digital opportunities.

This study focuses in particular on the people and organisational capabilities dimension as depicted in the diagram. In this context, the term 'people' refers to all the actors within the strategic landscape of a company and includes employees as well as people in the broader stakeholder network. This inclusive view of people and the broader organisational digital capability is what provides the capacity for entering the third era of enterprise IT (as per the Gartner study³).

Figure 1: Systemic perspective on the interrelatedness between digital infrastructure/technologies, people and organisational capabilities and digital opportunity realisation

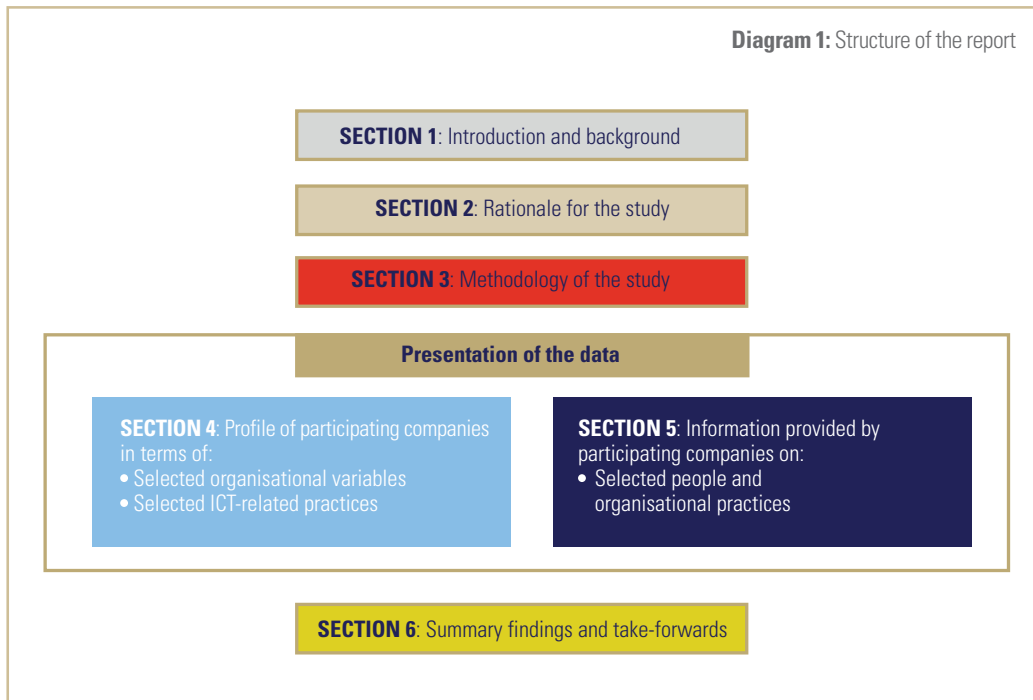


Within this particular focus, the study was set out to obtain a view of the current status of digital strategies, practices and skills in large South African companies in terms of preparing themselves for the digital economy.

The ultimate aim of this study is to take an investigative perspective of the current status of digital readiness of the business sector and to make the results available as a basis from which to initiate a more inclusive local discourse about the issue of digital readiness and the challenges it may hold for the competitiveness of the South African economy. In particular, in this conversation the term “inclusive” implies an involvement not only of business, but also of government and the education sector.

2.1 Structure of the report

As indicated in the diagram below, the report consists of six sub-sections (excluding the appendices, reference lists, etc.). What should be noted by the readers is that the ICT profile of companies (Section 4) should be seen as the background against which the people and organisational practices (Section 5) should be interpreted. The challenge and the endeavour of this report are to explore the spaces and interrelationships between people and technology in the changing paradigm towards a digitally-infused world.





3. Methodology

3.1 Study design

A national survey, targeted at large companies, was conducted to develop the baseline information on strategies, practices and skills of South African companies in view of ensuring competitiveness within the digital economy. The sample size of eighty was selected purely as a result of the cost implications associated with a survey of this nature.

For the purpose of this study “large” is defined as companies of 500 or more employees in the broad Standard Industrial Classification (SIC) code sectors of:

- Agriculture, hunting, forestry and fishing
- Mining and quarrying
- Manufacturing
- Electricity, gas and water supply
- Construction
- Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods, hotels and restaurants
- Transport, storage and communication
- Financial intermediation, insurance, real estate and business service.

Based on relevant literature and several in-depth interviews with senior personnel of large companies and consultants, a structured questionnaire was developed, consisting predominantly of closed questions.

In order to perform the national survey on behalf of the research team MarkData, a member of the Southern African Marketing Research Association was contracted. To ensure accessibility of the terminology and concepts, it piloted the questionnaire in five companies before roll-out. Adjustments were made to the initial questionnaire and a glossary of the terminology used (Appendix A) was added to ensure that respondents understood the concepts in the way each was intended.

3.2 Process of sample selection and construction

A list, as comprehensive as possible, was compiled from various lists and sources of companies within each of the SIC codes. The intention was to conduct ± 10 interviews per SIC code. Initially JSE listed companies were targeted and preference was given to holding companies. However, with the low response rate ratio, as well as the requirement of a minimum of 500 employees, it became clear that the targets would not be achieved from the targeted population. Consequently, it was decided to also include non-listed companies with 500 or more employees. The number of employees, as reported by the contact person in each company, was used as the cut-off criterion.

In total, 82 interviews were conducted presenting a response ratio of 1:±3.5, i.e. 287 companies were contacted to achieve 82 willing participants. Of the 82 participating companies, 51 (62%) were listed companies (five of which internationally). Of the 31 (38%) unlisted companies, 11 (14%) were from the top 500 best-managed companies in South Africa, while the remaining 20 (24%) companies consisted of prominent players in the agricultural, utilities and construction sectors.

3.3 Intended respondents

The study was aimed at obtaining the input of at least two executives of participating companies and the CEOs, Human Resources Directors and/or Chief Strategists were targeted. However, in reality the companies selected the most appropriate respondents and in the majority of interviews, only one respondent per company participated in the process.

3.4 Interviewing process

MarkData conducted the interviews from November 2013 to February 2014 in which the subsequent process was duly followed:

- A first contact with the company was mostly made with the CEO/Managing Director's personal assistant;
- A letter with background information on the project, as well as the questionnaire, was forwarded to the contact person; and,
- Based on the documents received, the contact person advised MarkData whom to interview.

The potential respondents were then contacted and invited to participate in the study and if they agreed, an appointment was made for a telephone interview. It also sometimes happened that the identified potential respondents felt that they were not the correct respondents and again referred the interviewer to another person. Appointments were often cancelled, because of a last minute crisis or other more pressing commitments.



4. Profile of the participating companies

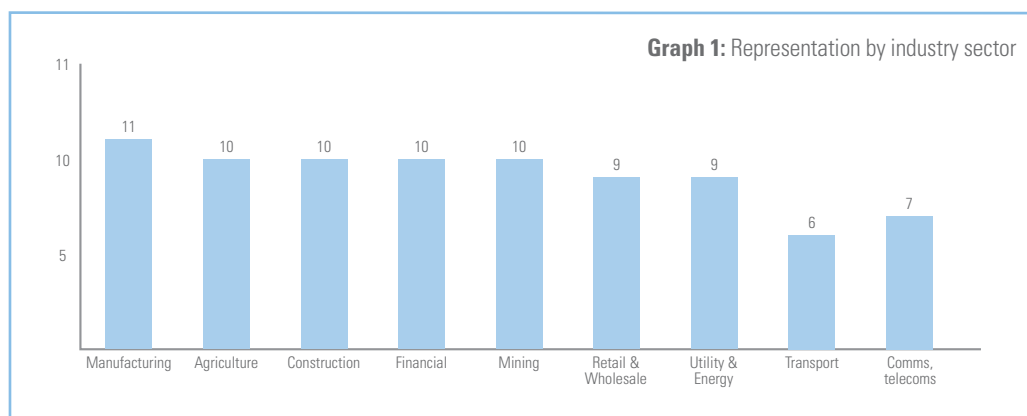
In this section of the report, a description of the participating companies is provided in terms of:

- (i) Typical “demographic” information (general information) such as number of companies per industry category, size of participating companies in terms of employee numbers, age distribution of employees and executives; and,
- (ii) Selected domains of, or aspects pertaining to, the ICT landscape of participating companies.

The focus of this sub-section of the report is not on an in-depth analysis and interpretation of the state of ICT affairs within companies. It should rather be understood as the context or canvas against which the people and organisational practices (discussed in Section 5) should be understood and interpreted.

4.1 Description of participating companies

A description is provided in terms of (i) the representation of participating companies per industry code, (ii) designations of participating respondents, (iii) size of companies as per number of employees, and (iv) the average age distribution of employees of participating companies.



Slight deviations from the intended ± 10 interviews per sector were achieved, with the lowest number of interviews per sector in Electricity, gas, water supply and energy ($n=9$), as well as in Retail and wholesale ($n=9$) and the highest in Manufacturing ($n=11$) and Transport, storage and communication ($n=13$). The over-realisation in the latter sector was deliberate, as it was decided to interview at least three companies in the Media and telecommunication sub-sectors, respectively.

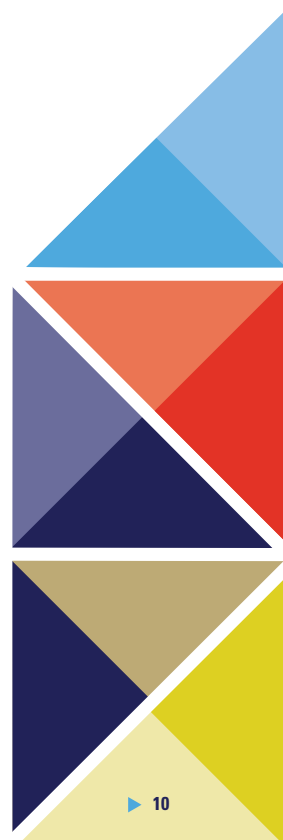
4.1.2 Description of the designations of the participating respondents per company

Although CEOs, HR Executives and/or Chief Strategists were targeted, the actual respondents represented a wide spectrum of designations from their respective companies. Table 1 provides the information for the 82 participating companies.

