Proceedings of the International Conference on Business and Management Dynamics 2016: Sustainable economies in the information economy

Cape Peninsula University of Technology

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Editorial Board

Conference Declaration

Theme:

Sustainable economies in the information economy

Purpose:

To share the quality academic papers presented at the International Conference on Business and Management Dynamics (ICBMD) held from 7 to 8 September 2016 at African Pride Crystal Hotel and Spa in Cape Town. As grey literature, the proceedings are the contributions made by researchers at the conference and are considered the written record of the work that was presented to fellow conference delegates.

Methodology:

The methodology used varies from researcher to researcher but are suitable for the studies conducted. Thus, on the one hand, studies that were subjective in nature used the interpretive paradigm, where the qualitative approach adopted made used of the interview method to collect data. On the other hand, studies that were objectively inclined adopted the positivist philosophy and used survey questionnaires to collect data. However, there were some academic papers which used mixed methodology because of the nature of the study. Whatever methodology used adhered to the ethos of the philosophies underpinning the methodology.

Contribution made to scholarship:

The articles come from individual researchers and each article in the proceedings is unique. Mostly, there is no general argument leading from one contribution to the next. However, it is interesting to note that in the area of economic performance it was evident that real exchange rate and net foreign direct investment contribute more towards innovations in economic growth. With regard to human capital development, papers presented evidence that there exists a definite need to explore the phenomenon of personal branding as limited scientific academic research has been done within the field of personal branding or on elements of the topic. Thus, the outcome argues that personal branding has an influence on leadership style which in turn impacts on organisational performance and related hygiene factors. Furthermore, it was demonstrated that current methods or strategies for enforcing institutionalisation of knowledge sharing within an organisation have not been successful, and, as such, new strategies are needed to reinforce efforts to nurture and invigorate the institutionalisation of knowledge sharing within an organisation. With regard to technology and big data impact on organisational performance, it was evident that system performance, memory consumption and CPU utilisation can be used as criteria to compare and evaluate big data technologies to improve organisational performance. Most of the articles' contribution reemphasised technology education and training as a means of digitising business and improving effectiveness.

Target audience:

The target readership is academic researchers and business leaders who require access to the latest developments in the fields of economics, information management, business, education, development studies, social sciences and technology. It is also for policymakers and other stakeholders who need a better understanding of the impact of new developments on existing policies and regulations for their review or amendment.

Peer Review Declaration

The Publisher (AOSIS) certifies that the contributions selected from the International Conference on Business and Management Dynamics (ICBMD) published in these conference proceedings were evaluated in a two-step review process. An initial selection review process by the chief editor, followed by in-depth double-blind peer reviews by members of the ICBF under the auspices of the editor-in-chief Professors Michael Twum-Darko and Mamorena Matsoso (both affiliated with the Cape Peninsula University of Technology, South Africa). Three peer reviewers were selected due to their academic expertise in Business Management.

Notes on Contributors

Cyril Ayetuoma Ogbokor

Dr Cyril Ayetuoma Ogbokor is an associate professor of economics in the Faculty of Management Sciences, Namibia University of Science and Technology (NUST), Windhoek, Namibia. He is currently the acting Dean of the Faculty of Management Sciences at NUST and was also recently appointed as an extraordinary professor at North-West University, Vaal Triangle Campus in South Africa. His research areas are macroeconomics, development economics and international economics. He has written and published several peer-reviewed research articles and mimeographs in these areas by employing econometric methods. He serves as a reviewer for a number of scholarly journals. He is actively involved in community service, especially through electronic press media interviews. He is always enthusiastic about imparting his research knowledge to colleagues who are in need of such support. He has won the Faculty of Management Sciences (NUST) best researcher award four times since its inception.

Nyaniso Mfusi Zonke

Nyaniso Mfusi Zonke started studying at the Cape Peninsula University of Technology in 2009 as a part-time student. At that time he was a security guard and continued to study, although his personal circumstances were difficult and often caused him to turn up late for class. He is now working as a caretaker in the same institution, where he has been employed since 2010. Being employed has helped him financially, especially regarding his fees, and this has helped him to dedicate himself to his studies. He completed a diploma within the stipulated period, after that the BTech and completed the MTech within the period of two years. He is now registered for the DTech in Public Management at the same institution. The amazing part is that he is still working as a caretaker. Because of his studies and his work responsibilities, he was unable to present this paper at the 2015 Global Business and Technology Association (GBATA) Conference.

Tebogo Sethibe

Tebogo Sethibe is a DBL candidate and a part-time academic staff member at UNISA Graduate School of Business Leadership. He holds the following qualifications: BSc (Wits University), BSc Honours, MIT (University of Pretoria) and MBL (UNISA SBL). Tebogo's research interests include leadership, strategic ICT management, innovation and entrepreneurship. He has published papers in peer-reviewed journals and has presented his work at local and international academic conferences. His academic achievements include the best presentation at the UNISA Research & Innovation Week. He is the recipient of the Best MBL Research Paper in 2013 and has represented UNISA at the interuniversity research project competition held at Savitribai Phule Pune University (SPPU), India.

Renier Steyn

Renier Steyn is a registered research psychologist and worked for 18 years as a psychologist in the public service. He is presently a professor of leadership and organisational behaviour at the UNISA Graduate School of Business Leadership. He obtained a PhD in industrial and personnel psychology (2002) as well as a DLitt & Phil in psychology (2006). He also holds a PhD in business administration (2014). He completed a course in leadership development at Harvard Business School (2015). He was a post-doctoral research fellow at the University of California (UCLA) as well as a member of the UNISA International Fellowship Programme. He is passionate about research supervision and has supervised more than 100 students in completing their dissertations. His most recent publications focus on gender issues and particularly gender differences. He has also done research on HRM practices and has a particular

interest in performance management and the relationship between HRM practices and innovation. He was named best researcher at the Graduate School of Business Leadership in 2013 and is the 2014 recipient of the Chancellor's Prize for Excellence in Research. In 2015 he received a National Research Foundation rating of C3. He was also successful in applying for internal as well as external research grants.

Esme Mohammed

Esme is married to Jumah and is blessed with a lovely family. She holds a BA Hons in psychology as well as an MBL and is currently a DBL candidate at the UNISA School of Business Leadership with a focus on personal branding. Esme specialises in leading change and improvement, which includes promoting innovation in human resource development, talent development, performance and leadership. She has been in corporate business for 25 years and is currently serving at executive management level within a corporate academy of learning. She offers large-enterprise leadership and senior management experience with a proven ability to make an impact across complex organisations at strategic and tactical level. Her career encompasses human performance and human error management where she has pioneered performance improvement programmes. She has been a multiple excellence award winner and was the nominator and assistant to the SA Boss of the Year 2000.

Lionel Bell Nguenang

Lionel Bell Nguenang is a lecturer in the Faculty of Business and Management Sciences at the Cape Peninsula University of Technology (CPUT) where he has been a staff member since 2010. He is a PhD candidate in the field of supply chain management. Lionel completed his master's and undergraduate studies in the fields of quality and industrial engineering, respectively. His research interests lie in the area of process optimisation, supply chain management and system dynamics. In recent years, he has focused on teaching, mentoring (academic and non-academic staff) and developing course work for undergraduate and graduate students in industrial engineering, quality management and operations management.

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Joy Eghonghon Akahome is a lecturer in the Department of Marketing in the Faculty of Management Sciences at Federal University Otuoke, Bayelsa State, Nigeria. She acquired a BSc, MBA and MSc in marketing from the University of Port Harcourt, Nigeria. She has taught at the Federal University Otuoke, Bayelsa State, Nigeria for almost four years and is a member of the National Institute of Marketing of Nigeria (NIMN). She has written several articles in the field of marketing because of her expertise in this discipline.

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Henry N. Ozuru

Dr Henry N. Ozuru holds a PhD in Marketing. He is a senior lecturer in the Department of Marketing, Faculty of Management Sciences, University of Port Harcourt, Choba, Port Harcourt, Rivers State, Nigeria, West Africa. Dr Ozuru was also the former Deputy Director of the University of Port Harcourt Business School. His research interests include, amongst others, current trends of e-marketing, e-commerce, ICT, etc. He has published over fifty (50) foreign and national articles in reputable journals. He received the International Conference 'Best Paper' Award

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Patient Rambe

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Dr Edem Korku Agbobli holds MBA and DTech degrees. His research interests lie in entrepreneurship with a focus on innovativeness in SMMEs in the search for socio-economic development of developing economies, especially in Africa. Dr Agbobli also lectures, amongst others, entrepreneurship, strategic management, project quality management and business research methods. He has co-authored a number of journal articles and has reviewed a number of text books, including Longenecker, Justin G. et al. 2016, *Small business management: Launching and growing entrepreneurial ventures*. Dr Agbobli is also the coordinator of the flagship BTech Project Management Programme of the Department of Business Support Studies in the Faculty of Management Sciences at the Central University of Technology, Free State. eagbobli@cut.ac.za

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Henri Vincent Ndjave-Ndjoy is an MTech student in the field of business information systems at the Cape Peninsula University of Technology (CPUT). Coming from the Republic of Gabon, Henri is in the final stages of submitting his final thesis on 'The social determinants for the institutionalisation of knowledge sharing at a selected organisation in the Western Cape, South Africa'. He has lived in South Africa since 2010 and completed his Bachelor of Technology (BTech) degree in Financial Information Systems at CPUT in 2014. He started his MTech in 2015, and his research interest is in knowledge sharing, especially in the aspect of its institutionalisation from an organisational perspective. Henri Vincent is also involved in charity initiatives, sport and volunteer activities in South Africa and Gabon.

Michael Twum-Darko

Dr Michael Twum-Darko holds a PhD qualification in information systems. His research interests lie in business informatics with the focus on business process innovation and digitisation. His publications in

accredited peer-reviewed journals cover informatics, human capital development, information systems, strategic management, process innovation and entrepreneurship education. Dr Twum-Darko lectures research methodology to postgraduate students in the Business and Management Sciences Faculty, Cape Peninsula University of Technology, and coordinates postgraduate programmes for the Graduate School of Business Management. He chairs the Faculty's Ethics Committee and is also the convener of the International Conference on Business and Management Sciences.

Lee-Anne Harker

Lee-Anne Harker was born in Cape Town, South Africa in 1984. She started her teaching career at Cape Peninsula University of Technology (CPUT) in 2005, shortly after graduating with a National Diploma in Financial Information Systems (FIS). During her tenure, she completed her BTech: FIS (CPUT), Higher Diploma in Higher Education and Training (CPUT), Master's of Business Systems (Hochschule Wismar, Germany) and MTech: Business Information Systems (CPUT) in 2007, 2008, 2014 and 2015, respectively. She currently teaches FIS to BTech students, Business Information Systems (BIS) to diploma students and supervises post-graduate students on the MTech: BIS programme. She is an early-career researcher with an interest in information systems discipline, particularly knowledge management.

Regina Sikhosana

Regina Sikhosana is currently a senior manager at the library of the Cape Peninsula University of Technology. She completed her BTech: Information Sciences at CPUT. Her employment as librarian sparked her interest in information, and she enrolled for a Master's degree in Business Systems at Wismar University where she graduated in 2015. Currently, she is completing her Master's degree in Business Information Systems at CPUT.

Andre de la Harpe

Dr Andre de la Harpe is currently employed by the Cape Peninsula University of Technology as a postgraduate supervisor. He has a keen interest in supervising and mentoring young researchers. He specialises in IT management, enterprise management, innovation and transformation of organisations.

Regis Muchemwa

Regis Muchemwa completed his BTech in Information Technology at the Cape Peninsula University of Technology. In 2015, he received the Master's in Business Systems from Wismar University, and in 2016 he graduated with a Master's degree in Business Information Systems at CPUT. He is currently a senior big data specialist at a well-known retail organisation in the Western Cape and will start with his PhD in 2017.

Konosoang Mpiti

Konosoang Mpiti completed her BTech degree, National Diploma in Tourism Management, Business Administration and Secretarial Studies and her Master's degree in Business Information Systems at CPUT, under the guidance and supervision of Dr Andre de la Harpe. She worked as an IT Postgraduate Assistant at CPUT in the Faculty of Informatics and Design. Her research interests are information and communication technologies with specific reference to agritourism development.

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Cecil Nartey is a senior software developer and big data specialist at a large IT company in Cape Town. Cecil completed a BTech: Information Technology as well as a Master's degree in Information Technology at the Cape Peninsula University of Technology.

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Emmanual Udekwe has a keen research interest in human resources management. He completed his BTech in HR management at the Cape Peninsula University of Technology. As a result of his interest in HR management, he enrolled in a Master's degree of Business Administration at CPUT and completed the degree in 2015. Emmanual is a successful entrepreneur and owns an enterprise.

Ayodeji Afolayan

Ayodeji Afolayan completed his BTech in finance at the Cape Peninsula University of Technology. He has a keen interest in small businesses and specifically how small businesses adopt and use technology. As a result, he graduated with a Master's degree in Information Technology with the focus on the adoption of technology in small businesses. Currently, he has enrolled for his PhD and teaches at CPUT.

Colin Prince

Colin Prince is a business and IT professional with more than 25 years of experience. Colin's experience includes, but is not limited to, IT leadership, business and IT alignment, strategy formulation, business architecture, IT and architecture management, IT operations management, program management, setting up and running enterprise programme offices, IT governance and compliance management, IT service management, vendor management, financial management and human capital management. Colin holds a Master's degree of Commerce degree in Project Management and a Doctor of Technology degree in Information Technology.

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Bongekile Dolo is a project accountant in the Asset Creation Department of a sole energy distributor in South Africa. She holds a BTech: Taxation from the Cape Peninsula University of Technology and a Master's degree in Business Systems from Wismar University. Her interest in integrated business processes with systems for the optimal running of a business led her to volunteer as a Quality Management Representative and also reinforced her passion for conducting qualitative research on the topic: Quality Control Processes (QCP) in an energy distributing organisation.

Foreword

It was with great pleasure that I welcomed you to the 2016 International Conference on Business and Management Dynamics (ICBMD). The 2016 conference continued with its tradition of being the premier forum for the presentation of research results and experience reports on contemporary issues of finance, accounting, entrepreneurship, business innovation, big data, e-Government, public management, development economics and information systems, including models, systems, applications and theory. The theme of the conference, which was 'Sustainable economies in the information economy' required a formidable collaboration of different multidisciplinary actors who seek to share their continuous and collaborative research outputs in reviewing existing strategies. Papers presented sought and proposed mechanisms for the likely achievement of a sustainable economy in the information economy of this world. The ICBMD conference gave researchers and practitioners a unique opportunity to share their perspectives with others interested in the various aspects of business, finance and digitisation. The conference attracted papers, which were double-blind peer-reviewed by the scientific committee, from Asia, Europe, and Africa.

I strongly believe that delegates to all the technical sessions and the keynote addresses by Professor Emeritus Ron Weber (Monash University, Australia) and Professor Extraordinary Douglas Boateng (UNISA School of Business Leadership) enjoyed these valuable and insightful presentations, many of which will guide us to a better understanding of the information economy. Having the Premier of the Western Cape represented as the Guest of Honour and her support for academic excellence, was very encouraging.

On behalf of the Faculty of Business and Management Sciences (FBMS), I thank the authors for providing the content of the programme. We are very grateful to the organising and the scientific committee, who worked very hard in reviewing papers and providing feedback to authors. Finally, I thank FBMS and the Cape Peninsula University of Technology (CPUT) as the hosting University and the main sponsor, our partners: HP-GSB of Namibia University of Science and Technology, SAP University Alliance and the Graduate School of Business Management of CPUT.

We hope that delegates found the ICBMD-2016 interesting and thought-provoking and that the technical sessions provided everyone with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

Willem Lotter
Acting Dean of Faculty: Business and Management Sciences
Cape Peninsula University of Technology
South Africa

Part 1
Finance and Management

Accelerating economic performance through foreign direct investment: Empirical evidence from Namibia

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Documented empirical studies in the literature on the impact of foreign capital, whether in the form of foreign direct investment or foreign portfolio investment on economic growth, are numerous. This article attempts to estimate the impact of foreign direct investment on economic growth using Namibia as a test centre. The Vector Autoregression method employed incorporates the following procedures: unit root tests, co-integration tests, estimation of the long-run equation and diagnostic checks for autocorrelation, heteroscedasticity, normality, causality tests as well as the forecast error variance decomposition analysis. Quarterly data covering 1990–2014 were employed. The study found cointegrating relationships amongst the four variables that were investigated. Moreover, no causality was found between net foreign direct investment and growth. Also, amongst the three explanatory variables used in the estimated model, real exchange rate and net foreign direct investment contributed more towards innovations in economic growth during the forecast horizon compared to the openness index. The study concludes by crafting possibilities for further inquiries concerning the issue under consideration.

Introduction

A burning empirical question facing development economists in today's modern economies concerns the impact of foreign direct investment (FDI) on the economic performance of less-developed countries (LDCs). Indeed, the empirical literature succinctly acknowledges the potential benefits arising from FDI on the part of the host country. Biswas (2002) points out the following as constituting the benefits of FDI on the part of host countries: It improves the competitiveness of the host countries' economies in the international arena, as well as better access to global markets. Further, FDI improves the quality of products and processes across sectors. Besides these, profits generated by FDI contribute to corporate tax revenues of the host country. Employment opportunities are created, especially in sectors that are heavily driven by labour-intensive technologies. The agriculture sector is a case in point. In addition, FDI in manufacturing will, in most cases, boost the level of productivity in the local economy.

Also, contributing to this discussion, the Bank of Namibia (2006) maintained that FDI allows the transfer of technology, particularly in the form of capital inputs, which cannot be achieved through financial investments or trade in goods and services. Upon the attainment of independence in 1990, the Namibia Investment Centre (NIC) was established under the Foreign Investment Act No. 27 of 1990 specifically to promote, attract, encourage and facilitate FDI to Namibia. Indeed, this investment centre has so far succeeded in attracting a number of FDIs to Namibia, especially through the export processing zones scheme of the country.

Figure 1 depicts Namibia's FDI inflows and outflows for the period 1990–2012, whilst Figure 2 reflects net FDI in Namibia for the same period.

An examination of Figure 1 reveals that FDI outflows as a percentage of gross domestic product (GDP) were more stable compared to FDI inflows during the period under review. In particular, there was a rapid increase in FDI inflows between the periods 2000 and 2003. This was ascribed mainly to the increased borrowing on the part of subsidiaries from their parent companies abroad. The establishment of the Ramatex manufacturing company, as well as the Scorpion zinc mine, also contributed significantly to the rise in FDI inflows to Namibia between the years 2000 and 2003. In a dissimilar fashion, FDI outflows from Namibia between 1990 and 2012 in most cases

Note: This article was originally presented as a paper at the 2016 International Conference on Business and Management Dynamics (ICBMD).
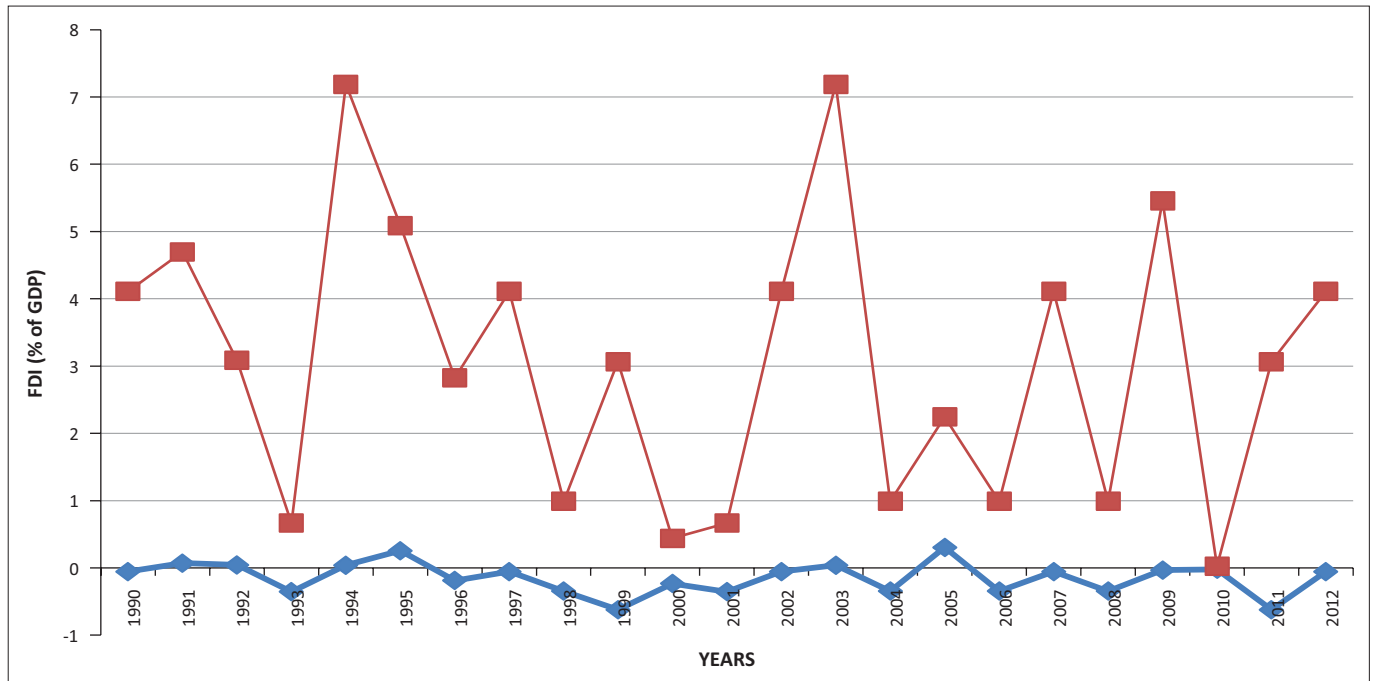
Source: Author's construct from Namibia Statistics Agency 2013

FIGURE 1: Foreign direct investment (FDI) inflows and outflows in Namibia 1990–2012; Gross domestic product (GDP).
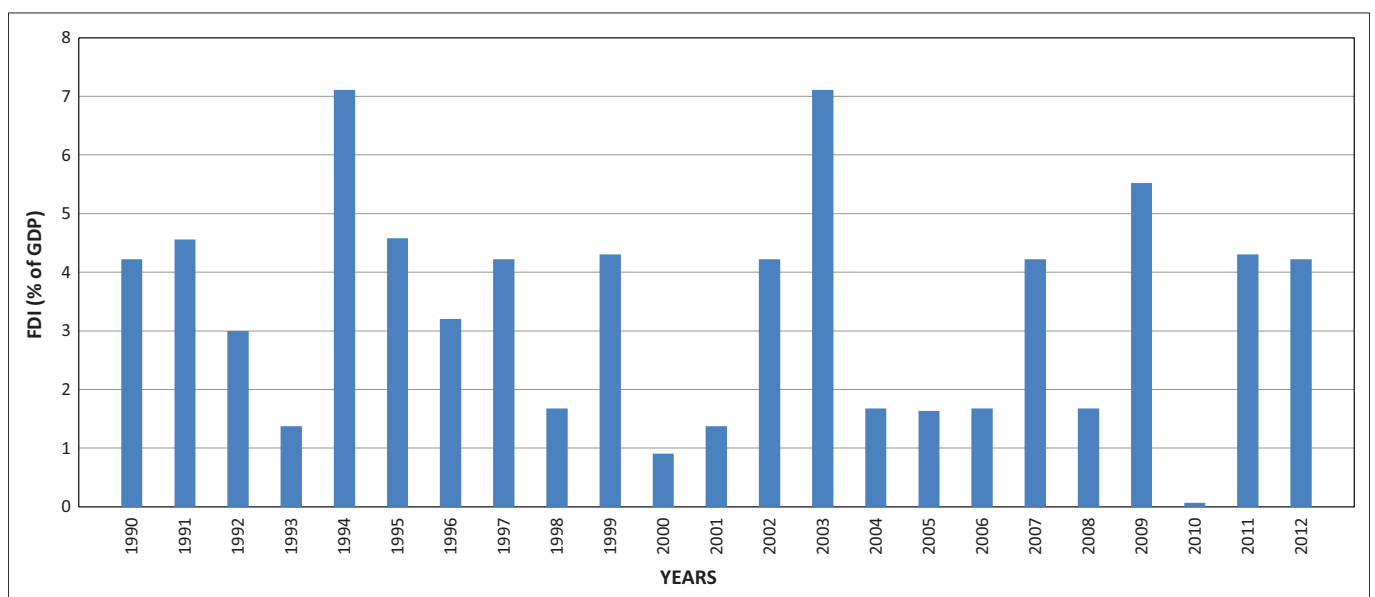
Source: Author's construct from Namibia Statistics Agency Bulletin 2013

FIGURE 2: Net foreign direct investment (FDI) in Namibia 1990–2012; Gross domestic product (GDP).

were negative. This was principally because investors generally preferred to reinvest their profits in Namibia instead of transferring them to other destinations during the period under review. Further, net FDI in Namibia during the period under consideration, as presented in Figure 2, displays many fluctuations. In particular, the years 1993, 1998, 2000, 2001, 2004, 2005, 2006 and 2008 recorded low net FDI flows, whilst the years 1990, 1991, 1992, 1994, 1995, 1996, 1997, 1999, 2000, 2003, 2007, 2009, including 2011 and 2012, registered high net FDI flows. A combination of developments on the domestic and international fronts contributed to these fluctuations in net FDI in Namibia during the period under scrutiny (Government of Namibia 2012).

Despite the huge amount of FDI that Namibia has been receiving since its independence in March 1990, the exact impact of these capital flows on the country's economic performance is still open to speculation. Therefore, this study sets to investigate whether FDI has made any impact on economic growth in Namibia for the period 1990 to 2012. The Vector Autoregression method employed incorporates the following procedures: unit root tests, co-integration tests, estimation of the long-run equation and diagnostic checks for autocorrelation, heteroscedasticity, normality, causality tests as well as the forecast error variance decomposition analysis-econometric time series met. This article unfolds as follows: the literature review presents the empirical literature, whilst 'Data sources, model specification and

definition of variables, details data sources. The 'Discussion of the econometric results' concerns the analysis of econometric results, whilst the 'Conclusion and policy implications' concludes and directs on future research opportunities.

Literature review

Documented published empirical studies concerning the issue under investigation are wide ranging. A few such studies are reviewed in chronological order.

Li and Liu (2005) assessed the relationship between FDI and economic growth through the application of co-integration procedures and found firstly a direct relationship between FDI and growth. Secondly, a negative relationship was observed when FDI was regressed over an existing technological gap between the source and host economy in the face of an increased sample size.

Also, contributing to the existing literature, Blonigen and Wang (2005), using two samples drawn from developed and developing countries estimated the impact of FDI on growth. The authors found evidence of a positive connection between FDI flows and growth for developing countries, whilst the developed world presented a contrary result. This result is very surprising considering the widely acknowledged contribution of FDI in the industrialisation process of the developed countries.

In a related study, Ayanwale (2007) empirically analysed the determinants of FDI using Nigeria as a laboratory test centre. The author combined both single and simultaneous equations to carry out the inquiry. The study found market size, infrastructural development and responsive macroeconomic policies as the main inducing factors of FDI to Nigeria. The author also found a positive connection between FDI and growth in Nigeria. The use of a three stage least squares (3SLS) technique would have potentially improved upon the results obtained by the study, at least from an econometric perspective.

Vu and Noy (2009) examined the relationship between FDI and growth for selected developed countries within a sectoral framework. More elaborately, the authors attempted to ascertain whether each of the sectors identified for purposes of the study has a direct link with FDI. The study found conflicting results across countries and economic sectors. This result reinforces the outcome of the research work of Blonigen and Wang (2005).

Karimi and Zulkornain (2009) estimated the causal relationship between FDI and growth in Malaysia by employing econometric time series approaches. The study found a positive and significant relationship between these two variables. Indeed, the study found that FDI could be used to explain the growth pattern that has taken place in the economy of Malaysia over time. Therefore, the need for Malaysia to pay particular attention to FDI cannot be overstressed.

Ruxanda and Muraru (2010) investigated the possibility of an endogenous relationship between FDI and economic performance in the Romanian economy within the framework of a simultaneous equation model. The study found a bidirectional relationship between FDI and economic performance. This implies that FDI can lead to economic growth and vice versa.

Chaitanya and Tamazian (2010) assessed the causal link between FDI and growth for 22 selected Latin American countries covering the period from 1980 to 2006. The authors made use of an econometric time series approach in probing into this relationship. The findings of the study indicate a positive relationship between these two variables as suggested by the correlation coefficient value. Correspondingly, the two variables failed to pass the statistical significance test, which could be interpreted to imply a weak link between FDI and growth in the various economies used for the study.

Emin (2011) explored the possibility of a long-run relationship amongst economic growth, FDI, trade and inflation for Turkey, using macroeconomic time series datasets covering the period 1970–2006. The findings imply that FDI, trade surplus and inflation have both a positive and a statistical significant impact on economic growth.

Agrawal and Khan (2011) analysed the impact of FDI on economic growth using five selected countries. The study made use of panel data for the period 1993–2009 and obtained the following findings: Firstly, the study found that FDI indeed promotes economic growth. Secondly, a 1% rise in FDI would lead to a 7% increase in economic growth across the five countries investigated.

Farkas (2012) tested the FDI-growth nexus for selected developing countries for the period of 1975–2000 by employing co-integration methods. The result indicates that FDI had a significant, positive influence on economic growth over the period covered by the study. The study, however, maintained that the extent of the impact of FDI on economic growth would depend on the level of a country's human capital development as well as developments occurring in its financial markets. The study also suggested that FDI should be seen as a complementary variable to other sources of growth in developing countries.

Ray (2012) attempted to measure the relationship between FDI and economic growth for India for the period 1990–2011 by applying co-integration procedures. The findings suggest a bidirectional relationship between FDI and economic growth. There is a possibility that the study would have potentially obtained a superior result from an econometric point of view, if the datasets used were increased to cover a longer period of time.

Iamsiraroj and Doucouliagos (2015) investigated the success of economic growth in attracting FDI for a number of countries cutting across developed and developing countries.

The authors applied the meta-regression technique to 946 estimates from 140 empirical studies. The study attained the following results: Firstly, a robust positive association between growth and FDI was found. In particular, significantly larger correlations were established for single country case studies in relation to cross-country analysis. Furthermore, it also seems that growth is more associated with FDI in developing countries compared to developed countries.

It is pertinent to note that, whilst most of the existing literature reviewed so far suggest a positive relationship between FDI and economic growth, a few of them did present conflicting, inconsistent, disputatious and acrimonious results. In this article, an attempt is made to investigate the FDI-growth nexus for Namibia by applying appropriate econometric time series methods.

Data sources, model specification and definition of variables

The following served as vital sources for the collation of macroeconomic data that were used in this study: The Bank of Namibia's statistical publications, the Namibia Statistical Agency's bulletins, the World Bank statistical publications as well as Namibia's National Planning Commission bulletins. The annual macroeconomic data used in the study stretched from the period 1990–2012. All the data used in the estimation process were first converted into quarterly datasets and after that transformed into their respective natural logarithms so as to help with the process of determining the responsiveness of the dependent variable to changes in respect of the explanatory variable. Further, all the data used in the study were deflated using appropriate and relevant deflators in order to control the unwarranted effect of inflation.

The Vector Autoregression method relied upon for purposes of estimating the impact of foreign direct investment on Namibia's economic performance incorporates the following procedures: unit root tests, co-integration tests, estimation of the long-run equation and diagnostic checks for autocorrelation, heteroscedasticity, normality, causality tests as well as the forecast error variance decomposition analysis. Based on empirical literature, theoretical economic knowledge and the driving objective of the study, the following variables are included in the econometric model for purposes of estimation: Real gross domestic product (RGDP), which serves as the dependent variable, whilst real exchange rate (RER), openness index (OPI) and net foreign direct investment (NFDI) are used as the explanatory variables. In consideration of this, the empirical model to be estimated can be written in its general form as:

$$RGDP_t = (RER_t, OPIt, NFDIt) \qquad \text{[Eqn 1]}.$$

In specific terms, the equation [1] can be rewritten as:

$$LnRGDP_t = b_0 + b_1 LnRER_t + b_2 LnOPI_t + b_3 LnNFDI_t + U \qquad \text{[Eqn 2]}.$$

Where: b_0 = numerical constant; b_1, b_2 and b_3 = coefficients of the regressors; $RGDP_t$ = regressand; RER_t, OPI_t and $NFDI_t$ = regressors; t = time period; Ln = natural logarithm and U = disturbance term.

RGDP is macroeconomic measure of the value of economic output in respect of a country for a given period adjusted for price changes. RER refers to the price, strength or value of a local currency in relation to another country's currency adjusted for price changes, whilst NFDI is used to describe the difference between capital inflows and outflows. OPI refers to the sum of a country's export and import of goods and services divided by its gross domestic product at a given time period.

Discussion of econometric results

The discussion pertaining to the estimated results followed the following pathway: Unit root tests, co-integration tests, estimation of the long-run equation and diagnostic checks for autocorrelation, heteroscedasticity, normality, causality tests as well as the forecast error variance decomposition analysis.

Unit root tests

The empirical estimation process regarding the study began with testing for unit roots. In this regard, the study employed the Augmented Dickey-Fuller (ADF) procedures in testing for unit roots. Table 1 summarises the unit root test results.

Upon inspection of Table 1, it was observed that net foreign direct investment attained a stationary status in levels, whilst real gross domestic product, real exchange rates and the openness index only became stationary after first differencing.

Co-integration tests

The study resorted to the use of the Johansen co-integration test in determining the existence of long-run relationships amongst the variables in the model. The results are reported in Table 2.

It is apparent from the results reported in Table 2 that the variables under investigation are cointegrated. Therefore, there is every reason to suspect the existence of a long-run relationship amongst the four variables under investigation.

TABLE 1: Unit root tests: Augmented Dickey-Fuller (ADF) test.

Variables	ADF stat		Remarks
	Levels	First difference	
lnRGDP	-0.671170	-3.621812[a]	I (1)
lnNFDI	-4.404844[aa]	-4.696419[aa]	I (0)
lnRER	-2.848827	-2.854002[aa]	I (1)
lnOPI	-1.668310	-3.053193[aa]	I (1)

Source: Author's own work
[a]Implies rejection of the null hypothesis at the 5% level.

TABLE 2: Johansen co-integration test.

	Maximum Eigen test				Trace test		
H$_0$: rank = r	H$_a$: rank =	Statistic	95% Critical value	H$_0$: rank = r	H$_a$: rank =	Statistic	95% Critical value
r = 0	r = 1	34.14090	27.58434	r = 0	r = 1	66.78759	47.85613
r ≤≤ 1	r = 2	23.29428	21.13162	r ≤ 1	r = 2	32.64669	29.79707
r ≤ 2	r = 3	9.287694	14.26460	r ≤ 2	r = 3	9.352412	15.49471
r ≤≤ 3	r = 4	0.064718	3.841466	r ≤ 3	r = 4	0.064718	3.841466

Source: Author's own calculation

H$_0$ refers to null hypothesis, whilst H$_a$ refers to alternative hypothesis. The null hypothesis is always tested against the alternative hypothesis as a matter of econometric necessity. The moment H$_0$ is rejected, H$_1$ is accepted. r implies cointegrating relations among the variables being tested.
Both Maximum-Eigen test and Trace test shows two co-integrating equations at the 5% level.

Estimating the long-run equation

Afterwards, the study proceeded with the estimation of the long-run equation which yielded the following result:

$$\Delta InRGDP = -2.385002 - 0.051201\Delta InNFDI + 1.047525\Delta InOPI$$
$$+ 0.399553\Delta InRER \qquad [Eqn\ 3].$$

Equation 3 confirms a long-run relationship amongst the dependent and independent variables used in the study. Indeed, all the independent variables except one, namely, net foreign direct investments, were positively related to real gross domestic product. A further scrutiny of the estimated model suggests that a 1% increase in net foreign direct investment leads to approximately 0.05% decrease in economic growth. Similarly, a 1% increase in openness is also expected to lead to approximately 1% jump in economic growth. Furthermore, a 1% increase in the real exchange rate will result in an approximately 0.4% rise in economic growth.

Diagnostic checks

The study tested for serial correlation, conditional heteroscedasticity and normality. The results confirm the absence of serial correlation and heteroscedasticity. Besides, the model was also found to be normally distributed. The results are reported in Table 3.

Causality tests

Next, the study reports on the pairwise Granger-causality tests. In this context, the Granger-causality results are displayed in Table 4.

Surprisingly, none of the pairs demonstrated causality relationships amongst themselves. This is so because all the computed probability values are consistently greater than 0.05. Therefore, the study accepted all the null hypotheses of no evidence of Granger-causality as a matter of econometric necessity.

Forecast error variance decomposition analysis

Next, the study reports on the forecast error variance decomposition results. The variance decomposition results are displayed in Table 5.

Table 5 presents forecast error variance decompositions for each variable in the model over a 10-period forecast horizon. The results depict that consistently, economic growth itself

TABLE 3: Diagnostic checks.

Test	Null hypothesis	t-statistic	Probability
Lagrange multiplier	No serial correlation	11.99615	0.7442
Jarque-Bera (JB)	There is normality	7.245	0.083
White (Chi-square)	No conditional heteroscedasticity	20.21451	0.075

Source: Author's own work

TABLE 4: Pairwise Granger-causality test results.

Null hypothesis	Observation	Probability
LnRER does not Granger Cause LOGRGDP	87	0.2962
LnRGDP does not Granger Cause LOGRER	87	0.7481
LnNFDI does not Granger Cause LOGRGDP	87	0.1050
LnRGDP does not Granger Cause LOGNFDI	87	0.1163
LnOPI does not Granger Cause LOGRGDP	87	0.1617
LnRGDP does not Granger Cause LOGOPI	87	0.0672
LnNFDI does not Granger Cause LOGRER	87	0.1690
LnRER does not Granger Cause LOGNFDI	87	0.4594
LnOPI does not Granger Cause LOGRER	87	0.6875
LnRER does not Granger Cause LOGOPI	87	0.7862
LnOPI does not Granger Cause LOGNFDI	87	0.1567
LnNFDI does not Granger Cause LOGOPI	87	0.2916

Source: Author's own work

[a]Means the rejection of the null hypothesis at the 5% level.

TABLE 5: Forecast error variance decomposition.

Period	Variance decomposition of LOGRDGP			
	LnRGDP	LnRER	LnOPI	LnNFDI
1	100.00	0	0	0
2	99.28290	0.281495	0.071123	0.364485
3	97.46371	1.284279	0.136139	1.115870
4	94.65897	2.864612	0.193056	2.283358
5	91.33872	4.697347	0.239095	3.724842
6	88.09487	6.468595	0.264418	5.172114
7	85.38043	7.992371	0.264418	6.363508
8	83.39757	9.216015	0.241161	7.145258
9	82.12562	10.16893	0.208114	7.497334
10	81.41215	10.91085	0.176826	7.500174

Source: Author's own work

RGDP, real gross domestic product; RER, real exchange rate; OPI, openness index; NFDI, net foreign direct investment. Ln implies the respective natural log values of the macroeconomic data used for the study. When data is transformed into its respective natural logarithm, it becomes easy to determine how economic growth reacts to changes arising from that particular variable.

accounted for most of the changes or innovations that occurred with respect to economic growth for the period under consideration. Indeed, the results show that in the first period the fluctuations in economic growth are 100% purely driven or explained by economic growth itself. This result conforms to theoretical expectations.

Amongst the three explanatory variables used in the model, real exchange rate and net foreign direct investment

contributed more towards innovations in economic growth during the forecast horizon. The openness variable consistently made the weakest contribution towards explaining economic growth for the forecast period.

Conclusion and policy implications

The study sets out to investigate the possibility of a causal relationship between FDI and growth, using Namibia as a test hub. In this context, econometric time series methods and quarterly datasets covering 1990–2014 were employed to probe into this issue. The specific time series procedures that the study made use of incorporate the unit root tests, co-integration tests, estimation of the long-run equation and diagnostic checks for autocorrelation, heteroscedasticity, normality, causality tests as well as the forecast error variance decomposition analysis.

The main findings arising from the study are presented as follows: Firstly, the study found cointegrating relationships amongst the four variables that were investigated. Secondly, the study found some degree of positive association between FDI and growth. Thirdly, no causality was found between net foreign direct investment and growth, an indication that other factors could be playing a pivotal role when it comes to the promotion of economic growth in Namibia. Fourthly, amongst the three explanatory variables used in the model, real exchange rate and net foreign direct investment contributed more towards innovations in economic growth during the forecast horizon compared to openness. Indeed, these findings are in agreement with the outcome of the studies of Chaitanya and Tamazian (2010) and Iamsiraroj and Doucouliagos (2015).

The role of FDI in the promotion of growth in Namibia seems to have been exaggerated over the years in view of the findings of this study. One apparent implication arising from the findings of the study is the need for Namibia to explore other ways of catalysing its process of economic growth, whilst correspondingly exercising caution in the selection of foreign direct investments.

Moreover, the study would like to point out that future research into the issue under examination should explore the following possibilities: Firstly, the number of explanatory variables used should be increased. Secondly, disaggregated data should be considered. In addition, sectoral impact analysis should be incorporated. Also, the need to employ other competing methods in future inquiries cannot be overstated.

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Dynamics obstructing public financial management, good governance and accountability in South Africa

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Delivery of services, reduction of poverty, economic development and sustainability depend on availability and prudent management of financial resources. Sound, ethical financial management is crucial in the public sector: without public funds to ensure functioning and capital costs and without appropriate personnel, no public institution can render adequate services. This article analyses dynamics that obstruct public financial management, good governance and accountability in South Africa. Several dynamics hamper public financial management, good governance and accountability: the high turnover rate of accounting officers and parliamentary committees such as the Standing Committee on Public Accounts (SCOPA) or a lack of political will. Although South Africa has suitable oversight bodies, policies, procedures and Acts, the poor state of financial management in South African government departments is evident from the low number of objective qualified audits that meet the requirements of the *Public Finance Management Act, Act 1 of 1999*, the legislative oversight bodies and the wider legal framework governing public finances.

In this article, a conceptual and/or literature review was employed to collect data. Data collection comprised in-depth focus groups, interviews and questionnaires. This article defined which dynamics obstructed public financial management, good governance and accountability in South Africa, using a triangulation and a literature review design. In this design, the researcher collected both types of data about a single phenomenon at the same time to compare and contrast different findings and to produce well-validated conclusions.

This article looked at the high turnover rate of DGs and the implications for public finance. This study provides guidance to government on possible interventions available to counter the negative consequences of turnover. The findings show an unacceptably high turnover rate: adequate accountability is not provided by departments. Global trends suggest that South Africa is not unique in this turnover rate. As in other countries encountering similar difficulties, rigorous intervention is required to ensure that there is greater continuity of office.

Introduction

South Africa has put in place a chain of policies, procedures and Acts to advance financial management in government departments, but the limited achievement of these strategies thus far is shown by the small number of clean, qualified audits from the Auditor General. Audits of many government departments demonstrate that the requirements of the *Public Finance Management Act, Act 1 of 1999* (hereafter the PFMA), the legislative oversight bodies and the broader legal framework governing public finances have been partially or wholly disregarded. If the challenge of public financial management in the public sector is not addressed, it will impinge on government service delivery programmes, as sound financial management is essential for government programmes. Government departments require managers who can administer finances properly.

One of the trials confronted by the South African public service is how to recruit, develop and retain competent leaders and managers. Public service managers have the important task of transforming the strategic vision, goals and objectives of government into operative service delivery. Given the responsibilities delegated to these managers and the demands made upon them, it is important to maintain a certain level of stability in the country's public service leadership so that the momentum with which government's programmes are delivered is not compromised by frequent changes in leadership at executive or administrative levels.

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In understanding these problems in the public service, this article examines dynamics thwarting public financial management and accountability in South Africa. It examines the high turnover rate of Directors General and its bearing on public finance. The study seeks to provide guidance to government on possible interventions needed to reduce the negative effects of turnover on the stability of the public service. The current system of appointing and retaining Directors General is looked at: how specific interventions may assist in ensuring greater functionality in the overall systems.

Legislative framework

Since the adoption of the Constitution of the Republic of South Africa, 1996 (hereafter the Constitution), a number of milestones have been reached in public service financial management. One of these was the promulgation of the PFMA in 1999 to advance financial management and accountability. The PFMA aims to create a culture of performance by employing managers who are accountable for the utilisation of allocated resources in delivering services. More than a decade after the PFMA was promulgated, however, there are still many, if not an increasing number, of cases of poor financial management and other factors debilitating public financial management and accountability in South Africa.

The PFMA, as part of the South African government's budget and financial management reform agenda, represents a radical departure from the old *Exchequer Act, Act 66 of 1975*, which was concerned mainly with procedural accountability for finances (Erasmus 2008:60). The PFMA places great emphasis on accountability for results and locates budgeting and financial management within a performance management framework. The PFMA aims to create a culture of accountability, openness and transparency in public administration and advocates value for money in the procurement of goods and services in, and by, the public service (Madue 2007:306). Public institutions are judged by their ability to deliver goods and services and show accountability. The PFMA aims to improve accountability by requiring that managers take responsibility for their actions and achievements in exchange for greater managerial discretion over their inputs (Momiat 1999:57). Managers have to take responsibility for their performance.

Madue and Mahwai (2008:360) claim that, since its introduction, the PFMA has improved the management of financial resources in the public sector and enforced the involvement of non-financial managers in the management of finances. These improvements demonstrate that financial management is not a secret art to be practised solely amongst financial officers and the Treasury. The number of cases of officials deliberately ignoring the PFMA on a daily basis, however, is on the rise. The PFMA, as a policy document, is well written but its implementation and enforcement are not satisfactory. Custodians of public financial management are the Directors General of various government departments who fulfil the role of accounting officers responsible and accountable for ensuring that departmental finances are managed according to legal requirements and principles of good governance.

Accountability and requirement as governance principles

Good governance is fundamental in the public sector. Overseas investors baulk at investing in a country that is not committed to good governance. Elements of good governance and adherence to governance principles must be understood in the public service; absence of financial probity can destroy a country's economy and administrative system. Siswana (2007:181–182) points out that poor governance manifests itself when the relevant systems and structures do not function, or do not exist. Equally, good governance is found where those systems and structures function as intended.

Menocal (2011:52) lists elements or criteria of good governance. The first criterion is participation, which is met in South Africa, where the voice of the public is important in decision-making. Public participation is required, according to Section 195(e) of the Constitution, which states that the public must participate in policy-making to ensure transparency.

Transparency is crucial to effective governance in broad-spectrum terms and particularly in finance. Transparency refers to the disclosure of information to the general public and clarity about government rules, regulations and decisions. Transparency in the public service ensures access to information, and the public right to information means public access to information and a degree of legal enforceability on the provision of information (Menocal 2011:52). For these reasons, laws that prevent access to information are contrary to public good (Asian Development Bank 2004). In South Africa, transparency is guaranteed by the *Promotion of Access to Information Act, Act 2 of 2000*, which promotes transparency by giving effect to the constitutional right of access to any information held by the states, and information held by any other person required for the exercise or protection of any rights. The South African Parliament, however, has passed a controversial Bill, the *Protection of State Information Bill 2010,* which is seen by many as contradictory to the *Promotion of Access to Information Act 2002*. The Bill has not yet been signed into law by the President.

The rule of law is a significant criterion for good governance. The law guarantees that government officials are monitored correctly and that they apply rules correctly. The rule of law reinforces and delivers assistance in improving and strengthening the legal and judicial systems, which ensure effective application of rules in all parts of the country and at all levels of society.

Effectiveness and efficiency, as part of governance principles, structures and processes should produce results that meet various needs: making the best possible use of resources. 'Effectiveness refers to the extent to which structures and policies meet their intended objectives, whilst efficiency refers to minimising the resources used without compromising

on quality' (Lussier 2006:10). Policies and procedures can be effective only if they are able to achieve their intended objectives. Section 38(b) of the PFMA states that accounting officers are responsible for the effective, efficient, economic and transparent use of resources. Although effectiveness and efficiency are important, a strategic vision which keeps managers focused on their organisation's' goal is even more important. A strategic vision spells out long-term organisational aims and moulds organisational identity. A strategic vision points an organisation in a particular direction and charts a strategic path for it to follow (Thomson & Strickland 2011:6). It provides direction for organisations and legislative bodies.

When officials are appointed to specific positions, they are answerable for observing and applying policies and procedures to achieve objectives. Taking charge entails acceptance of consequences arising from decisions, actions or inactions. Being responsible comprises the capacity to distinguish between right and wrong and to act accordingly (Cloete 1996:55). Section 45 of the PFMA outlines responsibilities of public office bearers and how they should be held accountable.

Throughout the PFMA and accompanying Treasury regulations, as they appear in the *Government Gazette*, individuals are made responsible for ensuring the flow of funds and establishing systems. Checks and balances have been instituted to ensure that these individuals undertake their responsibilities correctly. The PFMA designates heads of departments (HoDs), heads of constitutional institutions and boards of public entities as accounting officers or accounting authorities. The PFMA grants the responsibility for the effective, efficient, economical and transparent use of resources in accordance with the *Appropriation Act* (the annual Act of Parliament that authorises the executive to spend against their allocations).

Although officials can delegate responsibility to their subordinates, accountability cannot be delegated. Accountability is a concept in ethics (Day & Rudolf 1987:33): it is often used in conjunction with concepts such as responsibility, accountability, enforcement, blameworthiness, liability and other terms related to the expectation of account-giving (Huddlestone 1992:32). Accountability, as defined by Pauw et al. (2009:119), is a key concept in modern management theory and practice. Similarly, Klein (in Borman & Kroukamp 2008:31) defines accountability as an obligation to account or to answer for the responsibility that has been conferred upon a person by an electorate.

Accountability is a key element of good governance in determining characteristics of a modern democratic government (Cameron 2004:59). It requires political office-bearers to act in the public interest. Gildenhuys (1999:35) points out that one of the traditional cornerstones of democracy is the fact that each political representative, and each public official, is subject to accountability. Accountability in the public sector is the mechanism whereby the public

exercises its right to be given account of efficient, transparent utilisation of state funds in the process of achieving the mandate given to public representatives (Gildenhuys 1999:35).

In order for the South African Parliament to safeguard accountability and responsibility, the principles mentioned must be adhered to. Parliament must guarantee that there is maximum citizen participation, that the rule of law is used to enforce compliance, and that those found deserting government policies at the expense of the public face appropriate disciplinary procedures. A strategic vision is important: it points the organisation in a particular direction. Visionary leadership is required in the South African Administration and the public service. Government departments are responsible for the policy implementation process and Parliament must hold them to account.

Concept of good governance

Good governance, in broad terms, signifies the exercise of political, economic and administrative authority to manage a nation's affairs, which comprise the complex range of mechanisms, processes, relations and institutions through which citizens and groups articulate their interests, exercise rights and obligations or mediate differences. Good governance is not the sole prerogative of the states, but its functions can be assumed by, or delegated to, specified institutions and organisations in the private sector and the civil society. Such organisations operate in a legal or policy framework defined by the states having an autonomous existence and exercising political, economic and administrative authority.

There is consensus amongst international development organisations that good governance is the basic prerequisite for sustainable economic development. In fact, capacity building for effective and sound governance is a primary goal of programmes for reducing poverty. Considering the diversity of attributes of physical and financial resources possessed by different developing countries and transitional economies, as well as their own perceptions of sustainable economic development, there are different approaches to the question of appropriate governance strategy for these categories. The expression 'sustainable economic development' has been defined in the Brundtland Commission Report (1987) as the meeting of the needs of the present generation without compromising the needs of future generations. The United Nations Development Programme (UNDP) regards human development as a process of enlarging choices for all people in society, and the UNDP gives the highest priority to poverty reduction, productive employment, social integration and environmental regeneration.

The concept of good governance in the context of sustainable economic development comprises efficient government, effective civil society and a successful private sector. Good governance has many characteristics. Good governance systems are participatory in that the members of governance institutions have a voice in the decision-making process

based on democratic traditions. Procedures and methods of decision-making reflect transparency to ensure effective participation. The governance system aims at bringing about sustainable development. Good governance promotes equity and equality of treatment to all based on the concept of non-discrimination. A basic consideration in good governance is being able to develop the resources and methods of governance. In the context of social development parameters, good governance promotes gender balance, synthesis of diverse perspectives and mobilises resources for social purposes. Good governance strengthens indigenous mechanisms and ensures effective, efficient use of resources. All modern societies are based on the rule of law, which promotes good governance which, in turn, engenders and commands respect and trust (Cameron 2004:45).

Persons entrusted with the task of taking decisions in government, the private sector and civil society organisations have to be accountable for their actions to members of the public and institutional stakeholders. Governmental organisations have to be service-oriented, responsive to the hopes and aspirations of the people, facilitative and enabling, regulatory rather than controlling, take ownership of solutions to national social problems and be able to deal with temporal issues (Maree 2011:268).

Issues relating to corruption

There is a growing perception that most developing countries and transitional economies have often been burdened with economic structures and institutions which hinder, rather than facilitate, the achievement of significant economic growth. Inadequate institutional arrangements on financial resources cause many countries to experience serious constraints in implementing poverty reduction programmes and, ultimately, in raising the standards of living of a vast majority of the population. Gradual, but ever-increasing intervention of the states in the economic sphere extends far beyond the traditional role of providing essential socio-economic infrastructure, maintenance of law and order, defence and foreign affairs. Stabilisation of the economy during the course of economic downturn results in public works programmes and expansion of the public sector, which means the states ensures distributive justice. The public sector is assumed to promote social welfare. All economic decisions are presumed to be made in a rational and transparent manner and implemented by public servants with utmost honesty and integrity (Gildenhuys 1999:71).

Whilst determining the causes of corruption, it is necessary to define 'corruption'. According to the World Bank (1997:32), 'corruption' means the abuse of public power for private benefit. Another more neutral definition is that 'corruption' is the intended aim deriving some advantage from this behaviour for oneself or related individuals. Indulging in corrupt practices is not necessarily or exclusively the prerogative of public officials. However, corruption as applicable to public officials means any act of commission or omission in the performance of public duties which results in

personal advantage, benefit or gain, either immediate or deferred, to a public official or any other person connected with an official to the detriment of public interest. The essence of an act of corruption is that the public interest is, directly or indirectly, irremediably compromised. For instance, a directly detrimental effect of corruption is felt when an income tax official deliberately makes an underassessment of tax liability in return for a pecuniary reward or when a customs official purposely overlooks certain dutiable goods for a person's gain. The public interest is prejudicially affected when a public official in the public works department deliberately awards a contract to build a bridge, dam or road to an incompetent civil engineering contractor against established procedure for monetary reward. A contractor who uses inferior and substandard material causes monetary loss to the government (Idasa 2010:51).

Role of accounting officers in public finance

All heads of government departments are accounting officers and custodians of public finance, responsible for all financial transactions and activities of their departments (Gildenhuys 1993:157). The accounting officer, usually the director general or HoD, in terms of Section 36 of the PFMA, is personally accountable for all financial transactions and activities of their department. The accounting officer of an institution must ensure that internal procedures and internal control measures are in place for payment approval and processing.

Accounting officers are directly responsible for the successful implementation of the revised budget and financial management systems (Visser & Erasmus 2002:36). Section 38 of the PFMA contains clear directions on the general responsibilities of accounting officers. According to Section 38(1) of the PFMA, the accounting officer of a department, trading entity or constitutional institution:

- must ensure a department, trading entity or constitutional institution has and maintains effective, efficient and transparent systems of financial and risk management and internal control
- is responsible for the effective, efficient, economical and transparent use of the resources of the department, trading entity or constitutional institution
- must prevent unauthorised, irregular, fruitless or wasteful expenditure and losses resulting from criminal conduct, and manage available working capital efficiently and economically
- is responsible for management, including safe-guarding and maintenance of the assets and liabilities of the department, trading entity or constitutional institution
- must comply with any tax, levy, duty, pension and audit commitments as may be required by legislation
- must take effective and appropriate disciplinary steps against any official in the service of the department, trading entity or constitutional institution that contravenes or fails to comply with a provision of this Act.

Accounting officers are custodians of public finance. They are the highly skilled individuals required to fulfil those positions. It is important to maintain consistency in accounting officers' appointments. A high turnover rate of Directors General destabilises public financial management severely. If an accounting officer wishes to execute his or her functions properly, he or she must have full control of finances and other activities of a department (Thornhill 1984:53). Institutional knowledge is helpful in this regard.

Public financial management and accountability

Given the state of public financial mismanagement in South Africa, it is evident that there are many factors exacerbating poor financial management. Dynamics that impede public financial management include: a high turnover rate of accounting officers, failure to implement parliamentary committee reports and revolving membership of public accounts committees. For the purposes of this article, only the strongest dynamics are analysed.

Appointment of accounting officers

Directors General (DGs) are accounting officers and, as such, are accountable for every cent spent in their departments. They are often called to appear before parliamentary committees to clarify any uncertainty pertaining to public finance or any administrative matter. A high turnover rate jeopardises accountability and good governance and creates difficulties for legislative bodies.

The turnover rate of DGs across national public services depends on a variety of contextual factors; notably the legislation and regulations governing appointments and terminations. According to the *Public Service Act, Act 103 of 1994* (sections 3[b] [1]), heads of national departments and government agencies are appointed by the President whilst heads of provincial departments are appointed by the Premier. The Act specifies that the President or Premier may delegate power to appoint executive authorities. Details on the procedure to be followed in making appointments are outlined in the Public Service Regulations. The appointment must, however, not exceed five years, as stipulated in Section 12 (2) (a) of the Act.

According to the Department of Public Service and Administration (2008:12), a serving employee appointed to the post of Head of Department (HoD) automatically loses his or her status as a permanent employee. Section 12 (2) (b) of the Public Service Act provides that a contract is entered into with HoDs. This contract regulates the appointment and confirms the provisions and conditions of service of HoDs as stipulated in the Act. The contract includes commencement and expiry dates, remuneration, deployment, renewal and extension of term of office, conduct, and terms and conditions covering management incentives (Department of Public Service and Administration 2008:14). Annexure Two of the Public Service Regulations stipulates that any HoD must

enter into a performance agreement linked to a specific financial year. Renewal of the contract of a HoD is not automatic: procedures for renewal are contained in Annexure A of the Public Service Regulations. Regulations establish a procedure for termination of employment for HoDs.

Turnover rate of accounting officers

Turnover rates for accounting officers (DGs) were analysed, looking at 39 government departments and entities. Some departments were excluded from the analysis because they are new and have had only one director general (DG) appointed to date. On average, the period for analysis was from 1999 to 2011, based on availability of information received. The system provided basic data on the level and frequency of turnover for the assessment period. Data within these systems do not reflect reasons for departure or movement, but do provide a broad picture of turnover amongst HoDs. This information builds a global picture of the scale of turnover experienced for the period of the assessment. The PERSAL records provide information on each instance where there is a change in who is legally designated as the HoD.

According to the Department of Public Service and Administration (2008:6), every new DG may introduce new strategies and plans, hence frequent changes of a HoD may subject a department to a process of frequent change. This problem is exacerbated when there is no proper handing over and taking over procedures. Whenever there is a change in public service leadership, there must be a proper handing over and taking over, especially when there is a transition from one electoral term of government to another.

Of 177 DGs analysed, 96 were permanent and 81 were acting. It is not possible for all DGs to be in a permanent capacity, but for 81 (45.8%) to be DGs is unacceptable. This high turnover is likely to compromise service delivery and the management of public finance; it decreases accountability because new Directors General cannot give proper account of a department's activities in the previous period when appearing before Parliament. When asked questions by parliamentary committees, many Directors General simply use their brief tenure in office as an excuse to be engaged in, and defend, corrupt actions. Instability increases when there is frequent change in leadership.

Currently serving DGs are excluded from the analysis as they are still in office. Data show that the Department of Public Works had the highest turnover rate: Eleven DGs in twelve years. This Department has been at the centre of controversy on issues of maladministration and tender fraud. Given the financial maladministration reported in this department, such a turnover rate is not surprising and unacceptably high. Serious intervention is needed to ensure sustainability of DGs in this department.

A high turnover rate was experienced by the Department of Sport and Recreation (nine DGs), the Public Service

Commission (eight) and Correctional Services (eight). This finding is particularly disturbing for the Public Service Commission because Section 196(4)(b) of the Constitution, read in conjunction with Sections 9 and 10 of the *Public Service Commission Act, Act 46 of 1997*, mandates the Commission to investigate, monitor and evaluate the organisation of administration and personnel practices in the public service.

Other departments presented a better picture. For example, the Department of Women, Children and People with Disabilities has had two DGs only since its inception in 2009. Looking at the average length of time a DG spends in office, this department is not unique.

A worrying finding is that 42% of DGs analysed spend less than 11 year in office, either in acting or permanent appointments. As mentioned earlier, DGs are appointed for a period of 3–5 years, but only 7.3% of DGs spend 3–4 years in the same office, and only 2.6% stay 5 years. According to the Department of Public Service and Administration (2008:33), the turnover of HoDs across national public services depends on various contextual factors, notably the legislation and regulations that govern appointments and terminations, shaped by the national history of the public service in question.

In Canada, the trend is towards higher turnover levels, but experiences vary across different countries and different public service systems (Boyne 2007). Some systems tend to promote stability amongst the heads of public institutions, whilst others view turnover as necessary for innovation and performance purposes (Boyne 2007). A study of political appointments in governments across the world, undertaken by the Japanese government, suggests that public sector HoDs rarely stay in office in a particular position for over 44 years (Boyne 2007). In the United States, employment mobility is high as many politically appointed HoDs do not stay for a complete term of office of the President (Cote & Holland 2007). In France, although many HoDs are appointed from within the career civil service, they seldom remain in the same position for over 4 years and often move to comparable positions in public service. In Germany, there is a similar pattern. Cote and Holland (2007) reveal that in Canada the length of assignment of officials fell to 2.7 years between 1997 and 2007, from an average tenure of 4 years in the previous decade.

The system for appointing and dismissing HoDs in South Africa resulted from past experiences and post-apartheid transformation. The British system of the professional career HoD has largely been substituted by a mixture of politically and contractually-based appointments. In changing the system from permanent appointment to contracts, government's intention was to ensure that innovation is brought to the public service, and that HoDs could be held more accountable for delivery on results through time-based performance contracts. The final and formal authority for the appointment of HoDs resides with the President.

The analysis provides an overview of the turnover rate of DGs in government departments. It is evident that turnover rates vary from one department to the next and are unacceptably high in some departments. This is a challenge for the Legislature as proper accountability is not guaranteed by departments, particularly in respect of finances. Global trends suggest that South Africa is not unique in its turnover rate, but clearly, rigorous intervention is required to reduce the turnover rate to ensure continuity of office and accountability of public finance in the interest of good governance.

Public accounts committees

The mandate of the Public Accounts Committees in South Africa is drawn from Sections 55 and 114 of the Constitution. Section 55(2) outlines the oversight powers of the National Assembly, requiring that it:

> provides for mechanisms to ensure that all executive organs of state in the national sphere of government are accountable to it; and to maintain oversight of the exercise by the national executive authority, including the implementation of legislation; and any organ of state.

The Standing Committee on Public Accounts (SCOPA) is considered the most influential Public Accounts Committee of Parliament. This Committee examines the Auditor-General's annual reports on the financial affairs of public institutions. SCOPA is the mechanism through which the National Assembly exercises control over expenditure of public funds, which it allocates annually to executive organs of state in the national sphere of government. SCOPA examines financial statements as well as audit reports of the statements of all government departments and constitutional institutions (Siswana 2007:107).

SCOPA needs appropriate information to fulfil its functions properly. The Constitution recognises this need by providing for the establishment of the Auditor General, who has the powers and functions to audit and report to Parliament on, *inter alia*, accounts, financial statements and financial management of national departments and other public sector institutions to be audited as required by Section 188 of the Constitution. SCOPA's aim is to ensure that government departments are accountable and responsible to Parliament, which represents South Africa's citizens.

Since its inception, SCOPA has held several public hearings in an effort to ensure responsibility and accountability. Although SCOPA can boast several successes, it faces many challenges that affect its ability to conduct oversight efficiently and effectively. SCOPA needs to adopt practical measures to enable it to carry out its oversight functions properly – it lacks technical experts and adequate financial resources to increase its oversight capacity (Idasa 2010:6). Another challenge is government departments' failure to cooperate and implement SCOPA's resolutions. The Auditor General and SCOPA reports often repeat recommendations year after year but there is little improvement. Resolutions in

the area of compliance are ignored; reporting on predetermined objectives has received almost no attention. It is encouraging that action has been taken on almost all resolutions, but most actions have not been completed. Many resolutions are carried over from previous years (Siswana 2007:107), so completion of actions needs careful monitoring.

Despite these difficulties, SCOPA members sustain rigorous questioning to obtain answers on issues highlighted by the Auditor General. Ministers will in future be called to appear before the Committee (Idasa 2010:6). One challenge here is the ruling party list: the Minister is a senior member of the ruling party and members serving in committees are junior. This anomaly applies to all committees in Parliament.

SCOPA has been accused of party political bias, on the basis that members of the ruling party who constitute the majority of members on the Committee refuse to express an opinion that could harm the party (Cloete 2012:46). SCOPA's membership increased from 1010 in 2003 to 15 in 2010. The turnover rate of SCOPA members remained relatively low between 2006 and 2009, but started to increase in 2010, a year after the national elections. This finding suggests that change of leadership influences turnover rate. This deduction is supported by the high turnover rate of SCOPA in 2004, which was an election year. It may be argued that other parliamentary committees experience similar challenges. This experience poses a threat to the effectiveness of committees such as SCOPA, which interrogate senior members of departments to gain clarity on certain matters. They call for feedback at subsequent meetings when, at the next meeting, there are new members who are not familiar with the issues on the table. This difficulty is a threat to democracy and accountability.

The South African parliamentary oversight committee system is structured to promote accountability by the Executive. But the effectiveness of the Legislature may be hampered by the fact that its members are junior members of the ruling party, whilst the Executive is normally chosen from amongst senior members. For instance, the Minister is a senior member. This incongruity may pose problems for the Legislature in holding the Executive accountable.

A practical example is the case of the Minister of Defence. In 2010, SCOPA held a meeting with the acting Secretary of Defence and several senior officials regarding the Department of Defence's qualified audit reports from the Auditor General. The delegation from the Department of Defence was asked to leave after it failed to provide SCOPA with credible answers to questions relating to wasteful expenditure and irregularities around the purchase and awarding of tenders. This forced departure was reported on national television. Since then, SCOPA has repeatedly failed to persuade the Minister of Defence to appear before it and account for the state of financial management in the Department (Idasa 2010:11). This refusal has led to tension between SCOPA and the Minister. The Portfolio Committee on Defence failed to oblige the Minister to comply. Thus, it may be asked what powers SCOPA has if members can refuse to appear before it.

Ministers see themselves as senior party members and are offended if called to appear before parliamentary committees.

Conclusion

In conclusion, it has been established that sound governance is essential for ensuring sound, sustainable human development. The challenge facing all countries is to create a system of economic governance that promotes the process of sound decision-making that directly or indirectly affects a country's economic activities or its relation with other economies. Economically, developing and transitional countries have to reduce, if not eliminate altogether, the subversive impact of corruption on economic activities, establish strong institutional frameworks and strengthen the administrative and technical capacities of public administrators to achieve sustainable socio-economic development.

Many dynamics affect public financial accountability and responsibility, including high turnover amongst accounting officers and parliamentary committee members, which have a negative impact on good governance. Governance must be analysed in the context of public finance to meet basic criteria such as accountability, responsibility and transparency. Structures supporting governance are important, as is their functioning. These institutions must support governance in the context of the PFMA. If these structures and institutions are not managed effectively, poor accountability and lack of responsibility for public finance follow. It is important for departments to understand that they do not operate in isolation, but need each other in the interest of good governance.

This article analysed the turnover rate of DGs as accounting officers for government departments in South Africa. The findings show a high turnover rate, which is of grave concern to the legislature: proper accountability is not provided by departments, particularly financial accountability. It is concerning that most DGs function in an acting capacity: it is common knowledge that individuals in such positions avoid taking decisive or tough action, as some hope to be appointed permanently in those positions. Global trends suggest that South Africa is not unique in this turnover rate. More rigorous intervention is required to reduce the high turnover to ensure that there is greater continuity of office. Such intervention should improve accountability regarding public finance, good governance and retention of institutional knowledge.

Recommendations

In view of the above findings, it is recommended that:

- to be effective, parliamentary oversight bodies be granted specific, authoritative powers, and use these powers appropriately, to hold officials accountable
- committee members should serve, at least, for the term of office of the President or government (5 years)
- there is a system in place to retain talent in the public service, particularly for DGs, who need to be retained to assist legislative bodies in ensuring public financial

accountability by making sure there are people to account to, and give answers, when necessary

- the appointment of DGs should be removed from the President and given to the Department of Public Service and Administration. International experiences of the effects of high turnover of DGs suggest the current system in South Africa be retained whilst strengthening recruitment and selection processes
- DGs are recruited for permanent positions in the public service.

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The relationship between leadership style, organisational climate, innovation and organisational performance: An investigation into research methodology used

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Understanding the impact of leadership style, organisational climate and innovation on organisational performance is important for organisations in order to sustain competitive advantage. However, building an empirical base is hampered by a lack of uniformity in the methods used to study the relationship between these constructs. This article reports on the methods used in empirical studies to investigate the relationship between leadership style, innovation and organisational performance on the one hand and organisational climate, innovation and organisational performance on the other hand. This report provides the necessary structure for future researchers to build on the present body of knowledge using the same or complementary methodologies when creating new knowledge. A framework based on methodological literature has been designed to analyse journal articles that investigate the relationship between the above-mentioned four constructs. Articles to be analysed were identified by using the systematic literature review methodology.

After consulting 31 research databases, only 1 article that investigated the relationship between all four constructs was identified. Thirteen articles included three of the four variables. It was found that, in many cases, authors were not diligent in reporting the methods applied in the research. The findings reveal, however, that the quantitative approach is by far the most preferred design, and the Structural Equation Model (SEM) is the most favoured technique used to analyse data. This research provides a basis for future researchers to add to the body of knowledge. It is recommended that researchers pay greater attention to reporting the methods used as this will enhance the replication of their work. This article provides researchers with a clear picture of how research is conducted in this area, informs them of the shortcomings of present research and identifies the challenges or shortcomings that have been identified by previous researchers.

Introduction

Innovation in organisations is positively and significantly related to superior organisational performance (Ul Hassan et al. 2013; Yang, Yang & Chen 2014; Yu-Fang 2013). Organisational performance can be classified into two categories, namely, financial and non-financial (Shin et al. 2015). Bearing this in mind, a growing body of literature presents innovation as a key driver of sustainable competitive advantage (Al-Husseini & Elbeltagi 2012; Chalhoub 2010; Sarros & Cooper 2011). Important to this relationship are organisational climate and the role of leadership. The literature shows that the leadership style of senior management has a strong impact on organisational climate with regard to innovativeness and the performance of the organisation (Ul Hassan et al. 2013). Similarly, a stream of research has demonstrated that organisational climate plays an important role in the relationship between innovation and organisational performance (Isaksen & Àkkermans 2011).

Studying these relationships in isolation may lead to an ineffective approach being adopted. For instance, studying leadership and innovation without including organisational climate and performance may result in leaders channelling their energies towards developing a culture of innovation by focusing on only using the appropriate style of leadership. This is a consequence of the lack of understanding of the influence of organisational climate on the relationship between leadership style and organisational performance. Similarly, the exclusion of organisational performance presents a challenge whereby leaders are assured of the type of leadership style that will positively influence innovation. However, they are not sure if the improved level of innovation

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will ultimately lead to improved organisational performance, and, because of poor understanding of these strategic variables, organisations may fail to achieve sustainable competitive advantage.

The debate on the nature of the aforementioned relationship is still in its early stages, and the methods appropriate to the empirical investigation of this relationship are not clearly defined. In this article, the aim is to report on and critically evaluate the methods used to study the relationship between leadership style, organisational climate, innovation and organisational performance. This is done against the backdrop of standard or traditional methods used in business research. This report will thus inform future researchers about standard practices in such research as well as highlighting the possible pitfalls.

Importance of the research

The importance of understanding the relationship between leadership style, organisational climate, innovation and organisational performance was introduced above. Although some research has been conducted in this field, the findings were inconclusive, with some studies (Likar, Kopac & Fatur 2014; Ul Hassan et al. 2013; Yang et al. 2014) showing a positive relationship, whilst others (Forsman & Temel 2011; Kannebley, Sekkel & Araújo 2008; Koellinger 2008; Martin, Baby & Banga 2012) showed no relationship. Rubera and Kirca (2012) point out a number of possible reasons for these unconvincing findings, which include, *inter alia*, the methodology used to conduct the study. It is therefore important for the advancement of the field to adopt research strategies based on previous research. This article aims to provide a structure for how research in this area should be undertaken by future researchers to draw on and to provide information about the challenges identified by earlier researchers.

Literature review

The literature review defines the four constructs that are the focus of this article and delineates the manner in which reporting on research methods is done. This is followed by a brief description of what the standard research method structure entails.

Leadership style

Leadership entails mastering three critical management skills that should be practised consciously, namely, (1) strategic thinking skills, (2) innovative thinking skills and (3) situation management skills (Wilkins & Carolin 2013). The three fundamental skills may require leaders to adopt different leadership styles, depending on the circumstances. For instance, in transactional leadership theory, compensation is regarded as a motivating factor for employees (Golla & Johnson 2013; Yukl 2010) and revolves around an exchange involving the trade of goods or services. In contrast, the influence of transformational leaders does not stem from exchange benefits, but from the logical result of a complex cluster of behaviours and techniques (Swanepoel et al. 2003).

At the heart of transformational leadership theory is the basic belief that a leader needs to articulate a clearly defined vision to transform the organisation and energise followers to adopt a new paradigm by appealing to issues that are fundamental to their existence (Eustace & Martins 2014). Research has demonstrated that transactional leadership is suitable when the goal is to instil a culture of innovation (Golla & Johnson 2013), whereas transformational leadership is more suitable when the goal is to articulate and communicate a coherent vision and strategy to the organisation (Wilkins & Carolin 2013; Yang et al. 2014).

Organisational climate

According to Pirola-Merlo et al. (2002), organisational climate refers to a set of norms, attitudes and expectations that individuals perceive to operate in a particular social context. As such, organisational climate can be defined as a set of characteristics of an organisation's internal environment that are influenced by its policies and practices (Zhang & Begley 2011). It is in this context that Chang, Chuang and Bennington (2011) argue that organisational climate conveys a message about the life within the organisation and serves to uphold and perpetuate a particular view of reality shared by members of the organisation. In other words, organisational climate is constituted by recurrent patterns of behaviour, attitudes and feelings that characterise life in the organisation (Björkdahl & Börjesson 2011).

Innovation

The term 'innovation' is defined within the organisational context as the 'management of all the activities involved in the process of idea generation, technology development, manufacturing and marketing of the new or improved product, process or equipment' (Trott 2012:23). Innovation can be incremental or radical. Incremental innovation is based on extending existing technologies and improving features of existing products, services and processes, whereas radical innovation is about creating dramatic change in technology, processes, products or services and ultimately transforming the existing markets and industry, or giving rise to new markets (Miller, Miller & Dismukes 2005). Radical innovations are generally considered to be risky as they require time, financial resources and expensive knowledge (Cainelli, Evangelista & Savona 2006). It is in this context that Jenssen and Åsheim (2010) emphasise the importance of distinguishing between different typologies of innovation because this helps to identify the antecedents of innovation.

Organisational performance

The concept of organisational performance is central to the understanding of organisational success and the elements responsible for that variation (Hoopes, Hadsen & Walker 2003). It is important to note that scholars who embark on empirical studies often employ a number of different measures to evaluate financial performance (Berger & Bonaccorsi di Patti 2006), whilst others go further and include

non-financial performance, such as job satisfaction, productivity and market share (Battor & Battor 2010; Huang et al. 2012). To assess financial performance most scholars prefer to use accounting measures such as return on assets (ROA), return on equity (ROE), return on investment (ROI), profitability and sales growth (Cho & Pucik 2005). Similarly, Tobin's Q is considered by many scholars as the de facto standard with regard to market-related measures (Karanja 2011). The combination of both financial and non-financial measures is viewed by many as the most effective measure of organisational performance. Nonetheless, the exclusive use of either financial or non-financial measures of organisational performance is not implicitly wrong, provided that researchers clearly define which aspects of organisational performance they intend to study (Gentry & Shen 2010). In this study, organisational performance refers to both financial and non-financial performance.

Research method structure

An analysis of the literature on the structuring of a method section of an academic article, reveals repeated inclusion of the following elements, which include subsections such as the research paradigm, research design, sampling, measurements, validity and reliability, data collection, data analysis and interpretation, limitations and ethical considerations (APA 2011; Fabio et al. 2012; Hofstee 2011; Leedy & Ormrod 2005; Mouton 2013; Saunders 2012). The remainder of the literature review is dedicated to explaining these subsections and should guide authors on what should be reported on in a methodology section.