Table 1: Description of respondent positions (n=82) (Based on 88 respondents)

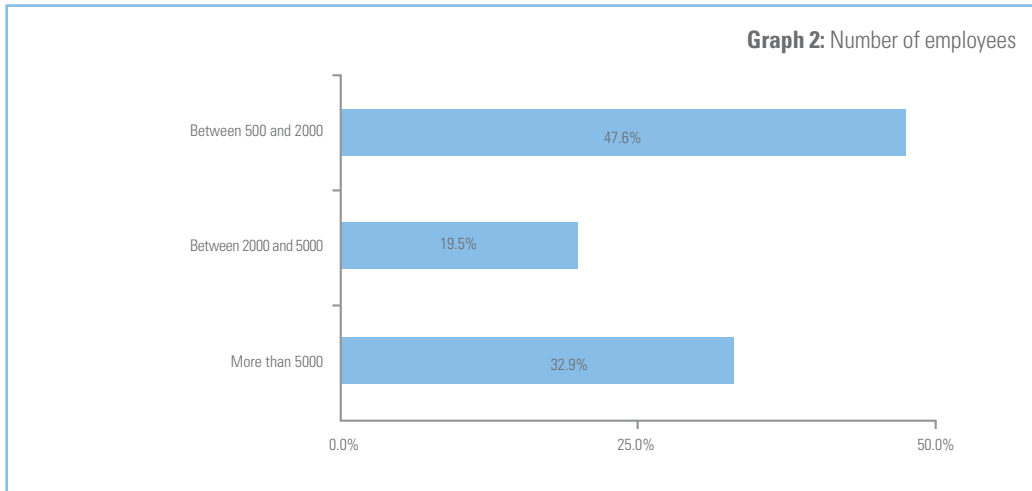
Position description	n*
IT/ICT director/executive/manager	29
CIO	10
HR/talent management director/executive/manager	10
Finance director/executive/manager	8
Company secretary	6
Executive/CEO/director	6
Business development/new business/digital marketing/ strategy director/executive/manager	6
Communication/information director/executive/manager/executive assistant	4
Marketing director/executive/manager	3
Strategist	3
Legal and risk director/executive/manager	3

*Multi-mentions possible



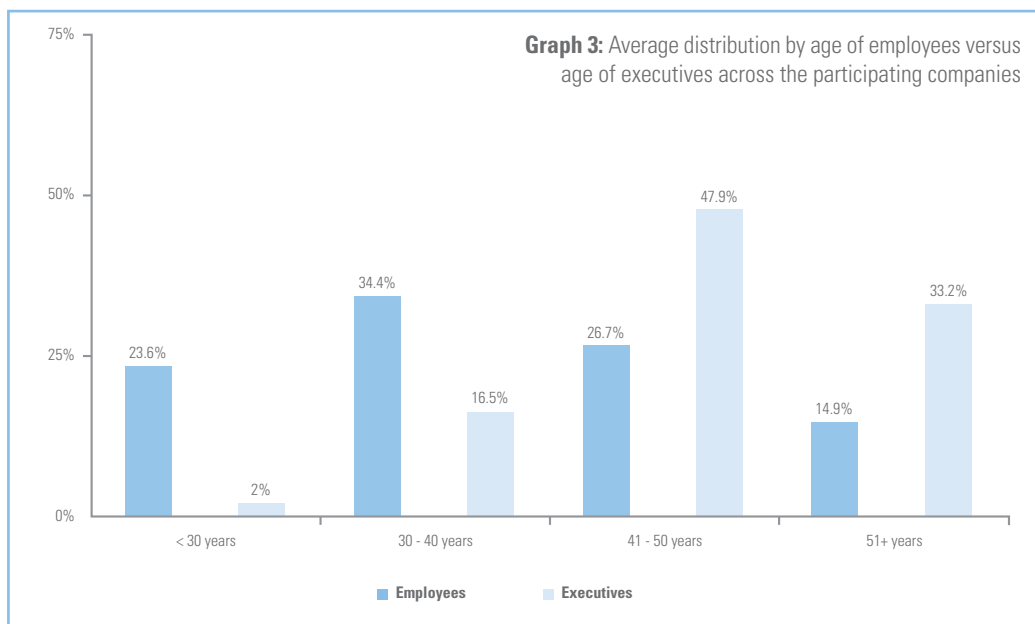
4.1.3 Number of employees per companies

Almost 48% of the 82 companies stated that they have less than 2 000 employees, 19.5% companies have between 2 000 and 5 000 employees while 32.9% indicated that they have more than 5 000 employees in their employ.



4.1.4 Age distribution of employees of participating companies

Respondents had to indicate the age distribution of the employees and executives of their respective companies. The purpose of this question was simply to obtain a general view of the age distribution of employees versus executives of the companies. As presented in Graph 3 the average age of employees was lower than that of executives: 81.1% of executives were older than 40 years compared to 58.1% of the employees who were younger than 40 years.



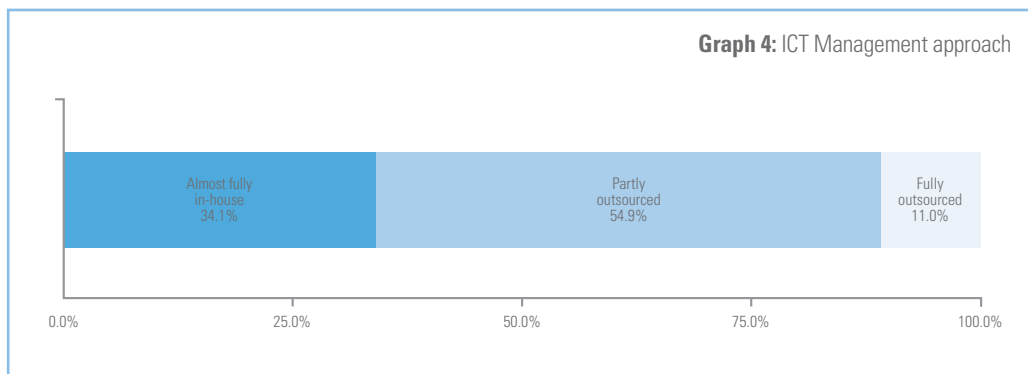
4.2 ICT Landscape of participating companies

To obtain a perspective of the current status with respect to particular ICT practices, respondents were requested to provide information on the following practices, namely

- (i) ICT management approach (insourced versus outsourced),
- (ii) Nature of access to particular digital resources, and
- (iii) Level of investment in particular business practices.

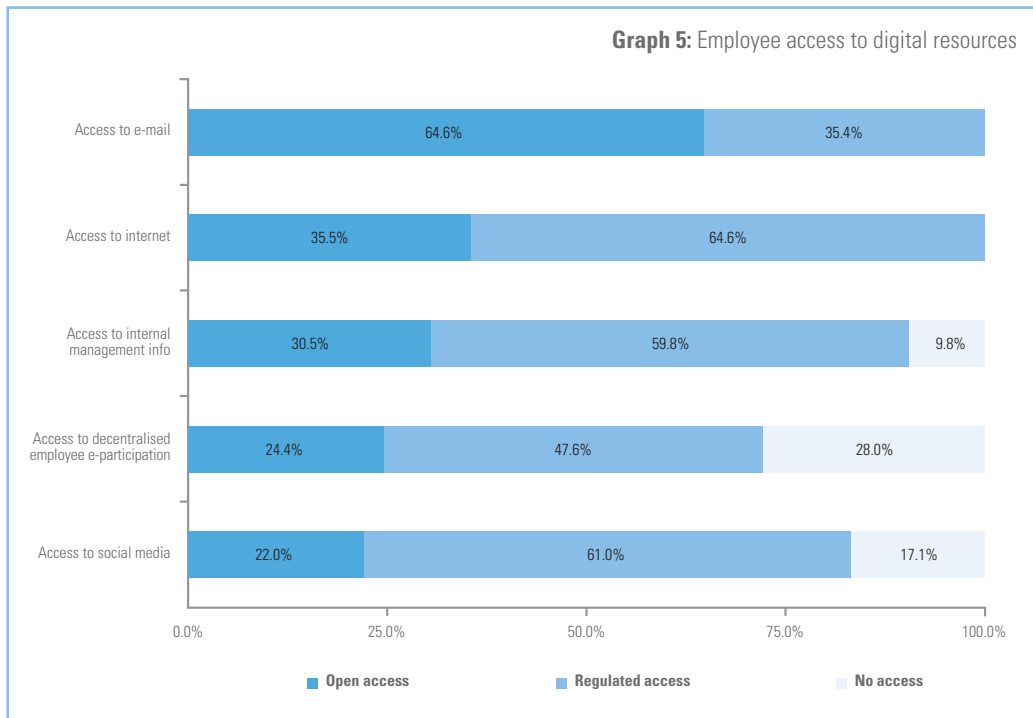
4.2.1 ICT management approach

As indicated in Graph 4 just over a third of companies (34.1%) managed the ICT function as an almost fully in-house functional area. A surprising 65.9% partly or fully outsourced ICT services. This confirms the outsourcing trend of some services in ICT and brings to the fore the challenge of the management of partnerships/alliances to the benefit of the current and future digital strategy of the organisation.



4.2.2 Nature of access to particular digital resources

Participating companies had to indicate the level of employee access to: (i) e-Mail, the internet, and social media, such as Facebook and Twitter; (ii) Decentralised employee e-participation forum in view of influencing decision making; and, (iii) Internal management information. Apart from simply trying to obtain a view of the level of access to technologies across the various sectors, the question aimed at determining the extent to which companies utilised technologies to either make in-time information available to employees (engage them in the decision making and steering of the company) and to create opportunities for employees to collaborate and share information across functional areas (especially through social technologies). The responses are reflected in Graph 5.