Research paradigm

A paradigm refers to the entire constellation of beliefs, values and techniques shared by members of a given community (Kuhn 1970). At an abstract level, there are two major concerns when thinking about research philosophy or paradigm, namely, ontology and epistemology. Ontology is concerned with the nature of reality (Saunders 2012). In other words, researchers take a position regarding their perceptions of how things are and how things work (Scotland 2012). Conversely, epistemology concerns what constitutes acceptable knowledge in the field of study (Saunders 2012), in other words, what it means to know (Scotland 2012). As a result, every paradigm is based on its own ontological and epistemological assumptions.

Positivism is a common stance in business research and many textbooks in the field refer to this paradigm (Mouton 2013; Olivier 2004; Saunders 2012). According to Creswell (2009), positivists attempt to identify causes which influence outcomes. The ontological position of positivism is the one that assumes that objects have an existence independently of the researcher (Cohen, Manion & Morrison 2007). Furthermore, the positivist epistemology suggests that meaning solely resides in objects, rather than the conscience of the researcher, with the intension of acquiring the meaning (Scotland 2012). It could be expected that a well-written article makes some kind of declaration on the research paradigm.

Research design

Typically, the research design section begins with a general paragraph describing the study design (Azevedo et al. 2011). According to Hofstee (2011), the research design section is where the overall approach to testing the research question or statement is discussed. There, typology of the research design can be classified into two categories, namely, empirical studies and non-empirical studies (Mouton 2013). Empirical studies derive new knowledge from data, whereas non-empirical studies use the literature review, modelling and the philosophical and conceptual analysis to develop new knowledge. Empirical studies can be qualitative, quantitative or mixed. Non-empirical studies are generally qualitative in nature. According to Marais (2012), qualitative research approaches the phenomena from the perspective of the subject in order to understand the phenomena in their context. In contrast, quantitative research approaches the phenomena from the perspective of the outsider, with the aim to explain and predict the phenomena under study in isolation (Marais 2012). Providing a concise declaration on the design of the research would enable the replication of the conducted research and building on exciting knowledge.

Sampling

A sample is part of something larger, called a population or universe (Diamantopoulos & Schlegelmilch 2000). Sampling procedure describes the procedure for selecting the participants or sample from the population (APA 2011). When selecting a sample from the target population, probabilistic sampling methods (random) are preferred as they guarantee representativeness of the sample (Azevedo et al. 2011). On the other hand, although non-probabilistic sampling methods such as convenient and conservative systematic sampling do not guarantee representativeness of the sample, they are more common, and they do not necessarily prevent researchers from validly answering the research question (Azevedo et al. 2011). Having knowledge about the sampling followed in previous research projects could guide prospective researchers to select appropriate sample sizes and inform them of what populations are commonly targeted in a particular field of study.

Instruments measurements, validity and reliability

The process of measurement can be regarded as the assignment of symbols to characteristics of persons, objects or states of events according to certain rules (Diamantopoulos & Schlegelmilch 2000). Researchers can therefore either adopt existing instruments or develop their own instruments. To allow replication of the study, the assessment instruments (measurements) should be described in clear detail. In the same vein, the validity and the reliability of the measurements used in the study should also be described in detail (Fabio et al. 2012). Validity refers to how well the research model investigates (1) what it intends to investigate and (2) to what extent the researcher gains access to the informant's knowledge and meaning. On the other hand, reliability refers to the consistency and stability of the measurement process (Lee 1999). In other words, reliability

is concerned with researchers clearly demonstrating that they have not invented or misrepresented the data collected, and the research can be repeated under the same conditions with approximately the same outcomes (Hofstee 2011). Being in possession of knowledge related to the instruments used by previous researchers would enable researchers to select the most appropriate instruments for their own use and allow them to build on the base set provided by previous researchers.

Data analysis and interpretation

Data analysis and interpretation can be viewed as three concurrent flows of activity, namely, (1) data reduction, (2) data display and (3) the conclusion deducted from the data (Miles & Huberman 1994). According to Hofstee (2011), if the research follows a quantitative design, then the statistical analysis techniques must be described in this section. For instance, when reporting inferential statistics, test values, degrees of freedom, probability values and effect sizes should be reported (Fabio et al. 2012). Most importantly, for inferential statistics, the decision techniques on the interpretation of the results should be determined prior to the data analysis (Diamantopoulos & Schlegelmilch 2000). In fact, Diamantopoulos and Schlegelmilch (2000) go even further and argue that it is not legitimate to change the level of significance retrospectively (i.e. from 0.05 to 0.01), given that the results of the data change or might change based on the significance level.

If the research is qualitative in nature, equally, the researcher should explain how the data are analysed (Hofstee 2011). In qualitative research, the researcher's own assumptions, bias and subjectivity should be stated upfront (Fabio et al. 2012). Ultimately, the primary aim of the analysis is to understand the various constitutive elements of one's data through the inspection of the relationship between concepts, constructs or variables, whereas the interpretation involves the synthesis of data into larger coherent wholes (Mouton 2013).

Should prospective researchers examine the work of other researchers in the field, their customs regarding analytical techniques as well as the decision rules they apply will become apparent. This will allow for comparison between studies and building a solid base of knowledge on the topic.

Limitations

The primary purpose of research is to discover the truth (Saunders 2012). However, all methods have some limitations (Hofstee 2011). Therefore, it is advisable to acknowledge the limitations of the research and provide explanations on why the results still validly answer the research question (APA 2011). In fact, according to Diamantopoulos and Schlegelmilch (2000) it is advantageous to be open and frank about limitations inherent to the research study rather than leaving them to the reader to discover. This kind of knowledge is of particular value to prospective researchers as pitfalls and suggestions for improving research are presented here.

Ethical considerations

Whenever human beings or other creatures with a potential to think, feel and experience physical or psychological distress are the focus of investigation, the ethical implications of what the researcher intends doing must be observed very closely (Leedy & Ormrod 2005). As such, this section is intended to describe in detail what the researcher has done to ensure that the study adheres to ethical guidelines (Hofstee 2011). Research ethics, however, go beyond the protection of human subjects and include elements such as deception in research, permission to use copyrighted material included in the research and permission to use unpublished instruments. It also includes honesty with professional colleagues, such as reporting the findings in a complete and honest fashion without misrepresenting the data or intentionally misleading others about the nature of the findings (APA 2011; Leedy & Ormrod 2005). An analysis of the ethical considerations of those who have published their research can guide aspiring researchers to do their investigations and reports in line with academic standards.

The aforementioned structure should allow researchers to provide essential information on how to make sound and justifiable judgements about the validity of the results and conclusions derived from the study (Azevedo et al. 2011).

Method

This study adopted two generic steps of the systematic literature review methodology, namely (1) a search of the literature and (2) selection of relevant studies by applying inclusion and exclusion criteria. The primary aims of this review were to analyse the methods used in prior studies to investigate the relationship between leadership style, organisational climate, innovation and organisational performance, and to identify emergent themes based on the list of subsections presented in the literature review.

The keywords 'leadership' (leaders*) *or* 'climate' (climate*) were used in conjunction with 'innovation' (innov*; creative*) *and* 'performance' (perform*; finance*; outp*; return*) in the search for published articles. The options (criteria) selected for the search were full-text, peer-reviewed and scholarly journals. Two major academic databases, namely EBSCOhost and ProQuest, were searched. For articles to be included in the analysis, they needed to include all four variables, or leadership with both innovation and organisational performance, or climate with both innovation and organisational performance.

On EBSCOhost, 21 databases (Table 1 in Appendix 1) were searched and 17 articles were retrieved. On ProQuest, 1010 databases (Table 2 in Appendix 1) were searched and 14 articles were retrieved. In both cases, the search was not limited to a specific time period. In total, 31 articles were retrieved from both EBSCOhost and ProQuest. However, 7 duplicate articles were identified, resulting in 24 distinct articles retrieved from the search. The abstracts of articles

that met the first level of inclusion criteria were analysed in order to identify those studies that treat leadership style and/or organisational climate as well as innovation and organisational performance as variables.

Validity was addressed by applying an extensive and exhaustive search strategy and applying appropriate selection criteria for the identification of articles. To enhance the reliability of the search, both the author and co-author were involved in decision-making regarding the inclusion and exclusion criteria. In total 14 articles, as presented in Table 1, met these criteria.

The fact that only 14 articles met the inclusion criteria suggests that few studies are designed to trace the effect of innovation on organisational performance by examining the influence of leadership style and/or organisational climate. Interest in this topic seems to be of a contemporary matter, as only 2 of the 14 articles identified were older than 10 years and 7 were published less than 5 years ago.

Findings

One study (Article 8) included all four variables: leadership style, organisational climate, innovation and organisational performance. The rest of the studies included only three

variables. Seven studies (Articles 1, 4, 5, 6, 10, 12 and 13) included leadership style, innovation and organisational performance, whereas six studies (Articles 2, 3, 7, 9, 11 and 14) included organisational climate, innovation and organisational performance. For the sake of clarity, a summary of the findings is presented in Appendix 1, Table 3.

By academic standards, the number of articles that met the inclusion criteria seems to be very small, given that a search with 'leadership' and 'innovation' delivered 377 articles from EBSCOhost and 161 articles from ProQuest. Furthermore, when the keywords 'innovation' and 'performance' were used, 843 articles were retrieved from EBSCOhost and 361 articles from ProQuest. When the keywords 'climate' and 'innovation' were used, 255 articles were retrieved from EBSCOhost and 54 articles from ProQuest. It is thus not that the variables do not exist in the academic domain, but the particular grouping of the variables used for this study is limited.

The articles that met the inclusion criteria were analysed according to the methodology subsections identified in the literature review (see 'Research method structure'). The findings are presented below.

TABLE 1: Articles that investigate leadership styles, organisational climate, innovation and organisational performance.

Article	Year	Author (s)	Title	Journal
1	1993	Howell & Avolio	Transformational leadership, transactional leadership, locus of control and support for innovation: Key predictors of consolidated-business-unit performance	Journal of Applied Psychology
2	2003	Baer & Frese	Innovation is not enough: Climates for initiative and psychological safety, process, innovations, and firm performance	Journal of Organisational Behavior
3	2008	Crespell & Hansen	Work climate, innovativeness, and firm performance in the US forest sector: In search of a conceptual framework	Canadian Journal of Forest Research
4	2008	García-Morales, Lloréns-Montes & Verdú-Jove	The effects of transformational leadership on organisational performance through knowledge and innovation	British Journal of Management
5	2008	García-Morales, Matias-Reche & Hurtado-Torres	Influence of transformational leadership on organisational innovation and performance depending on the level of organisational learning in the pharmaceutical sector	Journal of Organisational Change Management
6	2008	Matzler et al.	The relationship between transformational leadership, product innovation and performance in SMEs	Journal of Small Business and Entrepreneurship
7	2008	Panuwatwanich, Steward & Mohamed	The role of climate for innovation in enhancing business performance	Engineering Construction and Architectural Management
8	2010	Charbonnier-Voirin, El Akremi & Vandenberghe	A multilevel model for transformational leadership and adaptive performance and the moderating role of climate for innovation	Group and Organisation Management
9	2012	Nybakk & Jenssen	Innovation strategy, working climate, and financial performance in traditional manufacturing firms: An empirical analysis	International Journal of Innovation Management
10	2012	Overstreet et al.	Leadership style and organisational innovativeness drive motor carriers toward sustained performance	The International Journal of Logistics Management
11	2013	Choi, Moon & Ko	An organisation's ethical climate, innovation, and performance effects of support for innovation and performance evaluation	Management Decision
12	2013	Golla & Johnson	The relationship between transformational and transactional leadership styles and innovation commitment and output at commercial software companies	The Business Review, Cambridge
13	2013	Noruzy et al.	Relations between transformational leadership, organisational learning, knowledge management, organisational innovation, and organisational performance: An empirical investigation of manufacturing firms	International Journal of Advanced Technology
14	2013	Nusair	The role of climate for innovation in job performance: Empirical evidence from commercial banks in Jordan	International Journal of Business and Social Science

Source: Authors' own work

Research paradigm

None of the 14 articles examined explicitly report on the research paradigm adopted for the study. The general theme that emerges from the articles is that leadership style and organisational climate somehow influence innovation in the organisation, and, in turn, innovativeness leads to superior organisational performance. Therefore, it may be argued that the only paradigm that fits these studies is the epistemology of the positivist paradigm.

Research design

All 14 articles report on empirical studies. Eleven studies (Articles 2, 3, 6, 7, 8, 9, 10, 11, 12, 13 and 14) adopted a pure quantitative research design approach, whereas the other 3 studies (Articles 1, 4 and 5) adopted a mixed method (qualitative and quantitative) research design approach. For the mixed method studies, researchers used interviews to gather information from key informants to develop constructs for survey questionnaires that were later used to gather quantitative data.

Sampling

Of the 14 articles analysed, 5 (Articles 4, 5, 10, 13 and 14) explicitly mention that random sampling was used to select the organisations investigated. Four studies (Articles 2, 3, 8 and 11) used purposive sampling and in Article 7 convenience sampling was used. In Articles 1 and 6 the sampling methods were not clearly specified. Articles 9 and 12 used the entire population. The sample size used in the articles is presented in Table 2, divided into three main aspects, namely, the number of companies used in the sample, the target sample and the final sample used

Validity and reliability

Twelve (Articles 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 13) of the 14 studies were tested for validity and reliability of the measures they used, whereas the other 2 studies (Articles 12 and 14) reused the existing questionnaires that were previously tested

TABLE 2: Sample size summary.

Article	No. of companies	Sample	
		Target	Final
1	1	78	78
2	47	269	165
3	1453	1453	219
4	N/A	900	408
5	164	164	164
6	97	300	97
7	94	520	94
8	1	464	120
9	36	492	241
10	7	500	158
11	1	36 285	27 577
12	30	104	58
13	106	380	280
14	5	200	200

Source: Authors' own work

for reliability and validity. It was interesting to note that the debate around what an appropriate level of Cronbach's Alpha should be is ongoing, although Cronbach's Alpha of greater than 0.6 was acceptable. To test reliability, the majority of authors (Articles 1, 2, 3, 4, 5, 6, 7, 8, 11 and 13) preferred to use the minimum cut-off of 0.7 as acceptable. With regard to validity, authors reported on discriminant validity (Articles 1, 2, 4, 5, 6, 8, 9 and 10), convergent validity (Articles 3, 4, 5, 7, 9 and 10), construct validity (Article A2) and face validity (Article 10). Other authors (Articles 12 and 13) conducted a pilot study to test the validity of the instruments used. Article 14 did not report on the validity of the instruments used.

Measurements

The techniques used to measure leadership style, organisational climate, innovation and organisational performance in the articles that met the inclusion criteria, are presented below.

Leadership style

To measure leadership style the authors of three Articles (4, 5 and 13) used a scale developed by Podsakoff, MacKenzie and Bommer (1996). Articles 1 and 12 used a MLQ (Multifactor Leadership Questionnaire) developed by Bass and Avolio (1990). In Article 1 the original version of the MLQ was used, whereas in Article 12 a later version of the MLQ was used (Avolio & Bass 2004). In Article 6 the scale developed by Wang and Ahmed (2004) was used, and in Article 8 the scale developed by Podsakoff et al. (1990) was used. In Article 10 the scale developed by Carless, Wearing and Mann (2000) was used. In other studies (Articles 2, 3, 7, 9, 11 and 14), leadership style was not included as part of the constructs or variables under investigation.

Organisational climate

Five studies (Articles 2, 3, 9, 11 and 14) adopted existing instruments. Articles 3 and 9 used the scale developed by Amabile et al. (1996), Article 2 used the scale developed by Frese et al. (1997), Article 11 adopted the scale developed by Victor and Cullen (1988), whilst Article 14 opted for the scale developed by Panuwatwanich et al. (2008). The authors of Articles 7 and 8 developed their own instrument to measure organisational climate. Other studies (Articles 1, 4, 5, 6, 10, 12 and 13) did not include organisational climate as a construct or as a variable.

Innovation

Two of the 14 studies (Articles 4 and 13) used the scale developed by Miller and Friesen (1983) to measure innovation. Article 1 used the scale developed by Siegel and Kaemmerer (1978), Article 3 used the scale developed by Knowles, Hansen and Shook (2008), Article 6 used the scale developed by Wang and Ahmed (2004) and Article 9 used the instrument developed by Crespell and Hansen (2008). The studies in Articles 10 and 11 used the scale developed by Srinivasan, Lilien and Rangaswamy (2002) and Delery and Doty (1996), respectively. Interestingly, in five studies

(Articles 2, 5, 7, 8 and 12) authors opted to develop their own custom measures of innovation.

Organisational performance

Four of the 14 studies (Articles 6, 10, 13 and 14) used existing scales. In Article 13 the scale developed by Cho, Ozment and Sink (2008) was used, and in Article 6 the scale developed by Churchill and Peters (1984) was used. In Article 10 the authors opted to use a measure of operational performance (developed by Zelbst, Green & Sower 2010) as well as a measure of financial performance (developed by Inman et al. 2011). In Article 14 the tool suggested by Pushpakumari (2008) was used, whilst other authors (Articles 1, 2, 3, 4, 5, 7, 8, 9, 11 and 12) developed their own measures of organisational performance. Although the majority of authors (Articles 1, 2, 3, 4, 7, 9, 10, 11 and 12) used financial indicators to assess organisational performance, almost all studies used subjective measures (self-reporting) to assess financial performance. In two studies, namely in Articles 10 and 11, the researchers opted to use both subjective and objective measures. Two studies (Articles 8 and 14) used non-financial measures as a sole measure whereas three studies (Articles 5, 6 and 13) opted to assess both financial and non-financial measures.

Data analysis and interpretation

The most common analysis technique used is Structural Equation Modelling (SEM). Six of the 14 studies (Articles 3, 6, 7, 9, 10 and 13) analysed used SEM, followed by the Partial Least Squares (PLS) multivariate analysis technique (Articles 1 and 11), confirmatory factor analysis (Articles 8 and 12) and recursive non-structured modelling (Articles 4 and 5). Other studies (Articles 2 and 14) used correlation analysis and regression respectively. In SEM, indices such as the Goodness of Fit index (GFI), Adjusted Goodness of Fit (AGFI), Normal Fit Index (NFI), Non-Normal Fit Index (NNFI), Comparative Fit Index (CFI), Root Mean Squared Error of Approximation (RMSEA) and the Standardised Root Mean Squared Residual (SRMR) were reported as being acceptable for the model. With regard to the correlation coefficient, a statistical significance of 0.05 (Articles 2, 3, 4, 6, 8, 9, 11, 12, 13 and 14), 0.01 (Articles 1, 2, 3, 5, 7, 8, 9, 11 and 13) or 0.001 (Articles 4, 7 and 10) was considered to be sufficient.

Limitations

Several limitations were highlighted in all the articles analysed. The limitation mentioned most frequently was the use of cross-sectional design (Articles 3, 4, 5, 7, 9, 10 and 13), as a cross-sectional analysis does not provide inference on causality. In Article 4 specific reference was made about the time-lag of innovation, which was not properly factored in. Others also referred to the time interval between innovation and measuring organisational performance (Articles 3, 6, 7, 9, 10 and 12).

The use of self-reporting (Articles 2, 4, 5, 7 and 13), which may be subject to social desirability bias, is seen as a limitation

by some. Linked to this is the lack of multiple observations to supplement the survey data (Article 1) and collecting all instruments data from the same source (Articles 4, 5 and 8) (from managers [Article 3], for example).

Some also mention that the focus on the measurement is limited. In Article 4 the concern is that only a few economic sectors (e.g., food, manufacturing, construction and services) were investigated, and in Article 14 the absence of related studies per se is deemed to be a limitation. Others were concerned that only certain elements of leadership were evaluated and other factors were excluded (Articles 1 and 6). On a similar note the use of a one-dimensional perspective of organisation performance, rather than a multi-dimensional perspective (financial, operational and organisational effectiveness) is criticised (Articles 3 and 4).

Lastly, Article 5 states that the use of subjective measures of financial performance is a key limitation and suggests that objective measures such as sales growth and earnings per share, amongst others that are assumed to reflect the fulfilment of the firm's economic goal, should be considered for future research.

Ethical considerations

Only four (Articles 8, 9, 11 and 14) of the 14 articles analysed explicitly mention how possible ethical issues were addressed. The ethical considerations incorporated by the four articles include requesting permission from the employer to conduct the study in the organisation (Articles 8 and 9), explaining the purpose of the study to participants, allowing them to participate voluntarily (Articles 11 and 14) and assuring participants that the data that they provide will remain anonymous and no names will be reflected on any of the instruments (Articles 11 and 14). Generally, it seems that journal editors are not concerned about ethical requirements (Articles 1, 2, 3, 4, 5, 6, 7, 10, 12 and 13) in investigating these phenomena.

Discussion

The aim of the study was to analyse the methodology used to investigate the relationship between leadership style, organisational climate, innovation and organisational performance using the methodology framework (research paradigm, research design, sampling, measurements, validity and reliability, data collection, data analysis and interpretation, limitations and ethical considerations) identified in the literature review.

In assessing the 14 articles retrieved it was found that the research paradigm is not explicitly reported on. This may reflect indifference or it may be because journal editors in the field are not concerned about explicitly reporting on this. The dominant paradigm used, as deduced through an analysis of the 14 articles, is a positivist paradigm.

In assessing the research design, it can be concluded that most scholars prefer to use the quantitative research design,

although others opt to supplement the quantitative method with the qualitative research design. None of the studies used a pure qualitative research design. The design of the research was thus reflective of the paradigm.

Random sampling is the most popular sampling technique used, followed by the purposive sampling technique, which in turn complements the quantitative research design and the nature of the study. However, authors appear to pay little attention to defining the population or stipulating how samples were extracted. The average sample size is approximately 176, excluding outliers. The unit of analysis included mainly organisations, although some studies use business units within one organisation.

In general, authors are diligent in reporting on the reliability and validity of the instruments used, except for two articles which are silent on validity. All studies are explicit about the measuring instruments used.

The most common measurement used for leadership style is a scale developed by Podsakoff et al. (1996) followed by the MLQ instrument. However, it is worth mentioning that the scale developed by Podsakoff et al. (1996) focuses primarily on transformational leadership style, whereas the MLQ is designed to measure various leadership styles, including both transformational and transactional leadership styles. Only two studies that assessed both transformational and transactional leadership styles used the MLQ instrument, and five studies focused exclusively on transformational leadership style. In these cases it is thus about the role of transformational leadership rather than about leadership styles.

With regard to the measurement of organisational climate, innovation and organisational performance, no commonly preferred measurement scale exists amongst scholars. Scholars choose or develop the measuring instruments based on their preferred definitions of these concepts. The absence of a standardised method of assessing climate, innovation and organisational performance makes it difficult to replicate studies or build on existing knowledge. Worth noting is that none of the studies differentiated between radical and incremental innovation, and very few studies used both financial and non-financial measures to assess organisational performance. Most studies focus on financial aspects of organisational performance. Only one study uses an objective measure of financial performance.

Structural equation modelling (SEM) is by far the most preferred analysis technique amongst scholars, although other scholars opt for the Partial Least Squares (PLS) multivariate analysis technique, confirmatory factor analysis, recursive non-saturated model and regression and correlation analysis.

Various limitations are highlighted, but the most common and, perhaps, the most important limitations are the use of a cross-sectional design, which provides for the study of a relationship between constructs but prevents the inference on causality, followed by time intervals when measuring organisational performance and the use of self-reporting techniques to gather data. The use of subjective measures of organisational performance is also mentioned as a serious limitation.

It is interesting to note that few articles explicitly mention the way in which ethical issues were managed. This may be typical of research in the domain of finance, but should also be considered in this type of research where human subjects are requested to provide information on matters such as leadership style, organisational climate and innovation.

Conclusion and recommendation

This research reports on the prevailing methods of conducting research on the relationship between leadership style, organisational climate, innovation and organisational performance. Only study 8 (Charbonnier-Voirin et al. 2010), identified in the search, investigated the relationship between all four constructs. Most of the identified studies investigated the relationship between leadership style, innovation and organisational performance, whilst others examined the relationship between organisational climate, innovation and organisational performance.

Most of the studies analysed do not, in many respects, meet the standard methodological protocols as set out in the literature. Most evident is the lack of sufficient articulation on research paradigms used, adequate reporting on the nature of the population and sampling methodology, absence of uniform measures of climate, innovation and, particularly, organisational performance. Few guidelines exist on decision-making strategies related to reported statistical results and limited acknowledgement of ethical matters. Notwithstanding, this study is valuable as it clearly sets out the customs in this area.

Researchers are urged to acknowledge the different elements of a comprehensive methodology section and apply this to their research. This will assist readers to judge the value of the research process and contribute to systematically building the body of knowledge in this field. It is important for researchers to note that the method section is the most important part of a research paper because it provides the information that the reader needs to judge the validity of the study. Therefore, providing a clear and precise description of each method subsection is a crucial aspect of scientific writing. In the same token, researchers are also urged to take cognisance of the impact of limitations of previous studies on future studies.

Implication for practice and direction for future research

Although the findings indicate that none of the studies analysed exhibit severe problems, there are many issues that need to be addressed in future research. Firstly, although

cross-sectional studies often produce results that can be generalised to all industries, sometimes the results of those studies can be misleading because such studies average the results across multiple industries and sectors: this can lead to a conclusion that is misleading. Therefore, there is a need for future studies to put more focus on specific industries and sectors.

Secondly, cross-sectional studies are by nature based on a predetermined time frame. In this regard, a longitudinal study is suggested to overcome limitations presented by cross-sectional studies.

Thirdly, in order to be more comprehensive, future research should also consider differentiating between radical and incremental innovation and explore the possibility of using both financial and non-financial measures to assess organisational performance. For studies that focus exclusively on financial measures of organisational performance, the use of objective measures is recommended.

Limitations

Although the systematic literature review was conducted in a disciplined manner, this study has limitations. Firstly, the review uses only two databases, albeit the most recognised databases of record: EBSCOhost and ProQuest. These databases may have omitted some relevant studies. Secondly, the search process was limited to indexed journals available which were peer-reviewed and written in the English language. It is not known whether the results of this article would have been different if non-indexed journals or dissertations and work published in other languages had been included in the search.

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Personal branding: A systematic review of the research and design strategies used reported in journal articles relating to critical elements of personal branding

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Personal branding is a critical element of career and life management. The aim of this article was to identify the research and design strategies and, specifically, the scientific procedures used in research articles about personal branding. The purpose was to identify a current base of scientific research and, specifically, the strategies and procedures followed by previous researchers.

A methodological framework inclusive of the critical elements of the conventional academic and scientific research process was employed to analyse the 36 identified articles (published academic journal articles) related to personal branding. In addition to that, a systematic literature review of the research and design strategies was applied to understand the status of any research completed on personal branding.

Based on the specific research protocol followed, a considerable neglect of personal branding as a topic of academic articles was identified. After the search strategy was implemented, 56 articles were initially identified of which only 36 articles met the criteria suitable for the analysis. Only two journals had published more than one article on the topic (two articles each), whilst no author published more than one article. Not one of these 36 articles was published by a South African.

In total, six articles were quantitative in approach, with a rationalistic stance, whilst five qualitative articles represented a hermeneutic approach. The hermeneutic approach was also used in the position papers, which suggests that the limited academic field of personal branding follows a hermeneutic route to create knowledge.

The results of this study indicated that limited scientific academic research has been done within the field of personal branding or on elements of the topic. Furthermore, most of the data available is subjective, without any specific scientific procedure being followed, or in some cases, with incomplete scientific procedures.

Based on the outcome of this study, it can be stated that a definite need exits to explore the phenomenon of personal branding. An opportunity has emerged to look into best practices following a recognised and acceptable scientific process and adequately formulated research process. This could result in a better understanding of the topic, a theoretical framework, and lessons learned from role models so that such a framework can continually be improved to be applicable to different professions within the South African context.

Introduction

Nelson Mandela, Oprah Winfrey, Bill Gates, Donald Trump, Richard Branson, Philip Knight, Henry Ford, Walt Disney, J.K. Rowling, Albert Einstein, Mahatma Gandhi, Mother Teresa, Princess Diana, Michael Jordan, Tiger Woods. What do all these people have in common? All of these individuals used their journey towards success as a basis to build, implement, maintain and cultivate an authentic, distinctive and memorable personal brand. However, what lessons – personal or professional – could be learned from the way these prominent individuals built their brands? Moreover, what exactly does personal branding mean? How can the concept of personal branding assist different individuals within different professions to realise their potential and to reach life and career success. Furthermore, how can academic and scientific research contribute to this topic, thus learning from the marketing field and implementing the lessons to actualise career and life success and satisfaction.

Note: This article was originally presented as a paper at the 2016 International Conference on Business and Management Dynamics (ICBMD).

Kheder (2014) refers to personal branding as the:

> process of establishing a unique personal identity, developing an active communication approach of one's brand identity to a specific target market and evaluating its impact on one's image and reputation, to fulfil personal and professional objectives. (p. 33)

Furthermore, (Karsudjono, Christianta & Eliyana 2013):

> personal branding is defined as a personal perception or emotion about a person. It is a reflection of who we are, what we believe, what we do, and how we do it. It is authentic and natural and therefore it avoids one from competition but establish a sincere focus on the value of uniqueness. (p. 628)

Thomas (2011:142–143) suggests that four critical building blocks are needed to support personal brand and to develop it into a credible, recognisable, representation of a person and their work. The four essential building blocks for personal branding are:

1. *name of the brand*
2. *message:* what the brand stands for, definite understanding of value, purpose and uniqueness
3. *channel:* multiple information streams to develop a value adding presence that builds value adding bridges
4. *development of relationships* of value, connection, partnerships and growth.

Personal branding as a topic of particular interest is evident from the large number of popular entries found on Google: at least 1 820 000 results, whilst Google Scholar shows at least 249 000 results. Amazon Books lists 2110 books when personal branding is entered into the search field. Personal branding is thus definitely a topic of interest within the public domain.

Surprisingly, when a search was done, utilising a specified search protocol, for published journal articles with regard to personal branding, only 56 articles were found of which 36 met the criteria of inclusion for analysis. It is evident that a definite limitation exists with regard to research of personal branding. This is confirmed by the fact that of these 36 articles, only 5 represented a qualitative research approach and another 6 a quantitative approach, whereas the rest (25) were position papers.

This article reports on an investigation into the current research and design strategies related to personal branding by means of a systematic literature review. A methodological framework was developed to analyse the 36 identified articles and applied to synthesise the data. The framework is inclusive of traditional research elements such as the research paradigm, research design, sampling, measurements, validity, reliability, data collection, data analysis and interpretation, limitations and ethical considerations. The findings may provide practitioners and academics with insight into the limited available research material, but above all indicate the status of the research approach towards personal branding.

Although personal branding has not yet been developed as an academic discipline, it is possible to report on some methodologies that have been used and to indicate future opportunities for research. A detailed explanation follows in the next paragraphs.

Literature review

According to Wetch (2012), the development of a personal brand begins by creating a 'positioning pitch' that includes all the information a person knows, understands and accepts, which then becomes the foundation of their personal brand and demonstrates an understanding of their real image and identity. Personal branding requires clear understanding of one's own profile including personality, strengths, weaknesses, achievements, passions and how one is perceived by others. Personal branding can only be successfully achieved if aligned with a specific life or career plan followed with a well-executed plan.

The literature review reflected in this article focused specifically on the elements which should be discussed in the methodology section of an empirical report. The subheadings which follow represent common elements included in textbooks on business research, and guidelines to authors, as presented in esteemed journals (Babbie & Mouton 2001; Bryman & Bell 2014; Creswell 2013; Neuman 1997). Apart from providing these elements (research paradigm, research design, sampling, measurements, validity, reliability, measurement scales, data analysis and interpretation, limitations and ethical considerations) each element is discussed with reference to the general concept as well as to specific ways in which it can be presented. The latter was done in order to guide the researcher to identify common and less common ways by which the phenomenon (personal branding) is researched, as suggested by Leedy and Ormrod (2013). The elements discussed below were utilised as a framework to analyse the research and design strategies used by researchers in the area of personal branding.

Research methodology

The research methodology is the scientific approach the researcher follows to pursue the research project. Below is a description of the elements that formed an integral part of the framework and applied to analyse the research and design methodologies of the articles related to personal branding. The traditional conventional academic scientific approach was structured in a framework utilised to analyse the research strategies followed by the authors in the 36 articles identified. These traditional research elements include research paradigm, research design, sampling, measurements, validity and reliability, data collection, data analysis and interpretation, limitation and ethical considerations (Babbie & Mouton 2001; Bryman & Bell 2014; Creswell 2013; Glesne 2011; Leedy & Ormrod 2013; Neuman 1997). Below follows a description of the traditional research elements used to analyse the 36 identified articles. Thus the research design of this article included all mentioned elements as described below:

Research paradigm

A paradigm is a set of laws, theories, methods, applications and a whole system of thinking that forms a scientific research tradition. It includes basic assumptions, questions to be answered and problems to be solved (Gringery, Barusch & Cambron 2013; McBurney 1994; Neuman 1997).

Within the business environment, paradigms may either objectively view the organisational processes and structures or see the organisation subjectively, as constructed by individuals. Four possible paradigms for the study of business or an organisation are suggested by Bryman and Bell (2014). The authors refer to a functionalist approach of problem solving which leads to rational explanation as a dominant approach within an organisation. Using the interpretative approach, the researcher questions whether the organisation exists beyond the social domain based on the experience of those working there. Then again, the radical humanist approach looks at the organisation as a social setup where research is seen as the initiation of change. Lastly, the radical structuralist assumes that the organisation is the result of structural power where relationships could end in conflict.

These four paradigms are not aligned with one another, as they are based on fundamentally opposing views. According to Bryman and Bell (2014), a paradigm influences the choice of research design and data collection as either qualitative or quantitative, or even a multiple approach. Choice of a paradigm is thus used as a starting point in research which leads to the research design as indicated by Mouton (1996) and discussed in the next paragraph.

Research design

Research design is the approach followed to investigate the problem at hand, inclusive of a structure to collect and analyse data. This research strategy could be qualitative or quantitative research or, in some cases, a combination, as indicated by Leedy and Ormrod (2013). Quantitative research focuses on theoretical explanations, concepts, variables and the interrelationship based on the testing of formulated hypotheses in an empirical manner. To ensure future replication, measures and intended procedures are predeveloped and standardised. Analysis normally takes place by using statistics, tables and charts (Neuman 1997). Qualitative research captures and discovers meaning whereas measures are setting-specific. Data may be obtained from documents, observations and transcripts. Research procedures are specific, and replication is normally rare. Analysis proceeds by extracting themes or generalisations from evidence and organising data to present a coherent and consistent picture (Neuman 1997).

Sampling refers to the process where a researcher will select a subset or sample of the population so that the results could be used to provide general results relating to the entire population. Two major categories of sampling exist, namely,

(1) probability sampling and (2) non-probability sampling. The type of sampling a researcher will select will depend on the aims and methods of the research as well as other characteristics, such as the time and resources available. Probability sampling allows each person an equal possibility to be chosen. It uses random selection, which allows for minimum error (Leedy & Ormrod 2013). Types of probability sampling are simple random sampling, stratified random sampling, proportional stratified sampling, cluster sampling as well as systematic sampling (Bryman & Bell 2014; Leedy & Ormrod 2013). With non-probability sampling, however, it is not possible to predict or guarantee that elements within a particular population will be represented, which means that some members have little to no opportunity to be sampled for a specific study. Convenience sampling, quota sampling and purposive sampling are all non-probability sampling types (Neuman 1997).

To ensure that data of any topic can be interpreted and compared to a specific qualitative or quantitative standard, the data should be limited through measurement. The following paragraph explains the measurement scales used to order data during a research project.

Measurements

Measurement is the assignment of numbers to events or objects according to rules that permit important properties of the objects or events to be represented by properties of the number system. Four types of measurement scales are common: nominal scale, ordinal scale, interval scale and ratio scale (Leedy & Ormrod 2013; McBurney 1994).

Reliability and validity are central issues in scientific measurements. Different techniques are followed for quantitative and qualitative studies. Reliability refers to an indicator's dependability, indicating that the information provided by indicators does not vary as a result of characteristics of the indicator, instrument or measurement device itself. It is expected that measuring instruments will offer consistent results (Leedy & Ormrod 2013; Neuman 1997). In business or social research, focus is placed on inter-rater reliability (that will evaluate the same item with the same judgement), test–retest reliability (that the same results will occur on different occasions), equivalent form reliability (that different instruments will produce the same outcome) and internal consistency reliability (for all items, the same instrument will produce the same results as indicated by Leedy and Ormrod (2013).

Both reliability and validity reflect the degree to which error is possible in measurement. Measurement can only be accurate if measured consistently. When the reliability of a measurement instrument is increased, the validity also increases (Leedy & Ormrod 2013).

The validity of a measurement instrument is the extent to which the instrument measures what it is intended to measure. The validity of a measurement instrument can take

different forms that include face validity (on the surface it looks like measuring as expected), content validity (it reflects the various parts of the content domain in appropriate proportions), criterion validity (results correlate with results from another instrument) and construct validity (it measures patterns of a characteristic that cannot be directly observed) (Leedy & Ormrod 2013).

When conducting qualitative research, external reliability, internal reliability as well as internal and external validity are recommended (Bryman & Bell 2014).

In qualitative research, validity is sometimes referred to as 'trustworthiness', which could be described as engagement and persistent observation over a longer time to facilitate trust. When applying multiple data collection methods, sources, investigators and theoretical approaches, triangulation occurs. It includes peer review and debriefing to ensure additional independent evaluation. Other techniques used to bring about trustworthiness include a search for negative cases to un-confirm the proof, explicit clarification of research bias and subjectivity, verification of thoughts and documentation as well as external independent review. Lastly an adequate research context is ensured through thick and rich writing (Bryman & Bell 2014; Creswell 1998; Glesne 2011).

Data analysis and interpretation

'Data analysis' refers to a search for patterns in data. Once a pattern is identified, it is interpreted of with regard to a theory or the setting within which it occurred, thereby providing a possible deeper interpretation of its meaning (Neuman 1997).

Although qualitative data analysis is less standardised than quantitative data analysis, it requires more effort by the researcher who is required to read, reflect and compare in a logical way through conceptualisation as well as open, axial and selective coding (Glesne 2011; Neuman 1997).