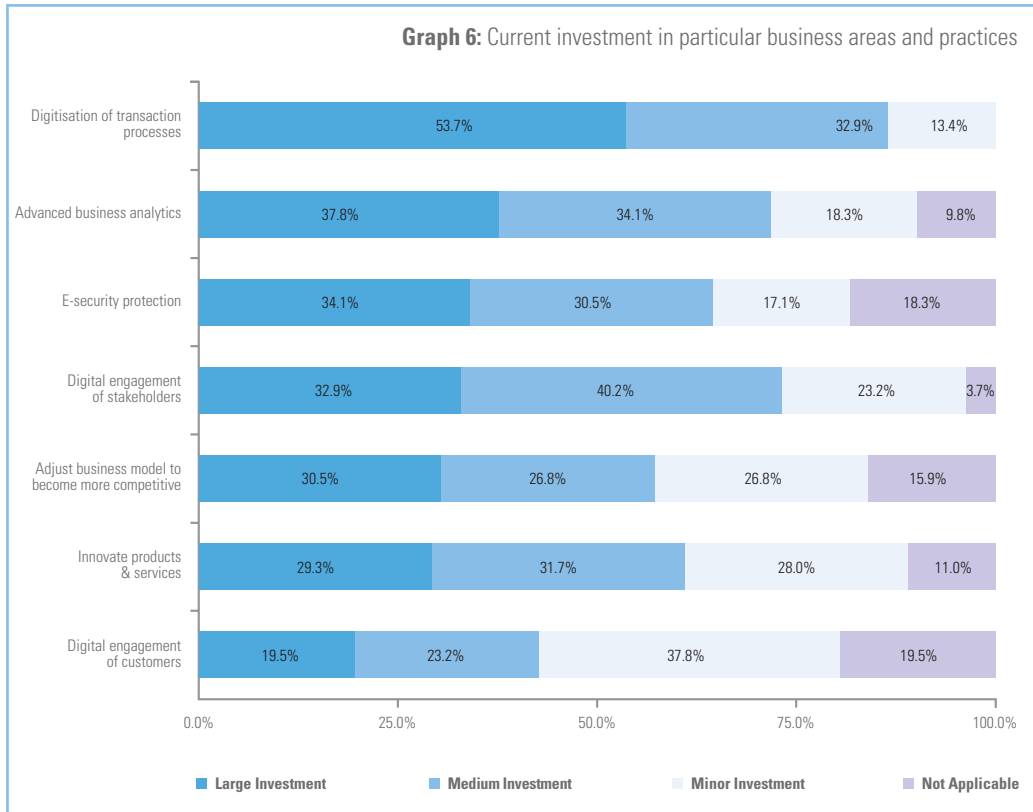
Considering “access” to digital resources (including open and regulated access), all companies provided their employees with a form of access (open or regulated) to e-mail and internet, 83.8% provided employees with open or regulated access to social media and internal management information while only 62.1% of companies provided employees with a form of access to decentralised employee e-participation forums. In general it seems that e-mail and internet were the most accessible digital resources for employees while decentralised employee e-participation forums seem to be the least accessible digital resource.

However, despite the relative accessibility of digital resources, more than two-thirds of participating companies indicated that they regulate employee access to internet (70.3%) and social media (67.6%), while 54.1% of companies regulated access to internal management information.

4.2.3 Level of investment in particular practices

Companies were requested to describe the nature of their investment in the following areas or practices, namely: (i) Digitisation of transactional processes and system; (ii) Digital engagement of stakeholders, where “stakeholders” refer to employees, suppliers and business partners; (iii) Advanced business analytics (so-called big data) to support on-time business decision-making; (iv) Innovation of products and services for digital purposes (digital economy); (v) Adjustment of the business model for becoming more competitive in the digital economy (developing digital offerings); (vi) e-Security protection of customers; and, (vii) Digital engagement of customers (e.g. Facebook, Twitter).

The largest investment was made into digitisation of transaction processes (53.7%), advanced business analytics (37.8%), e-security protection (34.1%) and digital engagement of stakeholders (32.9%). The smallest investment was made into digital engagement of customers (57.2% minor or no investment).



Combining the large and medium investment categories, the order of investment in particular business areas changes slightly: the largest investment was made into digitisation of transaction processes (86.6%), with digital engagement of stakeholders (73.1%) accounting for the second largest investment followed by advanced business analytics (71.9%), e-security protection (64.6%) and the innovation of products/services (61%). Although the digital engagement of stakeholders was rated as second highest investment priority, the digital engagement of customers received the lowest investment priority.

This investment profile corresponds broadly with the reported IT budget spend (investment) reflected in the 2014 McKinsey Global survey results⁵. According to this study, participating executives reported that 27% of the expenditure went into infrastructure, 26% to transactional applications, 12% to security, 12% to analytics, and 11% to innovation and 11% to other initiatives. The improvement of the effectiveness and cost efficiency of business processes are regarded as top priorities while creating new products and services and entering into new markets are lower down the priority list.

The 2014 CEO Briefing⁶ of Accenture confirms the focus on an investment in digital technologies to improve efficiencies of operations and customers' experiences. However, they acknowledge that ICT priorities should not only focus on business as usual (i.e. process efficiencies and cost-cutting), but should include revenue generating initiatives (i.e. creating new markets and new business models).



5. Discussion of the people and organisational practices

5.1 Overview

An organisation heading towards the digital economy, especially one that prepares for an increasing digital interaction with its market, is expected to invest substantially in building the digital competence of its own workforce. In this section, we report on the part of the investigation that assessed important human capital initiatives towards building the people and organisational capabilities required for participating in a digital economy (see Figure 1).

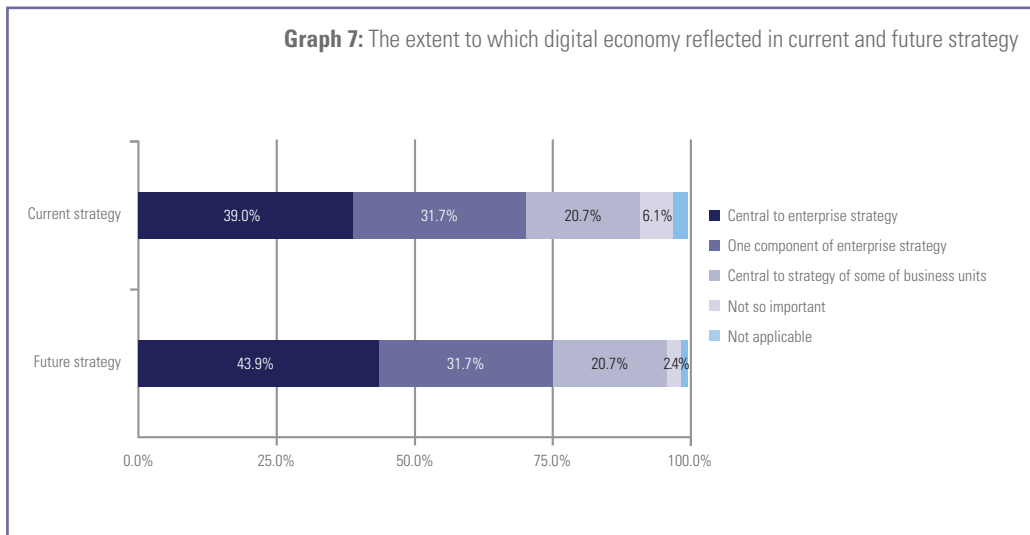
The dimensions probed in this part of the survey were:

- Reflection of digital economy in the current and future strategy;
- The level of involvement of functionaries in the development of digital strategies;
- The way e-skills have become integrated into the human resource practices of an organisation;
- The current level of e-skills and mobile e-skills in the organisation across three focus areas: ICT practitioners; functional areas; and its management and entrepreneurial functions;
- The extent to which companies experience challenges to enter and participate in a digital economy across certain key aspects;
- The current emphasis on human resource development practices to ensure sufficient e-skilled talent in the organisation;
- The degree to which e-learning material have been made available for training and developing its workforce;
- Practices to increase e-skills and digital readiness of stakeholder network;
- The monitoring of key indicators to track digital progress;
- The sources of e-innovation; and,
- Where companies rate their own level of digital maturity.

The findings of the study are presented in the sections below.

5.2 Inclusion of digital economy in current and future corporate strategies

Respondents were asked to indicate how opportunities associated with the digital economy are reflected in their current and future corporate strategies. The results are reflected in Graph 7 on the next page.

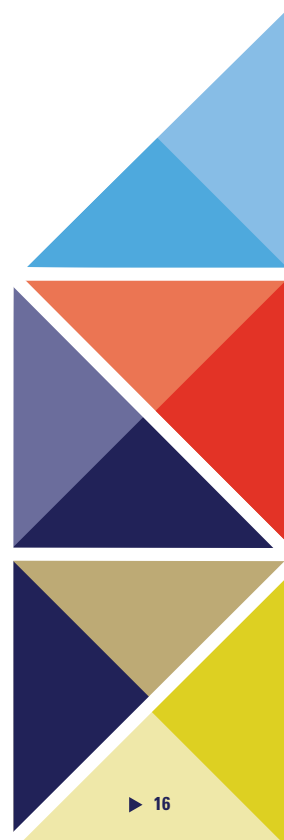


The majority of companies indicated that the digital economy was central to the strategy of some business units (20.7%) or one component of enterprise strategy (31.7%). There was a slight increase of 4% that indicated that they intend to have the digital economy as central to enterprise strategy in future (43.9% in future compared to 39% current).

Only 43.9% of respondents indicated that in the future the digital economy will be central to enterprise strategy, whilst 52.4% indicated it will be either one component of enterprise strategy or central to the strategy of some business units (Table 9). This implies that the majority of respondents still see opportunities associated with the digital economy not as central to the strategy of the enterprise, but rather a business unit focus area or a component of enterprise strategy. The results, however, confirm a strong future strategic intent and focus on unlocking opportunities related to the digital economy.

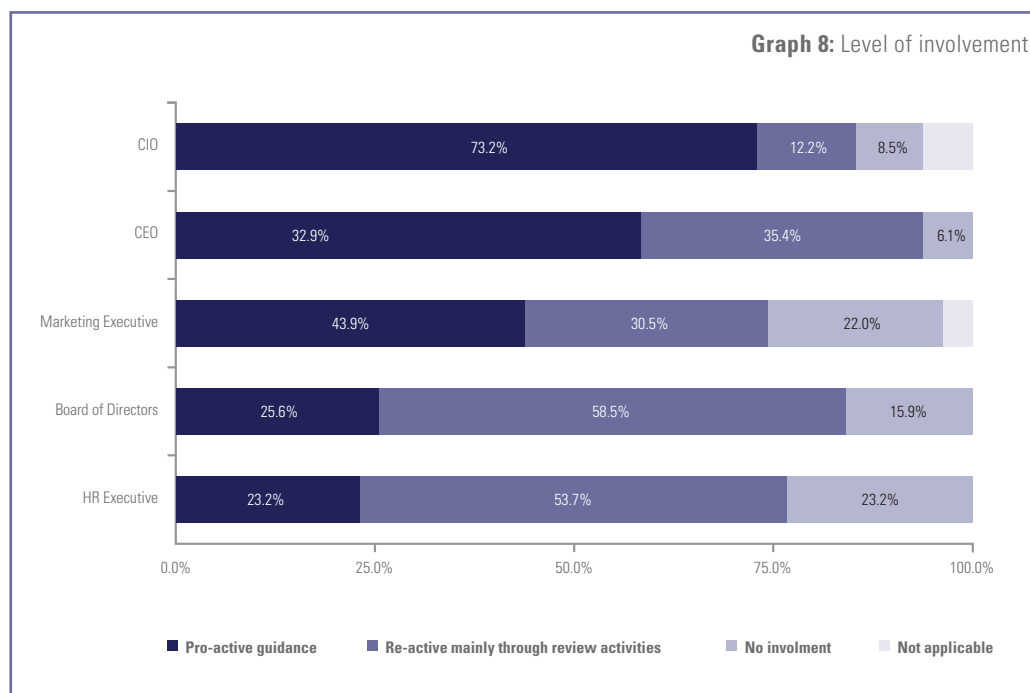
The question arises as to whether the speed at which companies are adopting digital strategies is commensurate with the pace that will ensure their creation of a conducive context to mine new strategic opportunities in the digital economy?