Quantitative researchers, in contrast, follow an approach of deductive reasoning, beginning with a premise and then drawing logical conclusions from that. Objectivity is maintained through predetermined statistical procedures with objective criteria to evaluate the outcomes. Data is typically reduced to means, medians, correlations and summarising statistics. One or a few variables are identified with the intention to study and collect data relating to those variables, with a focus on the validity and reliability of the measurement instruments (McBurney 1994).

Five types of main variables are relevant within quantitative research. These include dichotomous, nominal, ordinal, interval and ratio variables. Univariate analysis refers to one variable at a time, whilst bivariate analysis refers to analysing the relationship between two variables. Univariate analysis use frequency tables and diagrams. Measures of central tendency use the arithmetic mean, median and mode, whereas measures of dispersion use the range and standard deviation. Bivariate analysis uses contingency tables, and the techniques include the Pearson's correlation coefficient r, Spearman's rho as well as phi and Cramér's V. Furthermore, to verify the level of statistical significance techniques, the chi-square test is used. Some researchers manage to combine elements of both approaches, in which case the research is referred to as having a mixed-method design (Bryman & Bell 2014; Leedy & Ormrod 2013).

Limitations

Authors should acknowledge the weak points of their own studies and should indicate areas where they can be improved. The reviewer has the responsibility to ensure that the limitations are clearly indicated, particularly when the quality of the studies reviewed are not good (Green, Johnson & Adams 2006; White & Schmidt 2005).

Ethical considerations

Whenever the subjects or participants are human beings or other creatures that can feel, think and experience distress, researchers should evaluate the implications of the research approach and the effect thereof on these subjects or participants. Most ethical considerations during research fall into the following categories referring to the subjects or participants: protection from harm, voluntary and informed participation, right to privacy and honesty with professional partners. Internal review boards and professional codes of ethics play a critical role to ensure ethical research. Researchers should align with the standards of the different bodies (Bryman & Bell 2014; Leedy & Ormrod 2013).

This section concludes the discussion of the theoretical framework. In the following section, the application of the framework during the analysis phase of the study is demonstrated, with reference to research and design strategies applied in previous studies concerning personal branding.

Methodology

Data were gathered by broadly using the search guidelines set by Kable, Pich and Maslin-Prothero (2011). The data extraction was done independently by two authors, and the results were compared (White & Schmidt 2005).

The approach followed two steps to review the relevant methodology systematically. Firstly, a literature search was performed, and secondly, there was a selection of relevant studies guided by the inclusion and exclusion criteria, which are described in the paragraph below. The review was performed by both authors.

The purpose was to analyse scientific methodology (research strategies) used previously in studies relating to personal branding. The searched terms used were personal brand*, individual brand*, professional brand*, self-brand*, and

self-marketing. The asterisk allows the search engine to use all variations of the word; thus, including terms such as 'branding', 'brands' and 'branded', as an example. Publications which appeared between 2002 and 2014 were included in the search. The search was initiated on 17 June 2014, and a wide bouquet EBSCOhost and ProQuest database were used. A full list is attached as Appendix 2.

The search was further limited to full-text publications in English. Only articles which were identified as peer-reviewed were included. Although it is the ideal to have a complete operational protocol (White & Schmidt 2005:57), it was only developed after some pilot searches. Many clearly promotional titles were found, despite the specification that results should reflect peer-reviewed articles. These were excluded, as Babbie and Mouton (2012) caution that only information or data that is accepted by the scientific community should be included in building the body of knowledge.

The initial search also yielded results pertaining to the link between individuals and product brands, such as 'Place branding: creating self-brand connections and brand advocacy' (Kemp, Childers & Williams 2012). These and similar articles typical of consumer behaviour were excluded. The search was completed on 19 June 2014 using the search engines, inclusion and exclusion criteria as well as search terms as indicated above. In total 56 articles were captured during the computer search, after excluding duplications in the reach of the EBSCOhost and ProQuest bouquets. After both authors had reviewed the list, a total of 36 articles met all criteria.

The elements of research as indicated under the sections research methodology, research paradigm, research design, measurements, data analysis and interpretation, limitations and ethical considerations were used as a framework to analyse the articles and are discussed in the Findings below.

Findings

In total, 56 articles were located through the search strategy. Finally, only 36 articles were analysed after applying the inclusion and exclusion criteria of the study. The analysed articles are presented in the reference list. *The Journal of Marketing Education* (*N* = 2) and *European Journal of Marketing Management* (*N* = 2) both published two articles each, but no other journal published two or more articles. No author published more than one article. In the sections that follow, the findings will be discussed with regard to the elements of the framework utilised.

Research paradigm

It was possible to identify and report the paradigm reflected as a set of laws, theories, methods and applications that form the scientific research tradition of the articles. In total, only six articles were quantitative, reflecting a positivistic critical-rationalistic approach that acknowledges that the truth is

revealed through a focus on the rejection of the nil hypotheses. The five qualitative articles suggested the presence of hermeneutics. The position papers (in total 25 articles) also relied on hermeneutics. In most cases, the authors of the articles viewed their assumptions about certain elements of the body of knowledge in the way they gave explanations of the phenomenon. It may therefore be stated that the field of personal branding is dominated by interpretive hermeneutics towards knowledge creation, which is seen as the subjective human understanding of the phenomenon personal branding obtained by means of the process of interpretation and dialogue (Gringery et al. 2013; McBurney 1994; Neuman 1997). The next paragraph provides insight into the research design strategies identified in the analysed articles.

Research design strategies

The research design describes the general strategy planned and developed to address the research objective (Leedy & Ormrod 2013). In total, 6 articles followed a quantitative research approach (inclusive of variables, causal relationships and hypothesis testing), 5 articles followed a qualitative research approach (captured and discovered meaning from documents, observations and transcripts), whereas 25 articles were position papers (reviewing information and forming a subjective opinion (Leedy & Ormrod 2013; Neuman 1997). The next paragraph offers a reflection of the sampling methods in the different articles that were analysed.

Sampling

Sampling is a process of selecting cases systematically for inclusion in a research project. The framework in Table 1 both provides a summary of the identified sampling procedures and shows how it was applied to analyse the sampling approach followed in the articles (Leedy & Ormrod 2013; Neuman 1997).

Based on the summary presented in Table 1, it is clear that the sampling method used most frequently was probability sampling, with three cases of simple random sampling and two cases of cluster sampling. A propositional stratified sample was used in one of the articles. When non-probability sampling was used, it was only purposive sampling. This occurred in five cases. No evidence of stratified random, systematic, convenience and quota sampling could be identified. Most papers were position papers, which is the reason for the absence of any sampling technique in 26 of the 36 articles. This is the most striking feature of Table 1. The next section provides an overview of the types of measurement scales used in the 36 articles that were analysed.

Measurements scales

Four types of measurement scales are available for the limiting of data so that it can be interpreted. Table 2 simultaneously summarises the framework to analyse the

TABLE 1: Frequency of use of sampling techniques.

Sampling category	Sampling approach	Article
Probability sampling	Simple random sampling	$N = 3$ (23, 29, 19)
	Stratified random sampling	$N = 0$
	Proportional stratified sampling	$N = 1$ (24)
	Cluster sampling	$N = 1$ (14)
	Systematic sampling	$N = 0$
Non-probability sampling	Convenience sampling	$N = 0$
	Quota sampling	$N = 0$
	Purposive sampling	$N = 5$ (7, 15, 19, 18, 21)
No sampling utilised or indicated per article		$N = 26$ (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 16, 17, 20, 22, 23, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36)

Source: Leedy & Ormrod (2013)

TABLE 2: Frequency of use of sampling technique.

Measurement scale	Article
Nominal scales	$N = 5$ (7, 18, 21, 24, 29)
Ordinal scales	$N = 2$ (19, 27)
Interval scales	$N = 0$
Ratio scales	$N = 0$
No scales utilised or indicated per article	$N = 29$ (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 20, 22, 23, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36)

Source: Leedy & Ormrod (2013)

TABLE 3: Frequency of use of validity techniques.

Validity approach	Article
Face validity	$N = 0$
Content validity	$N = 2$ (14, 21)
Criterion validity	$N = 0$
Construct validity	$N = 2$ (15, 27)
No specific validity approach utilised or indicated per article	$N = 32$ (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36)

Source: Leedy & Ormrod (2013)

TABLE 4: Frequency of use of reliability techniques.

Reliability approach	Article
Inter-rater reliability	$N = 2$ (18, 19)
Test–retest reliability	$N = 0$
Internal consistency reliability	$N = 1$ (29)
Composite reliability	$N = 1$ (15)
No specific reliability approach utilised or indicated per article	$N = 32$ (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 20, 21, 22, 23, 24, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36)

Source: Leedy & Ormrod (2013)

TABLE 5: Frequency of use of data analysis and interpretation approaches.

Data analysis and interpretation approach	Article
Qualitative (inductive reasoning)	$N = 5$ (3, 7, 8, 14, 24)
Quantitative (deductive reasoning)	$N = 6$ (15, 18, 19, 21, 27, 29)
No data analysis (positioning paper)	$N = 25$ (1, 2, 4, 5, 6, 9, 10, 11, 12, 13, 16, 17, 20, 22, 23, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36)

Source: Leedy & Ormrod 2013

measurement scales used in the articles and reports on the utilisation of nominal, ordinal, interval and ratio scales (McBurney 1994).

Although nominal and ordinal scales were used in seven articles, ordinal and ratio measurement scales could not be identified in the articles; thus, their use were very limited. In the next section, a report on the validity and reliability status of the analysed articles is given.

Validity and reliability

The validity of a research project is anchored in its credibility, its meaning and its correctness. Validity empowers the researcher to draw value-adding and defensible conclusions from the available data. Reliability, on the other hand, focuses on the consistency of how a measurement instrument provides results (Leedy & Ormrod 2013).

Table 3 indicates the framework used to analyse the level of validity of the measurement instruments identified in the articles and the result of the analysis (Leedy & Ormrod 2013).

Only four of the six quantitative studies presented information on the validity of their measurements, which included content and construct validity. No evidence of face and criterion validity could be identified. Furthermore, 32 of the 36 articles did not give any attention to any validity technique.

To ensure accurate measurement, the instruments utilised should provide consistent results. Table 4 demonstrates the reliability approaches identified in the articles used (Leedy & Ormrod 2013).

Again, only four of the six quantitative studies presented information on the reliability of their measurements. This included inter-rater reliability, test–retest reliability as well as composite reliability. On the other hand, 32 articles did not specify any reliability approach followed. The paragraph 'Data analysis and interpretation', under the heading 'Findings', reports on data analysis and the interpretation of the data.

Data analysis and interpretation

Normally, a researcher will look into data analytically to gain new insights and discover new research objectives. Patterns are identified and interpretation for further meaning is performed. Either qualitative (inductive reasoning) data analysis approaches are followed or otherwise quantitative (deductive reasoning) data approaches are followed. Table 5 indicates the different data analysis approaches identified.

Again, only five qualitative approaches were followed. Six approaches were quantitative and 25 approaches did not

follow any data analysis and interpretation route as they were pure positioning papers. Based on the information discussed in this section, a summary of the limitations indicated in the articles is presented in Limitations.

Limitations

It is of the utmost importance that during the review of academic articles, the reviewer indicates the limitation identified (White & Schmidt 2005). In only four articles, the researchers explicitly report the limitations of their studies. A brief summary of the limitations offered by the articles reviewed follows:

- Article 19 indicated that the basis for the construction of the data set was largely the CVs of 30 scholars in the field with no standardised format, and not all factors were reported on in a consistent manner (Noble et al. 2010).
- Article 21 indicated that the sample of the study was limited to business students from a single business school (McCorkle et al. 2006).
- Article 27 indicated that the research finding did not present a picture of the entire student population (Rigopoulou & Kehagias 2008).
- In Article 29, a low response rate influenced the results negatively (Schults & Sheffer 2012).

However, 32 articles did not indicate any specific limitations.

Ethical considerations

Table 6 indicates and reports on the ethical considerations reflected or identified in the research described in the articles reviewed (Leedy & Ormrod 2013).

Only one article (Article 19) focused on the voluntary and informed participation right of respondents, and one article indicated the right to privacy, whereas no reference was made to internal review boards or professional ethical codes in any of the articles.

For Article 19, the subjects in the sample received a cover letter from the principal investigator describing the nature of the study, ensuring confidentiality and asking for co-operation (Noble et al. 2014). In Article 33, students were assured of anonymity, and there were indications that the students would be assisted to look for work opportunities after graduation (McCorkle et al. 2003).

TABLE 6: Ethical consideration identified in articles reviewed.

Ethical considerations	Article
Protection from harm	$N = 0$
Voluntary and informed participation	$N = 1$ (19)
Right to privacy	$N = 2$ (19, 21)
Honesty with professional partners	$N = 0$
No ethical considerations indicated per article	$N = 34$ (1, 2, 3, 4, 5, 6, 7, 8,9 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 34, 36)

Source: Leedy & Ormrod 2013

Conclusion
General summary

Branding the person is becoming more critical for career and organisational success as a result of the new trend of freelance contract work arrangements as well as outsourcing of non-core services and business activities, but also the growing trend of employing part-time consultants. A personal brand is normally based on an individual's personal or professional reputation, which could result in personal or organisation revenue from a career management perspective if maintained and sustained according to the market needs. As with any business brand, this could be seen as a critical element of life and/or career success.

Summary of methodology followed

An element of silence with regard to the topic of personal branding was identified within the academic world when the authors conducted a search for published peer-reviewed journal articles. Publications which appeared between 2002 and 2014 were included in the search. A wide bouquet of EBSCOhost and ProQuest databases were used. It was limited to full-text publications in English, which had to be peer reviewed. The purpose of the study on which this article reports was to conduct a systematic literature review of the research and design strategies used in the journal articles related to personal branding. After a literature review had been conducted on research and design strategies, a methodological framework was developed to analyse the articles. The framework was inclusive of research elements such as research paradigm, research design, sampling, measurements, validity, reliability, data collection, data analysis and interpretation, limitations of studies and/or research and ethical considerations. The framework was used to structure the reporting of findings.

The literature provided an opportunity to summarise the methodological framework in a workable manner. It was concluded that a paradigm is a set of laws, theories, methods and applications that form a research viewpoint. Furthermore, a research design can follow a quantitative (objective causal logic with interrelationships resulting in empirical evidence) or a qualitative approach (subjective discovering of meaning). It is also necessary to ensure that the results of a study present the total population researched. It is not always possible to include every respondent, and therefore the process of sampling assists the researcher to select a sample of the population, giving a generalised result if truly a representation of the population. The different sampling methods explored in this study included probability sampling (simple random, stratified random, proportional, cluster and systematic sampling) as well as non-probability sampling (convenience, quota and purposive sampling). The authors further looked into measurement, validity and reliability of data. When developing the framework, four types of measurement scales were included, namely nominal, ordinal, interval and ratio scales. Furthermore, the validity of measurement analysis included face, content, criterion and construct validity.

Then again, analysis of the reliability, which is the consistency with which results are presented, was performed based on interrelated, test–retest as well as internal consistency reliability. Furthermore, the authors evaluated the process of data analysis followed in the articles, which could either be quantitative (objective deductive reasoning) or qualitative (subjective inductive reasoning) by nature and, in some cases, a combination could be followed. The authors then went further to identify the limitations of the research articles and evaluated the ethical considerations applied and indicated in the articles.

New knowledge relating to the study based on analyses of the articles

In total, 56 articles were located based on the search strategy. Only 36 articles were analysed following the inclusion and exclusion criteria. The *Journal of Marketing Education* as well as the *European Journal of Marketing* both published two articles each relating to personal branding. No author published more than one article, and no South African author published an article. In total, six articles were quantitative by nature following a rationalistic stand, and five qualitative articles represented a hermeneutic approach.

The position papers also followed a hermeneutic approach which suggests that the field of personal branding follows a hermeneutic route to create knowledge. Simple random sampling was used by three research articles; one used proportional stratified sampling and five purposive sampling. It was interesting to note that 26 of the articles did not follow any sampling process. In total, 7 articles made use of measurement scales, namely 5 nominal scales and 2 ordinal scales. The search showed that 29 articles did not indicate any utilisation of measurement scales.

Surprisingly, 34 articles did not indicate any utilisation of a specific validity approach, 2 used construct validity and two used content validity. This same trend emerged when it was identified that 32 articles did not report on a specific reliability testing technique, although one referred to composite reliability, one to internal consistency reliability and two to inter-rater reliability. Of the 36 articles, only 5 authors reported and indicated limitations of the research article, and, again, only 5 authors reported on the ethical considerations applied.

The results of this study indicated that limited scientific academic research has been conducted within the field of personal branding or on elements of the topic. Furthermore, most of the data available is subjective, without any specific scientific procedure being followed, or in some cases, with incomplete scientific procedures utilised.

Based on the outcome of this study, it can be stated that a definite need exits to explore the phenomenon of personal branding. An opportunity has emerged to look into best practices following a recognised and acceptable scientific process and adequately formulated research process. This could result in a better understanding of the topic, a

theoretical framework, and lessons learned from role models so that the framework can be continually improved to apply to different professions within the South African context.

Notes to future researchers

The results of this study indicate that very limited scientific academic research has been done within the field of personal branding. In addition, the scope of the published research on the topic regarding the field and elements of the phenomenon is limited. Furthermore, most information available is based on subjective views and reviews by authors without any specific scientific procedure, or in some cases, incomplete scientific procedures that exclude critical elements of the recognised and accredited research processes to be followed.

Based on the outcome of this study, it could be stated that there is a definite need to explore the phenomenon of personal branding. There could be a wealth of knowledge available that refers to individuals who have implemented a personal branding strategy successfully. This knowledge may potentially be studied and formulated into frameworks, models and theories from the perspective of different paradigms. When a recognised and acceptable scientific process and soundly formulated research design is used, it will be possible to identify and study best practices.

The field of personal branding provides huge opportunities for future researchers because of the lack of well-formulated scientific research at present. It is likely that personal branding could become more important to the individual in future irrespective of whether the concept will be applied from a personal, professional, entertainment, sport or political space or platform. Therefore, the individual would benefit from applying sound principles in managing, aligning and sustaining his or her life and career. One of the options could be to learn lessons from business principles with a specific focus on marketing and branding to enhance and sustain career and life aspirations and goals. Furthermore, business could benefit from a meaningful understanding and acknowledgement of individuals based on their uniqueness. Personal branding also has the potential to add value on a bigger scale within society from both a skills application and career management perspective.

Limitations of the study

The articles represented international authors and journals. No South African authors and journals could be found.

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An approach to Six Sigma implementation in Cape Town enterprises

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The primary aim of this research was to develop a structured single alternate process for the implementation of Six Sigma to ensure its successful implementation for organisations in Cape Town. To achieve this aim, a survey method was used to collect data from randomly selected small and large respondents from manufacturing and service organisations located in Cape Town. All the collected data were analysed through the statistical package for social sciences (SPSS). The descriptive statistics are presented in tables and charts. Firstly, from the analyses, it was discovered that the majority of participating organisations that implemented Six Sigma were from the manufacturing sector and employed it before and after the year 2000. Secondly, the main reasons for implementing Six Sigma were to improve product and/or service quality and to reduce costs. Thirdly, the participating organisations gave less consideration to some critical elements of Six Sigma implementation. The study concluded by proposing an alternative approach to implementing Six Sigma for business organisations. The proposed framework consists of some critical and soft elements that play a critical role in the successful implementation of Six Sigma.

Introduction and background

To effectively respond to the constant flexibility of customer demands, many quality initiatives have been developed to assist business organisations in the quest for excellence. Currently, the most used quality concepts by organisations throughout the world are ISO 9001:2008, Total Quality Management, Just in Time, and Six Sigma. Amongst these quality initiatives, Six Sigma has emerged as the most powerful quality improvement strategy that can be applied in every segment of business activities such as manufacturing, service, large, medium or small organisations and all the divisions of the value chain (Antony 2009:274). Six Sigma is a quality improvement philosophy that incorporates management strategies and statistical techniques in a well-structured and disciplined fashion to optimise business activities (Basu & Wright 2012). It focuses on variation reduction in all processes by involving top management and the operating force to achieve customer satisfaction and financial return. Six Sigma was pioneered by Motorola in the late 1980s as a mechanism to streamline organisational performance with the emphasis on minimising quality cost by means of defect reduction.

Quality management has evolved over the years from a simple product inspection to a modern management system that requires the involvement of the entire workforce and other stakeholders to work closely toward customer satisfaction. Whilst developed countries have monopolised the world market with higher quality products, developing countries have adopted export promotion as a development strategy, but their performances in the global market remain meagre (Mersha 2000:119). Many factors, including the inability to meet defined quality standards as required by international customers, have contributed to the inadequate performance of the enterprises from developing countries (Mersha 2000:119). In South Africa (SA), business organisations have adopted several quality initiatives to cope with the challenges of globalisation. Six Sigma is one of the quality initiatives that many businesses in SA are using, or are considering, as a mechanism to strengthen their product or service quality.

However, Conorado and Antony (2002:92) state that less than 10% of organisations worldwide have recognised the remarkable effects of Six Sigma in boosting their productivity and financial profit. These contrasting results explain the complexity and some critical aspects behind Six Sigma implementation that organisations in SA must recognise when implementing Six Sigma.

Research problem, question and objectives

Problem statement

Against the above background, the research problem statement for this research reads as follows:

> Cape Town business organisations that implement Six Sigma do not consider critical implementation issues associated with the quality concept, resulting in either inefficient implementation or a product that does not deliver on expectations.

Research question

The research question forming the crux of this study reads as follows: 'Can a structured single alternate process be developed for the implementation of Six Sigma to ensure successful implementation thereof in a business organisation?'

Research objectives

The following are the main objectives of the study:

- to explore the benefits of the implementation of the Six Sigma quality management system
- to determine key factors that can influence the Six Sigma implementation in the context of the Cape Town business organisations
- to formulate a structured single process to aid the successful implementation of Six Sigma in the Cape Town business organisations.

Six Sigma: A literature review

Background to Six Sigma

Antony and Banuelas (2002:26) point out that the Six Sigma quality management system was first pioneered at Motorola Corporation (US Electronic manufacturer) in the late 1980s as a mechanism to streamline organisational performance with the emphasis on minimising quality cost by means of defects reduction. As Motorola's success became popular, Six Sigma was registered as its trademark, and many companies in the USA (General Electric, Raytheon, Allied Signal, Honeywell, Sony, Caterpillar, American Express, Ford and Johnson) adopted this concept and, consequently, returned incredible results (Breyfolgle 2003:5; Senapati 2004:683). Antony (2009:274) found that currently companies across the world ranging from small businesses, private and public to large organisations have adopted Six Sigma to substantially improve quality level, customer satisfaction, market share, employee morale, organisational culture, people development, return on investment and much more. The Six Sigma objective is to reduce a process variation, which will result in no more than 3.4 Defects Per Million Opportunities (DPMO). The 3.4 DPMO are calculated on the basis that every process is likely, or tends to increase its variability over time because of unavoidable assignable causes such as loss of calibration of measuring equipment, wear and tear of machines, operator fatigue, supplier quality variation and variation in temperature (Biehl 2005).

Six Sigma defined

Six Sigma has various perceptions and is defined in the literature and by people in different ways. According to Raisinghani et al. (2005:491), defining Six Sigma in simple terms is not possible because it consists of a problem solving methodology that focuses on optimising financial returns as well as culture change within an organisation. Furthermore, the research of Kwak and Anbari (2006:708–709) and Antony and Banuelas (2002:21) pointed out that Six Sigma definitions can be categorised in two segments that cover business and statistical explanations.

Six Sigma business definitions

Antony and Banuelas (2002:21) define Six Sigma as a strategic business improvement mechanism used to optimise profitability, remove waste, reduce cost of quality and enhance the effectiveness and efficiency of all operations to meet, or go beyond customers' requirements and expectations. Chou and Su (2008:2694), De Mast and Lokkerbol (2012:604) are of the opinion that Six Sigma is a top-down initiative led by top management. Trained personnel who work on projects that are aimed to scale down waste and mistakes, to provide processes that create value and lead to the improvement of product and service quality, and customer satisfaction. Ditahardiyani, Ractnayani and Angwar (2008:178) note that Six Sigma is a business management process for continuous process and product quality improvement that provides tangible business results to organisations and enhances operational excellence.

Statistical definition of Six Sigma

Black and Revere (2006:259) describe Six Sigma as a methodology used to assess a process capability with regard to its abilities to deliver outputs that meet or exceed customer requirements. Six Sigma is a quality-oriented philosophy that seeks a process of ±6 sigma variation even if a process means shifts by ±1.5 sigma that result in a maximum of 3.4 DPMO (Motwani, Kumar & Antony 2004:273). Antony (2008:107) is of the opinion that Six Sigma is a concept that relies on statistical techniques to identify, analyse and solve problems that result in a noticeable reduction of impediments in all aspects of business organisation. Eckes (2001:11) advocates that Six Sigma is a concept that provides a statistical measurement of a product or service performance by identifying problems, establishing root causes, formulating and testing hypotheses and maintaining processes that search for ways to improve customer satisfaction.

Key elements for Six Sigma implementation

Companies embarking on Six Sigma implementation programmes have shown contrasting results because of the complexity of this methodology. Therefore, attention must be drawn to the key elements of Six Sigma to make implementation possible. Conorado and Antony (2002) state that:

Critical success factors are those factors which are critical to the success of any organization in the sense that, if objectives associated with the factors are not achieved, the organization will fail – perhaps catastrophically. (p. 93)

Consequently, the importance given to key input variables for the successful management of a process output can be attributed to Six Sigma critical success factors for an effective completion of a Six Sigma programme (Antony & Banuelas 2002:21). The key elements below are identified from the existing literature as critical to Six Sigma implementation (Manville, GreatBanks, Krishnasamy and Parker 2012:13).

Management involvement and commitment

Henderson and Evans (2000:269) noted that those who implemented Six Sigma had agreed that top management involvement is the most critical factor for a Six Sigma programme. Kwak and Anbari (2006:712) propose that a Six Sigma implementation requires top management involvement, dedication, project selection and review, resource provision and training. Furthermore, the research of Pyzdek (2000) suggests that senior management should be taught the Six Sigma principles needed for the preparation of their organisation on the brink of adopting this concept. Moreover, Antony and Banuelas (2002:21) found that a lack of top management support and commitment toward the Six Sigma implementation would simply jeopardise the time, energy, resources and enthusiasm behind this concept.

Culture change

Conorado and Antony (2002:93) argue that as a breakthrough management strategy, Six Sigma involves changing an organisation's traditional culture to enable its welcoming implementation. A successful introduction of Six Sigma implementation requires a total organisation culture shift where a transfer of the responsibility regarding product process quality is given to employees (Antony & Banuelas 2002:21).

The research of Kwak and Anbari (2006:713) asserts that addressing factors such as the communication channel, overcoming resistance to change and the education of senior management, employees and customers on Six Sigma benefits are required to enable a cultural change of individuals who are reluctant to adopt the Six Sigma implementation programme.

Communication

Henderson and Evans (2000:277) propose that the cultural change that requires Six Sigma introduction and its implementation brings two fundamental fears: fear of change and fear of not keeping up with the new standard. A good communication plan addressing Six Sigma methodology, its benefits and how it is related to people's work, is an important way to reduce or drive out reluctance to change (Conorado & Antony 2002:94).

Organisational infrastructure

On one hand, the main reason why only 10% of Total Quality Management (TQM) implementation succeeded was the lack of tangible infrastructure to support its introduction. On the other hand, Six Sigma provides an adequate organisational structure with a clear role and responsibility to ensure success when implementing this approach. Henderson and Evans (2000:270) point out that reaching the long term target of 3.4, DPMO requires a complete commitment of each component of the value chain and an active participation by everyone with specific roles and responsibilities within an organisation. The employees in an organisation practising Six Sigma are seen as catalysts who institutionalise change and are highly trained in statistics, problem solving and leading the group in selecting and completing Six Sigma projects (Antony & Banuelas 2002:22; Henderson & Evans 2000:270). According to Anbari and Kwak (2004:5) a Six Sigma project is selected, performed, accomplished and reviewed by individuals who are ranked according to a belt system in a powerful matrix organisational structure, as follows:

• champion
• master black belt
• black belt
• yellow belt
• green belt (Assarlind, Backman, Gremyr 2013:398).

Training

Pyzdek (2000) proposes that basisc skills should be provided to all employees to ensure that relevant literacy and numeracy skills are processed by everyone. Literacy and numeracy skills will allow employees to grasp the fundamental principles behind the tools and techniques of Six Sigma during training sessions (Kwak & Anbari 2006:713). There is usually a hierarchy of experts denoted by the belt system (refer to 'Organisational infrastructure') who receive special training on Six Sigma principles. These experts then spread the training to the rest of the organisation to ensure that everyone speaks the same language during project selection, execution, completion and implementation (Antony & Banuelas 2002:22).

Project management skills

Owing to the fact that most of the Six Sigma projects failed as a result of poor project management knowledge and a lack of meeting roles and responsibilities, it would be wise for a project team to possess project management skills that will allow them to meet the milestones of different project phases (Antony & Banuelas 2002:22).

Project prioritisation and selection, reviews and tracking

The selection of the Six Sigma project has to be a well thought out process because a wrong selection approach will delay results and increase time, money and frustration (Antony 2006:243; Antony & Banuelas 2002:22). For an efficient completion of a Six Sigma project, champions, black belts, green belts and project managers have to look at some critical aspects of project management such as time, cost and quality. These aspects will help them to identify the project scope, objectives and resources needed to accomplish a project at a very competitive cost to meet the specific business objectives

(Conorado & Antony 2002:98). A project review system is another means to assess the status of the Six Sigma project to ensure its completion and closure (Kwak & Anbari 2006:712). Moreover, a tracking mechanism of projects and documentation should be put in place to ensure that all completed, accepted and implemented projects can be tracked for further information regarding project constraints and best practices (Antony & Banuelas 2002:23; Kwak & Anbari 2006:712).

Understanding the Six Sigma methodology, tools and techniques

According to Antony and Banuelas (2002:23), most of the Six Sigma training involves the rationale behind the DMAIC methodology, the tools and techniques for process improvement. Dogu and Firuzan (2008:1102) state that process improvement methodology is a tactic used to identify process problems, measure, analyse, and find solutions in order to implement and sustain the most efficient way of operating that will lead to an enhancement of the organisation's business practice. As a problem-solving methodology, Six Sigma makes use of a generally accepted and well-defined continuous improvement framework known as DMAIC (Antony 2006:239; Eckes 2003:29). The letter (D) represents the definition of the problem, (M) measures the problem, (A) analysis of data, (I) improvement of the process by removing root causes of defects and (C) controlling or monitoring process to prevent problems. Moreover, many authors argue that Six Sigma is an approach when used effectively; it minimises variability from any process or product by using the DMAIC methodology or a design and/or redesign for Six Sigma (DFSS). The DFSS is a methodology used when a process has to be designed or redesigned. The DFSS follow a sequence known as DMADV, which means Define, Measure, Analyse, Design and Verify.

The frequently used tools and techniques for a Six Sigma project or process improvement are listed in Table 1. It is important to point out that these tools and techniques are not new but were brought together in a very disciplined and systematic manner to gain significant benefits when tackling process quality related problems (Antony 2006:241).

Linking Six Sigma to business strategies

The overall goal of every business organisation is to make profit and this can be achieved by substantial cost saving generated from the reduction of process variation, which implies 3.4 DPMO. This means fewer customer complaints, lower quality and production costs and, finally, higher income (Coronado & Antony 2002:95–96). This is what Six Sigma strives to achieve (Ingle & Roe 2001:274). Six Sigma cannot be treated as another isolated activity, therefore the link between Six Sigma project and business strategy has to be obvious so that the result illustrates a fully integrated philosophy into a business culture rather than just a limited usage of a few tools and techniques (Antony & Banuelas 2002:23). This has to be demonstrated in monetary terms and how it can be used to strengthen the business strategy (Coronado & Antony 2002:96).

Linking Six Sigma to the customer

Customer satisfaction is an ultimate goal for business survival, and Six Sigma revolves around the concept of critical to quality characteristics (most important attributes for the customer). Critical to Customer characteristics can be quantified by means of a tool called Quality Deployment Function (QDF), which translates the needs and customer requirements into engineering language that lead to customer satisfaction (Antony & Banuelas 2002:43). Therefore, all projects should begin with the determination of customer requirements that everyone in the value chain should strive to achieve.

Linking Six Sigma to human resources

A human resource based action is needed to be put in place to promote desired actions and results, ensuring the long term requirement of 3.4 DPMO of the Six Sigma goal (Henderson & Evens 2000:275). The study of Antony and Banuelas (2002:23) states that 61% of top Six Sigma companies have linked reward schemes to business strategy,

TABLE 1: Frequently used tools and techniques.

The seven basic quality control tools	The seven management tools	Other tools	Techniques
Cause and effect diagram	Affinity diagram	Brainstorming	Benchmarking
Check sheet	Arrow diagram	Control plan	Design of experiments
Control chart	Matrix diagram	Flow chart	Failure mode and effects analysis (FMAEA)
Graphs	Matrix and data analysis method	Force field analysis	Fault tree analysis
Histogram	Process decision	Hypothesis testing	Process capability analysis
Pareto diagram	Programme chart	Process mapping	Poka joke
Scatter diagram	Relations diagram	Questionnaire	Problem solving methodology
	Systematic diagram	Sampling	Quality costing
		Gant chart	Quality function deployment (QFD)
		SERVQUAL	Quality improvement teams
		Regression and correlation analysis	Statistical process control (SPC)
		SIPOC	
		Project Team Charter	
		Kano Model	

Source: Antony 2006:242

whilst underperforming organisations do not emphasise this linkage. Henderson and Evans (2000) state the following:

> Any employee at GE Appliances who wants to be considered for promotion must be Six Sigma green belt-trained. This also includes senior executives. In fact, across all GE businesses, no one will be promoted without the full Six Sigma training and a completed project. This in itself is an impressive behaviour driver. (p. 276)

Adding specific Six Sigma sections to the annual performance evaluation form and awarding executive compensation based on Six Sigma goals attainment are two other reasons for linking Six Sigma to human resources (Henderson & Evans 2002:276–277).

Linking Six Sigma to suppliers

Most business organisations using Six Sigma cannot operate without outsourcing some raw materials, and extending Six Sigma to suppliers becomes a necessity to ensure that variability will be reduced in order to fulfil the needs of customer requirements (Coronado & Antony 2002:97). To achieve this, Six Sigma companies must ensure the following:

- Supplier must actively participate in the dynamic of culture change that arrives with Six Sigma by obtaining upfront support from their leadership (Antony & Banuelas 2002:23).
- A criteria selection of suppliers based on an acceptable Six Sigma performance capability level will make certain that only those with a Six Sigma culture can be part of the value chain and, for that reason, deliver raw materials (Antony & Banuelas 2002:23; Coronado & Antony 2002:97).
- Given the interdependence between an organisation and its suppliers, a solid, mutually beneficial relationship will enhance the ability of both to create value that will lead to a bottom line of customer satisfaction.

Research methodology and data collection

A survey was applied to collect quantitative data to achieve the research objectives and to address research questions. The quantitative data application requires a data collection instrument such as the questionnaire. This instrument was designed and administered using simple random sampling and snowballing (with known contact) methods. In simple random sampling, each member of the population has the same chance of being included in the sample, and each sample of a particular size has the same probability of being chosen (Welman, Kruger & Mitchell 2005:69). Snowballing sampling, however, starts with an initial network of known contacts to ensure that only respondent individuals having enough knowledge of the research problem are selected and interviewed. The sample selection method used to identify and select respondents was also applied to select participating organisations that are using Six Sigma in Cape Town. In total, 22 organisations in Cape Town participated in the study and 22 questionnaires out of 60 were returned.

All the returned questionnaires were captured for data analysis.

Analysis of results

To ensure content reliability, the Cronbach Alpha test was performed on each of the questions and/or statements posed to respondents. Nunnally (1978:245) states that the Cronbach's Alpha Coefficients for each item in the measuring instrument must be more than 0.70. For this questionnaire, the Cronbach's Alpha Coefficients of each statement was more than 0.70 (acceptable level,) and thus these items (statements) in the questionnaire prove to be reliable and consistent. The descriptive statistics for all the categorical demographic variables as well as the frequencies in each category and the percentage out of the total number of questionnaires were calculated. Only the data from respondents who completed the entire questionnaire were used in the inferential statistics. The research results are illustrated below.

Descriptive statistics for sample

The results depicted in Figure 1 indicate that the main function of the organisations that took part in this survey, is mostly manufacturing (91%) whilst only 9% is services.

From Figure 2, it can be inferred that just over 40% of the respondents pursued the Six Sigma philosophy for more than 10 years, whereas only 40% pursued the Six Sigma philosophy for 1–3 years. Nearly 10% pursued the Six Sigma philosophy for 4–5 years.

Table 1 in Appendix A1 shows the reasons envisaged for implementing Six Sigma. The responses to this question, on the one hand, reveal that 45% of the respondents are convinced that their organisations implemented Six Sigma to reduce costs of operations and to improve product and/or
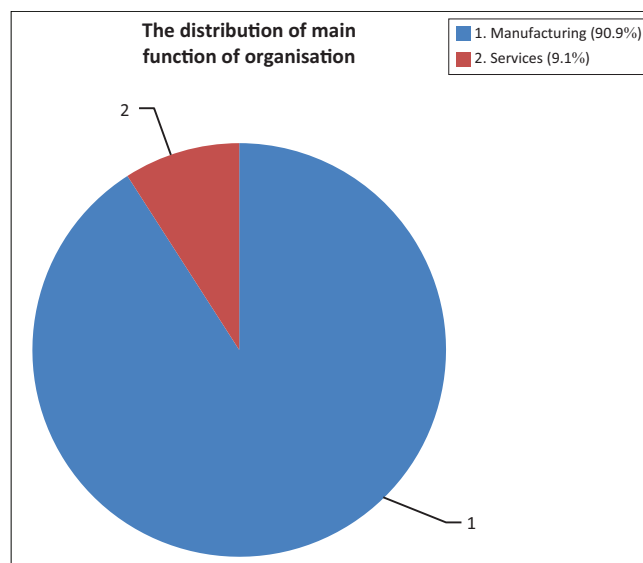
Source: Nguenang 2010

FIGURE 1: Main function of organisation.

service quality. On the other hand, 41% of respondents strongly believe that they have implemented Six Sigma to improve customer satisfaction.