More than half of executives who participated in the 2014 CEO Accenture survey⁸ indicated that they expect significant change or complete transformation of their industry as a result of digital technologies.



5.3 Involvement of key functionaries in strategic digital business initiatives

The role of different functionaries in the development of strategic digital business initiatives for company competitiveness was probed and the results are presented in Graph 8 below. Various recent contributions to the discussion on digital business highlight the important role of senior executives and the Board.⁷



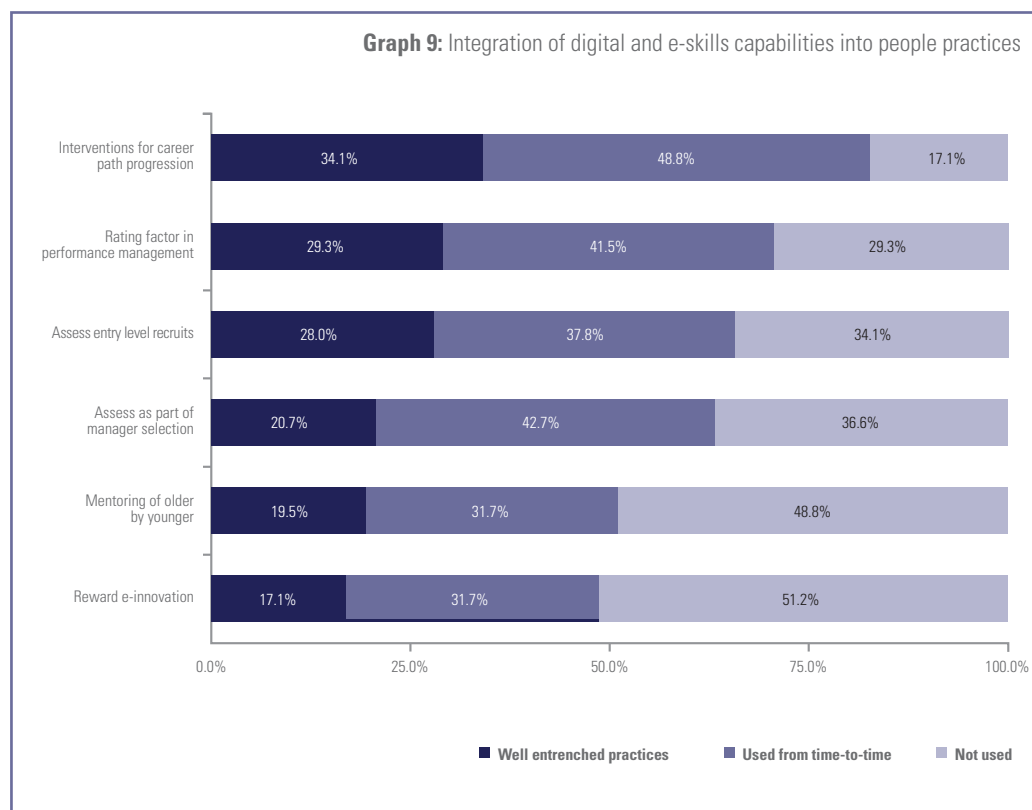
The CIOs (73.2%) and the CEOs (58.5%) were the executives most pro-actively involved in the digital economy, followed by marketing executives (43.9%). The Boards of Directors and HR Executives generally seemed to be not highly involved. Almost 75% of companies reported reactive guidance or non-involvement.

The finding that CIOs are more likely to lead digital initiatives, is in contrast to a 2013 global survey of McKinsey⁸, which found that CEOs were more likely to lead digital initiatives. This indicates that CEOs in South Africa are still too reactive and uninvolved in the development of strategic digital business initiatives for companies' competitiveness.

5.4 Integration of digital capabilities into human resources practices

In this section, the participants reported on the extent to which digital capabilities and e-skills were integrated into key human resource practices. Practices included in this question, were: (i) Formal e-skills assessment requirements for entry level recruits; (ii) Formal e-skills development interventions for career path development or career progression; (iii) e-Skills competence as a rating factor in performance management processes; (iv) Formal reward and recognition for e-innovation contributions; (v) e-Skills assessment as part of the manager selection process; and, (vi) In mentoring practices where older people are coached by younger people to develop/enhance their digital skills (reverse mentoring).

The results presented in Graph 9 indicated that interventions for career path progression at 34.1% rated as the best entrenched practice, while the five remaining practices ranged with relatively low scores from between 17% and 29% as well-entrenched practices. Conversely, 51.2% of the respondents indicated that e-innovation was never rewarded, whereas almost half of the companies (48.8%) did not use the practice of mentoring of the older by younger employees at all.



In general, the requirements and implications of digital capabilities and e-skills are currently at a low level of integration into core people practices. These results are perhaps a reflection of the mindset that these capabilities and skills are predominantly the domain of ICT practitioners and the ICT/CIO function, with limited relevance for company-wide people practices. However, integrating critical digital skills and capability requirements into company-wide people practices can not only contribute towards the necessary focus on enhancing efficiencies and productivity, but also to facilitate the pro-active skills and capability development required for sustaining companies' competitiveness within the digital economy.

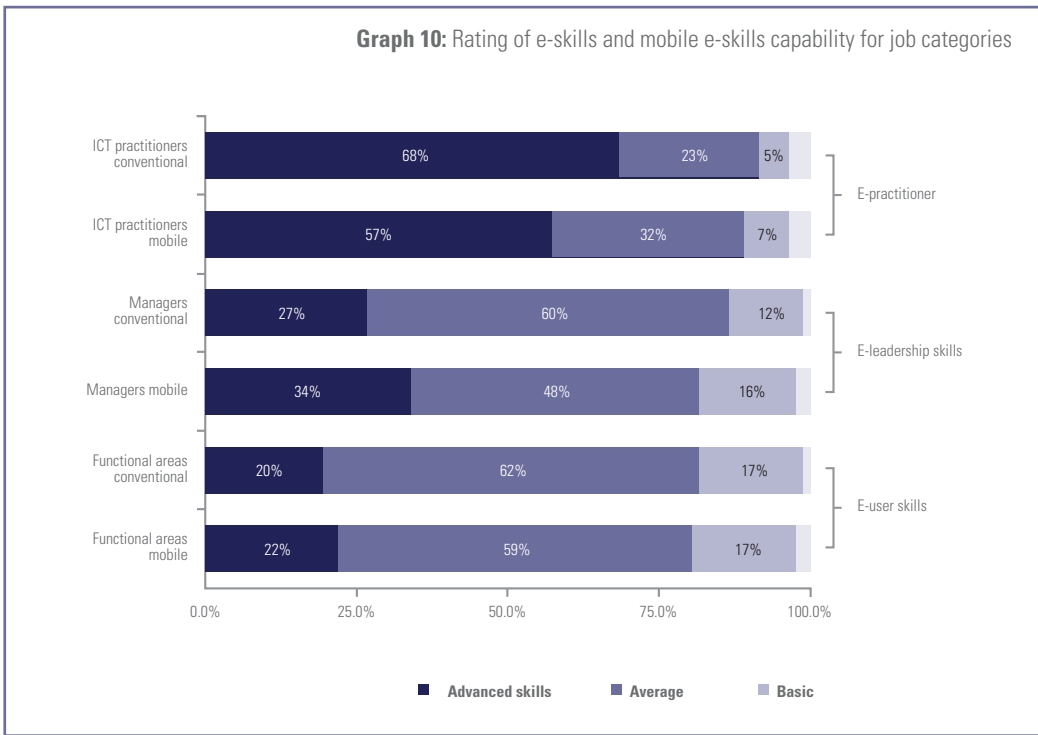
5.5 e-Skills and mobile e-skills capability

In this section, we address the extent to which organisations believed that they were equipped with appropriate e-skills (i.e. conventional e-skills as well as mobile e-skills). The concept of e-skills is not one-dimensional and consequently, for effective participation in a digital economy, different types of e-skills sets are required for different focus areas of the organisation. The study addressed these differences as per the explanations in Table 2. In order to assist respondents, these definitions were provided in the questionnaire (while the interviewers could also provide further explanation).

Table 2: Skills levels and organisational foci

<p>Skills in respect of Functional areas</p>	<p>e-user skills: The ability of an individual to use digital tools and facilities (internet, computer, mobile devices, etc.) to perform tasks, to solve problems, to communicate and to perform various functions for work and in all areas of everyday life (e.g. send e-mail, obtain information from the internet, electronic invoicing, internet banking, doing online business, using social media).</p>
<p>Skills in respect of ICT practitioners</p>	<p>e-practitioner skills: The skills required by those professionals who are responsible for maintaining, supporting, servicing, integrating, installing and or administrating Information and Communications Technology (ICT) systems (such as ERP systems, Business Intelligence, Payroll, Financial management systems).</p>
<p>Skills in respect of Managers</p>	<p>e-leadership skills: The portfolio of skills, representing expertise in both using ICT systems and in leading organisations (or divisions/functions such as Marketing, HR, Customer Service etc.). It is also defined as “the accomplishment of a goal that relies on ICT through the direction of human resources and uses of ICT”⁹.</p>

The results are illustrated in the Graph 10 below.



The findings show that the majority of companies perceived that they have advanced skills among their ICT practitioners. However, as far as e-leadership and e-user skills were concerned, companies reported a more modest situation. Comparatively few companies felt that they possessed advanced skills in these areas. The findings from Graph 10 raise concerns about the ability of a substantial majority of companies in South Africa to consider accelerating their participation in the digital opportunities of the economy. Whereas they may have the capability to provide the necessary ICT infrastructure, the digital business acumen among leaders and the capacity for execution in the functional areas were perhaps lacking.

There also appeared to be minor differences between the prevalence of desktop (conventional) and mobile e-skills. Although mobile e-skills were marginally more entrenched among managers and users, the reverse was true of ICT practitioner skills.