In Table 1 in Appendix A2, between 32% and 41% of the respondents strongly agree with the question and/or statement of having key personnel driving Six Sigma in their organisation, with only 41% of respondents convinced that their organisations have involved process leaders and employees during the Six Sigma projects programme. Meanwhilst, 36% of the respondents were certain that their organisations each had a full-time black belt Six Sigma champion. This situation makes it possible for each to implement the Six Sigma quality management system without having key personnel driving Six Sigma in their organisation.

The responses received from the questions in Table 2 in Appendix A2 indicate that between 32% and 36% of respondents strongly agree that their organisations use DMAIC and DFSS.

With only 36% of respondents convinced that their organisations have deployed the DMAIC methodology during the process improvement project, this creates the possibility that organisations implementing the Six Sigma quality management system will experience problems such as lack of awareness and use of the DMAIC methodology during process improvement.

Table 1 in Appendix A3 reveals that between 9% and 32% of respondents strongly agree there is not an effective mechanism in place to ensure success in most of the participating companies that have implemented Six Sigma. This means that, although the majority of companies implemented the Six Sigma philosophy, fewer than 32% of the companies are actually sure of having an effective mechanism in place to ensure success. Therefore, the 18% – 59% agreement observed in Table 5 is an indication of implementation challenges (such as poor training, reward scheme and communication) that may prevail in most of the companies, whilst other companies have failed to implement the Six Sigma programme to take advantage of the implementation benefits. These companies represent a response of only 4.6% – 22.7% who strongly disagree and 9% – 32% who disagree.

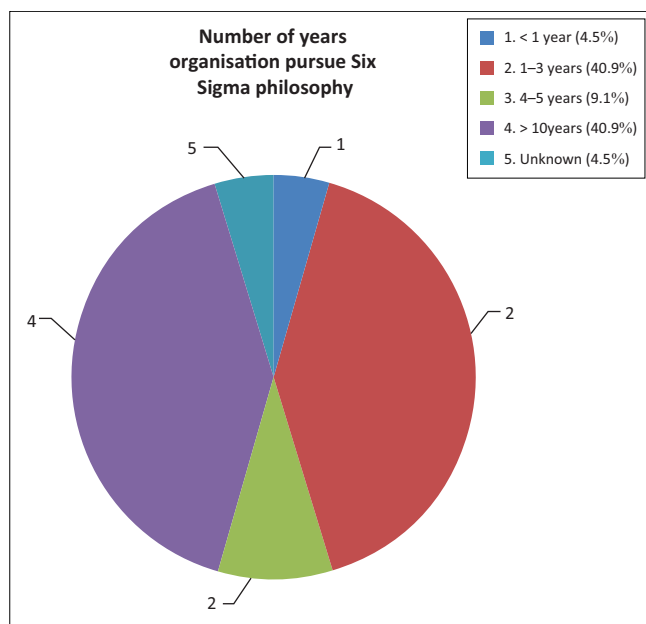With regard to the questions in Table 1 in Appendix A4, from 45%–64% and 5%–23% of respondents agree and strongly agree respectively, with only 5%–23% of respondents actually convinced that their organisations have used the Six Sigma tools and techniques for process improvement. This situation creates the possibility of an organisation implementing the Six Sigma quality management system without using the tools and techniques of Six Sigma for process improvement.

The response received from the questions in Table 5 (in Appendix A5) reveal that between 4.6% and 18% and from 18% to 68% of respondents strongly agree and agree, respectively. This means that, although the majority of companies have implemented the Six Sigma, at most 18% of the companies are actually convinced that top management commitment is high in their organisations. A response of between 18% and 68% of respondents who agree is an indication of implementation challenges (such as lack of employee empowerment and encouragement for change)

Source: Nguenang 2010

FIGURE 2: Number of years organisations pursue Six Sigma philosophy.

TABLE 2: Key ingredients for Six Sigma implementation in your organisation.

Variable	*N*	Mean	Standard Deviation	Median	Range
Understanding of Six Sigma methodology, tools and techniques	22	3.95	1.1329	4	3
Training	22	3.86	0.8335	4	2
Top management involvement and commitment	22	3.82	0.5011	4	2
Organisation infrastructure	22	3.64	1.2168	4	4
Communication	22	3.54	0.9625	4	3
Linking Six Sigma to customer	22	3.54	1.2239	4	4
Project selection and prioritisation, review and tracking	22	3.41	0.8541	3	3
Culture change	22	3.27	0.827	3	3
Linking Six Sigma to supplier	22	3.27	1.032	3	4
Linking Six Sigma to business strategy	20	3.15	1.0894	3	4
Project management skill	22	3.09	1.065	3	4
Linking Six Sigma to human resources	22	2.72	1.032	2	4

Source: Nguenang 2010

that may prevail in most of the companies. It is important to point out that management commitment is not visible at all when implementing Six Sigma in some companies. These companies represent only 4.6% – 27.3% who disagree and 9% who strongly disagree.

Moreover, respondents were asked to show how the key elements of Six Sigma are prioritised in their organisations. The results in Table 2 show that understanding Six Sigma methodologies with a mean of 3.95 is the most important factor for Six Sigma implementation for organisations that participated in the survey. Other important ingredients to Six Sigma implementation for participating organisations are: training (3.86), top management commitment (3.82), organisation infrastructure (3.64), and communication and linking Six Sigma to the customer (3.54). Project selection, culture change, linking Six Sigma to suppliers, business strategy, project management skills and human resources were less important to respondents.

Findings

This research has led to some interesting and important findings. Firstly, the majority of participating organisations that implemented Six Sigma were from manufacturing who implemented the programme before or after the year 2000. Secondly, the main reasons for implementing Six Sigma were to improve product and/or service quality and to reduce costs. Thirdly, the key personnel driving Six Sigma did not involve process leaders and employees during Six Sigma projects. The participating organisations used the DFSS methodology when redesigning a process and the DMAIC methodology during process improvement, or both simultaneously. Furthermore, it was found that there were only a few organisations that did not use any of the two methodologies. The mechanisms in place to ensure Six Sigma success were not efficient because the individual involved in the Six Sigma project did not receive adequate training, and Six Sigma was not linked to all the stakeholders. Finally, it was found that the key ingredients for Six Sigma implementation for the respondents were: the understanding of Six Sigma methodology, tools and techniques; training; top management involvement and commitment; organisation infrastructure; and linking Six Sigma to customers and communication.

Conclusion and recommendations

Based on the findings, a framework for an alternative and effective implementation of Six Sigma in Cape Town organisations was developed by the researcher. As illustrated in Figure 3, the framework consists of some critical and soft elements which play a critical role in the successful implementation of Six Sigma. It shows two main sections: strategical and tactical. The strategical section relies on leadership who have the responsibility to fully understand
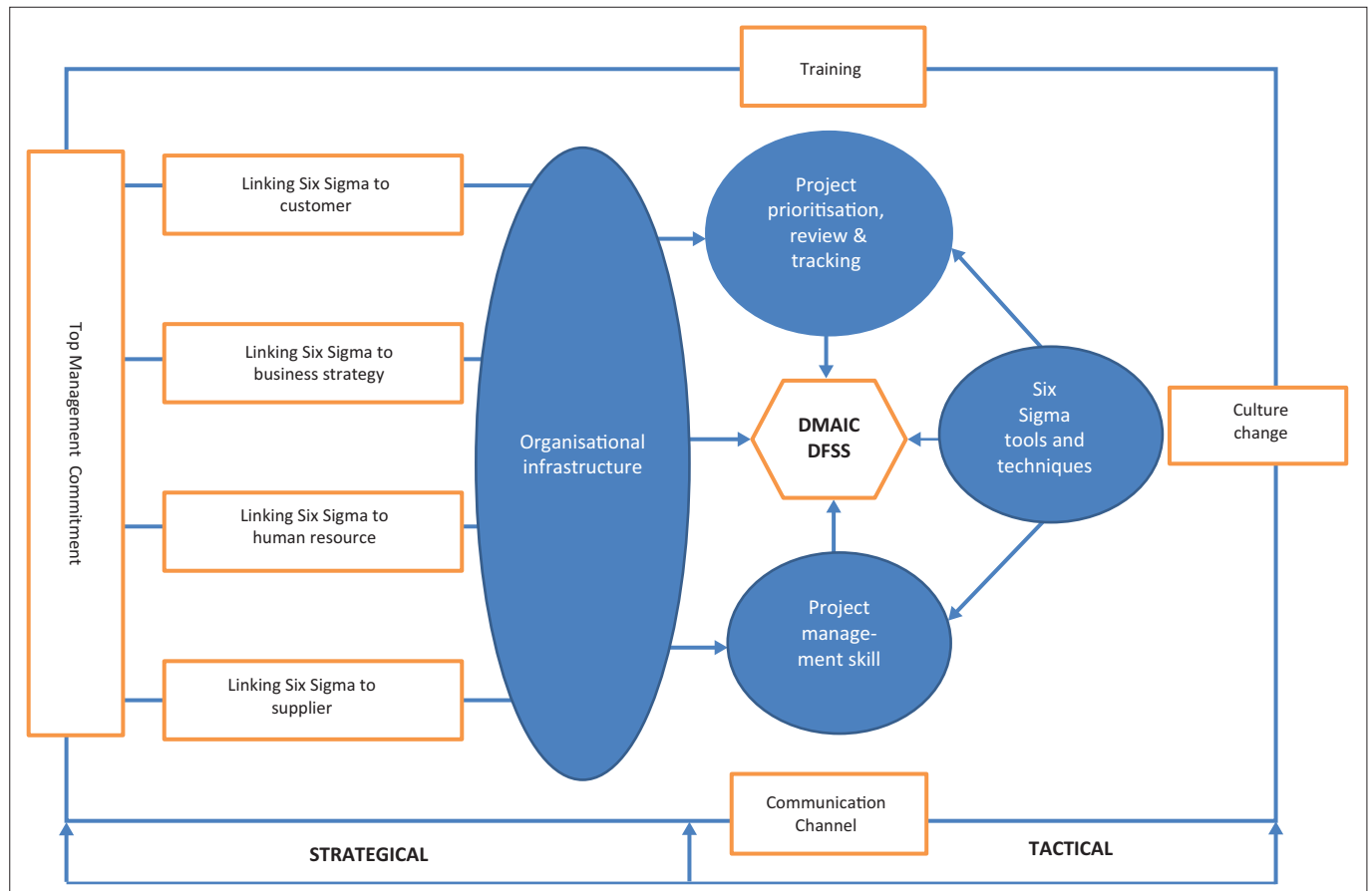
Source: Adapted from a Six Sigma literature review contained within the ambit to the literature review

FIGURE 3: Framework of Six Sigma implementation for Cape Town organisations.

Six Sigma, show commitment to it and communicate its benefits to the entire organisation to ensure a smooth culture change to that of a Six Sigma entity. The top management also has the responsibility to establish an organisational infrastructure with adequate training that will effectively implement Six Sigma by linking it to:

- business strategy
- supplier
- customers
- human resources.

The tactical section looks at the DMAIC methodology (the centre of Six Sigma implementation) which provides a five step continuous improvement approach and suggests the use of tools and techniques in a very specific and disciplined manner during a process improvement project. It is also important to mention that the Design For Six Sigma (DFSS) should be considered instead of the DMAIC when designing and/or redesigning a process.

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Appendix A1

TABLE 1: Reasons for implementing Six Sigma in your organisation.

Variables	Category	Frequency	N	Percentage out of total
To reduce costs	Strongly disagree	0	22	0.0%
	Disagree	0	22	0.0%
	Undecided	5	22	22.7%
	Agree	10	22	45.4%
	Strongly agree	7	22	31.8%
To improve customer satisfaction	Strongly disagree	0	22	0.0%
	Disagree	3	22	13.6%
	Undecided	3	22	13.6%
	Agree	7	22	31.8%
	Strongly agree	9	22	40.9%
To improve product/service quality	Strongly disagree	1	22	4.6%
	Disagree	0	22	0.0%
	Undecided	2	22	9.1%
	Agree	10	22	45.4%
	Strongly agree	9	22	40.9%
To improve company reputation and much more.	Strongly disagree	2	22	9.1%
	Disagree	2	22	9.1%
	Undecided	2	22	9.1%
	Agree	8	22	36.4%
	Strongly agree	7	22	31.8%
	Unknown	1	22	4.6%

Source: Nguenang 2010

Appendix A2

TABLE 1: Key personnel driving Six Sigma in the organisation.

Variables	Category	Frequency	N	Percentage out of total
Our organisation has appointed a Six Sigma Champion	Strongly disagree	0	22	0.0%
	Disagree	3	22	13.6%
	Undecided	4	22	18.2%
	Agree	7	22	31.8%
	Strongly agree	8	22	36.4%
Our organisation uses a Black belt on a full time basis	Strongly disagree	4	22	18.2%
	Disagree	1	22	4.6%
	Undecided	5	22	22.7%
	Agree	4	22	18.2%
	Strongly agree	8	22	36.4%
We also involve a process leader and employees during Six Sigma projects.	Strongly disagree	0	22	0.0%
	Disagree	3	22	13.6%
	Undecided	3	22	13.6%
	Agree	7	22	31.8%
	Strongly agree	9	22	40.9%

Source: Nguenang, 2010

TABLE 2: Six Sigma methodology.

Variables	Category	Frequency	N	Percentage out of total
We always use the DMAIC methodology during the process improvement project	Strongly disagree	1	22	4.6%
	Disagree	5	22	22.7%
	Undecided	6	22	27.3%
	Agree	2	22	9.1%
	Strongly agree	8	22	36.4%
We consider the DFSS methodology when redesigning a project	Strongly disagree	2	22	9.1%
	Disagree	2	22	9.1%
	Undecided	6	22	27.3%
	Agree	5	22	22.7%
	Strongly agree	7	22	31.8%

Source: Nguenang 2010

Appendix A3

TABLE 1: Mechanism in place to ensure Six Sigma success in your organisation.

Variables	Category	Frequency	N	Percentage out of total
A communication channel has been put in place to ensure a general awareness of Six Sigma principles.	Strongly disagree	0	22	0.0%
	Disagree	7	22	31.8%
	Undecided	2	22	9.1%
	Agree	11	22	50.0%
	Strongly agree	2	22	9.1%
All the people involved on Six Sigma project have received adequate training.	Strongly disagree	0	22	0.0%
	Disagree	3	22	13.6%
	Undecided	4	22	18.2%
	Agree	13	22	59.1%
	Strongly agree	2	22	9.1%
Six Sigma has been linked to all the stakeholders.	Strongly disagree	1	22	4.6%
	Disagree	2	22	9.1%
	Undecided	6	22	27.3%
	Agree	6	22	27.3%
	Strongly agree	7	22	31.8%
A reward scheme has been linked to everyone involved in Six Sigma project.	Strongly disagree	5	22	22.7%
	Disagree	4	22	18.2%
	Undecided	6	22	27.3%
	Agree	4	22	18.2%
	Strongly agree	3	22	13.6%

Source: Nguenang 2010

Appendix A4

TABLE 1: The Six Sigma tools and techniques for process improvement.

Variables	Category	Frequency	N	Percentage out of total
We use the basic quality control tools of Six Sigma	Strongly disagree	0	22	0.0%
	Disagree	2	22	9.1%
	Undecided	1	22	4.6%
	Agree	14	22	63.6%
	Strongly agree	5	22	22.7%
We often rely on quality techniques to solve problems	Strongly disagree	0	22	0.0%
	Disagree	4	22	18.2%
	Undecided	4	22	18.2%
	Agree	10	22	45.4%
	Strongly agree	4	22	18.2%
We use Six Sigma tools and techniques in a well-disciplined manner at each stage of the DMAIC.	Strongly disagree	0	22	0.0%
	Disagree	6	22	27.3%
	Undecided	5	22	22.7%
	Agree	10	22	45.4%
	Strongly agree	1	22	4.6%

Source: Nguenang 2010

Appendix A5

TABLE 1: Top management's commitment to Six Sigma in your organisation.

Variables	Category	Frequency	N	Percentage out of total
Employees are encouraged to participate when implementing Six Sigma	Strongly disagree	0	22	0.0%
	Disagree	1	22	4.6%
	Undecided	6	22	27.3%
	Agree	13	22	59.1%
	Strongly agree	2	22	9.1%
The leadership is committed and dedicated to project selection and review as well as to provision of resources	Strongly disagree	0	22	0.0%
	Disagree	5	22	22.7%
	Undecided	8	22	36.4%
	Agree	5	22	22.7%
	Strongly agree	4	22	18.2%
Leadership does support activities and investments that have long-term benefits	Strongly disagree	2	22	9.1%
	Disagree	2	22	9.1%
	Undecided	11	22	50.0%
	Agree	4	22	18.2%
	Strongly agree	3	22	13.6%
Senior executives accommodate and encourage change.	Strongly disagree	0	22	0.0%
	Disagree	1	22	4.6%
	Undecided	5	22	22.7%
	Agree	15	22	68.2%

Source: Nguenang 2010

Part 2
Entrepreneurship and Economies

Negative country of origin effect and customer perception of locally-made goods in Nigeria

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This article provides a theoretical review regarding the negative country of origin effect on customers' perception of locally made goods in Nigeria. COO plays a significant role in the industrial sector growth of a country. Unfortunately, negative COOs are encouraged by constraints that impede both their development and growth. These limitations include perceptions that locally made goods are of low quality and that customer view of status discourages people from buying locally made goods. This negative perception has led to a dwindling economy and economic hardship prevailing in the country.

The study is conducted to examine the impact negative country of origin has on customer perception of locally produced goods in Nigeria. Previous studies suggest that Nigerian consumers prefer products from advanced countries to those from their own country. In preferring these products, consumers may also be willing to pay a higher price compared to products from developing countries. The authors recommend that government limit the import of goods that can be easily manufactured or produced in the country. Developing trade alliances with the developed countries is a sure way developing countries can ease the effects COOs have on their economies.

Introduction

The role of country of origin (COO) effect in the process of economic development, particularly in developing countries, cannot be overemphasised. The successes recorded recently in developed countries such as Japan and the United States have been linked to the promotion of the country of origin effect (Kalicharan 2014). It is now recognised that most developed countries, through the promotion of country of manufacture, have the potential to accelerate the economic development process. The promotion of entrepreneurship through COO has, therefore, been advocated. The recent economic successes in some countries have revealed that countries of origin have the potential for development considering their comparative advantage, labour intensive nature, income generating capabilities, and ability to use local resources as input and/or raw materials, capacity to save capital, flexible nature, innovativeness and their strong linkage, both forward and backward, with the other sectors of the economy.

In the early 1960s to the mid-1970s, when the country relied on agriculture, Nigerian products were popular as people from different countries came to patronise Nigerian-made products because of the early emphasis on producing locally (Nigerian Nation 2016).

Nigerians have continued to spend the nation's foreign reserves on importing finished consumer products that could be sourced locally if efforts were made to patronise Nigerian products. As the pressure on the naira begins to mount over the country's excessive import bills and low foreign exchange from exports, the federal government has intensified efforts to encourage Nigerians to buy locally made goods (Iloani 2016). Relevant data from the National Bureau of Statistics show that consumer confidence, business confidence, competitiveness and corruption ratings remain worrisome and affect the image of goods made in Nigeria. Consumer confidence in Nigeria, as at the last quarter of 2015, dropped to -3 from -1.9, recorded the previous quarter, whilst business confidence stood at 8.3% at the end of last year, down by 6.6% from 14.9% recorded in the third quarter of 2015 (National Bureau of Statistics 2016). On competitiveness and corruption rankings, locally produced goods continue to attract negative attention (Iloani 2016).

Empirical studies indicate that there are a number of underlying reasons for the impact of country of origin information, ranging from the country stereotype (positive and negative) playing a role in consumer product evaluation process to individual outright rejection of foreign made products because of their concern for the well-being of the local economy (Bilkey & Nes 1982), but that is

Note: This article was originally presented as a paper at the 2016 International Conference on Business and Management Dynamics (ICBMD).

not the case in Nigeria. The impact of the COO effect also differs across product categories. Apart from focusing only on where the product is from, people consider other factors when buying. For durable and luxury products, the COO plays an important role in a consumer's decisions (Ing. Petr Kral 2015). Nigerian consumers seem to value foreign brands and regard them as status symbols. However, consumers want the advantages of affluence and the latest services that technology and business can offer (Achumba 1998). If a brand is perceived as globally acceptable, consumers are likely to attribute a superior quality to it. It has also been reported that consumers buy foreign goods for prestige and nationalistic belief (Adina, Gabriela & Roxana-Denisa 2015; Zhon & Belk 2004). Therefore, it can be suggested that consumers in developing countries have conflicting reactions towards foreign brands. Nagyova and Cech (2004) suggests that, from a marketing perspective, the image of the country must be taken as an external factor which the marketer cannot influence on the one hand, whilst, on the other hand, the brand's and/or product's identity is fully in the marketer's hands. The final purchase decision of the consumer is then based on both factors. Thus, the identity of the brand and/or product and the image of the country from which the product and/or brand originates influence the image of the brand.

Most of the time, the attitudes and perceptions of consumers towards their choice of goods depend on product categories. For example, electronics from the United States or Spain may be regarded as low quality, whilst those from China or Japan are perceived as high or reputable quality. Previous studies (Achumba 1998; Aire 1973; Akomolede & Oladele 2008) confirm that the poor quality of locally produced goods is responsible for consumers' preference for foreign products. COOs play a significant role in the industrial sector growth of a country. Unfortunately, COOs are faced with constraints that impede both their development and growth. These constraints include: infrastructural challenges, which may also contribute to poorly manufactured goods; negative perception that locally made goods are of low quality; status symbol is also a factor that discourages people from buying locally made goods. There is no doubt that of all these constraints, negative perception constitutes the greatest challenge to the promotion and growth of COOs in most developing countries like Nigeria. Hence, the objective of the study was to examine the impact the negative effect the country of origin has on customers' perception of locally produced goods in Nigeria.

The remainder of the article is divided into the literature review, design and methodology, discussions on the negative perceptions of locally manufactured goods as well as conclusions, recommendations and suggestions for further research.

Literature review
Factors affecting the country of origin

Over the years, researchers have held perceptions of products that originate from countries of origin. According to them,

consumers usually have several options in choosing products (Ahmed & d'Astous 2003). Research findings suggest, firstly, that better understanding of the country of origin is required in appreciating the perceptual decision of consumers. Secondly, the country of origin is used by consumers as a criterion to evaluate products and to make purchasing decisions (Hong & Wyer 1990; Parameswaran & Pisharodi 1994). More importantly, the country of origin may create a 'halo effect' which influences customers' attention and evaluation of product features and dimensions (Erickson, Johansson & Chao 1984). Country stereotyping may also affect consumers' attitudes towards the brand of a country, thus altering attitude rating (Wright 1975). The conclusions that emerged from country of origin research indicate that consumers use the country of origin as a criterion to evaluate products (Han 1989; Johansson 1989). For example, Johansson (1989) argues that consumers use information about the country of origin to evaluate product quality. Other authors suggest that the country of origin could be used as an attribute (Hong & Wyer 1989, 1990). Despite consumers' frequent and numerous remarks that a product's country of origin is not important (Hugstad & Durr 1986; Papadopoulos & Heslop 1993), they will readily use country of origin as an important factor in quality evaluation (Adina et al. 2015), and, in fact, consumers care about the origin of their products (Solca 2015). This is markedly so with products such as cars, household appliances, computer technology and apparel, amongst others. Therefore, it is not surprising that a number of studies undertaken in the past 30 years corroborate the hypothesis that country of origin image influences a purchase decision. Purchase decision is a concept which reflects and describes basic consumer perception of the quality of a product coming from a certain country, as well as of the people from that particular country (Vriontis & Thrassou 2007). The most frequently used definition of the country of origin image is that which defines it as 'the picture, the reputation, and the stereotype that businessmen and consumers attach to products from a certain country' (Johansson 2000).

COO is a hint that consumers use to evaluate foreign products and brands. It has been defined in several ways: as the country of location of the corporate headquarters (Ozsomar & Caraggil 1991), country of manufacturing or assembly (Papadopolous & Heslop 1993) and the country of product design (Ahmed & d'Astous 1993). COO is also defined as any influence or bias that consumers may hold resulting from the COO of the associated products or services (Samiee 1994). The sources of the effect are varied: some are based on the experience of consumers with products from a country in question, whilst others are from personal experience, knowledge regarding the countries' political beliefs, ethnocentric tendencies or fear of the unknown (Samiee 1994). It has been empirically demonstrated that the COO effect has significant price-related consequences and brands with favourable COO associations are able to charge price premiums over and above those attributed to observed product differentiation (Saridakis & Baltas 2016). Companies

are seeking to communicate the COO and to increase their customers' COO awareness with a number of different strategies such as the use of the phrase 'Made in …', use of quality and origin labels, COO embedded in the company name, use of the COO language, use of famous or stereotypical people from the COO, use of COO flags and symbols, and or use of typical landscapes or famous buildings from the COO, amongst others (Aichner 2014).

Perceptions about country of origin and evidence from Nigeria

Verlegh and Steenkamp (1999) suggest that the country of origin effect has a significant effect on consumer evaluation of products and that consumers tend to use COO as an extrinsic cue to make judgement about the quality of products. This may result from personal experiences, through information acquired from other sources or because of stereotypical beliefs about countries. Consumers also tend to develop product-country images. These are images of quality of specific products marketed by firms associated with different countries (Papadopoulos & Heslop 1993). A few examples of product-country images are Columbian coffee, Swiss watches, US appliances, Japanese electronics and German automobiles because of the product-country images consumers hold, and their sensitivity to COO. COO is believed to be one way of enhancing brand equity (Keller 1993; Shocker, Srivastava & Ruekert 1994). The COO image is related to economic development, technology, world status of the country, as well as to the availability and familiarity of products and advertising. It was found in previous studies that consumers prefer products from advanced countries rather than those from less developed countries (Adina et al. 2015). In preferring these products, consumers may also be willing to pay a higher price compared to products from developing countries.

Nigeria's total foreign capital imports declined by as much as 54.34% to $710.97 million in the first quarter of 2016 compared to $1.55 billion in the last quarter of 2015 (National Bureau of Statistics [NBS] 2015). Year-on-year, capital importation also declined by 73.79%. Both the quarterly and year-on-year decline also represented the lowest records since the series began, the NBS stated. It added: 'As a result of these changes, total capital importation has fallen by 89.13% since its peak level in the third quarter of 2014'. According to the summary of the Capital Importation Report for the first quarter of 2016, the magnitude of the decline in the first quarter attested to the challenging period which the Nigerian economy is currently undergoing following the fall in crude oil prices. Adding to that, a huge drop could also explain why the amount of capital imported into the country in recent years may have been higher than usual. One such theory was the inclusion of Nigeria in the JP Morgan Bond Index and globally low interest rates triggering a search for higher yields over this period (NBS 2015).

The NBS further said:

> The fact that the amount of capital imported has dropped to a record low suggests that there are further reasons why Nigeria has attracted less foreign investment in recent quarters. 'Investors may be concerned about whether or not they will be able to repatriate the earnings from their investments, given the current controls on the exchange rate'. In addition, as growth has slowed in recent quarters, there may be concerns about the profitability of such investments. (n.p.)

In the period under review, portfolio investment was largest, accounting for $271.03 million, or 38.12% of all capital imported, with equity as the largest subcomponent which accounted for $201.69 million, representing 74.41% of portfolio investment and 28.37% of total capital imported. Equity has been the largest part of portfolio investment in every quarter since 2007. Although it remains the largest subcomponent, this is despite contributing the most to the decline in portfolio investment, equity recorded a quarterly decline of 74.54%, and a yearly decline of 82.30%, the NBS stated.

It further stated:

> The second largest subcomponent of Portfolio Investment was Money Market Instruments, which accounted for $67.85 million, or 25.03 per cent of portfolio Investment, despite recording a quarterly decline of 57.62 per cent. In contrast to the same quarter of 2015, Bonds were relatively unimportant, accounting for only 0.55 per cent of portfolio investment. This followed a year on year decline of 99.79 per cent, from $705.12 million to $1.50 million in the first quarter of 2016 (NBS 2016).

According to the statistical agency, the second largest component was 'other investment' which accounted for $265.48 million, or 37.34% of all capital imported. As in the final quarter of 2015, only two subcomponents recorded any investments: loans, which accounted for $241.81 million or 91.09% of other investments, and other claims, which accounted for $23.66 million or 8.91%. Each of these subcomponents had seen large quarterly declines of 42.54% and 60.86%, respectively. In contrast to other investment types, Foreign Direct Investment (FDI) recorded a quarterly increase in the first quarter of 2016, from $123.16 million to $174.46 million. The NBS (2016) added that:

> As a result its share of total capital importation increased from 7.91 per cent to 24.54 per cent, although it remained the smallest part of imported capital. FDI is dominated by equity, which accounted for $173.73 million in the first quarter, or 99.58 per cent of FDI. This share represents an increase relative to the previous quarter; as a result of equity increasing by 43.60 per cent relative to the previous quarter, and Other Capital declining by 66.60 per cent. Given the respective shares of Equity and Other Capital, movements in FDI largely reflect movements in Equity. (n.p.)

Design and methodology

This article is exploratory in nature through the use of a literature review to investigate and examine the impact negative country of origin effect has on customers' perception of locally produced goods in Nigeria.

Discussion

Negative COOs have a significant effect on a country's economic growth and development. It is vital for Nigeria to

refocus and dedicate its efforts to ensure that good quality products are manufactured locally. This will persuade Nigerians to support locally manufactured products instead of imported commodities. Iloani (2016) avers that federal government has exerted effort in encouraging Nigerians to support locally manufactured products. However, this can only be achieved if the federal government financially supports Nigerian manufacturers, particularly small businesses, with skills development and proper infrastructure. Implementing these measures would reverse the situation back to the 1960s and 1980s when other countries imported goods from Nigeria and had confidence in the quality of goods Nigeria produced at the time (Nigerian Nation 2016). It is important to note that customers place prestige at the forefront when purchasing a product. It is paramount to emphasise superior quality at the product development stage with efforts to attract not only local but foreign markets. Zhon and Belk (2004) concur with this by affirming that consumers opt for foreign goods because of prestige and national belief. Other researchers have also confirmed that lack of good quality in locally manufactured commodities has led to consumer preference for foreign goods (Achumba 1998; Aire 1973; Akomelede & Oladele 2008). It is also important for the federal government to maximise efforts to stabilise the country's economy, political climate and to ensure harmony between cultural and religious dynamics. This is imperative because researchers highlight that customers are likely to use the COO as a primary factor in product quality evaluation (Johansson 2000; Verlegh & Steenkamp 1999; Vriontis & Thrassou 2007). Consumers tend to have a positive bias towards products manufactured in developed countries and a negative bias towards those produced in underdeveloped countries. However, these perceptions may change over time because of technological advances, personal lifestyles or more sophisticated marketing techniques (Chuin & Mohamad 2012).

Conclusions, recommendations and suggestions for further research

This article has presented a theoretical review of negative country of origin opinion and its effect on customers' perception of locally produced goods in Nigeria. Concluding remarks suggest that a country of origin effect plays an important role in consumer product evaluation for both weak and strong brands. Even for a product with a strong brand image, the negative consequences of COO stemming from consumers' unfavourable attitudes (COO) may influence a marketer to avoid direct comparison between products made in favourable countries regardless of their brand strength.

Recommendations

- If Nigerians want local products to be sellable, the appropriate authority, which is the government, needs to set trade tariffs to force the prices of imported goods to increase so that buying locally made goods becomes attractive to people. The United States enacted something

similar in the past when Japanese manufacturers were dominating the electrical appliances market in the United States.

- Nigerians have negative attitudes towards local products; they should try to de-emphasise the country of origin labelled on the product and emphasise the country of brand. Developing trade alliances with their developed counterparts is a sure way for developing countries to ease the effects COO has on their economies.

- The government needs to refocus the policy reforms towards small and medium size enterprises to ensure a certain percentage of goods can be exported, for example, 80% of locally made goods and 20% of foreign made products.

- Government should try to limit the importation of goods that can be easily manufactured or produced in the country and inculcate patriotic consumerism, a practice the Japanese and the Americans have adopted.

- Government should provide funding to emerging entrepreneurs, particularly manufacturing firms, to source sufficient supply of commodities to meet their needs in order to provide quality products appreciated by the consumers.

- As Nigerians complain about the low quality of the finished goods, government should provide the necessary infrastructure to produce quality made goods. Infrastructure such as regular supply of electricity, good roads and potable water would enhance the provision of quality goods.

- Today's product market is highly globalised and interdependent. Nigeria could fare better if its government sensitises citizens to adopt some level of consumer ethnocentrism for nationalistic or patriotic reasons. Consumer ethnocentrism will combine with other sound marketing and advertising measures to strengthen competition and ensure the survival of firms in the country.

Suggestion for further research

This study focused on a theoretical review of COO. Empirical studies may be conducted in the future using a mixed methodology approach to understand why Nigerians would prefer imported products and what could be done to enhance patronage of locally manufactured goods for Nigeria's economic growth.

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Societal marketing concept and energy poverty eradication: An evidence from Nigeria

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This article examines the societal marketing concept as a remedial measure for energy poverty in Nigeria. Energy poverty is a situation where individuals or households are not able to adequately heat or provide other energy services in their homes at affordable cost. Basic energy services are critical to ensure that communities do not suffer negative health impacts, do not become further entrenched in poverty and can maintain a good quality of life as well as ensuring financial outlay to assist households that require support. Whilst allowing for full competition in energy markets, government and regulators have a role to protect communities and prevent groups in the society from falling into energy poverty. Improving access to energy provides the holistic service to host communities for which governments are looking and supports broader economic and social development. This, in turn, secures the industry's sustainable access to reserves and social license to operate, increasing revenue potential from existing and new revenue streams, facilitating risk management and supporting increased brand enhancement – increasing shareholder value in both the short and long terms. To effectively build on these leading examples and drive stepped change, a societal marketing approach championed by strong leadership is required. The societal marketing approach requires a mission to bring together leaders from government, business and civil society 'to achieve a broad-based transformation of the world's energy systems and build a more prosperous, healthier, cleaner and safer world for this and future generations'. The societal marketing concept calls upon marketers to build social and ethical considerations into their marketing practices.

Introduction

Nigeria's crude oil reserves are currently estimated at 35 billion barrels; its natural gas reserves an estimated 185 trillion cubic feet. However, export levels have since dropped dramatically and, in March 2007, the United States imported 41 767 barrels of Nigerian crude oil and petroleum products. According to the International Energy Agency (IEA 2012), over 1.6 billion people – almost one third of humanity – have no electricity, the majority of which are in Africa. This means they have no light in the evening, limited access to radio and modern communications, inadequate education and health facilities and not enough power for their work, activities and businesses. Despite Nigeria's rich oil reserves, 44% of Nigerian households have no access to electricity (Michaels 2015). Indeed, even in Nigerian homes with electricity the quality of service provided is often intermittent whilst growing increasingly unaffordable.

In the *New York Times* of 08 August 2014, Adewale Maja-Pearce explained that in February 2014 his monthly bill jumped from $30 per month to nearly $185 per month, despite the fact that he was receiving roughly 33 hours per day of power. This price increase occurred at a time when 92.4% of Nigerians live on less than $2 per day, and 70.8% live on less than a dollar per day. The problem of energy poverty is not exclusive to Nigeria. According to the International Energy Agency (2015):

> over 1.3 billion people are without access to electricity and 2.6 billion are without clean cooking facilities. More than 95% of these people are in sub-Saharan Africa or developing Asia and 84% are in rural areas.

Although the problem is not unique to Nigeria, it brings to light the global inequality behind the phenomenon of energy poverty despite Nigeria's status as a major energy exporter.

It is seemingly paradoxical for a nation which began exporting large amounts of liquid petroleum gas through Chevron in 1997 to have a per capita liquid petroleum gas usage rate of 0.4 kilograms per second, one of the lowest in the region. Michael (2015) avers that addressing energy poverty

Note: This article was originally presented as a paper at the 2016 International Conference on Business and Management Dynamics (ICBMD).

is a key point in the fight against global poverty. Greater access to alternative energy sources will reduce unnecessary deaths, such as the 95 300 Nigerian deaths which occur annually from smoke created by the use of solid biomass fuels. It will enhance the financial capabilities of those nations currently struggling to provide power to businesses. This, in turn, will expand the global community of consumers.

According to World Data Bank statistics (2015), 62% of Nigerians live on less than $1.25 per day. Extreme poverty remains high in rural parts of Nigeria, where political instability, low access to education and inadequate healthcare have become contributing factors to the nation's high rate of poverty. Poverty largely cohabits with energy poverty. Whilst there are several definitions for energy poverty, a pragmatic view is that energy poverty is the lack of access to modern energy services. Razdan (2015) states that poverty is not only reflected in the disposable income of a household but also in the level of energy available for a household to meet its need for cooking, lighting and gainful employment. There is an increasing recognition of the importance of access to clean and reliable energy for poverty alleviation.

Whilst inadequate and unreliable power supply continues to negatively affect economic growth of Africa's biggest economy, almost all businesses run diesel generators, which have high operating costs. In achieving the electricity generation target outlined in the draft national energy master plan, significant private sector investment is required (UNDP 2015).

Availability of energy is a crucial element for socio-economic development to take place, but in Nigeria many households have limited access to energy which affects the education, health, manufacturing and production of goods and services and small scale businesses. Over 1.3 billion people around the planet who lack access to the grid are desperately poor because lack of electricity helps ensure that they stay that way (Walsh 2011).

Energy services for meeting basic human needs, such as food and shelter, are at the heart of any strategy to eradicate poverty. It is evident that access to energy is a prerequisite for human development. It contributes to social development by improving health, education and economic development by enhancing the productivity of labour and capital. Like improved health, use of energy is both a contributor to and a consequence of higher income (Bloom & Canning 2000).

The 48-inch diameter export line operated by shell, NNPC and other JV partners was vandalised in February 2016, crippling export of crude oil from the terminal. According to the NNPC (2016), Nigeria has lost over 1 500 megawatts of power supply as a result of the damage to the Forcados 48-inch diameter export pipeline, which is the country's major artery that accounts for 40%–50% of gas production. Ofikhenua (2016) states that power supply to 11 electricity distribution companies (DisCos) on 29 July dropped to 2796 megawatts (Mw) because of the lack of gas supply to thermal power plants due to the vandalism of gas pipelines.

Business owners find electricity connection and the quality of electricity supply as one of the main hindrances to their activities (Audinet and Rodriguez Pardina 2010). Studies have shown that poor electricity supply adversely affects the productivity of the firms and the investment they make in their productive capacity. In an effort to curtail these challenges, the federal government has placed additional emphasis on the National Electric Power Policy (2002) and the Electric Power Sector Reform (ESPR) Act of 2005. The reason for power reform is the irregular supply of electricity in Nigeria which has led to high revenue losses. Moreover, power sector reform is expected to lead to reduction in costs, including short-term power and operation costs through efficiency gains arising from economies of scale as large-scale plants are enabled by larger markets (Eberhard et al. 2008). This will lead to improved supply conditions, including better reliability and security of supply due to access to imports during emergency situations (Eberhard et al. 2008). According to Adoghe, Odigwe and Igbinovia (2009), the irregular power supply and other poor infrastructure has affected the growth of industries and individual development, and this has led to a perpetuating electric power scarcity. Despite the enormous finance government has committed to this sector and with continuous assuring of customers of better service through the rebranding policy targeted at the concerns, values, image and feelings of both the employees and customers, consumers are still not satisfied with the quality of service rendered by the sector. The power crisis has led many manufacturing industries to flee the country to places where they have to spend little or nothing on diesel engines; it is a major challenge to Nigeria's industrialisation efforts. This is why it is important for Nigerians to seek a permanent solution to the issue of an unsatisfactory power supply to improve the well-being of people and grow the economy.

Problem of the study

The causes for the extreme electricity deficiency in Nigeria are related to financial, socio-political and structural issues. The Nigerian government has not been able to find permanent solutions that will resolve the problems. According to NNPC (2016), a recent upsurge in vandalism has not only negatively impacted oil production but reduced Nigeria's domestic gas production by 50%, which in turn has constrained gas supply to power plants in the country. Power supply has consequently dropped since the third month of 2016, plunging lower in the fifth month of the same year.

Consequently, Nigerians do not have much influence that will compel the government to formulate decisive policies and initiatives that will enhance and promote the application of a societal marketing concept as an eradicative measure against energy poverty.

This is a challenging matter as the managers should balance and juggle the often competing interests of society and companies and go beyond corporate image to effectively sustain a clean and healthy solution. This article addresses these concerns, presenting the view of several authors and concepts to support them.

Objectives of the study

The energy sector is of strategic importance to the Nigerian economy and a major driver of growth and advancement. It also has a major role to play in reducing energy poverty, improving productivity and enhancing the quality of lives in Nigeria. Hence, the objective of the study is to promote an integrated approach of the marketing paradigm that can bring about solutions to energy poverty challenges.

Literature review

Theoretical foundations

Social cognitive theory

Social development is a lifelong process, and many theories have been proposed over the years to describe the developmental changes that people undergo, including the different conceptions of human nature they adopt and in what they regard to be the basic causes and mechanisms of human motivation and behaviour (Bandura 1989). In 1963, Bandura and Walters developed the concept of social learning and personality development, which widened the ideologies of social learning theory that viewed people as self-regulating, self-organising and proactive rather than reactive organisms shaped by environmental forces (Pajares 2002).

From the social cognitive theory's (SCT) perspective, human functioning is seen as the outcome of a dynamic interplay of personal, behavioural and environmental influences which form the foundation of Bandura's conception of *reciprocal determinism*, that is, the view that (1) personal factors (i.e. cognition, affect, and biological events), (2) behaviour and (3) environmental influences create interactions that result in a *triadic reciprocality.*

SCT is adopted in numerous fields of study including psychology, education and communication. The theory postulates that large parts of an individual's knowledge is directly associated with observing other people via social interactions, experiences and the media (Bandra 2002). This implies that the survival of humans solely depends on imitation of the actions of others, that is, if a person is rewarded for an act others imitate it to be rewarded. They act differently, however, if the person's action leads to punishment.

Further, Pajares (2002) stated that the theory is rooted in a view of human agency which posits that individuals are agents proactively engaged in their own development and can make things happen by their actions. Moreover,

the theory affirms that amongst the three major factors affecting societal growth, the environmental factors such as social amenities, educational structures, economic and political factors and others should also be taken into account even though they do not have direct influence on human behaviour; they still directly affect people's aspirations, self-efficacy beliefs, personal standards, emotional states and other self-regulatory influences. This is depicted in Figure 1.

Recent years have witnessed an enthusiastic debate about the role of business organisations within society. Academic scholars and practicing managers have questioned 'whether the proper or legitimate role of a business organization is merely economic or also social' (Lantos 2001). They have wondered what the corporate purpose should be and to what extent the company should be held responsible for social issues. This is not simply a speculative debate over how to accommodate different opinions, but a relevant discussion over how the business world actually works and how it could do better. The bridge between firms and society is created and maintained by marketing tasks involving the establishment of relationships through the exchanges of values. The concept of exchange is also present in the definition of 'societal marketing' – a term coined by Kotler (1972) in the early 1970s.

The societal marketing approach considers not only the commercial exchanges carried out to satisfy the needs of customers, but also the effects on all members of the public involved in some way in these exchanges. The members of the public who are directly or indirectly involved in the organisational process are called stakeholders. Business's major stakeholders include consumers, employees, owners, shareholders, suppliers, competitors, government, the community and the natural environment (Carroll 2004; Ferrel 2004; Henriques & Sadorsky 1999; Laszlo & Nash 2001). The notion of future is embedded in the societal marketing thought because the consequences of current decisions will be felt in the long-term. In the edition of their textbook, Kotler and Keller (2006) define societal marketing as follows:

> The societal marketing concept holds that the organization's task is to determine the needs, wants, and interests of target markets and to deliver the desired satisfactions more effectively and efficiently than competitors in a way that preserves or enhances the consumer's and the society's well-being.
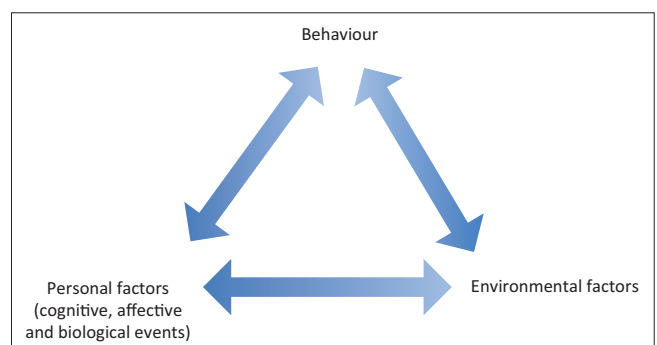
Source: Pajares 2002:1–2

FIGURE 1: The triadic reciprocality.

In the beginning of the 1970s, Bell and Emory (1971) had already suggested the 'consumer comes first' assumption as a more equitable basis for the buyer-seller relationship.

The concept of energy and Nigerian society

Energy is at the heart of most critical economic, environmental and developmental issues facing the world today. Clean, efficient, affordable and reliable energy services are indispensable for global prosperity. Current energy systems are inadequate to meet the needs of the world's poor and are jeopardising the achievement of the Millennium Development Goals (MDGs). For instance, in the absence of reliable energy services, neither health clinics nor schools can function properly, access to clean water and sanitation is constrained without effective pumping capacity and food security in Nigeria is adversely affected, often with a devastating impact on vulnerable populations. Worldwide, approximately 3 billion people rely on traditional biomass for cooking and heating (UNDP & WHO 2009), and about 1.5 billion have no access to electricity. Up to a billion more people have only access to unreliable electricity networks.

The 'energy-poor' suffer the health consequences of inefficient combustion of solid fuels in inadequately ventilated buildings as well as the economic consequences of insufficient power for productive income-generating activities and other basic services, such as health and education. In particular, women and girls in the developing world, especially in Nigeria, are disproportionately affected in this regard. A well-performing energy system that improves efficient access to modern forms of energy would strengthen the opportunities for the poorest few billion people on the planet to escape the worst impacts of poverty. Such a system is also essential for meeting wider development objectives.

Economic growth goes hand in hand with increased access to modern energy services, especially in low- and middle-income countries transitioning through the phase of accelerated industrial development. A World Bank study (2009) indicates that countries with underperforming energy systems may lose up to 1%–2% of growth potential annually as a result of electric power outages, overinvestment in backup electricity generators, energy subsidies and losses and inefficient use of scarce energy resources.

At the global level, the energy system – supply, transformation, delivery and use – is the dominant contributor to climate change, representing about 60% of total current greenhouse gas (GHG) emissions. Current patterns of energy production and consumption are unsustainable and threaten the environment on both local and global scales. Emissions from the combustion of fossil fuels are major contributors to the unpredictable effects of climate change, urban air pollution and the acidification of land and water. Reducing the carbon intensity of energy – that is, the amount of carbon (Heegte & Sonder 2007) emitted per unit of energy consumed – is a key

objective in reaching long-term climate goals. As long as the primary energy mix is biased towards fossil fuels, this would be difficult to achieve with currently available fossil fuel-based energy technologies. Given that the world economy is expected to double in size over the next 20 years, the world's consumption of energy will also increase significantly if energy supply, conversion and use continue to be inefficient. Energy system design, providing stronger incentives for reduced GHG emissions in supply and increased end-use efficiency will, therefore, be critical for reducing the risk of irreversible, catastrophic climate change. Energy Community (2015) avers that energy poverty most commonly refers to the situation where individuals are not able to adequately heat (or provide necessary energy services) in their homes at affordable cost.

The issue is characterised by three key drivers in combination or isolation – low incomes, poor thermal efficiency of buildings and high energy costs. The risk to households of energy poverty will be a function of five factors (Preston et al. 2014): the rate of energy price rise versus income growth, access to cheaper energy prices, household energy needs, efficiency of energy case and policy interventions. Access to energy is a prerequisite of human development. Energy is needed for individual survival, it is important for the provision of social services such as education and health and a critical input into all economic sectors from household production or farming to industry. Fundamentally, Nigeria is blessed with alternative sources of energy that is sustainable in alleviating energy poverty but has completely failed her citizens in realising the potential of their endowed gift from nature.

Energy poverty takes many forms and has a devastating effect on the poor, especially in Nigeria. For example, this article observed that children doing homework by the light of a smoky kerosene lamp and candlelight do as much damage to their lungs as a two-pack-a-day cigarette smoker (World Health Organisation, Lighting Africa Report). Household air pollution kills more than 4 million people every year and exposes millions to various forms of sicknesses.

Energy poverty definitions took only the minimum energy quantity required into consideration when defining energy poverty, but a different school of thought is that not only energy quantity but the quality and cleanliness of the energy used should be taken into consideration when defining energy poverty (Kumar 2011). Such a definition could read: a person is in energy poverty if they do not have access to at least (Kumar 2011):

1. The equivalent of 35 kg liquefied petroleum gas (LPG) per capita per year from liquid and glass fuels or an improved supply of solid fuel sources and improved (efficient and clean) cooking stoves.
2. One hundred and twenty kWh electricity per capita per year for lighting and access to most basic services (drinking water, communication, improved health

services, improved education services, etc.) as well as some added value to local production.

In tackling or eradicating energy poverty, it would be wise to create the right environment for marketing through the exchange of ideas and practices. These have been key factors in inspiring citizens, igniting processes, generating new ideas and sealing up successful solutions.

This article promotes the idea that marketing managers should accept the challenge of balancing the interests of society with those of organisations by trying to cultivate good relationships. It is worth noting that behind the impersonal walls of an organisation are people. A company is built by people for people. Employees, managers and directors of a specific company may play the role of consumers of another company, or feel collectively injured by an unethical decision of a particular organisation. In this sense, one receives back all that one gives to one's society. Moreover, individuals do not develop in isolation. Their development occurs through relationships with others. In order to promote ethical behaviour in managers, a firm should nurture them in an ethical environment (Sargent 1999). Bearing in mind what is discussed in this article with regard to societal marketing and strategic marketing, the authors invite academic scholars, practicing managers and ordinary citizens to think seriously about what kind of world they are constructing and the consequences of their current actions for the future.

Strategies of eradicating energy poverty in Nigeria

The oil and gas industry has a long history of operating in sub-Saharan Africa and developing Asia where the energy access challenge is most pronounced. For example, international exploration and production activities have been ongoing in Nigeria since the 1930s (NNPC 2016). In order to secure licenses to operate in these regions, operations have been required to invest in local economies through both local content development and community investment programmes. An assessment of social spend alone revealed that, whilst the level of spend varies in line with the size of the company's broader country investment, some companies reported investments as high as $500 million in 2012 alone (Accenture Analysis 2015). This activity and required investment is not likely to diminish anytime soon. The share of global oil and gas reserves held in sub-Saharan Africa alone increased by 33% between 2000 and 2012 (IES 2015). Added to this is an evolving operating landscape with the evolution of shale gas resulting in larger operational footprints. Within this new context, needs-based philanthropy to maintain the social license to operate is no longer sufficient and oil and gas companies will need to rethink their relationships with host communities. The energy poverty challenge provides the industry with the opportunity to do so. The industry's interest in tackling energy poverty can be summarised in three key value drivers: revenue growth,

risk management and brand enhancement (Accenture Analysis 2015).

Risk management

Tackling energy poverty can help to manage operational risk and create shareholder value in both the short and long terms. In the short term, an emphasis on tackling energy poverty will have a direct impact on the quality of life across communities, helping to minimise potential unrest. A reliable source of energy supply will also support business operations and improve conditions for company employees – particularly during the development stage of the value chain. Together, these impacts will support greater operational savings from both time and financial perspectives, helping to manage shareholder expectations quarter to quarter. In the long term, broader economic and social development will enable provision of services such as health and education, thereby reducing work stoppages through access to a stronger, more educated workforce and lowering procurement costs through the development of a more robust supply chain. In the context of increased cost pressures and ever more stringent local content sourcing requirements, this has become a business imperative, with a small upfront investment paying substantial dividends over the longer term.

Brand enhancement

A related value driver is the need to establish a strong brand in order to secure licenses and access to reserves in the short term. By committing to tackling the energy poverty challenge as an enabler to broader economic and social development, the industry has the opportunity to strengthen its current local content offerings, better positioning itself *vis-à-vis* local governments. In the long term, these efforts will further help companies protect their brands, which is instrumental to retaining their social licenses to operate.

Revenue growth

In the long term, local communities present new markets for oil and gas operators. By building new energy solutions and innovative business models, oil and gas companies can provide access to energy to the balance of payments (BoP) – those considered to be in the lowest income bracket, creating new revenue streams. The International Finance Corporation's (IFCs) market size estimate of $37 billion tells a compelling story, with the potential for new markets in poorer communities growing over time as purchasing power increases. It enables consumers to ascend the 'energy ladder' and move away from dirtier energy sources such as biomass to cleaner, more efficient energy sources. The sale of products such as liquefied petroleum gas for use as household and transportation fuels provides particularly interesting opportunities for oil and gas companies.

The Global Alliance for Clean Cookstoves (2015) has been instrumental in developing this opportunity, helping to establish LPG as a clean, efficient and safe cooking stove

fuel, thereby creating a new market base for the oil and gas industry. The relative strength of each business driver will be highly context dependent. In many cases, the case for investment may prove more compelling for national oil companies (NOCs), as supporting broader economic development is at the heart of these organisations' missions. Saudi Aramco's 'golden quadrant' strategy is an example of this commitment to broader economic and societal development as the NOC assesses the value of projects based on the extent to which they meet three priority areas: responding to the global energy market, commerciality and national development. However, whilst national development interests are generally more aligned with the strategy of NOCs, investment in energy access can also provide greater competitive advantage for international oil companies (IOCs).

Local approaches to energy poverty challenges

At the local level, industries are meant to take a more proactive approach to addressing energy poverty. These are:

- **Strategically invest in an integrated manner**
  Oil and gas investment in local economies is driven through multiple channels, namely, core operations, local content development and social community investment. Whilst investment can be extensive, it is often rolled out in a disorganised manner. More strategic alignment of these investments would generate greater impact for both the industry and the local communities. Development of more comprehensive country-facing strategies – defined as a portfolio of integrated country-facing initiatives which enable the company to achieve its objectives whilst creating value for the country – is one way in which companies can begin to align company objectives to the needs of the local community and the country's broader economic development goals to maximise impact.

- **More systematically leverage capabilities to support access to energy**
  Taking a more proactive role, the industry should consider broader application of its capabilities to support community needs, ranging from stakeholder management to technical and commercial expertise to access to capital. In so doing, it should align investment to core business operations and identify a clear exit strategy by ensuring solutions are underpinned by sustainable business models. Several companies, including Total and Eni, are emerging as industry leaders in leveraging core business capabilities to support access to energy. Total, for example, is currently leveraging its distribution infrastructure. Awango by Total was set up by the French IOC in collaboration with the German development agency Deutsche to deliver solar lighting and phone-charging solutions for the BoP by leveraging local financing and distribution networks. They also supplied training to ensure correct use and maintenance of the technology (Total 2012).

- **Establish and lead ecosystem development**
  In order to really drive transformative change, the oil and gas industry is well positioned to establish and lead an integrated approach to tackling energy poverty. This includes leading development of innovative solutions and business models as well as playing a key role in catalysing action, convening key stakeholders and coordinating a more comprehensive solution driven by shared value and supported by shared investment. Solutions should be considered at both the broad industry and cross-industry levels. For example, oil and gas companies operating in the same market could coordinate community investments at the industry level to more cohesively and holistically tackle community needs – from access to power for the end user to powering health clinics and schools.

Benefits of capturing the energy efficiency opportunity

Much of the recent attention to energy efficiency has its origin in the need to reduce carbon emissions; energy efficiency opportunities make up about a third of the total low-cost opportunities to reduce GHG emissions globally (McKinsey & Company 2009). A large number of currently available energy efficiency opportunities are characterised as having 'negative cost': in other words, the savings from reduced energy consumption over the lifetime of the investment exceeds the initial cost. It is estimated that the total financial savings, or avoided energy cost, of this efficiency opportunity will be $250 – $325 billion a year in 2030 (McKinsey & Company 2009).

Additional benefits include the environmental benefit – a reduction of 12% – 17% of total global GHG emissions in 2030 versus a baseline scenario, which is around a third of the low-cost GHG abatement opportunity (McKinsey & Company 2009), and the economic benefit of reducing the risk of price volatility as a result of demand outstripping supply. When coupled with other low-cost abatement actions such as renewable power and reduced deforestation, this path is compatible with a 450 ppm stabilisation scenario (IEA 2009).

In addition to the benefits shared by the global community, countries that succeed in increasing energy efficiency can also reap a number of direct benefits at different levels:

- Governments. Energy efficiency can ease infrastructure bottlenecks by avoiding or delaying capital-intensive investments in new power supply without affecting economic growth. This is especially important in developing countries where there are energy supply shortages and significant capital constraints. The IEA estimates savings of $1 trillion in avoided energy infrastructure investment to 2030 if the available energy efficiency potential is captured (IEA 2009). Reducing peak load through load management can reduce generation costs. Reducing overall generation through

energy efficiency reduces fuel imports (primarily oil and gas), which lowers import dependence, reduces import bills and overall energy costs and improves the competitiveness of the economy (McKinsey & Company 2009). In sectors with energy subsidies, energy efficiency helps mitigate the burden on the government budget. With regard to project economics, energy efficiency options almost always have positive financial returns and are almost always cheaper than installing new supply.

- Consumers. Energy efficiency allows lower energy consumption for the same end-user energy services, which lowers energy costs for consumers – industrial, commercial and residential. This leads to higher affordability, which is particularly important for low-income groups and creates a more attractive environment for tariff reform. Efficient lighting alone could save more than $1 a month per household. This would be even more for households that currently rely on kerosene and candles for lighting (the average non-electrified household in South Africa, for example, spends $5 – $6 per month on lighting) (Madubansi & Shackleton 2006). At the same time, reducing energy demand leads to higher system reliability, which in turn lowers out ageing infrastructure costs and raises productivity and income.

Conclusion

Nigeria is one of Africa's largest oil-producing countries that has one of the lowest net rates of electricity generation per capita in the world, with 50% of its population (80 million people) living without access to electricity. Moreover, despite producing an average of 2 billion barrels of oil per day, only 11% of Nigeria's energy consumption is attributed to oil, with biomass and waste accounting for 83.9%. The international community recognises a number of basic rights: the right to water, the right to food, the right to health, the right to adequate housing, the right to gain a living by work and the right to take part in cultural life. Missing from this list is the right to energy. Yet, everyone needs energy to cook food, to heat the home, to earn a living, to benefit from good health and education services. Energy poverty denies people in Africa a basic standard of living which should be available for all. Only 15% of the population in Africa has electricity, and one quarter of the 2.5 billion people cooking with biomass live in Africa (IEA 2012). Achievement of all of the Millennium Development Goals (MDGs) has been limited by energy poverty in Africa and across the developing world. This lack of access to efficient modern energy has a significant impact on economic development and small-scale enterprise, educational opportunities, infant mortality, drudgery for women and quality of life. By 2030, there is an opportunity for the world to be well on its way to a fundamental transformation of its energy system, allowing developing countries to leapfrog current systems in order to achieve access to cleaner, sustainable, affordable and reliable energy services. This change will require major shifts in regulatory regimes in almost every economy; vast incremental infrastructure investments (likely to be more than $1 trillion annually (IEA 2008)). It will require accelerated development

and deployment of multiple new energy technologies and a fundamental behavioural shift in energy consumption. Major shifts in human and institutional capacity and governance will be required to make this happen. The transformation of energy systems will be uneven and, if poorly handled, has the potential to lead to a widening 'energy gap' between advanced and least developed nations, and even to periodic energy security crises. But handled well – through a balanced framework of cooperation and competition – energy system transformation has the potential to be a source of sustainable wealth creation for the world's growing population, whilst reducing the strain on its resources and climate. Developing countries like Nigeria in particular need to expand access to reliable and modern energy services if they are to reduce poverty and improve the health of their citizens, whilst at the same time increasing productivity, enhancing competitiveness and promoting economic growth.

A new mechanism should be developed which can transfer increasing amounts of the growing carbon market funds towards projects which directly reduce energy poverty both globally and regionally.

Recommendations

- The Nigerian government should enact policies that will encourage more private investors in the electric power supply to enhance its supply.
- Cordial relationships with host communities should be enhanced and peaceful states of affairs should be ensured to avoid more oil wells from being vandalised.
- More investments should be made in the area of environmental health to reduce illness and premature deaths amongst residents of Nigeria.

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Formal project management adoption readiness of emerging contractor firms in the Mangaung Metropolitan Municipality

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Whilst the South African government has harnessed Emerging Contractor Firms (ECFs) as vehicles for promoting economic transformation and redressing historical economic disadvantage amongst previously disadvantaged groups, the capacity of these firms to transform the construction industry has been hampered by their lack of project management (PM) skills and techniques. The drive towards Broad-based Black Economic Empowerment in this industry, therefore, has been marred by evidence of poor quality construction, delays in project execution and completion leading to cost overruns and general public frustration with ECFs' structures. Since these challenges are attributed to poor project management practices and a dearth of project management skills by most ECFs, there is scope to examine the interface between construction entrepreneurship and adoption of project management practices and/or techniques. Mindful of the ECFs' involvement in construction programmes and projects on behalf of government, this theoretical study explores the extent and significance of project management readiness of emerging contractors (ECs) in the adoption and implementation of construction projects. The thesis of this article is that effective project execution can be conceived to be a chain reaction process: one in which organisational change management presupposes organisational readiness, whilst organisational readiness cultivates the situated context for a relevant organisational culture, structure and strategy base that trigger effective project implementation. PM skills constitute the foundation for successful project management and any effective model on project management readiness of ECFs should strongly dovetail with the aforementioned organisational variables as well as an appropriate business strategy. This study recommends a holistic approach to effective project management that rides on the exploitation of business strategy and these organisational variables.

Introduction and problem statement

Given that projects are temporary investments undertaken to fulfil objectives that are beneficial to society and stakeholders (Brown & Hyer 2010:2; Clements & Gido 2012:4; Pinto 2013:25; PMI 2008:5), it is logical to argue that each project entails real costs with regard to time, effort, financial and intellectual resources. As such, it can be argued that such critical resources should be deployed to only those investments that generate the highest returns for both the project executers, the main stakeholders and the rest of the society. However, the maximisation of project benefits require any organisation that executes projects to possess project management (PM) capabilities in order to deliver the project on time, within budget and according to stated quality standards (Larson & Gray 2014:3; Maley 2012:1; Pinto 2013:24). Whilst it is generally envisaged that the application of PM techniques and tools heightens the chances of successful delivery of projects of any size (Larson & Gray 2014:3; Pinto 2013:24; Steyn et al. 2013:1), the range of PM capabilities, skills and practices necessary for successful project implementation cannot be assumed to be ubiquitous. More so, organisational cultures that support agility and flexibility, and organisational structures which cohere with, and respond sufficiently to, pressing demands from multiple stakeholders during project implementation are not always inherent in small, emerging businesses in resource-poor contexts like South Africa.

Whilst emerging contractor firm (i.e. small, emerging construction companies) activities are inherently project based to the extent that they are temporary and time bound (Larson & Gray 2011:3), their project execution processes tend to be riddled with delays, poor implementation and general public dissatisfaction with completed structures such as building apartments, sewer and drainage systems, and tarmac roads. The poor project execution structure stems from

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a paucity of PM skills and capabilities, distressed organisational cultures and unsophisticated organisational structures. The impoverished PM skills and capabilities pool are manifest in the haphazard implementation of construction projects without conforming to any logical methodology (Construction Industry Development Board (CIDB) 2011:7), lack of systematic planning and coherent coordination of projects. The paucity of PM skills is also maifested in structural dysfunctions of Emerging Construction Firms (ECFs), which contribute to project failures and construction project-related litigations and investigations. A typical case is the Tongaat Mall collapse in KwaZulu-Natal that resulted in the loss of two lives and lead to the institution of a Commission of Inquiry (Ramutloa 2015) to investigate allegations of poor project management (e.g. poor quantification of building materials, site inspection), general workmanship (e.g. poor oversight of the project) and poor organisational structure for project implementation.

General public dissatisfaction with completed structures can be attributed to the lack of a results-oriented organisational culture and, more critically, to the lack of requisite skills (Aigbavboa & Thwala 2014) amongst ECFs. The South African print and electronic media are also awash with public frustration with ECFs over poorly constructed Reconstruction and Development Programme (RDP) houses (i.e. low cost-housing for poor communities). The litany of complaints range from wall cracks, leaking roof tiles, poor drainage systems, improperly installed door locks and electrical faults, amongst other malfunctions. Shoddy construction has been found in the form of poor roofing, cracks, weak doors, damp, poor foundations and no floors (Odeku 2012; Sisulu 2005).

As noted by the Fédération Internationale des Ingénieurs-Conseils (FIDIC) (also called the International Federation of Consulting Engineers), 'lack of quality in construction [sector] is manifested in poor or non-sustainable workmanship, and unsafe structures; and in delays, cost overruns and disputes in construction contracts' (http://fidic.org/node/751).

In view of the above-mentioned complex revelations, the problem therefore, is the poor PM skills and capabilities pool, absence of quality results-driven organisational culture and weak organisational structures of ECFs for effective project implementation. These deficiencies result in poor project execution, project cost overruns and the erection of structures with multiple defects leading to huge costs of repairs by national government. Therefore, the successful execution of construction projects by ECFs implies a coherent intersection of high quality project management skills and capabilities, strong, outcome-oriented organisational cultures and adaptive, agile organisational structures. The current authors, therefore, wondered about the sequencing and constitution of a PM readiness model for ECFs if PM skills, organisational culture and organisational structures were to be considered in this model.

Problem background
History and rationale of emerging contractors

Ofori (1996) and Thwala and Phaldi (2009) report that contractor development in emerging economies emerged in the 1970s as a result of the increasing realisation of the incapacity of construction companies to contribute to national economic development. The incapacity of construction firms can be tracked back to their operation in a complex economic, political and legal environment (Ofori 1996; Malongane 2014), including a discriminatory past that challenged the provision of support to small, emerging businesses by large, well-resourced corporations. For apartheid South Africa, one of the main challenges of construction businesses was the discouragement of collaboration between large and small enterprises because apartheid policies prohibited joint entrepreneurial ventures between black- and white-run businesses (Berry et al. 2002; Tshivhase & Worku 2012). This undermined the smooth transfer of PM skills and financial resources from large established firms to emerging construction businesses.

In the South African government's effort to economically empower individuals from the previously disadvantaged groups the Emerging Contractor Development Programme was initiated to enable them to start, manage and run small businesses in the construction industry (*BBBEE Act 53 of 2003*). These small businesses are referred to as Emerging Construction Firms (ECFs) and the owners of these firms are called Emerging Contractors (ECs). The long term sustainability of this programme was tied to legislative and policy frameworks such as the *Broad Based Black Empowerment (BBBEE) Act* and *Preferential Procurement Policy Act (PPPA)*. These two policy frameworks give individuals from the previously disadvantaged backgrounds preference in obtaining tenders and work contracts in the construction industry (*BBBEE Act 53 of 2003; PPP Act 5 of 2000*).

Literature review

ECs and the construction industry

In South Africa, the activities and operations of ECFs are typical in the construction industry of the country. This is in line with the government's effort to harness the importance of the construction industry to economically empower individuals from the previously disadvantaged groups, hence government is the highest client of the industry. Research suggests that government expenditure on construction industry projects hovers around 40% to 50%, and this industry contributes 5.1% to the Gross Domestic Product (GDP) of the country (Ncwadi & Dangalazana 2006:186; Ramokolo & Smallwood 2008:46). Khumalo, Nqojela and Njisane (2010) suggest that the 2010/2011 budget speech tabled by the Minister of Finance indicated that government planned to spend approximately R864 billion on construction infrastructure over the following 3 years. About 85.3% of this would be spent on the provision of infrastructure for electricity generation, roads, pipelines, bulk infrastructure

for water and sanitation, and housing (Jurgens 2010). Such a huge investment signifies the significance of the construction industry in the development matrix of the nation.

Mindful of the huge public financial investment in the construction industry, including the multiple ECFs in the country, it would be logical to expect ECFs to deliver quality construction projects within their specified budgets and on time. Sadly, whilst a handful of professionally-oriented ECFs have demonstrated sound project management skills, wide project implementation gaps still persist amongst the majority of ECFs operating in South Africa. The poor project implementation culture amongst ECFs stems from: poor project management expertise and experience, lack of basic project management qualifications, poor financial resource bases to purchase quality building materials and corruption in the post-tendering phase (Thwala & Phaladi 2009). Research in emerging economies such as Malaysia suggests that one of the chief reasons for construction project failures is the incapacity of the project architect to perform project management duties such as demonstrating project management competence, executing appropriate plans and PM perspectives (Rajoo 2010; Yadollahi et al. 2014). Ahadzie (2007) argues that achieving project success is tied closely to the possession of construction project management competencies. To this effect, successful construction organisations are now requiring that project managers obtain the principal PM competencies that they require to be successful in their jobs (Yadollahi et al. 2014).

Poor quality housing has sparked public debate in the South African construction arena. Zunguzane, Smallwood and Emuze (2012) investigated housing beneficiaries and contractors' perceptions of non-conformance to quality requirements in low-income housing in Port Elizabeth in the Eastern Cape. Their findings attributed the multiple defects in low-income houses to the use of emerging contractors who had limited construction project management experience and who deployed unskilled labour in construction projects.

PM and construction industry
Given this bleak picture on the performance of ECFs in SA, it is logical to recommend a strong PM culture in the sector. Yet PM cannot be grasped outside the ambit of projects themselves. Projects are said to be unique and temporary endeavours are undertaken to create a unique product, service or result whilst considering the constraints of time, cost and quality in addition to meeting the concern of the environment and other stakeholders (Brown & Hyer 2010:2; Maley 2012:3; Steyn et al. 2013:3). For projects to be conducted successfully, a compendium of PM skills, knowledge, tools and techniques must be applied to project activities. Therefore, PM is generally considered as the application of a set of skills, knowledge, tools and techniques for project activities in order to meet project requirements (Clements & Gido 2012:14; Kerzner 2013:4; Maley 2012:2; PMI 2008:6).

There is an axiomatic relationship between projects, project management and the construction industry. Activities in the construction industry such as construction of new bridges, houses, factories, roads and ports, including the repairs and maintenance of such infrastructure, are mostly considered as projects because they are temporary, time bound, unique and are geared towards the creation of a unique product, service or result (Larson & Gray 2011:3; PMI 2008:6). Both the construction and maintenance of these structures call into question strong PM skills, knowledge, tools and techniques. This implies PM is the foundation for successful delivery of construction projects and activities. As such, Palaneeswaran (2006) argues that the construction industry is inherently project-based and adherence to coherent project management practices is critical to addressing the multiple stakeholders involved in construction projects. In fact, the PM approach has long been the style of doing business in the construction industry by the US defence department (Larson & Gray 2014:3), suggesting its indispensability in successful completion of construction projects. Hills et al. (2008) reiterate that as the design and construction phases of construction projects entail multiple specialists (e.g. project manager, construction manager, design engineer, construction engineer or project architect), project management is fundamental to their proper coordination, including provision of equitable solutions to the problems that arise during construction.

PM and business strategy
It would be insidious to conceive successful PM without due consideration of the business strategy of the organisation, as ECFs are essentially entrepreneurial business ventures whose success depends on the implementation of an appropriate strategy for effective project execution. Traditionally, a business strategy emphasised the clear positioning of the business (Volberda 2004). The contemporary focus of strategy has, however, shifted from positioning to progression of the organisation over a long period, taking advantage of the changing externalities through a combination of resources and competencies with the objective of fulfilling its stakeholder expectations (Johnson, Scholes & Whittington 2005; Volberda 2004; Zadeh & Ching 2007). The successful deployment of resources and competencies to advance stakeholder expectations, and the sustainability of the organisation (i.e. strategy) is intricately connected to PM, which focuses on successful project design and execution through the sustainable coordination and integration of project activities. Yet, despite this perceived need to connect PM to business strategy to allow efficient and effective implementation of project activities at the right time and place, as well as to derive corporate value, alignment of PM with the business strategy depends on the type, nature and complexity of the given project, including the interests of project stakeholders involved. To this end, there has been divergence of opinion on whether PM should be aligned to the overall business strategy or to the project strategy. Whilst some PM literature subscribes to the alignment of project strategy to business strategy (Gardiner 2006; Milosevic & Srivannaboon 2006), other literature maintains that projects should adopt their own strategy irrespective of the strategy

of the parent company (Arnaboldi, Azzone & Savoldelli 2004; Shenhar 2004; Zadeh & Ching 2007). Commenting on the Slovenian businesses' project performance, Stare (2012:3) argues that improvisation is quite a common way of executing projects and, despite the official internal rules governing how projects should be implemented, many stakeholders do not consider them.

Another way of conceiving the PM-business strategy is to regard projects as tools of implementing the business strategy of an organisation as every project in an organisation should contribute to its strategic plan (ESI International 2006:2). In order for businesses to implement new strategies, PM tools and techniques can be used because new strategies can be considered as projects (Larson & Gray 2014:32), drawing on Porter's generic typology.

Srivannaboon and Milosevic (2006) classify business level strategies according to several themes and align them with PM by using a case study methodology. According to this framework, PM consists of project strategy, organisation, process, tools, metrics and culture. Drawing on Porter's generic typology for classifying strategy, Cooke-Davies et al. (2009) also align PM systems with strategy by arguing that components of PM systems that should be aligned with the business strategy are policies, people, structure and process (cited in Budayan, Dikmen & Birgonul 2015:94).

PM and organisational structure

Organisational structure is considered as the framework within which the strategic processes of the organisation operate in order to achieve its goals. The structure is also considered as the medium through which tasks and responsibilities are assigned within an organisation, which enables it to effectively manage and deliver the goals of the organisation successfully (Ehlers & Lazenby 2010:324; Pearce & Robinson 2013:321; Pinto 2010:62). Three types of organisational structures are considered as the key types used by organisations, namely, functional, project and matrix organisational structures (Ehlers & Lazenby 2010:324; Pearce & Robinson 2013:321; Pinto 2010:62). The organisational structure to adopt and use during project implementation is dependent on the organisational requirements, resources available to the organisation as well as its size. In ECFs, which are small-scale organisations with a small staff complement with fewer sophisticated skills than those of large organisations, a limited operational budget for project execution and limited external funding, the project structure is usually the best option. A project organisational structure is known to be used specifically in situations where activities within the organisation are managed using the PM techniques and tools. Therefore, for organisations to benefit from PM tools and techniques using organisational structure, the adopted structure must be able to satisfy the needs of the organisation. It is, however, important to note that without the appropriate organisational structure in place, PM implementation could become a difficult endeavour to undertake.

PM and organisational culture

The culture of an organisation is considered to comprise of the formal and informal practices and values that are shared amongst members of the organisation and are taught to new members (Kloppenborg 2012:59; Pinto 2013:76). Stare (2012:3–4) argues that project organisational culture can be viewed from two perspectives, namely:

- *Organisational strategy, structure, systems, behavioural patterns and processes of an organisation* that determine the internal environment required for project management to be successful.
- *Corporate culture with an indirect influence*: employees' involvement, consistency (a strong internal culture, a concern with shared values), mission and long-term directions, adaptability to the environment (Kuo & Kuo 2010); how decision-makers respond to ambiguity, complexity, and uncertainty (Shore 2008); organisational direction, competitiveness orientation, decision-making rationale, cross-functional integration, communication philosophy and locus of decision-making.

In general terms, organisational culture could be considered as the way of life of the organisation or the way of life of the individuals within the organisation. This way of life denotes how organisations react and adapt in the long term to socio-economic, political and cultural issues and changes within the organisation such as labour legislation, technological innovations, demographic changes, financial shocks and political instability. It is therefore important to ensure that organisations adapt flexibly to changes in their external environment to ensure successful project execution and satisfaction of multiple stakeholders. Overall, Schwalbe (2009:208) concedes that good PM requires a supportive organisational culture. This implies that for PM techniques and tools to be adopted and implemented in an organisation, the organisation must exhibit a culture that supports it. In Larson and Gray's (2014:81) assertion, no matter how well the organisational structure is, without a supportive culture the use of PM approach in project implementation can be hampered in an organisation. Larson and Gray (2014:82) further highlight that in situations where organisations implement the same projects, the implementation of the same projects might differ and bring different levels of results because of different organisation cultural levels.