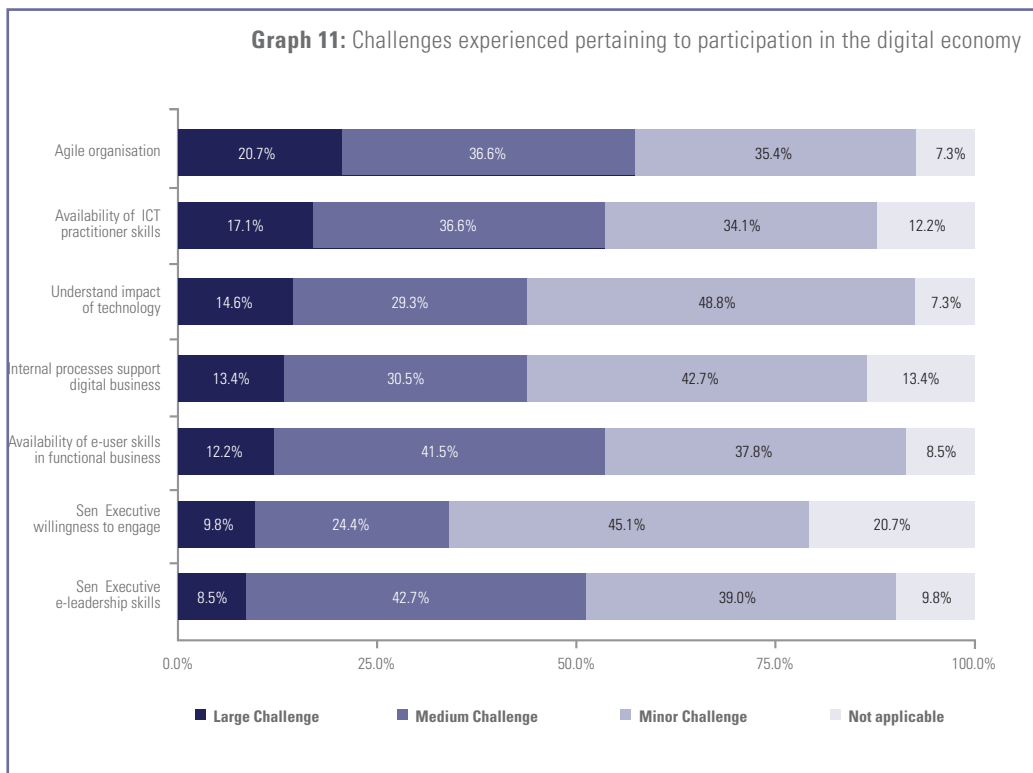
In this context it is interesting to note that in the already-mentioned international study by Accenture⁶, the majority of CEO respondents stated that they will increase their investment in human capital up-skilling and will invest significantly in their human resources to meet the challenges of the digital economy.

5.6 Challenges pertaining to participation in the digital economy

This part of the questionnaire assessed the challenges companies experienced in entering and participating in the digital economy. Companies had to rate the degree to which the following aspects presented challenges to them: (i) Adequate understanding of the impact of technology on the business; (ii) Availability of relevant ICT practitioner skills; (iii) Availability of relevant e-user skills in functional areas; (iv) Senior executive interest or willingness to engage with technology; (v) Senior executive mastery of technology implications to inform strategic decision-making; (vi) Sufficiently agile organisation culture to adapt to technological changes and the digital economy; and, (vii) Internal business processes supportive of digital business offerings.

In view of the fact that enterprises' ability to react, adapt to and embrace these challenges is of such critical importance, the two response items of "large challenge" and "medium challenge" were combined for interpretation purposes, in order to highlight and emphasise the urgent need to achieve "fit for purpose".

As reflected in Graph 11, the respondents reported the most significant challenges to enter and participate in the digital economy in the following areas: organisational agility (57.3%), availability of ICT skills (53.7%), e-user skills in functional areas (53.7%), and the mastery of e-leadership skills by senior executives (51.2%). It is interesting to note that respondents from companies that perceived their organisations as digitally mature, regarded the availability of relevant ICT practitioner skills as significantly more of a challenge.

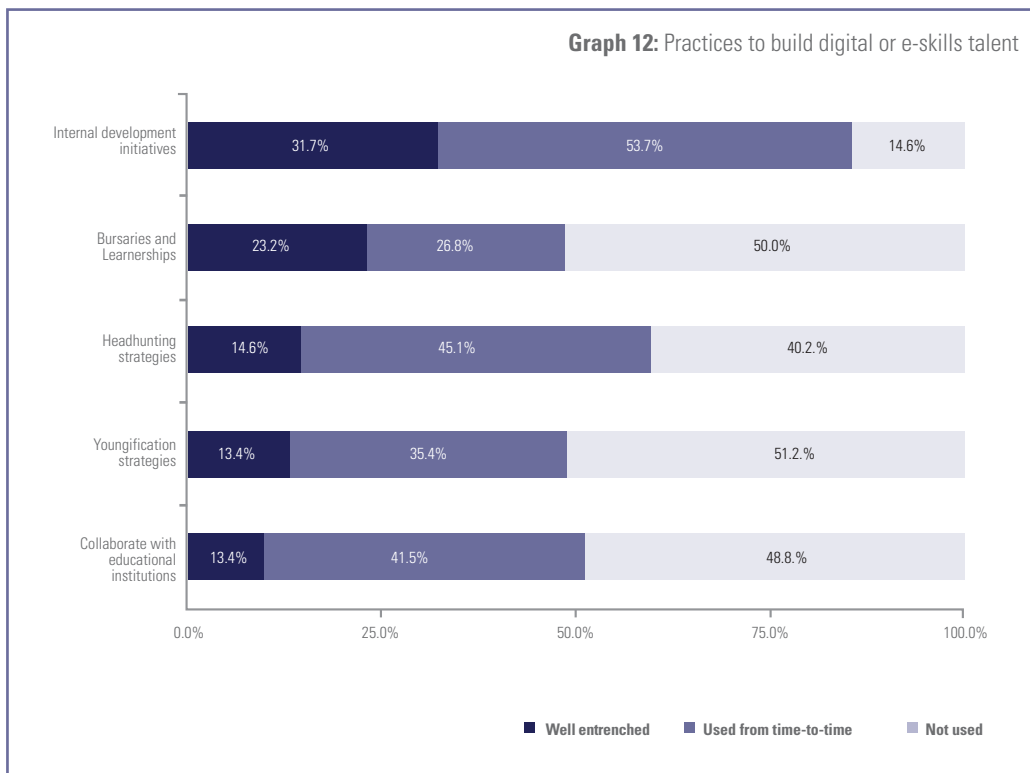


From an analysis of the preceding findings on the most significant challenges that presented themselves to organisations, it is clear that there is no uniformity between the sectors involved, and within these sectors. In part, this may be ascribed to varying levels of perceived readiness for the digital economy, as well as the ability (of lack thereof) within organisations to bring about changes and modifications typically associated with successful organisations. The Business Innovation Group¹⁰ describes this process as the "... dynamic reconfigurability (that) enables the system to have the capability to modify their functionalities, adding or removing components and modify interconnections between them."

Furthermore, the AAPT White Paper¹¹ on readiness for the digital economy emphatically states that: "The demand on skills in information and communications technologies (ICT/digital skills) to support the digital economy will continue to increase. Organisations with access to adequate skills will be better placed to take advantage of innovative opportunities to utilise electronic based services. Organisations which recognise those skills, as essential foundation for the continued prosperity of their business, will better survive the disruptive nature of the Internet."

5.7 Practices to ensure sufficient e-skills talent in companies

As reported in other studies around the world, organisations use different practices to ensure that they build the talent to meet the advent of the digital economy. The ones tested in this report (as presented in Graph 12) are: (i) Headhunting for specialist digital skills; (ii) Internal development initiatives to grow own digital talent; (iii) Bursary schemes or internships to attract external digital talent to the company; (iv) The deliberate youngification of leadership; and, (v) Collaboration at industry level to inform educational institutions about current and future digital talent requirements.



The results indicate that not many companies seemed to be confident enough to report well-entrenched practices in respect of the practices tested. The practice most commonly used was internal development initiatives to grow own digital talent; 31.7% identified this as a well-entrenched practice, while a further 53.7% used it from time to time. This is an encouraging finding.

What is interesting to note, is that head-hunting strategies played a substantial role in acquiring e-skilled talent: just under 60% of participants reported it as either a well-entrenched practice, or used it from time to time. This may have a positive, as well as a negative connotation. On the one hand, it signals a demand for this type of skills, which should encourage younger career-builders to develop such skills within themselves. The negative view reflects that it does not provide any skills development and rather encourages a migration of existing scarce skills, which may soon cause such skills to become unrealistically expensive (poaching). The other negative angle rests on thinking that e-skills are simply a stand-alone skill that one can import and, as such, ignoring that it may form part of the integrated skills set required within a company for its own strategy and context.

In respect of the other practices, there was an almost halfway split between companies using these practices to build e-skills talent and not using these at all. From these results, it is evident that many large companies do not see a pro-active role for themselves in ensuring a pipeline of future talent to the market. Around half of the participating companies did not offer bursaries, learnerships, or internships to provide learning opportunities for young people, or participated in industry-wide discussions with educational institutions about future skills for a digital economy. Deliberate youngification of leadership was the e-skills practice least used by participating companies.

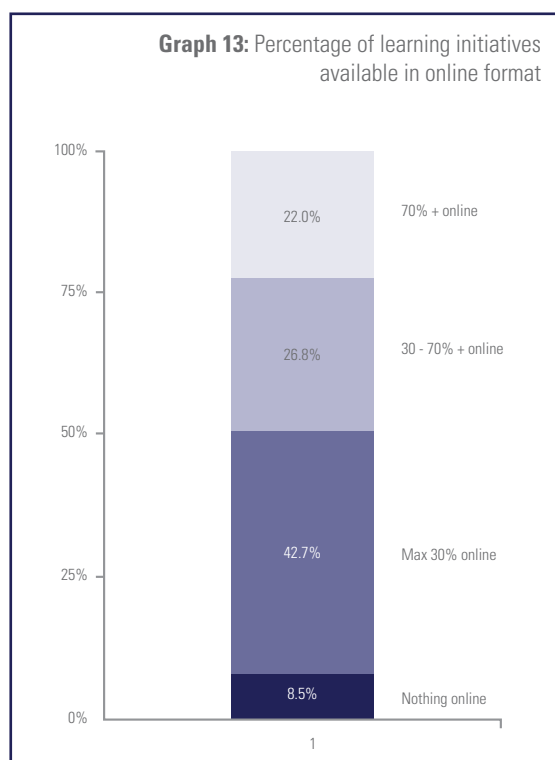
5.8 Availability of learning initiatives/material in an online format

The availability of online learning as a resource to train employees does not only signal an effort to encourage employees to become even more acquainted with technology as a way of life and of carrying out regular tasks, but online learning also demonstrates an advanced level of digital maturity and it demands a sophisticated emphasis on technology and support thereof in an organisation. The benefits of online learning accommodate flexibility and speed of mastery, quick results and feedback; therefore, this item of the survey has a clear purpose.

Of the 82 participants (as reflected in Graph 13) 51.2% of companies reported that they made a maximum of 30% of their learning initiatives and programmes available in an online format. Only 22% of the respondents indicated that 70% and more of learning initiatives and programmes were available to staff in an online format. In technology-driven sub-sectors, such as communication and transport, examples of sophisticated online training, such as simulators, were cited, whereas some cited online university courses as sources of online learning materials.

In general, it seems that in many companies there is a migration to online learning initiatives and programmes. However, the question can be raised as to whether it happens fast enough, and whether the benefits of online (or blended) learning are fully realised? Providing employees with online learning opportunities is a potential

cost efficiency improvement area for many businesses and it can furthermore contribute towards self-directed learning where employees are enabled to take responsibility for the development of their own skills.

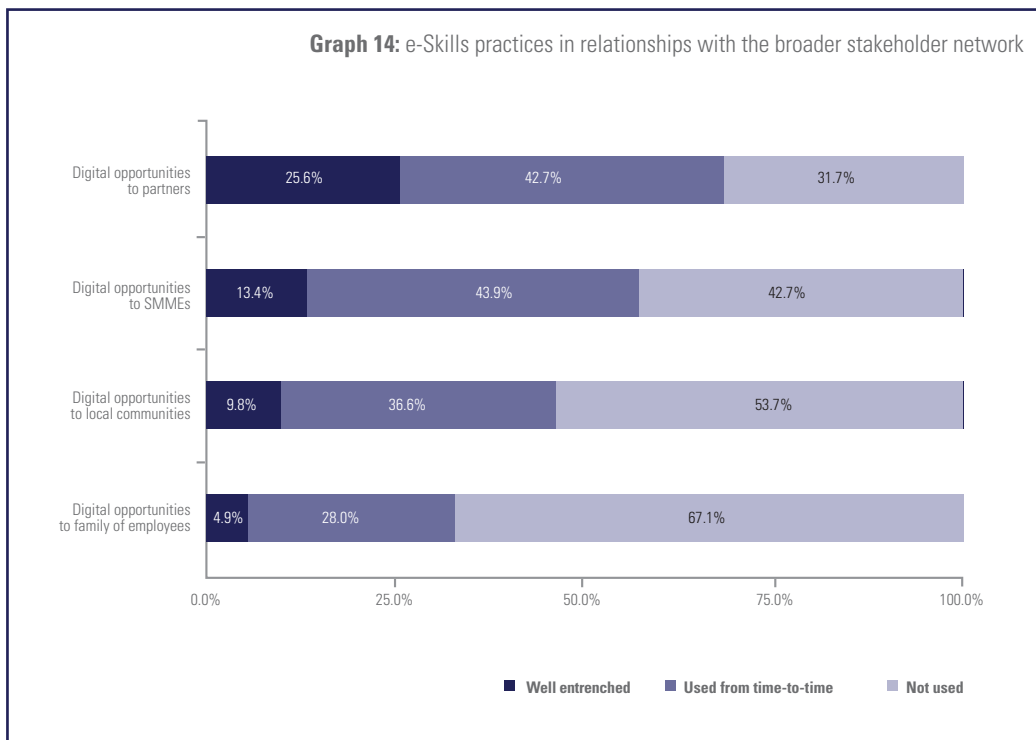


5.9 Practices to increase e-skills and digital readiness of stakeholder network

Respondents were requested to indicate the extent to which their companies were engaged in digital practices to increase the digital readiness of their broader stakeholder network, such as to: (i) Make digital opportunities available to partners (suppliers and contractors); (ii) Provide digital opportunities for SMMEs as part of the supplier network development; (iii) Provide digital opportunities for local communities in trading areas of the business; and, (iv) Make digital opportunities available for family members of employees.

The purpose of this question was to gauge the extent to which companies:

- (i) regarded the broader stakeholder network as part of their strategic landscape for knowledge creation, and innovation; and, as well as the extent to which companies
- (ii) engaged with stakeholder groups for e-inclusion purposes as part of Corporate Social Investment initiatives.



From Graph 14 it appears that digital opportunities in stakeholder networks were not well-entrenched. Providing digital opportunities to partners (25.6% well-entrenched; 42.6% used from time to time) was the most used practice. Opportunities for SMMEs (13.4% well-entrenched and 43.9% used from time to time) was the second most-used practice. The least often provided opportunities were in respect of local communities (53.7% never used) and the family of employees (67.1% never used).

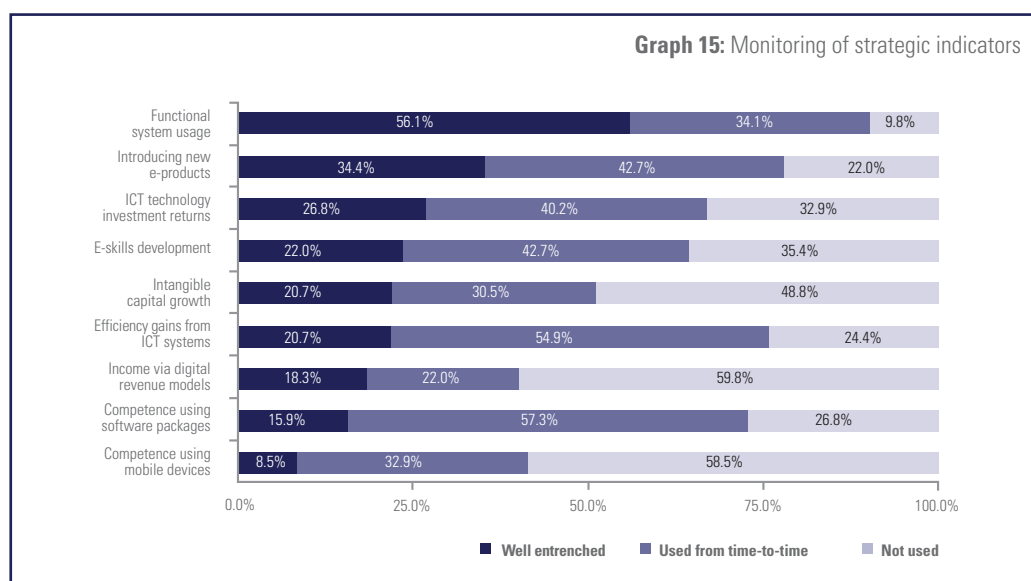
Some of the examples shared by those companies that invested in digital opportunities in the stakeholder networks, included the following: (i) assisting small business partners with connectivity (e-mail); (ii) installation of IT software for BEE partners; (iii) the installation of WiFi in student residences; (iv) "Power-hour" - a homework computer experience; (v) "Boys and girls clubs" - township connectivity; (vi) connectivity for schools and discounted broadband for employees.

From a business ecology perspective, it is clear that many participating companies did not as yet leverage the opportunity to enhance the digital readiness of the network for their own benefits (e-supply chain, e-talent development, and community-based e-solution development). The question raised is whether they were not missing an opportunity to use their current ICT infrastructure and know-how for the benefit of stakeholders, and so promoted higher levels of e-inclusion across their networks?

5.10 Monitoring of indicators to determine digital progress

In this section, respondents were asked to report on the extent to which their companies put indicators in place to measure progress towards certain important strategic goals in respect of a digital economy. As presented in Graph 15, nine indicators were tested, namely: (i) The development of e-skills (in respect of all three skill categories: e-user skills, e-practitioner skills, and e-leadership skills); (ii) The proper use of functional and transactional systems such as ERP, CRM and HR systems; (iii) The competence levels on desktop software packages (e.g. Microsoft Office suite); (iv) The competence levels in using mobile devices; (v) The efficiency and productivity benefits accomplished through ICT investments; (vi) The success of introducing new e-products and e-services for business growth; (vii) The income generated by digital revenue streams as a distinctly separate income category; (viii) Growth in intangible capital (e.g. employee engagement surveys); and, (ix) Returns on ICT technology investments.

The most often used monitoring indicator was tracking the usage of functional systems (56.1% of companies use it always), followed by just over one-third of companies that always measured the success of introducing new e-products (34.4%). The other indicators seemed to be not as important to a substantial majority of the companies that participated. There were also indicators ignored by a surprising number of companies. The most prominent ones were: measuring competence levels of using mobile devices (58.5% not used); measuring the income generated by digital revenue systems (59.8% not used); and, measuring intangible capital growth (48.8% not used).



In general, strategic monitoring mechanisms are biased towards the monitoring of functional system usage, which implies a preference for the tracking of operational activities and the improvement of efficiencies. Competency and revenue generation related indicators were under-utilised and, consequently, offer the opportunity for the improvement of the e-corporate scorecard.

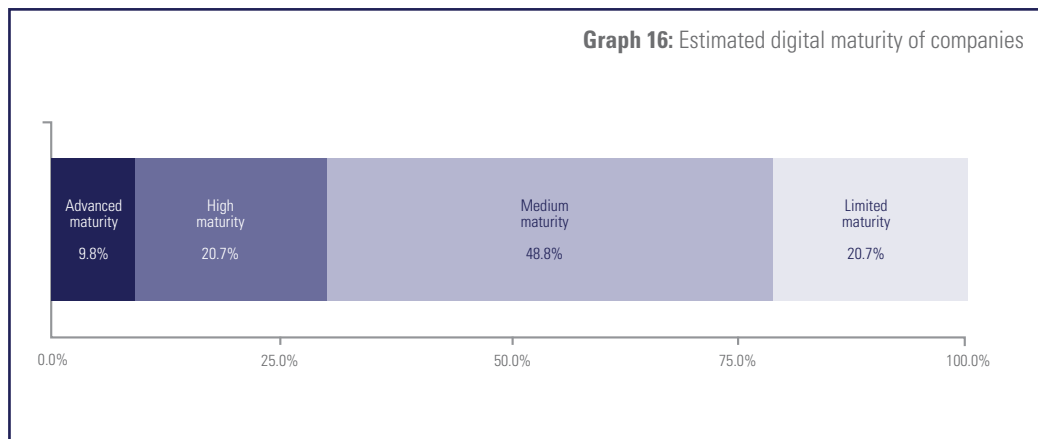
5.11 Sources of e-Innovation

This item in the questionnaire was an open-ended question probing respondents about what and/or where the sources of e-innovation in their companies were to be found. According to the responses analysed, the IT department (30.9%) and marketing/customer care (20.6%) accounted for more than half of the e-innovation in companies. Other sources of e-innovation are research and development (16.2%) and customer needs (also 16.2%).

In only 13.2% of the companies the broader employee component was regarded as their source of e-innovation. Three companies reported specific e-innovation initiatives (i.e. 3.7%). The examples mentioned were: (i) A hub for e-innovation, influenced by both management and outside sources; (ii) An e-innovation circuit; and, (iii) An annual innovation competition for all staff.