PM and specialised skills

The acquisition of certain specialised skills is critical to an individual's or an organisation's skilful use of PM techniques and tools for effective and successful project delivery (Kloppenborg 2012:5; Maley 2012:1). With regard to the acquisition of PM techniques in any field, Kloppenborg (2012:5) distinguishes hard from soft skills, whilst Larson and Gray (2014:17) identify technical and sociocultural skills. What Kloppenborg (2012) considers hard and soft skills are what Larson and Gray (2014) regard to be technical and sociocultural skills, respectively. Hard and/or technical skills include risk analysis, quality control, scheduling, budgeting, resource allocation, whilst the soft and/or sociocultural skills

include leadership, problem solving, teamwork, negotiation, politics and other related skills which are also needed for successful implementation of PM tools and techniques (Kloppenborg 2012:5; Larson & Gray 2014:17). For the construction industry hard PM skills relate to the practical execution of projects (e.g. structural engineering skills, project design, interpretation of site maps and drawings, accurate measurement of materials and structures, forecasting of costs, costing of materials, scheduling of tasks), whilst soft PM skills denote ancillary skills relevant to the expediting of processes for project completion such as people coordination skills, interpersonal communication and leadership. Larson and Gray (2014:17) and Kloppenborg (2012:5) assert that for effective PM tools and technique implementation, these two sets of skills need to be acquired and used together.

PM readiness of emerging construction firms

CIDB suggests that most ECFs do not possess any PM techniques and tools in their project activities (CIDB Act 38 of 2000; CIDB 2011:7). This inadequacy has resulted in project cost overruns, project implementation delays and low quality of projects delivered by ECFs (Ncwadi & Dagalazan 2006:186; CIDB 2011:7). Based on these observations, it could be inferred that the paucity of PM tools and techniques amongst ECFs has compromised their ability to adopt PM for successful project execution. In view of the ad hoc adoption of PM tools and techniques by ECFs, including the above-mentioned public outcry on badly constructed buildings and structures, the consideration of formal PM approaches for ECFs cannot be overemphasised. Yet, the transition from ad hoc and uncoordinated project activities towards more coherent formal PM cannot be assumed to be automatic but rather necessitates the creation of a propitious work environment for its smooth implementation. The transition of ECFs to effective PM culture requires a conducive work environment comprising a supportive organisational structure, a hands-on or practical and results-oriented organisational culture and specialised PM skills necessary for successful project execution. The supportive organisational structure allows for the smooth assignment of work responsibilities and coordination of work tasks, appropriate, flexible delegation

of authority for successful task assignments and/or execution and flow of work-based communication. The practical, task-oriented culture permits successful work completion through concentration on delivery of quality outcomes within budgetary limits and on time. Task orientation also allows tasks to be organised around the organisational strategy to improve work coordination, and where tasks deviate from strategy, corrective measures can then be instituted to ensure coherence or to explain deviations. Organisational skills are key to the success of PM implementation in the light of the skills gaps evident amongst ECFs owners bequeathed by the apartheid legacy. The skills deficiencies perpetuated by a legacy of sub-standard education, limited professional training and limited construction experience all crystallise into an amalgam that is inimical to successful project implementation. To this end, the combination of a supportive organisational structure task-oriented organisational culture and an assortment of organisation-wide PM skills will collectively trigger successful PM and project execution (see Figure 1).

Proposed conceptual framework

Understanding the formal PM adoption readiness of ECFs necessitates an appreciation of the constitutive components of the project implementation model to ensure the effective execution of PM techniques and tools in project activities of ECFs. The model suggests that formal PM implementation involves a complex change management process in which the PM-based organisation has an organisational structure, culture and PM skills base which are congruent with the organisation's situated context and are moderated by organisational change readiness (OCR) (cf. Kloppenborg 2012; Pinto 2010). For ECFs, high levels of PM implementation depend on the conduciveness for change of organisational structure, culture and the PM skills base of ECFs (see Figure 1). This implies that readiness of organisational change is a crucial precondition for effective implementation and management of formal PM techniques and tools within organisations. The framework assumes that once a conducive organisational structure, organisational culture and PM skills are available and moderated by Organisational Change
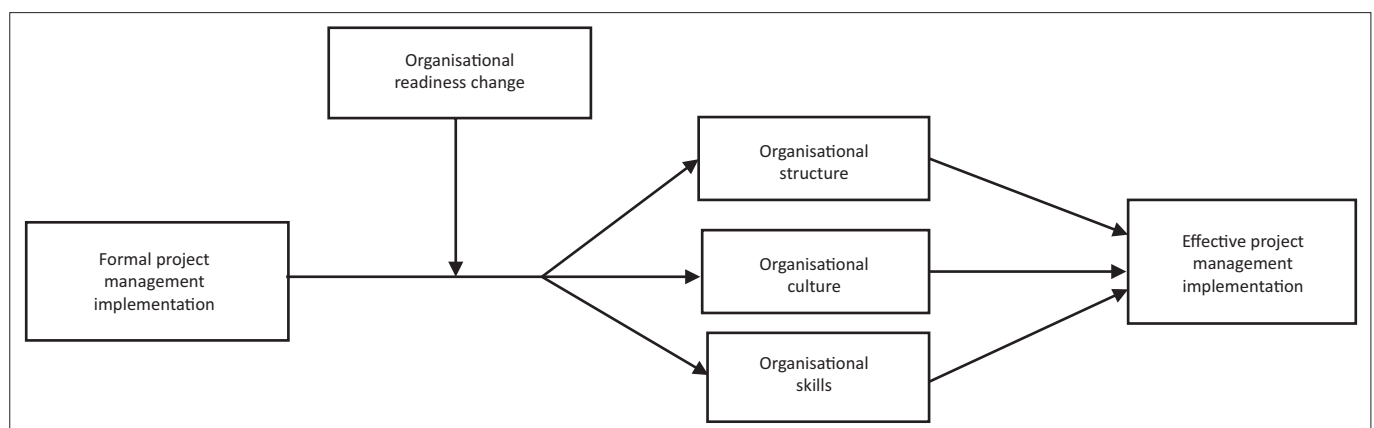
Source: Researchers' own compilation 2014

FIGURE 1: Formal PM implementation model.

Readiness (OCR), there are high chances of effective implementation of projects. Since external variables such as the nature and size of the industry the ECF is in, the general performance of the economy, and competition from rivals are givens, they were considered as unsuitable for inclusion in the model. Therefore, we argue that although the external environment provides a facilitative environment for the articulation of organisational readiness, the actual success of formal project management and/or implementation rides on a conducive organisational structure, organisational culture and prevalence of PM skills within the ECFs (see Figure 1).

Methodology

It was earlier emphasised that literature review constitutes the methodological approach in this study. The study is therefore theoretical. According to George State University (2015), theoretical research is 'based on the observation of others' and 'runs no analytical procedures due to absence of empirical data'. The study employs concepts, constructs and relationships of variables drawn from literature to make logical inferences about the extent of formal project management adoption readiness of emerging contractor firms. The approach was, therefore, adopted because of lack of data on the project management adoption readiness of emerging construction firms in Mangaung Metropolitan Municipality.

Observations and discussion

This article has already alluded to the central place of the ECFs in the economic development agenda of South Africa, including the value of the construction industry in the redistribution of the economic wealth of the country. The challenge, however, is that the fulfilment of these mandates is neither automatic nor a simple enterprise given the highly complex nature of this industry, multiple legislation and multiple stakeholders deeply implicated in the reconstruction and development agenda of the nation. In South Africa, the complexity of construction projects arises from the multiple structural, contextual and professional complexities. The structural issues relate to the construction backlog amongst historically marginalised groups bequeathed by the discriminatory apartheid regime, the high demand for decent accommodation in the face of a rapidly expanding population and resource constraints that limit public provision of decent housing across various social groups. Contextual concerns undergird public pressure for decent accommodation that manifests in strikes and demonstrations for basic amenities, which have become a public spectacle across the breadth of the country. At the professional level there is the abundant evidence of project skills gaps amongst ECF owners, their low educational attainments that complicate effective project delivery and inadequate organisational structure for successful implementation of large infrastructural projects.

Combining the above-mentioned constraints become a recipe for construction disaster given that construction projects have to be delivered on time, within recommended budgets and of the appropriate quality. Therefore, formal PM techniques could enhance project implementation success by increasing chances of delivering successful projects on time, appropriate cost and quality whilst also satisfying stakeholder needs. Project management success, therefore, demands PM readiness, itself a mediator of organisational structure, organisational culture, organisational strategy and PM skills.

Significance of the contribution

Given the study objectives of determining the formal PM adoption readiness of emerging contractors, the theoretical discussion of this research should render an informative heuristic to:

1. Enable ECFs to realise the importance of organisational change readiness including adoption and implementation of formal PM techniques in their project activities.
2. Empower ECFs to identify and develop appropriate business strategies consonant with the types and scale of projects they implement.
3. Attract sufficient local corporate investment in ECFs, including the development of durable collaborations with the corporate sector on large scale projects.
4. Enable government construction regulation agencies to develop and monitor the PM skills base of ECFs and advise them on the appropriate organisational structure for effective implementation of their projects.
5. Enable government agencies to adjust and adapt current contractor development programmes to suit the skills base and organisational structural realities and complexities of ECFs.

Concluding remarks

The article argued that although PM techniques and tools are considered critical to effective implementation of ECF projects, the adoption of such tools and techniques is never an automatic process or a simplistic venture as effective project management implementation demands sufficient organisational change readiness. Such readiness sets the socio-cultural context and appropriate professional tone for developing a supporting organisational structure, coherent, results-oriented organisational culture, corresponding business strategy and PM skills base congruent with successful project execution. To this end, effective project execution can be conceived to be a chain reaction process: one in which organisational change management presupposes organisational readiness, whilst organisational readiness cultivates the situated context and aura for a relevant organisational culture, structure, strategy and PM skills base that triggers effective project implementation.

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Part 3

Information Systems/Information Technology/Information Management

Institutionalising knowledge sharing in an organisation: A case of a selected organisation in the Western Cape, South Africa

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The aim of this article is to explore the social determinants for the institutionalisation of knowledge sharing within an organisation. The article uses the concept of duality of structure of Giddens' Structuration Theory as a theoretical lens. The reason for the focus on institutionalisation is because of its stabilising benefits and contribution to nurturing a culture of knowledge sharing. Systematic sharing of knowledge cannot take place unless there are procedures, policies and guidelines for knowledge sharing. The research, engaging an interpretive case study, reported on the major findings from the qualitative study with manager, professional, technician and intern staff members working within the development information and geographic information system department of a selected municipality in the Western Cape, South Africa. The perception is that organisational structure, policies and processes, corporate governance as well as technology have been identified as major enablers for the institutionalisation of knowledge sharing in an organisation. Management support and organisational culture were also recognised as social factors for knowledge sharing institutionalisation. New strategies for reinforcing efforts to nurture and invigorate the institutionalisation of knowledge sharing within an organisation were generated and presented as a general framework.

Introduction

The aim of this article is to explore the social determinants which will enable the institutionalisation of knowledge sharing within an organisation. After an in-depth review of current literature, it was discovered that the success of knowledge management within any organisation is contingent on knowledge sharing. It was also discovered that knowledge sharing is often seen as problematic because of a lack of guidelines on what to share and how to share it, as well as the willingness of people to share. These discoveries have been because of a lack of an organisational culture for sharing knowledge (Twum-Darko & Harker 2014). Continuous knowledge sharing, knowledge renewal and knowledge creation cannot occur efficiently and effectively without an established organisational culture, infrastructure and procedures and policies for knowledge sharing (Abdul-Jalal et al. 2013; Malhotra 2004; Marabelli & Newell 2012) that is institutionalising knowledge sharing.

Institutionalisation plays an important role in enabling an organisational culture for sharing knowledge and providing a systematic approach to sharing knowledge (Orlikowski 2000), thereby enabling the effective and efficient sharing of knowledge (Twum-Darko & Harker 2014). Nielsen, Mathiassen and Newel (2014) define institutionalisation as:

> the recursive intertwining of practices that encourage the travel of ideas across a field and within individual organizations. Ideas are created, transformed and legitimized over time, and take on different linguistic and material forms across organizational settings. (n.p)

Thus, in the context of this study, the entrenchment of knowledge means sharing practices. The challenge, then, is to explore the determinants for institutionalising knowledge sharing, using structuration theory.

Given the importance of structure and a culture for knowledge sharing as well as the positive influence that institutionalisation can have on knowledge sharing, systematic sharing of knowledge cannot take place unless there are procedures, guidelines, policy and an organisational culture nurtured for knowledge sharing (McDermott & O'Dell 2001:76; Riege 2005; Ruppel &

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Harrington 2001). The importance of organisational culture lies in its ability to have a direct effect on employees' knowledge sharing behaviour as well as an indirect effect through influencing managers' attitudes towards knowledge sharing (Wang & Noe 2010). In addition, the lack of appropriate infrastructure supporting knowledge sharing and formal and informal spaces to share, impact the effective sharing of knowledge in an organisation (Riege 2005:25–26). Institutionalisation is important not with regard to systems and structure, but also culture and the influence of management.

Therefore, the problem is one of knowledge sharing not being adequately institutionalised in many organisations. This was observed after realising the importance of structure and culture for knowledge sharing as well as the positive influence that institutionalisation can have on knowledge sharing. The challenge, then, is to explore the social determinants for the institutionalisation of knowledge sharing. Knowledge sharing cannot be efficient and/or effective unless it is institutionalised. Furthermore, institutionalisation should be considered from all perspectives to determine how knowledge sharing can be entrenched in an organisation.

Duality of technology and enactment of knowledge sharing-in-practice

Anthony Giddens (1986) describes the duality of structure as constituting two pillars of duality: the dimensions of structure and the processes of interactions. The duality of structure concept is depicted in Figure 1.

The signification structure relates to organisational interaction using different kinds of interpretative schemes (Giddens 1986). Signification, therefore, can be used by agents for communicating, understanding and providing the meanings for different types of activities (Mauerer & Nissen 2014). The domination structure deals with various ways of exercising power over different types of resources (Mauerer & Nissen 2014). Domination involves controlling and using allocative and authoritative resources, along with power, over other people or resources (Giddens 1986). Also, the legitimation structure deals with the institutionalisation of

norms, standards and values (MacKay & Tambeau 2013). Twum-Darko (2014) refers to it as moral code, leadership, understanding and endorsement for human interaction which ultimately produces legitimation.

Drawing on the work of Giddens, Orlikowski (2000:407) used enactment of technology-in-practice (ETiP), which has been adapted in Figure 9 below for knowledge sharing to further elaborate on the two notions of emergent structures and enactment. Orlikowski asserts (op.cit.):

> structures are embodied in technologies to be appropriated by users and indeed differently over time and space to share knowledge. That is, rather than starting with the technology and examining how actors appropriate its embodied structures, this view starts with human action and examines how it enacts emergent structures through recurrent interaction with the technologies at hand.

Therefore, Figure 2, which is based on Giddens' duality of structure, represents Orlikowski's argument of technology appropriation.

Barley and Tolbert (1997) define institutionalisation as shared rules and typifications that identify categories of social actors and their appropriate activities or relationships. The process of institutionalisation includes the concept of ideals, discourses, techniques and controls. This implies basic ideas, ways of defining and acting upon reality, using elaborate systems of measurement and documentation for controlling action outcome (Dambrin, Lambert & Sponem 2007). The dynamics of institutionalisation are adequately addressed by Orlikowski's enactment of technology-in-practice and have been used as a lens through which to conceptualise the problem.

Given the underpinning theory to enact knowledge sharing-in-practice, the research problem has been conceptualised and illustrated as in Figure 3 below to address knowledge sharing challenges in an organisation. Institutionalisation cannot take place unless there are knowledge sharing strategies that are driven from policies leading to guidelines to implement procedures (Twum-Darko & Harker 20144:290). The institutionalisation of knowledge sharing is driven by the implementation of knowledge management strategies.
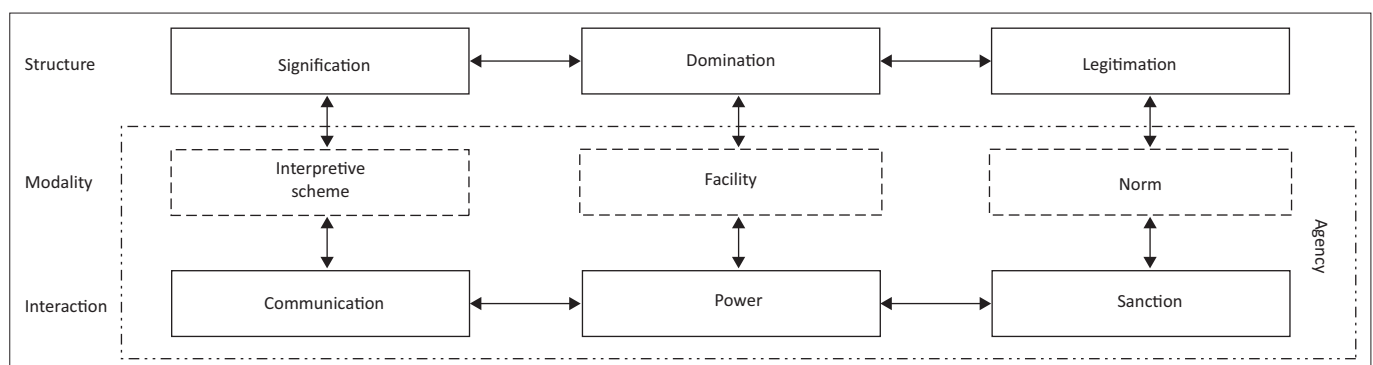
Source: Giddens (1986)

FIGURE 1: Duality of structure.
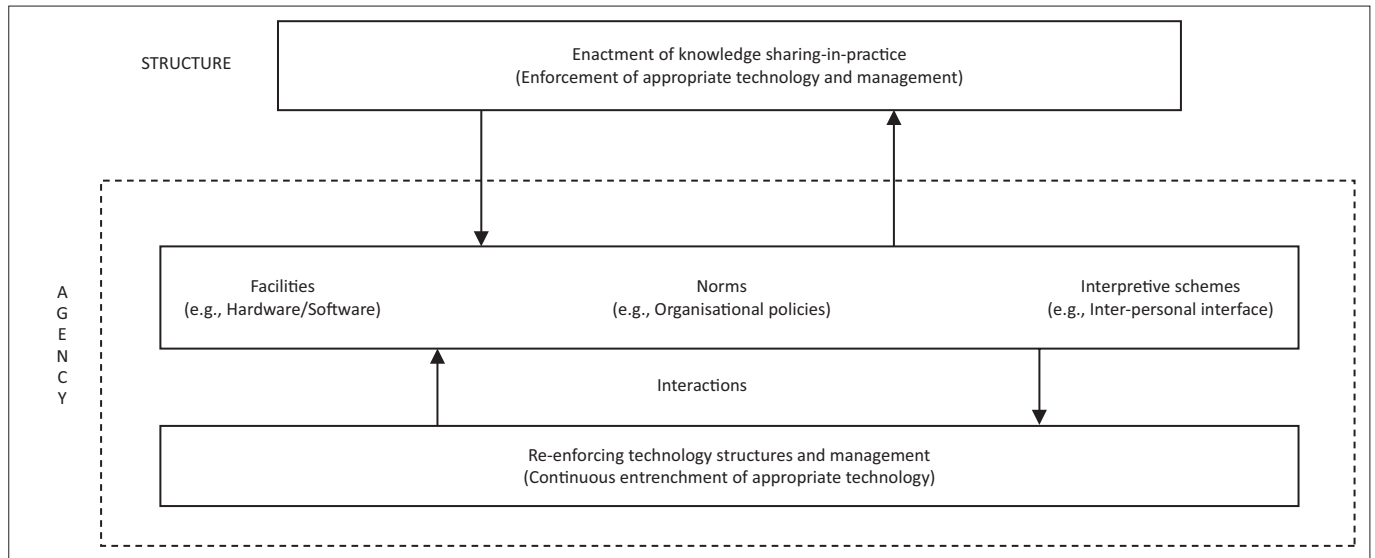
Source: Orlikowski 2000

FIGURE 2: Adaption of enactment of technology-in-practice.
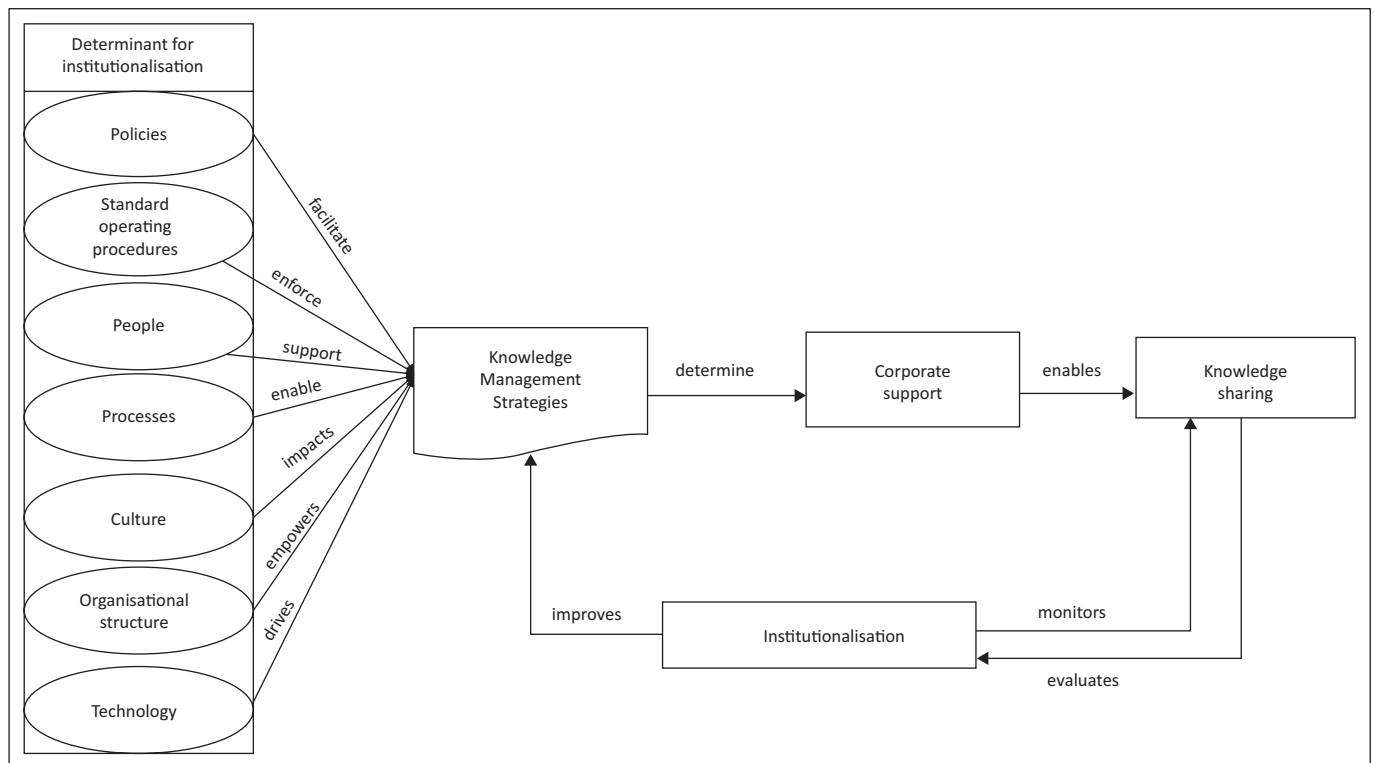
Source: Derived from literature reviewed

FIGURE 3: Problem conceptualisation.

These strategies, informed by the determinants for the institutionalisation of knowledge sharing, determine the kind of corporate support that the organisation requires to drive knowledge sharing.

The process of institutionalisation is achieved through the monitoring and evaluation of knowledge sharing, which serves to inform knowledge management strategies for improvement. Consequently, recommendations are made to management on how to improve the effectiveness of knowledge management strategies, which include the

determinants important for the institutionalisation of knowledge sharing.

Literature review
Introduction

Ruppel and Harrington (2001) argue that knowledge management has received significant focus in literature as a result of the numerous advantages that it can bring to an organisation. Knowledge management manages the activities of knowledge workers, which is achieved through facilitating,

motivating, leading and supporting knowledge workers by providing or nurturing a suitable working environment (Gao et al. 2008:12). Furthermore, Wiig (2004) indicates that knowledge management is a social communication process. Thus, he (Wigg 2004) argues that the communication process is enabled by collaboration and cooperation support tools. It is therefore agreeable that knowledge management could make organisations act intelligently to make them viable and succeed to realise the value they can derive from knowledge assets (Wiig 2004).

Knowledge management in an organisation involves certain processes, which include the creation, transfer, storing and using of knowledge (Bhatt 2002). Similarly, Massingham (2014) declares that the:

> goal of knowledge management is to capture, store, maintain and deliver useful knowledge in a meaningful form to anyone who needs it in any place and at any time within an organisation. (p. 1077)

Indeed, knowledge, as suggested in the literature, can be either tacit or explicit. Becerra et al. (2008) argue that tacit knowledge refers to the knowledge that we keep in our minds or our personal experience. However, Clarke and Rollo (2001) have suggested that explicit knowledge is knowledge existing in physical forms such as manuals and documents, or codified knowledge. Knowledge is derived from information. Information is data in context that can be used for decision-making (Clarke & Rollo 2001:207). Knowledge is information possessed in the mind of individuals (which may or may not be new, unique, useful or accurate) that is related to facts, procedures, concepts, interpretations, ideas, observations, and judgements (Alavi & Leidner 2011:109). Knowledge is therefore an organised combination of data, assimilated with a set of rules, procedures and operations learnt through experience and practice (Bhatt 2001:70). Knowledge management has become a key component of an organisation as it helps the organisation to improve performance and achieve a competitive advantage (Lindner & Wald 2011).

Knowledge sharing

Knowledge sharing is the cornerstone of a knowledge management strategy as better and purposeful sharing of useful knowledge translates into accelerated individual and organisational learning and innovation (Riege 2005). Knowledge sharing ensures that knowledge is distributed and made available to all employees across an organisation (Wang & Noe 2010). At the same time, knowledge management can only be sustained through continuous sharing of knowledge (Twum-Darko & Harker 2014:282). Knowledge sharing, however, has become a crucial area of concern (Ghobadi 2015). Concerns arise from the observations that knowledge sharing is not efficiently performed because of many factors. According to Riege (2005) and Carmeli et al. (2013), this could be attributable to

a lack of leadership and managerial direction regarding clearly communicating the benefits and values of knowledge sharing practices. The lack of accessible knowledge, lack of effectiveness and efficiency of knowledge sharing processes, and a lack of social cohesion can also negatively impact knowledge sharing performance (Wickramasinghe & Widyaratne 2012). Alavi and Leidner (2001) assert that communication processes and information flows drive knowledge transfer in organisations. It is therefore important to address the issue of institutionalisation as an enabler for knowledge sharing, as the uptake of knowledge sharing to sustain knowledge management is crucial for organisations (Twum-Darko & Harker 2014:3).

Knowledge sharing strategies

Knowledge sharing plays an important role in implementing and executing knowledge management (Cao & Xiang 2012). The success of knowledge sharing is driven by its strategies and approaches. Enhancing trust, social cohesion and organisational culture can be useful for the effective transfer of knowledge. Riege (2005) states that motivation, encouragement and stimulation of individual employees to purposefully capture, disseminate, transfer and apply existing and newly generated useful knowledge is a way of reinforcing knowledge sharing in an organisation. Moreover, according to Chumg et al. (2015), it is important to develop a trust-based social network in the organisation as it will generate social cohesion. Trust can impact on the knowledge sharing processes as the more people trust each other, the more they are open to sharing and distributing their knowledge (Finn 2011). Riege (2005) emphasises this view by noting the importance of developing an organisational culture for knowledge sharing. This includes organisational structures that facilitate transparent knowledge flows, processes and resources that provide continuous learning, organisational culture and clear communication of the company's goals. Clarke and Rollo (2001), Riege (2005) and Alavi and Leidner (2001) further note the use of technology as a strategic approach for knowledge sharing. In this context, implementing a knowledge management system would be useful for the organisation as knowledge can be shared more effectively (Alavi & Leidner 1999). Based on these observations, it can be concluded that knowledge sharing strategies and approaches may impact positively on knowledge management performance (Chumg 2015).

Corporate support for knowledge sharing

The literature on corporate support for knowledge sharing recommends many tools and techniques for supporting knowledge sharing within an organisation. One of these tools is technology. According to Jones and Karsten (2003), using software tools such as a knowledge management system can impact positively on knowledge sharing. This opinion is supported by Hendriks (1999) and Alavi and Leidner (2001) who assert that information and communication technology are crucial for knowledge sharing. This is because technology

makes the exchange of knowledge easier and more frequent (Connelly & Kelloway 2003).

Moreover, Wickramasinghe and Widyaratne (2012) added that interpersonal trust, openness from employees, team leader support, rewards or incentives and knowledge sharing mechanisms can have a positive impact on knowledge sharing. Sánchez et al. (2013) contend that motivation, commitment, rewards, identification of competencies which need to be changed or optimised at the individual, team and organisational level, are all techniques that can be used to share knowledge more effectively and efficiently. This entails the implementation of proper knowledge sharing governance mechanisms such as motivation, and the creation of knowledge sharing opportunities, reward systems, internal training, leisure activities, reinforcing social activities, organisational design and culture, intrinsic and extrinsic rewards – all of which are important for employees' willingness to share knowledge with their co-workers, especially tacit knowledge (Huang et al. 2013). According to Twum-Darko and Harker (2014:289), organisational culture, management support and technology are reported to hold a significant influence on enabling and sustaining knowledge. In that context, it is implementing processes, incorporating a structured, systematic platform, and using technology to offer support and standardisation that will indeed ensure order and uniformity in the context of knowledge sharing (op. cit.). It is, therefore, important for an organisation to foster a relationship amongst employees and to cultivate mutual trust in the workplace. Having governance structures for knowledge transfer such as exchange, entitlement and leadership can create a knowledge sharing culture (Wanyama & Zheng 2010). This would create a connection between sharing knowledge and practical business goals. McDermott and O'Dell (2001) are of the opinion that knowledge sharing efficiency is linked to the core values of an organisation. This would facilitate the creation of a human network and solicit the support of people to share ideas and insights. In that respect, ensuring that positive social cohesion exists, along with technology and knowledge governance, can be enhanced. the performance of knowledge sharing within an organisation (Akhavan et al. 2013; Connelly et al. 2007; Dell et al. 2003; Dell et al. 2003).

The consideration of corporate support in the uptake and sustaining of knowledge sharing is important. Management support is a very important factor, as leadership is seen to be important for the promotion of the value of knowledge management, identifying opportunities to share and developing metrics for assessing the impact of knowledge sharing (Twum-Darko & Harker 20144:289).

Research approach

Introduction

Because of the sensitivity of this study, and the contribution made to depict matters of knowledge sharing and its institutionalisation, the choice of research approach is therefore fundamental. The ontological position of this research was a subjective one and, as a result, an interpretivist approach was adopted. The intention is to provide an in-depth and interpreted understanding of the social phenomenon by learning about experiences, perspectives and social and material circumstances (Ritchie & Lewis 2003:3) of knowledge sharing in an organisation.

Data on perceptions and insights on knowledge sharing enablers, which are important for institutionalisation in an organisation, were collected through a face-to-face focus group discussion with seven staff members operating within the Development Information and Geographic Information System (DI and GIS) department of the selected organisation. Focus group discussion was found to be important in the identification of cultural norms and the understanding of the issues of concern within a group of the affected population (Acaps 2012:10). The focus group was useful to obtain certain types of information as it was difficult to collect the relevant data across diverse groupings and departments using other qualitative techniques (Grafton Lillis & Mahama 2011:10). In addition to the focus group discussion, semi-structured questions were used in a way that did not restrict the flow of information amongst group participants. Thus, according to Welman and Kruger (2002:161, 187), the use of semi-structured questions for interviews as well as focus group discussion are useful when the topic is of a very sensitive nature and when the respondents come from divergent backgrounds, offering a versatile way of collecting data.

Therefore, since this study entailed direct interaction with the units of analysis, being the Development Information and Geo-spatial Information Systems department of a public local government organisation in the Western Cape, South Africa (Pozzebon et al. 2005), the research was empirical in nature.

Sampling and population

Purposive sampling, which is a non-probability sampling method, was used to enable an enhanced understanding of an information-rich case (Sandelowski 2000:248). Thus, participants were selected with informative characteristics, useful insights and ideas which were relevant for the purpose of this study (Anderson 2010:4; Bricki & Green 2007:9). The study focused on one department, 'DI & GIS', because it is a highly intensive knowledge area and knowledge sharing is a major component of this department and, as such, cannot function without the knowledge sharing activity. A focus group comprising seven staff members (manager, professional, technician and interns) working in the DI and GIS department and operating across the six branches of this department was conducted to obtain insights and perceptions about the matter of the institutionalisation of knowledge sharing. The DI and GIS department comprises a total of 6060 staff members from which 7 employees representing the branches were selected for the focus group (qualitative study). This is depicted in

TABLE 1: Sample and population of the DI & GIS department.

Department	Branches	Level of Management	Selected for Focus Group
DI & GIS	Information & Knowledge Management (IKM)	Manager	1
		Senior Professional Officer	0
		Technician	0
		Intern	1
DI & GIS	Development Information	Manager	0
		Senior Professional Officer	1
		Technician	0
		Intern	0
DI & GIS	Knowledge Resources & Support	Manager	0
		Senior Professional Officer	0
		Technician	1
		Intern	0
DI & GIS	Geomatics	Manager	0
		Senior Professional Officer	1
		Technician	0
		Intern	0
DI & GIS	Spatial Data Management	Manager	0
		Senior Professional Officer	1
		Technician	0
		Intern	0
DI & GIS	Record Management	Manager	0
		Senior Professional Officer	1
		Technician	0
		Intern	0

Source: The department of Development Information and Geographic Information Systems, City of Cape Town
DI, Development information; GIS, Geographic Information Systems.

Table 1, which outlines the population of the DI and GIS department from which the sample was taken.

Findings and interpretation

Introduction

The fieldwork was conducted at a selected municipality in the Western Cape, South Africa, and the units of analysis were employees working in the Development Information and Geographic Information System (DI & GIS) department. The analysis was on the identification of determinants that could influence knowledge sharing institutionalisation in an organisation. A general framework based on the conceptual framework is recommended to effectively institutionalise knowledge sharing in an organisation. The data collected through the focus group discussion with seven staff members operating within the six branches of the DI and GIS department were analysed using content analysis and interpreted by taking into consideration the concept of the duality of structure of structuration theory. The outcome of the analysis guided the development of the general framework that is envisaged to nurture the institutionalisation of knowledge sharing at an organisational level.

Policies and regulations as interpretive schemes

The outcomes suggest that policies, processes, procedures, organisational structure, people and knowledge sharing systems constitute enablers for encouraging the line of communication for knowledge sharing amongst coworkers in the organisation. This was supported by the DI and GIS manager who commented as follows:

> Since we came to the Unicity, there was a realisation that knowledge management had a place in the organisation, they realised the importance to have a corporate structure, a body that would have the mandate of ensuring knowledge management and aspects of knowledge sharing … we then had to come up with policies, framework, people and strategies that will address the issue of knowledge sharing that would sort of set the map for how this happens. (DI & GIS Manager)

Despite acknowledging the fact that policies effectively tackle knowledge sharing challenges, standard operating procedures can play a reinforcing role with regard to motivating people to share what they know in the organisation. Reflecting on this point during the focus group discussion, one professional officer asserted:

> What is intended is to move toward the implementation of standards operating procedures that would have more effective translation into the compliance of knowledge sharing in the organisation. (xxx)

Governance and organisational culture as norms

Furthermore, governance, being legally mandated by legislation, gives the type of power that would drive knowledge sharing institutionalisation. The observation is reflected by the comment of one of the participants who said:

> The department has shown that we have a very high level knowledge management steering group or type of governance structure that ensured frameworks, policies take form. This was never formalised into the standing governance committee that should look after the implementation of policies that would guide knowledge sharing … We need to have governance, a set of senior stakeholders of the city to come together … It is a structure that has been identified but has not been formalised and put in place. It is definitely a task that our department is aiming for in the next few months … In the context of our department, we can only show them the importance of knowledge sharing. If we were mandated, we would have the power to indicate and direct how knowledge should be shared in the organisation as a whole. (Participant of the study)

Organisational culture and management support constitute very important attributes needed to drive knowledge sharing activities by fostering the type of norms, values and culture for its effectiveness and efficiency. This view is supported by one of the professional officers who agrees that:

> In terms of enhancing knowledge sharing, management support which means having a dual reporting line pushed by management will definitely motivate people to share knowledge more effectively. (Participant of the study)

The findings furthermore reveal that employees operating within the DI and GIS department were not aware that organisational culture was entrenched in the organisation. This was asserted based on the comment of the manager in the department who said:

We can propose new strategy to enforce knowledge sharing from a cultural point of view but the reality is that in the ideal world, everyone in an organisation is supposed to share what they know. However in the real world in which we are living, we need to have some reasons that make our whilst to share. (DI & GIS department manager)

Another view in this context emerged from one professional officer when he stated that:

I am not even sure that we are trying, in terms of our knowledge strategies, is to create a culture … where professionals genuinely share their knowledge, help each other. No I do not think so. (Participant of the study)

According to Alavi, Kayworth and Leidner (2006:194), culture, being the entrenchment of practices, is engendered using different mechanisms, processes and procedures in place in an organisation. Therefore, in the context of this study, these mechanisms such as the implementation of knowledge sharing systems, organisational structure, governance procedures, policies, processes, facilitating the willingness for employees to share their knowledge, all constitute a culture for knowledge sharing in the organisation.

Knowledge sharing systems as facilities

The outcome shows the importance of having technology infrastructure in place as drivers for knowledge sharing activities. These technologies included a knowledge sharing system, the use of the intranet (e.g. Microsoft SharePoint), and the Internet. In fact, one of the managers DI and GIS department stated:

Our ICT infrastructures are very strong and enable us to integrate and coordinate various departments in the organisation using knowledge sharing systems. It is an important tool for direct communication with core group users … through our systems (knowledge hub) we realised the power of knowledge management and knowledge sharing taking all departments operating in silos and making them integrated. (DI & GIS departmental manager)

Similarly, one technician asserted:

Our knowledge sharing system being the Development Information Resource Centre 'DIRC' provides access to data, information and knowledge resources that relate to development within partnership with all municipality departments … and that since the systems is located under the municipality intranet, it is therefore available to all staff. (Participant of the study)

The findings elaborated above draw on the concept of the duality of structure of structuration theory by being in accordance with the relationship between the modality, being policies and regulations, and governance and technology for the institutionalisation of knowledge sharing. Continuous institutionalisation of knowledge sharing to enact knowledge sharing-in-practice is mediated by interpretive schemes (i.e. policies, processes, people, standard operating procedure for communication), norms (which involve governance procedures on human behaviour and organisational culture),

and facility (i.e. technology which deals with technology infrastructures such as hardware, software, e.g., Microsoft SharePoint, the Intranet and Internet, knowledge sharing systems), achieved through the influence of power (Orlikowski 2000). The interrelated agencies enacting knowledge sharing-in-practice institutionalise knowledge sharing. The above-mentioned is therefore presented as a general framework in Figure 4.