5.12 Rating of digital maturity

In view of obtaining an overall indication of a company's digital maturity, respondents were requested to respond to the question: "Based on your current e-practices and e-capabilities, in your view, where would you rate your company on the continuum below?" As this presented new territory for the research team and companies, the question was deliberately posed at the end of the questionnaire. The assumption made was that respondents would have a better grasp of this concept of digital maturity after having completed the survey. The results are provided in Graph 16.



Almost half of the respondents (48.8%) rated the digital maturity of their companies as medium, whereas 20.7% rated their maturity as limited or low. This implies that only 30.5% of the participating companies regarded their digital maturity level as high to advanced. These results confirm that for most companies, the digital journey represents new territory, still with many development areas.



6. Summary of findings and take-forwards

The final section of the report consists of a high-level summary of the key findings relating to the strategies, practices and skills that emerged from the study. The participating companies are in various stages of responding to the challenges and opportunities of the digital economy. Based on the findings of this study, we offer themes as contribution to the local discourse and the taking forward of proposals towards an enhanced enabling role of digital technologies for competitiveness through people.

The summary points and thrusts are presented under the following headings:

- Digital strategies and practices
- Integration of digital capabilities into people practices
- Skills and practices in support of digital strategies
- Practices to increase digital readiness of stakeholder networks
- Harnessing the flows of knowledge for innovation
- New way of thinking about and leading companies.

6.1 Key findings and take-forward themes

Due to the confidential nature of this study, the names of participating companies have been withheld. Sixty-two percent (62%) of the 82 large companies that participated are listed; of the 31 unlisted companies, 11 are included in the top 500 best-managed companies in South Africa, while the remaining 20 are prominent players in the agriculture, utilities and construction sectors.

6.1.1 Digital strategies and practices

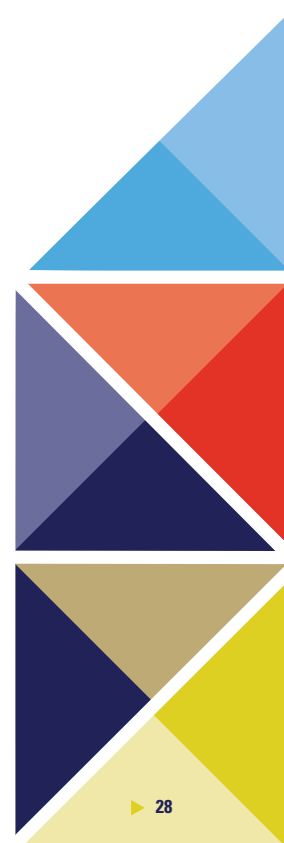
Reflection of digital economy in the current and future strategy	With the exception of 8.5% of the participating companies, the majority acknowledged the potential impact of the significant changes in the world of work as a result of information and communication technology. These participants indicated that they acknowledged (and will continue to reflect) the digital economy in their current and future business strategies, as either central to the enterprise strategy (39% - 43.9%), central to a component of the enterprise strategy (31.7%) or central to some of the business units (20.7%).
---	--

<p>The level of involvement of functionaries in the development of digital strategies</p>	<p>CIOs seemed to lead digital business initiatives, followed by CEOs and marketing executives. However, when compared to international benchmarks, the involvement of CEOs and Board members in the proactive exploitation (or development) of digital opportunities appeared to be below par.</p>
<p>Self-evaluation of levels of digital maturity</p>	<p>Although companies seemed to be cognisant of the opportunities afforded by the digital economy, the majority of respondents (almost 70%) rated the digital maturity level of their companies as medium to low.</p>
<p>Monitoring of key indicators to track digital progress</p>	<p>The monitoring of digital progress appeared to be biased towards the tracking of functional system usage. Tracking of people-related monitoring mechanisms (i.e. e- skills development, measuring of mobile-device competence levels, intangible capital growth, competence levels of desktop software packages) and revenue generating indicators (i.e. new e-products and e-services, measurement of income generated by digital revenue streams) were less prominent on the agendas.</p>

In general, digital strategies and practices seemed to focus on improvement of efficiency, while revenue-generating activities, adjustment of business models and the digital engagement of stakeholders and customers appeared lower down the priority list. The dominant efficiency focus seemed to be supported by the reported dominant investments in ICTs for the improvement of operational efficiencies.

Take-forward 1: For their competitiveness in the context of changing paradigms related to the digital economy, it will be required of companies to re-evaluate current strategies and practices.

The digital economy requires an adjustment in how we think about the way we do business. Due to the pervasiveness of the digital economy, people readily have access to technological advances in their private capacity; that is, they do not experience the digital economy within the walls of companies only.¹² Furthermore, the digital economy is knowledge-intensive, one in which the focus is more on the flows of knowledge than on the stocks of knowledge.² People are generally also applying these forms of knowledge in their private lives. Companies need to recognise the changing paradigm and pro-actively deal with the potential game-changing nature of digital technologies. The change process is not within the realm or responsibility of the CIO only, but should become an inclusive function of the entire organisation.



Take-forward 2: Measure digital maturity growth in a multi-factored manner and as part of the strategic performance management scorecard.

Due to the rapid pace at which the digital economy is progressing, and given the general findings that the participating companies assessed themselves to be at the lower end of the continuum of digital maturity, the measurement of the level of digital maturity is conceivably both appropriate and expedient. Since the digital economy is irrevocably an element of the future macro business landscape, an index of this nature needs to be comprehensive and inclusive of all its interrelated components, with special focus on the critical role of people and organisational capabilities. The primary purpose is that all industries can benefit by investing in the transformation processes (relating to input, processing, and output capabilities) required to extend their digital footprints within their respective business ecosystems.¹³

6.1.2 Integration of digital capabilities into people practices

In general, a key finding from this study reflected the potential of people and organisational capabilities to be untapped resources in unlocking opportunities in the digital space (see Figure 1).

<p>The extent to which digital practices are integrated into core people practices</p>	<p>Overall, low levels of integration of digital capability development into the core people practices (assessment and recruitment, performance management, reward and recognition) were reported. People and organisational capabilities seemed to be untapped resources which may significantly enhance companies' efficiencies of exploiting and pursuing new business opportunities in the digital economy.</p>
---	---

Take-forward 3: Systemic perspective - Challenging the status quo.

Many companies are already active and leading in the space of the digital economy; however, the findings suggest a lack of congruence between the people processes and the technical processes. Strategies relating to the people components of the digital economy are largely under-explored and not integrated within the core people practices of the majority of large organisations. At best, the people practices are at the infancy stage of digital readiness, as opposed to significant and substantial financial and infrastructural investments in ICT. A fundamental point of departure is that finding a solution should be based on a more integrated approach of collaboration between investment in digital infrastructure and the unlocking and growth of people capabilities. Based on perspectives from a systemic approach, the areas of digital technologies and digital opportunity realisation can be enhanced by improving and/or developing the level of people and organisational capacity.

6.1.3 Skills and practices in support of digital strategies

Another critical aspect this study explored, is the current position with regards to digital skills and the acquisition of appropriate skills to support companies in their digital strategies. A summary of the outcomes of the survey is shown in the table on the next page.

<p>Perception of the current level of e-practitioner, e-user and e-leadership skills</p>	<p>The majority of companies perceived their ICT practitioner skills as advanced. However, the e-skills and mobile e-skills levels of functional employees (e-users) and managers (e-leaders) are significantly lower than those of ICT practitioners.</p>
<p>Practices to build e-skills talent base</p>	<p>Most of the companies indicated the practice of “growing your own timber” by giving preference to internal digital development initiatives while head-hunting strategies played a substantial role in acquiring e-skilled talent. Bursaries, learnerships and internships (as opportunities to pro-actively investing in talent) appear to be underutilised practices for the creation of a digital talent pipeline into companies.</p>
<p>The challenges companies experience to enter and participate in the digital economy</p>	<p>A substantial proportion of companies (more than half) reported significant challenges in the following areas: a sufficiently agile and adaptive organisational culture, the availability of ICT skills, appropriate e-user skills in functional areas, and the mastery of e-leadership skills by senior executives.</p>
<p>Availability of learning initiatives and material in an online format</p>	<p>Half of the companies reported that they have a maximum of 30% of their learning initiatives available in an online format, while only 22% reported that more than 70% of the learning material was available online. Many companies therefore seem to under-utilise the potential efficiency benefits (such as cost per person per programme, increase of access, reduction of opportunity cost) associated with online learning material.</p>

Take-forward 4: Prioritise the development of e-competency ability in all functional roles, especially in leadership.

The need to expand the development of e-competency ability in all functional roles, including e-leadership, is cardinal to the challenge of being competitive. For business organisations to reach a leading position in participating in the digital economy, three specific subject matters are identified as priorities, namely: an in-house focus on digital skills development for e-users and e-leaders, which can contribute towards the efforts to increase productivity and efficiency; more advanced e-skills for users and leadership, which can facilitate the identification of new e-business opportunities; and, fostering leadership that commands above-average digital competencies, which can unlock new opportunities within the digital economy (e.g. new e-services, e-products, and other e-related income-generating activities).

Multi-level and multi-functional e-skills are essential requirements for informed decision-making about opportunities in the digital economy. Clearly, the development of leadership with T-shaped capabilities (i.e. in addition to their particular functional proficiencies and aptitudes, these skills include both technical e-competencies and strategic managerial competencies) is a current and future requirement.⁹ This has relevance for senior managers, executives and Boards of Directors.

Take-forward 5: Include an e-skills capability as a core competency in all courses, thereby ensuring digitally literate citizens.

In order to ensure appropriately-skilled and trained future employees, it will be required that institutions of higher education (such as universities and colleges) equip students with skills that will enable them to function competently and effectively within a digitally-infused world of work. The game-changing nature of advanced digital technologies has potential implications for all jobs and professions and need to be understood as part of the training of the future workforce.

Take-forward 6: Growing our local digital talent pipeline as a pro-active step by strengthening collaboration amongst industry partners and educational institutions.

Partnerships between industry and educational institutions are needed to ensure that appropriate talent is supplied for the world of work. Such partnerships should be a collaborative effort to grow the required talent for the good of the collective. As found by this study, the potential role of industry to influence educational institutions is under-utilised.

Company internal training and head-hunting (poaching) cannot in the long term be sustainable initiatives to grow the local talent pool for the digital economy.

6.1.4 Harnessing the flows of knowledge for innovation

The summary of responses relating to the utilisation of people as sources of innovation:

Sources of e-innovation	In general, the view of people as drivers of innovation seemed to be under-explored. Sources of e-innovation were reported to be the IT department and marketing/customer care. Of lesser importance were research and development and customer needs. Very few companies regarded the broader employee component as their source of e-innovation.
Employee access to digital resources	The value of availing employees with social platforms to facilitate knowledge-sharing and knowledge-creation was largely under-explored. As an employee engagement practice the area of e-participation by employees in business decision-making was under-utilised.

Take-forward 7: Enhancing competitiveness by leveraging the benefits of “flows of knowledge” by means of cross-functional collaboration and cross boundary capabilities.

In an era of rapidly obsolescing knowledge the key differentiator will be how quickly and successfully companies can acquire, refresh and expand their stocks of knowledge, rather than only building stable stocks of knowledge. From the systemic perspective, people (inside and outside the boundaries of a company) are the central source for knowledge sharing and innovation. At its core, social technologies are about connecting people. Social technologies offer the opportunity to facilitate cross-functional and cross-boundary collaboration amongst employees for knowledge sharing and knowledge creation. In this manner the full people complement can be utilised for innovation (inclusive of e-innovation) as opposed to limiting it to specific functional areas.

6.1.5 Practices to increase digital readiness of stakeholder networks

A key focus of the study was to determine the extent to which companies invest in and utilise the digital potential of the broader stakeholder networks.

The extent to which companies utilised certain practices to increase the digital readiness of their stakeholder networks

In general, practices to increase the digital readiness of stakeholder networks are not well-entrenched. Although this was fairly widely applied with respect to business partners, and to a lesser extent with SMMEs, opportunities with respect to local communities and the family of employees were seldom used practices.

Take-forward 8: e-Inclusion of broader stakeholder network for business benefits and positive corporate citizenship behaviour.

Given the low level of e-readiness of South Africa at large, companies can play a significant role in investing in the e-inclusion and e-skills development of their broader stakeholder networks as part of their community engagement and corporate social investment initiatives. More importantly, the knowledge pool a company has access to, can potentially be enlarged by the fact that digital technologies blur the boundaries between a company and its external stakeholders. Cross-boundary collaboration within the broader ecosystem offers the potential for external stakeholders to become knowledge partners of companies and in that way contribute towards the co-creation of innovative new e-services, e-product development and socially relevant services.

6.1.6 New way of thinking about and leading companies

Company leadership and the organisational culture require higher levels of agility to enhance openness, collaboration and sharing. In the digital era, successful companies are characterised as networked organisations where contributors emerge from both inside and outside the company boundaries, and where customers and broader stakeholder groups participate in the development of products, ideas and novel delivery mechanisms.

Take-forward 9: Leadership requirements and organisational culture - thinking differently about organisations.

Business organisations require special leadership skills to take organisations forward. Firstly, leaders should be able to cultivate an ongoing emphasis on learning. Secondly, leaders should facilitate the exchange of knowledge across inter-organisational boundaries, as well as within organisational boundaries, spanning across multiple generations and levels of expertise. Thirdly, they should foster an environment within which all opportunities for innovation (inclusive of e-innovation) can be unlocked. Moreover, the ability of leaders to respond and adapt quickly to challenges from the environment are further critical elements of thinking and acting differently that are becoming sought-after.

6.2 Conclusion

The endeavour and challenges of this report were to explore the spaces and interrelationships between people and technology in the changing paradigm towards a digitally-infused world. The main purpose of this study was to generate a source of information from where a much more intense discussion about digital readiness in South Africa can flow.

From the systemic perspective, people and organisational capabilities play critical roles in utilising the digital technologies, or infrastructure, to unlock and realise digital opportunities. It is clear from this survey that people constitute an untapped potential in the interface with technology and the results challenge companies to unlock the human potential for competitiveness in the digital economy.

Finally, this survey presents a challenge for further debate and discussion on the extent to which South African enterprise has sufficiently shifted from a mindset of operational efficiency (e.g. ICT infrastructure and ICT user skills as the dominant focus of e-skills, and conventional strategies and customer types) as the only focus to one which can traverse the imbalance between people and technology in future business models towards acquiring higher levels of business effectiveness and efficiency.

7. Appendix A: Glossary

ICT: Information and Communications Technology

Digital economy: The utilisation of the internet, systems (e.g. ERP) and devices (that connect to the internet e.g. computers, tablets, mobile phones) to grow a business.

Digital Readiness: This refers to an individual's or a company's ability or skill in using the internet, systems and devices for work and in all areas of everyday life.

E-user skills: The ability of an individual to use digital tools and facilities (internet, computer, mobile devices etc.) to perform tasks, to solve problems, to communicate and to perform various functions for work and in all areas of everyday life (e.g. send e-mail, obtain information from the internet, electronic invoicing, internet banking, doing online business, using social media).

E-practitioner skills: This refer to the skills required by those professionals who are responsible for maintaining, supporting, servicing, integrating, installing and or administrating Information and Communications Technology (ICT) systems (such as ERP systems, Business Intelligence, Payroll, Financial management systems).

E-leadership skills: This refers to a portfolio of skills, representing expertise in both using ICT systems and leading organisations (or divisions/functions such as Marketing, HR, and Customer Service etc.). It is also defined as "the accomplishment of a goal that relies on ICT through the direction of human resources and uses of ICT"⁹.

Electronic platforms: computers, internet, mobile devices.

Mobile skills: This refers to the ability to use mobile devices such as tablets and mobile phones for communication, obtaining information, engaging on social media, doing internet banking, accessing the internet etc.

8. References

1. Christensen, C. 2014. *Key Concepts: Disruptive Innovation*.
<http://www.claytonchristensen.com/key-concepts/>
2. Wladawsky-Berger, I. 2014. The Problem With Selling Plain Vanilla in Our Information-Rich Digital Economy. *CIO Journal*.
<http://blogs.wsj.com/cio/2014/03/21/the-problem-with-selling-plain-vanilla-in-our-information-rich-digital-economy/>
3. Gartner. 2014. *Taming the Digital Dragon: The 2014 CIO Agenda. Insights From the 2014 Gartner CIO Agenda Report*. Gartner Executive Programs. New York: Gartner Inc.
4. Bilbao-Osorio, B., Dutta, S., Lanvin, B. (Eds.). 2014. *The Global Information Technology Report 2014 Rewards and Risks of Big Data*. Geneva: World Economic Forum.
5. Khan, N., Sikes, J. 2014. *IT under pressure - McKinsey Global Survey results*. New York: McKinsey & Company.
6. Gardner, B. (Ed.). 2014. *CEO Briefing 2014. The Global Agenda: Competing in a Digital World*. Chicago: Accenture Strategy.
7. Ambler, G., 2013, *The 2014 Gartner Scenario for Senior Executives: Transforming Into Senior Digital Business Executives* (presented at the 2013 Gartner Symposium/Ixpo, Cape Town, 16-18 September 2013, on the digital business challenges that will affect senior executives; and "Getting on Board: Why 'Crossing the CASM' Is Key to Minimizing Risk", Knowledge@Wharton 24 March 2014
<http://knowledge.wharton.upenn.edu/article/getting-board-crossing-casm-key-minimizing-risk/>
8. Bughin, J., Manyika, J. 2013. *Measuring the full impact of digital capital. McKinsey Quarterly*. New York: McKinsey & Company.
9. Fonstad, N. O. 2013. E-Leadership Skills: Definitions and estimations of demand and supply. European e-Leadership Skills Conference. 5 February 2013. INSEAD Fontainebleau Campus. See also Hüsing, T., et al., 2013. *e-Leadership: e-Skills for Competitiveness and Innovation - Vision, Roadmap and Foresight Scenarios*. Final Report April 2013. Bonn: The European Commission, DG Enterprise and Industry.
10. Business Innovation Group. 2014. *Research Challenges for the Digital Service Economy*. WMG International Manufacturing Centre. Coventry: University of Warwick.
<http://www.businessinnovationgroup.org/research-challenges-digital-service-economy/>

11. AAPT (Australian Associated Press Telecommunications White Paper. 2014. Opportunity Knocks: Moving to a Digital Economy.

<https://aapt.com.au/ws-opportunity-knocks-moving-digital-economy-aapt-white-paper>.

12. Wladawsky-Berger, I., "The Puzzling Technology Adoption Discrepancy Between Individuals and Institutions", *CIO Journal*, 16 Dec. 2013, <http://blog.irvingwb.com/blog/2013/12/discrepancy-in-technology-adoption-between-individuals-and-institutions.html>.

13. CapGemini Consulting, 2011, *Digital Transformation: A Roadmap for Billion-Dollar Organizations. Findings from Phase 1 of the Digital Transformation Study Conducted by the MIT Center for Digital Business and CapGemini Consulting*.

Additional Reading Material

Brown, B., Sikes, J. 2012. *Minding your digital business. McKinsey Global Survey results*.

New York: McKinsey & Company.

Chui, M., Manyika, J., Bughin, J., Dobbs, R., Roxburgh, C., Sarrazin, H., Sands, G., Westergren, M. 2012. *The social economy: Unlocking value and productivity through social technologies*. New York: McKinsey & Company.

Hagel, J., Brown, J.S., Samoylova, T., Frost, M. 2013. Burdens of the Past. Report 4 of the 2013 *Shift Index series*. Westlake, Texas: The Leadership Center, DeLoitte University Press.

McDonald, M., Aron, D. 2013. *Hunting and Harvesting in a Digital World: The 2013 CIO Agenda*.

Stamford, Connecticut: Gartner.

Oxford Economics. 2012. *Capturing the ICT Dividend: Using technology to drive productivity and growth in the EU. A white paper produced in collaboration with AT&T*. New York: Oxford Economics.

Research Team

The research team perceived and nurtured the idea of reviewing and evaluating the practices and skills in large South African business organisations that prepare them for the digital economy. The topic is complex and posed a major learning curve for the team. The many occasions of knowledge sharing, discussions and debate (often facilitated via digital technologies) resulted in the co-creation of this report that would not have been possible by one individual, or from a single disciplinary perspective.

Dr. Leona Craffert

Director: CoLab for eInclusion and Social Innovation, University of the Western Cape, Bellville.

Prof. Marius Ungerer

Associate Professor of Strategic Management, University of Stellenbosch Business School, Bellville.

Prof. Kobus Visser

Dean: Faculty of Economic and Management Sciences, University of the Western Cape, Bellville.

Dr. John Morrison

Senior Research Consultant, University of Stellenbosch Business School, Bellville.

Prof. Walter Claassen

Research Network for e-Skills (ResNeS), iKamva National e-Skills Institute.

Note:

The questionnaire will be made available on request.
Direct requests to Dr. Leona Craffert at: lcraffert@uwc.ac.za



The competitiveness of companies in the digital economy is a business concern. Eighty two large South African companies participated in a study on strategies, practices and skills for competitiveness in the digital economy - in that manner demonstrating their willingness and commitment to contribute towards the local understanding and exploration of this topic.