Conclusion and further research

The research contributes to the existing academic debate on knowledge sharing in an organisation and knowledge management in general. It offers new insights into the institutionalisation of knowledge sharing in organisations. Furthermore, this research is intended to drive new debate on new strategies for reinforcing efforts to nurture and invigorate knowledge sharing within an organisation. The results of the study are presented in Figure 11 as a general framework to drive the institutionalisation of knowledge sharing at the organisational level. As far as current academic literature is concerned, this is the first time that structuration theory has been applied in the study of knowledge sharing challenges. Therefore, this article provides new insights into how structuration theory can be used to study socially constructed phenomena with embedded sociotechnical processes.

For future research, it is suggested that similar intensive and sensitive studies should be conducted in other departments within the same or parallel municipalities or private organisations to validate the general framework developed during this research.

Ethical considerations

The ethical issues related to this study reside mainly in data collected via the focus group, which was subjected to the approval of the selected organisation to ensure that it does not violate the organisations' privacy and confidentiality policies, and does not reveal any information that could hurt the reputation of the organisation.

Study limitations

Time constraints presented a limitation in the study. The availability of the respondents was a major challenge that necessitated a focus group discussion, rather than using one-on-one, in-depth interviews. The fact that a focus group was used in this study might have constituted a constraint regarding the quality and depth of data that could have been collected and the results that could have been generated, as compared to individual in-depth interviews. However, bearing this possible limitation in mind ensured that the researcher intentionally probed for deeper and more thoughtful answers from the respondents. A survey served as a way of supporting the data generated from the focus group to ensure that the views of the focus group were shared by the rest of the department. Given the fact that the data
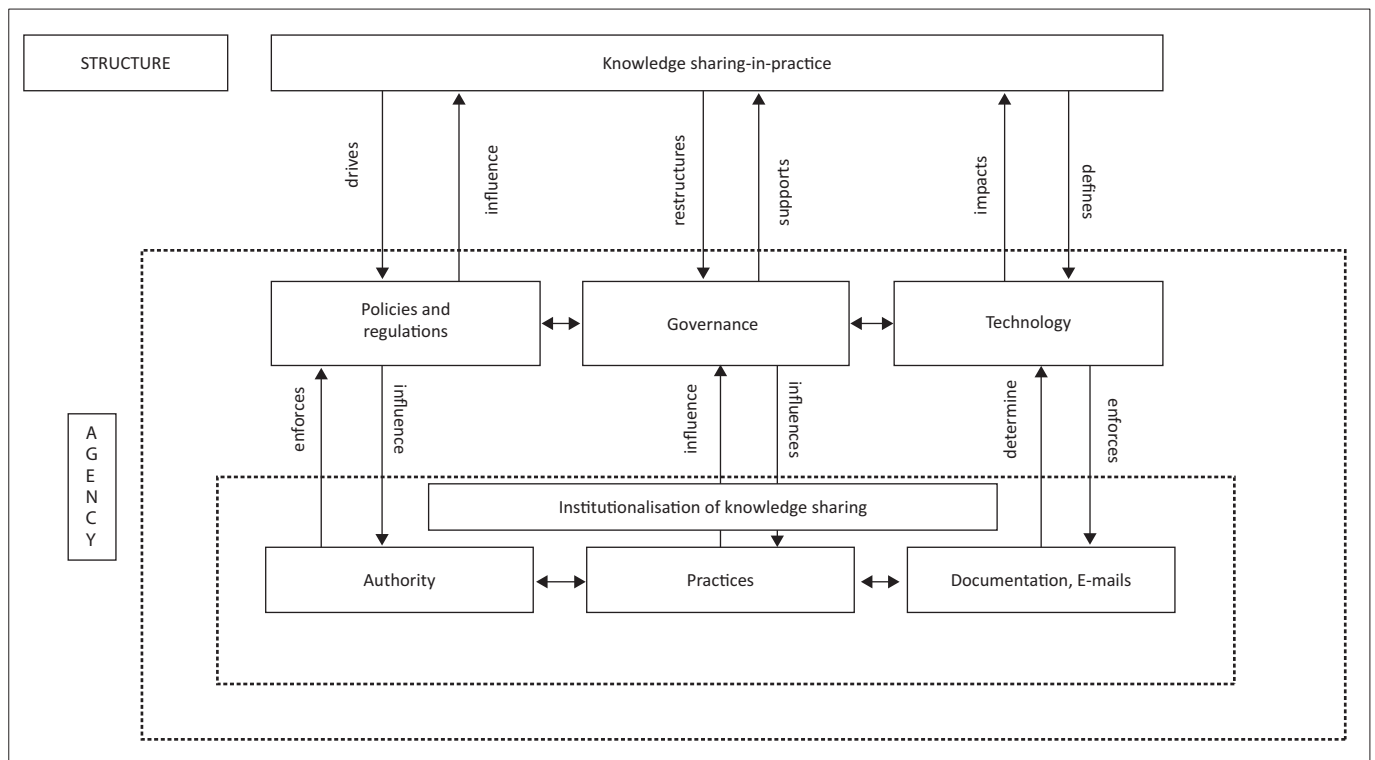
Source: Derived from data analysis, theory (Orlikows 2000) and literature reviewed

FIGURE 4: Proposed enactment of knowledge sharing-in-practice.

were collected from a relatively small focus group, a survey would support the findings to extend the study to the rest of the department within a shorter timeframe. Furthermore, the selection of only one department (DI & GIS) as the unit of analysis presents a limitation about the generalisability of the findings. It is believed that perceptions gained from an individual or a department of an organisation do not necessarily mean that these perceptions extend to the rest of the organisation. As such, findings generated from one case could be applied to another setting for reliability and validity of a study of this nature (Anderson 2010:2). Despite this view, the intention of using the DI and GIS department as the case was to ensure that rich, in-depth views could be obtained from a highly knowledge-intensive department engaging in knowledge sharing activities to share their experiences that would shed light on the phenomenon under study.

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Big data: Evaluation criteria for big data analytics technologies

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Today's businesses are driving towards real-time data analytics or operational BI for competitive advantage. In operational or real-time BI, business users demand real-time data in addition to historical data for decision-making. This requirement has driven the development of a wide range of technologies and architectures designed for real time and near real-time data integration, analytics and reporting against large data sets. The emergence of big data has, however, rendered existing conventional BI tools inefficient and ineffective for big data analytics. The inefficiency and ineffectiveness is seen when business users are making decisions based on stale and sometimes incomplete data sets which potentially lead to slow and poor decision-making. In recent years, industry and academia have invented new approaches and technologies to process big data such as Hadoop, Spark and NoSQL databases. However, the challenge is that none of these new technologies is a one-size-fits-all solution. The new technologies are so numerous that organisations are faced with the challenge of determining what is appropriate for data analytics requirements because big data is still a new concept and there are no standard guidelines or frameworks available to assist in evaluating and comparing big data technologies. This study aims to explore big data analytics and propose evaluation criteria that can be used to compare and evaluate technologies for big data analytics. To achieve this aim, a literature analysis to understand the concept of big data analytics and related technologies was conducted. Qualitative as well as quantitative researches were performed by means of interviews of BI experts who have big data knowledge and experience, and by experimental research in a laboratory, respectively. The purpose of the interviews was to determine which technologies are being used for big data analytics and what criteria organisations use when choosing a technology. Although most organisations are still entrenched in traditional BI technologies, some organisations have started changing their data analytics systems to technologies such as Hadoop, NoSQL databases and In-memory databases. The results from the interviews revealed 18 evaluation criteria but the following criteria were indicated as important by the participants, namely, (1) system performance regarding latency and throughput, (2) memory consumption, (3) CPU utilisation, (4) disk I/O, (5) scalability and (6) fault tolerance. Furthermore, a comparative computer laboratory experiment was conducted to compare three tools which run on top Hadoop: Hive, Impala and Spark. The purpose of the experiment was to test if memory consumption, CPU utilisations and system performance are different for the three tools when analysing the same amount of data using the same computer resources. The results indicated that the three tools' performance and resource consumption is significantly different. This confirmed that system performance, memory consumption and CPU utilisations can be used as criteria to compare and evaluate big data technologies.

Introduction

In recent years, the appetite for competitive advantage has driven enterprises towards real-time analytics and operational Business Intelligence (BI) as opposed to analytics over data warehouses which are refreshed periodically, especially overnight. At the same time, the rapid growth of the Internet and widespread use of digital devices such as smartphones and Internet applications, for example online advertising and e-commerce have led to unprecedented high volume, high speed, and diverse types of data (Chen, Mao & Liu 2014) emanating from a variety of sources (big data). Industry and academia have proposed numerous definitions of big data as noted by many authors such as Chen et al. (2014). These two elements have complicated the world of BI because traditional BI tools cannot handle big data efficiently and effectively (Cuzzocrea, Saccà & Ullman 2013). This has led to new big data technology inventions (Chen et al. 2014) to deal with challenges (Cuzzocrea et al. 2013; Ghazal et al. 2013) brought about by big data. Big data analytics need a new set of

technologies capable of processing, storing and managing large datasets which are complex and analysed in either batch or real time mode (Chen et al. 2014; Liu, Iftikhar & Xie 2013; Yan 2013).

Big data analytics technologies range from in-memory databases, NOSQL databases, and cloud computing solutions to dozens of reporting and analytic tools. Large commercial database vendors such as Oracle, IBM and Microsoft have intensified tweaking and transforming their existing data processing and analytics infrastructures to integrate with big data frameworks such as Hadoop (McTaggart 2008) and Spark (Matei Zaharia et al. 2010). The open source world has also released many tools to analyse big data such as Hive (Thusoo, Sarma & Jain 2009), Impala (Wanderman-Milne & Li 2014), Spark (Zaharia et al. 2010, 2012), Pig (ApachePig 2013) and MapReduce (McTaggart 2008). Commercial vendors of database and data analytics products are investing in research and development towards the development of hardware and software products to manage and analyse big data (Purcell 2013; Singh & Singh 2012).

It is important to note that these technologies are new and there is limited knowledge and skills in organisations to manage them, let alone to identify appropriate technologies for a big data analytics environment. According to Ghazal et al. (2013) and Yan (2013), it is difficult to determine big data technologies as there are no available guidelines or frameworks for comparing and evaluating big data tools. According to Ghazal et al. (2013) and Xiong et al. (2013), it is essential for organisations to be able to compare and evaluate these new technologies as they mature. The aim of this article is therefore to explore and identify evaluation criteria that can be used to compare, evaluate and select technologies that are appropriate for big data analytics. This article is organised as follows: in section 1, a review of literature on big data analytics and its related technologies is provided, section 2 discusses the methodology used to investigate, results and discussion of the findings are discussed in section 3 and 4, with the conclusion and recommendations presented in section 5.

Literature review

In academic and business literature, numerous definitions of big data have been provided (Laney 2001; Manyika et al. 2011; Philip Chen & Zhang 2014; Yan 2013). Big data is characterised by the following attributes: volume (Dong & Srivastava 2013; Letouze 2012; Liu 2013; McGuire Manyika & Michael 2012; Singh & Singh 2012), velocity (Agrawal et al. 2009; Madden 2012; Stonebraker, Madden & Dubey 2013), variety (Letouze 2012), veracity (Dong & Srivastava 2013; Yan 2013) and value (Yan 2013). The definition of big data adopted in this article is derived from observations made by Yan (2013) on the concept of big data. Yan (2013) describes big data as large and/or diverse datasets either in motion or at rest and a set of technologies handling these data sets. Big data at rest is analysed periodically (that is, at the end of the day, week or month). Big data in motion refers to datasets

that are processed and analysed in real time or immediately when they are received. Big data technologies refer to a union of tools, platforms, and systems, and analytics and applications that allow data scientists to capture, store, govern and analyse large and diverse datasets. This definition touches all dimensions of big data including 'technologies' which is the primary focus in this article. The section 'Big data technologies' will now provide a review of literature on big data technologies and 'BD evaluation frameworks' provides findings from literature related to the evaluation and selection of technologies appropriate for big data analytics.

Big data technologies

Big data analytics require technologies that can store vast amounts of data in a scalable fashion and use distributed approaches to querying and deriving actionable insights from the big data. There are several approaches and technologies for acquiring, storing, processing and analysing big data. The techniques share common characteristics of scale-out, elasticity, fault-tolerance and low latency reads (Bakshi 2012; Chen et al. 2014; Dobre & Xhafa 2013). In this section, an overview of some of the technologies and frameworks that have been developed for big data analytics, is provided.

Massively Parallel Processing databases

Massively Parallel Processing (MPP) databases allow database loads to be split amongst many processors (Dobre & Xhafa 2013). MPP databases are based on a distributed architecture (Özsu & Valduriez 2011) for high scalability and fault tolerance when processing large volumes of data (Dobre & Xhafa 2013). MPP databases employ a 'shared nothing' architecture, where each node has its own Central Processing Unit (CPU), memory and disk (Bakshi 2012).

In-memory databases

In-memory databases are designed to provide quick data analysis whilst data is in memory (RAM) rather than on disk. This speeds up data analytics processes, even when the size of data explodes (Garber 2012). In-memory databases are faster than traditional disk-based databases because they hold all data in memory but are more expensive than disk-based databases. An example of in-memory databases is SAP Hana (Lee, Kwon & Farbe 2013).

NoSQL databases

The origin of the term NoSQL is attributed to Johan Oskarsson, who used it in 2009 to name a conference about 'open-source, distributed, non-relational databases' (NoSQL-meetup 2009). However, Hossain (2013) states that the NoSQL acronym was coined as far back as 1998. According to the Apache foundation, NoSQL is a general term meaning that the database is not a relational database management system (RDBMS) which supports SQL as its primary access language (Apache 2014). NoSQL databases are suitable when working with large volumes of data or

when the nature of the data cannot fit into relational databases.

Hadoop

Hadoop is an open source software project that enables scalable distributed processing of large data sets across clusters of commodity servers (Borthakur 2007; McTaggart 2008). It has many similarities with distributed file systems such as Google File System (GFS) (Ghemawat, Gobioff & Leung 2003). The main components of the Hadoop ecosystem are:

1. Hadoop Distributed File System (HDFS) (McTaggart 2008). In HDFS, a single file is split into blocks which are distributed in the Hadoop cluster nodes. The input data in HDFS is treated in write-once fashion and processed by MapReduce, and the results are written back in the HDFS. The data in HDFS is protected by a replication mechanism amongst the nodes. This provides reliability and availability despite node failures.
2. MapReduce, a programming model and software framework first developed by Google (Dean & Ghemawat 2008). It facilitates and simplifies the processing of large data in parallel on clusters of commodity hardware in a reliable, fault-tolerant manner (McTaggart 2008). In MapReduce, a map function is specified that processes a key and/or value pair to generate a set of intermediate key and/or value pairs, and a reduce function that merges all intermediate values associated with the same intermediate key (Dean & Ghemawat 2008).
3. HBase. In Hadoop, data can be stored in HDFS as mentioned earlier or in HBase (Apache 2014), which is a NoSQL database configured on top of HDFS. HBase provides a wide range of benefits which include fault tolerant storage for large quantities of data, near real-time lookups, atomic and strongly consistent row-level operations and automatic sharding and load balancing of tables.

Spark

Spark is a cluster computing framework which supports applications with working sets whilst providing similar scalability and fault tolerance properties to MapReduce (Zaharia et al. 2010). Spark programs can be written using Scala, Python or Java language. Data analysed with Spark can be stored in HDFS, HBase, any relational database, Hive or in operating system files. Spark can analyse big data in stand-alone mode or with Hadoop cluster.

BD evaluation frameworks

Several technologies have been designed and developed to manage big data. Ghazal et al. (2013) and Dilpreet and Reddy (2014) also made this observation and further stated that there is a gap in existing literature on how these technologies can be compared and evaluated. It is important to note that the excitement and interest in big data is continuously driving the development of more and more open source and commercial big data technologies. This makes it difficult for

organisations to identify and determine technologies that are appropriate for big data analytics requirements. Therefore, there is a need for guidelines, frameworks or end to end benchmarks which are easy to use to assist enterprises in evaluating and comparing these tools (Dilpreet & Reddy 2014). Although industry and academia have proposed a number of benchmarks (Bakshi 2012; Ghazal et al. 2013; Gualtieri 2013), as at the time of this study, no end to end standard benchmarks could be identified from literature used for big data technologies and those that are available are very difficult to use (Ghazal et al. 2013; Liu et al. 2013). What compounds this challenge is the shortage of big data technology expertise, especially in South Africa. At the time of this study, there is no university or college in South Africa offering a course on big data analytics. This article therefore seeks to propose evaluation criteria that inform and guide non-experts in determining appropriate technologies for big data analytics.

Methodology

To recapitulate, the aim of this article was to explore and propose evaluation criteria that can be used to compare and select technologies that are appropriate for big data analytics. To achieve this aim, an intepretivist stance was taken and a mixed methods research approach (Teddlie & Tashakkori 2009) was used to collect and analyse research data. This approach was found appropriate because big data is still a new phenomenon which needed research data to be collected using multiple methods from multiple sources (Creswell & Plano Clark 2011).

The study began with a comprehensive literature analysis to understand the concept of big data analytics, technologies used and ways of determining appropriate technologies. This was followed by a qualitative interview of 10 BI experts with knowledge or experience of big data analytics in South Africa. The interviews were restricted to South Africa because it was easy to identify the participants and schedule the interview sessions. The purpose of the interview was to gain insight from the participants on the technologies their organisations are using for big data analytics and the important things they look at when they determine the technologies they are using for big data analytics. The researchers then used a computer laboratory comparative experiment to find out other criteria that can be useful when comparing and evaluating technologies appropriate for big data analytics. In the experiment, a Hadoop cluster (CDH) was set up to compare three tool sets: Hive, Spark and Impala. The experiment was driven by five variables: toolset, which was a categorical variable, data size in gigabytes, query execution time (s), memory consumption and disk I/O. The data size (independent variable) was manipulated into different sizes, 10G, 50G, 100G, 250G, 500G and 1TB, and stored into HDFS. The data size (independent variable) was manipulated into different sizes, 10G, 50G, 100G, 250G, 500G and 1TB, and stored into HDFS. Each tool was executed 10 times against each data set as the dependent variables were being recorded. The mean variable values per tool set and per

data set were used to compare the tools. Prior to each execution, the cluster was restarted to ensure that each execution had almost the same amount of resources.

Findings

Interview results

Narrative data collected from the interview participants were analysed and interpreted in relation to the research aim of exploring big data analytics technologies and proposing evaluation criteria for big data analytics tools. Based on the participants' experience with big data analytics and their perceptions, the following findings were revealed.

Characteristics of big data

Organisations that are generating or receiving high volume, high velocity data from disparate sources are either using big data technologies or have started migrating data analytics to big data technologies such as Hadoop, Spark and NoSQL databases, or they are already planning to move out of traditional BI tools to big data analytics tools. This is being driven by the new characteristics of data that cannot be handled by traditional database and data warehouse technologies and the business user requirement of running arbitrary analytic and reporting functions against arbitrary data sets and, sometimes, in real time.

User requirements

According to the views of the participants, user functional requirements drive the selection of technologies that are appropriate for big data analytics. Although batch processing is still used by the majority of organisations interviewed, the requirement to run analytics against all available data sources, instead of a subset as is done with traditional data warehouses, is pushing organisations towards big data analytics technologies such as Hadoop, In-memory databases and NoSQL databases. Such requirements as fraud detection and on-line advertisement need data to be analysed in real time whilst at the same time looking at historical data to check patterns for fraudulent transactions.

Big data benchmarks and evaluation frameworks

The data collected revealed that none of the existing big data benchmarks was used by any of the participants to evaluate and compare technologies for data analytics. Some participants stated that they are not aware of the existence of any benchmark, whilst others stated that it is difficult to use the benchmarks. Organisations seem to rely on analysts' reports such as the Gartner magic quadrant report, online reports on GitHub, product vendor reports and intuition from individual employees when determining technologies appropriate for big data analytics.

Unstructured data

From the data collected, it is clear that organisations are becoming more aware of the need to analyse unstructured data. It is especially in the physical environment such as closed circuit television (CCTV) and the social media arena (Facebook and Twitter) where there is a need for companies to analyse the massive amounts of data generated to gain valuable insights for competitive advantage.

Structured data

Although organisations are generating both structured and unstructured data, it is evident that majority of the organisations have a need for analysis of large volumes of structured data that often changes quickly in value and in structure. The structure of data in a big data environment changes quickly and, therefore, technologies used for analysing big data must be able to seamlessly adjust without impacting business processes.

Costs

When determining technologies for big data analytics, organisations look at total cost of ownership. Organisations look at how much it is going to cost for hardware, software, maintenance and training. All these things are considered and then a comparison of three or more different technologies is carried out.

Licensing models

The data collected showed that different technologies have different licensing models. Some products are licensed per user, some per CPU core, and some per data node whilst some are licensed on the amount of data stored.

Experiment results

The results from the interviews indicated that system performance and resource utilisations (memory, CPU and disk I/O) are the most important criteria when comparing and evaluating technologies appropriate for big data analytics. To test this finding, a comparative evaluation of Hive, Impala and Spark was conducted as described in the Methodology. The experiment was driven by the query in Figure 1 and data sets described in the Methodology. The experiment results indicate that the three tools are significantly different with regard to performance (latency), memory consumption, CPU utilisations and disk I/O as shown in Table 1 and Figure 2.

As seen in Table 1 and Figure 2, all of the three tools had different query execution times, although both Impala and Spark had similar execution times for lower input data sizes. The results also show that Hive had very high latency as the

```
SELECT dim.country,
        dim.publisher_name,
        SUM(fct.sale_amount) 'sale_amount
FROM publiusher_dim dim, conversion_winner_fact fct
WHERE winner_publisher_had_click IS NOT NULL
and dim.publisher_id = fct.winner_publisher_dim_id
GROUP BY dim.country,
        dim.publisher_name;
```

FIGURE 1: The relational query used.

volume of data increased whilst Impala aborted at 1TB of input data size with the error message 'MEM LIMIT reached'. In addition to the time variable, differences in memory consumption, disk I/O and CPU utilisation per tool set were also evident as the size of input data increased. For all the input data sets, both Impala and Spark used more memory than Hive, but Impala crumbled at 1TB of data. The data also shows that Hive has higher disk I/O than Spark and Impala. In addition, although Spark and Impala have very little difference in their CPU utilisation, they both have higher CPU utilisation than Hive.

Evaluation criteria for data analytics technologies

In this study, 18 evaluation criteria are proposed as a guideline that can be used to compare and evaluate technologies appropriate for big data analytics. These are, namely, (1) performance (latency and throughput), (2) scalability, (3) ability to handle quick changing data, (4) ability to read both structured and unstructured data formats, (5) ability to read compressed file formats, (6) ability to seamlessly adapt to changes in data structure, (7) fault tolerance, (8) ease of

use, (9) technical skills availability, (10) ability to integrate with existing technologies and data analytics platforms, (11) costs, (12) licensing models, (13) CPU utilisation, (14) memory consumption, (15) disk I/O, (16) scalability, (17) fault tolerance and (18) security. All participants in this study stated that system performance is the most important of all the above criteria because real time analytics are concerned with delivering fresh information quickly to decision-makers. Experiments were conducted to test if performance can actually be used to compare and evaluate technologies. The experiment results show that query execution time for Impala, Hive and Spark are statistically significantly different and therefore, the performance of technologies can be used to compare and evaluate big data analytics technologies.

Discussion

Traditional database and data warehouse technologies have been the main pillar of data analytics in organisations for many years. This is slowly changing as organisations are moving their analytics processes onto big data technologies such as Hadoop, NoSQL databases and In-memory databases. An open issue on these big data technologies is the lack of standard benchmarks and guidelines on what to look out for when comparing these technologies (Liu et al. 2013). In this study, 18 evaluation criteria are proposed as a guideline that can be used to compare and choose technologies appropriate for big data analytics. MapReduce based technologies were conceived to process large-scale data in batch jobs in a shared

TABLE 1: Execution time for Impala, Spark and Hive in Cloudera Hadoop YARN Cluster mode.

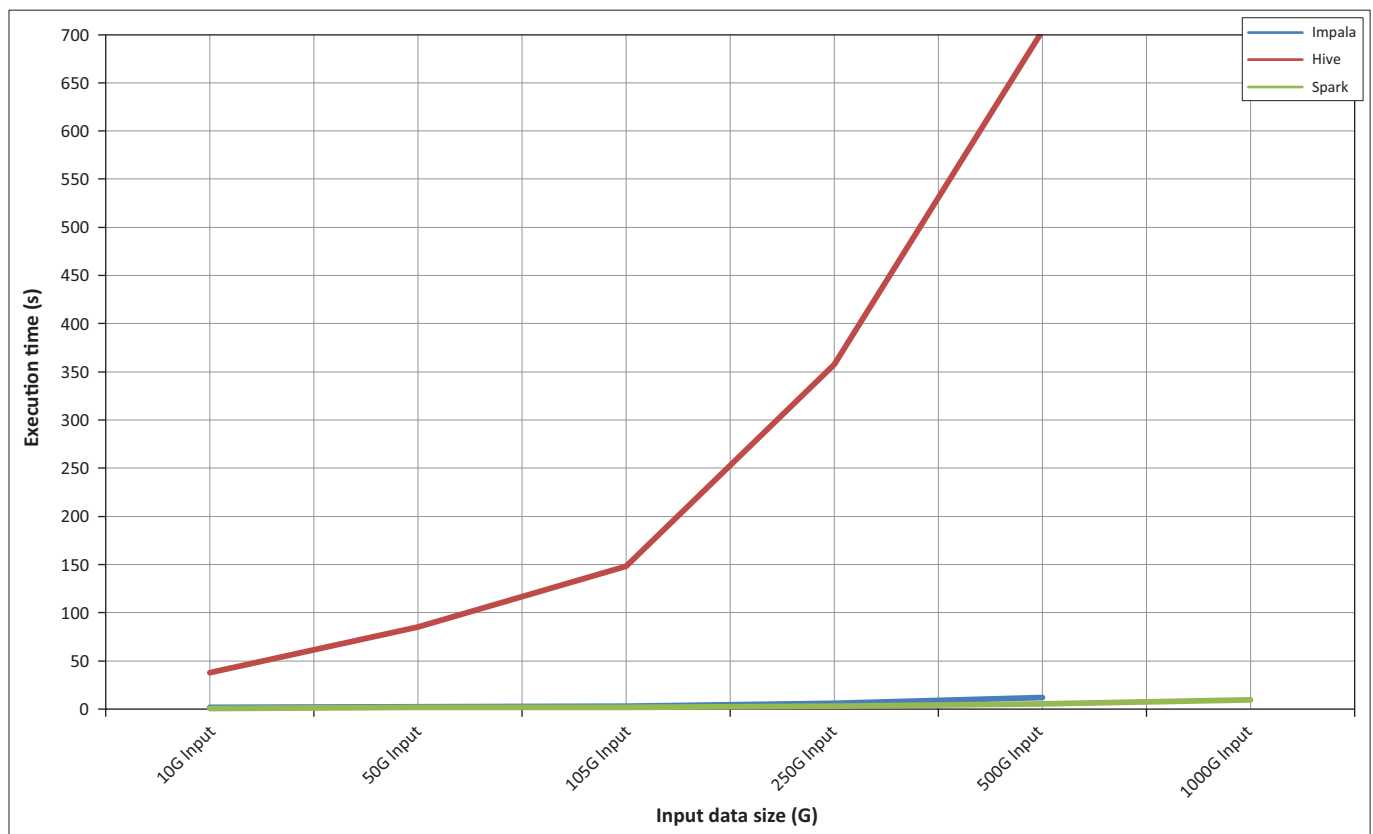| Tool Used	Input time(s)					
	10G	**50G**	**105G**	**250G**	**500G**	**1000G**
Impala	1.45	2.48	3.09	5.96	11.69	
Hive	37.49	85.15	148.1	357.49	706.51	1346.3
Spark	0.58	1.5	1.91	2.67	5.33	20.43

FIGURE 2: Comparison between Spark and Hive and Impala in execution time.

nothing cluster architecture (Liu et al. 2013). Scalability, efficiency, fault tolerance, costs and ability to read both structured and unstructured data types were the main drivers for MapReduce based technologies. Hive is a MapReduce based tool which is best suited for batch jobs (Thusoo et al. 2009). The business need for real-time access to data either at rest or in motion (Marz 2012) has seen the emergence of other technologies such as Spark, NoSQL databases, stream processing technologies and MPP databases. Real-time processing technologies rely on distributed computing for scalability and in-memory processing to minimise disk I/O, thereby giving high performance (low latency). Impala and Spark process data much faster than Hive because Hive performs a lot of disk reads whilst Spark and Impala process data in memory.

Conclusion

In this article, the researchers explored big data analytics, related technologies and proposed evaluation criteria that can be used to compare and choose appropriate technologies for big data analytics. The study began with a literature review to explore the concept of big data analytics, big data technologies and how these technologies are compared and evaluated. This was followed by interviewing BI experts who have knowledge of big data to find out the technologies the participants' organisations actually use for big data analytics and how they selected these technologies. The last part of the investigation involved setting up a computer laboratory experiment to test system performance, memory utilisations and disk I/O for Hive, Spark and Impala when analysing data. This study revealed that the area of big data analytics is still in its infancy with very few companies actually running big data analytics systems. It was also discovered that there is a lack of guidelines or frameworks available for use in determining the architecture or technologies that are appropriate. At the time of this study, only a handful of micro benchmarks could be identified which are designed to compare specific products. This article therefore gave a starting point for organisations and managers who are embarking on big data projects. The evaluation criteria proposed here can be used to choose appropriate technologies for big data analytics. The limitations encountered during this study include lack of experts on big data. It was difficult to identify companies and individuals in South Africa with knowledge and experience of big data analytics. The other challenge faced was getting enough resources to carry out a comprehensive experimental evaluation of Spark, Hive and Impala, and, therefore, this study could not provide detailed explanations of the differences in performance and resource utilisation by the different tools. This study can be developed further by testing the evaluation criteria proposed in this article through a survey using a large sample of participants which is not restricted to organisations in South Africa. Another area that can potentially be looked at is carrying out a survey of the successes of real time decision support systems in a big data environment.

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Factors affecting agritourism growth in rural communities of Lesotho

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Agritourism is an important part of the tourism strategy and can improve the livelihoods of farmers in the agricultural industry. Changes that have been brought about by technology have created a challenging environment for farmers who do not have access to and knowledge about technologies available for agritourism. The aim of the study was to explore some of the factors that affect the growth of agritourism as an industry in Lesotho. The study further aims to contribute towards agritourism development and related studies, and proposes guidelines to overcome the negative impacts of agritourism growth.

Multiple-case studies were used as a research strategy. Six commercial farms were selected using non-probability sampling and judgemental techniques. The units of analysis were farms, officials from government and tourists as a group. The units of observation included the individual farmers, farm employees, officials from the Ministry of Tourism, Environment and Culture and individual tourists. Content analysis was used to analyse data collected from face-to-face interviews. The findings show that whilst technology is viewed as an important component for agritourism growth, issues such as the lack of infrastructure, costs, ICT literacy, awareness and education are some of the factors that hinder the growth of agritourism. The study concludes by recommending guidelines on how to overcome some of the factors affecting the growth of agritourism.

Introduction

Agritourism is regarded as one of the fastest growing industries in ecotourism. Hegarty and Przezborska (2005) mention that rural tourism and agritourism are terms that are used interchangeably, as agritourism is seen as part of the overall concept of rural tourism. Porcaro (2009:2) defines agritourism as '… activities of hospitality performed by agricultural entrepreneurs and their family members that must remain connected and complementary to farm activities'. Havlicek, Lohr and Benda (2011) refer to agritourism:

> … as a specific form of local tourism that involves tourists staying on a farm and engaging in daily agricultural activities and learning of the traditional rural activities that take place on the farm which include: – horseback riding, winery tours, agricultural exhibits, farmers markets, fishing, garden tours and on-farm sales. (p. 45)

Hatch (2006) mentions that agritourism dates back to the late 1800s when people left cities and went to farms to visit their relatives for a short period of time. It became easier for people to travel to rural areas after the invention of motor vehicles in the 1920s. Hatch (2006) further explains that the Great Depression and World War II also gave rise to the first significant interest in rural development in the 1960s. From the 1970s, horseback riding and farm petting zoos became popular. In the 1980s and 1990s, farm vacations, overnight stays at bed and breakfast facilities as well as commercial farm tours became popular. Today, the demand continues to grow for agritourism.

Background

Lesotho is a landlocked country completely surrounded by the Republic of South Africa. Tregurtha (2012) explains that the population of Lesotho is approximately 2 067 000, and 58% of the population live below the poverty line. Although the country is located in the centre of the largest and most sophisticated economy on the African continent, Tregurtha (2012) mentions that Lesotho has not yet fully escaped poverty. Instead, it serves as a labour reservoir for South African mines and industries. According to Anon (2012), Lesotho receives its foreign exchange earnings from South Africa through exportation of garments, diamonds, wool and mohair. The country is also

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experiencing low economic growth, poor agricultural productivity, low wages, limited industrial skills, poor physical infrastructure and high cost for cross-border logistics. These factors have led to an unhealthy dependence on South Africa and external assistance for employment, income and high level institutions for education and research.

Agritourism in Lesotho is also not well documented. The reason for this is the fact that agritourism is still a new concept in Lesotho. Limited information can be found regarding agritourism in Lesotho. Mochebelele (2009) mentions that the tourism industry in Lesotho comprises a mix of interrelated service providers which include accommodation and hospitality providers, travel agencies, tour operators and public sector organisations, such as insurance and car hire companies. Mochebelele (2009) concludes that these stakeholders are expected to work together to promote the sector and bring both local and international tourists to the destination of their choice. McKeeman and Rozga (2007) highlight the poor quality of tourism products and services, lack of knowledge and limitation of product supply as some of the challenges for the country in seeking to develop the tourism industry. Since Lesotho is constituted mainly by the rural areas, the majority of communities rely on agritourism as the main source of household income contributing towards the nation's Gross Domestic Product (GDP).

Agritourism development in rural communities

There is huge potential for agritourism development in rural communities that may sustain the rural economy. However, this potential is overlooked. Mnguni (2010) notes that agritourism increases the demand for travel experiences, especially in the rural communities and marketplace where tourists learn about agricultural landscape. Zaei and Zaei (2013) add that the increased demand for agritourism facilities assists in creating infrastructure utilities and amenities, and these are not only used by tourists but become valuable to the local communities as well.

Rural community life could be of a high standard if agritourism is developed by farmers with the introduction and development of better tourism marketing methods (Mnguni 2010). Dossa et al. (2001) mention that agritourism can be a vehicle for diversifying and establishing economies for rural communities by: creating jobs and increasing community income, providing a broader market base for local businesses and attracting other businesses and small industries. The authors further observe that agritourism can also be a means of diversifying the mix of tourism offerings available to visitors and positioning rural communities uniquely for market share.

Rural communities provide economic and cultural support and, for these reasons, it is important to find ways to make rural communities viable (Inusa 2006). The author further states that policies and strategies which can create

opportunities for development in rural communities need to be developed. Government and private sector organisations should recognise the significant role rural communities play in agritourism in determining social and economic benefits in developing countries. Inusa (2006) notes that it is important to provide the agritourism sector with possible guidelines that may assist farmers with Information, Communication and Technology (ICT) access, usage and in identifying possible ways of overcoming factors that inhibit the use of these technologies in their projects.

The need for ICT in agritourism

The role of ICT has been recognised in agritourism productivity (Pote 2008). According to Yalcin (2009), the advances in technologies are considered the main sources of growth in land and labour productivity. ICT strengthens the role of agritourism by allowing access to relevant information that may have effect on the contribution of sales and profits (Lawrence 2009). Mtenga et al. (2014) state that information is important in the agritourism sector, and farmers need this information to pursue their daily agritourism activities. May, Karugia and Ndokweni (2007) mention that ICT allows access to information at any time and may assist farmers to overcome some of the potential barriers that hinder the use of these technologies in the agritourism sector.

ICT has changed the nature of business transactions between consumers and suppliers of goods and services. According to Parker (2009), information technology-enabled services are useful in improving the capacity and livelihoods of people in the agritourism industry. For example, mobile cell phones have significantly reduced production and communication costs and provided new opportunities for agritourism stakeholders in exchanging relevant information through short messages.

The use of ICT in agritourism contributes to improving the communication and learning processes amongst farmers, employees, suppliers and customers involved in ecotourism. Tembo (2008) highlights the evidence of farmers using information technologies, such as computers and electronic-based mechanisms to collect, manipulate and process data automatically so as to control and manage agricultural processes. Buyukbay and Gunduz (2011:1) state that 'farmers in rural communities may not be able to take part in the emerging information technology due to inadequate access to ICT infrastructure and services'. Despite the fact that ICT has been used for many decades, it is still new to farmers, especially in the rural communities of Lesotho. As there is a need for ICT in rural communities, Singh (2012) recommends that policy-makers of developing countries pay attention to deploying ICT in transferring these technologies for the benefit of farmers to enhance rural development.

Farmers in rural communities rely on the accumulated experience and support of stakeholders, such as government and non-governmental organisations (NGOs) for information

relating to farming products and services (Tembo, Simbanegavi & Owei 2010). Farmers receive information through newspapers, radio and television. Unfortunately, these media outlets are inadequate and provide limited information to farmers. According to Ellis (2004), it is evident that the majority of farmers in rural communities still rely on traditional practices such as consulting other farmers and using newspapers and radio to access information relevant to agritourism practices.

Challenges affecting ICT use in rural communities

Despite the importance of ICT for agritourism development and production, the agritourism industry is faced with many challenges which, according to Parker (2009) and Buyukbay and Gunduz (2011), include insufficient adoption of ICT, access to ICT infrastructure, high cost of ICT in general and the lack of ICT awareness and skills. The challenges are demanding, but within the challenges many opportunities are forthcoming (Buyukbay & Gunduz 2011).

Frempong (2008:4) states there is very little research published on agritourism in Lesotho. Agritourism is a neglected field of research especially in the field of the relationship between information technology and agritourism. According to the author, there is no relationship between research, agritourism services and private sector. The lack of these relationships results in poorly designed ICT offerings for the agritourism role players. For example, many farmers do not have access to ICT, resulting in the ICT offerings being difficult to use and thereby creating a challenging environment to develop agritourism as an industry.

The aim of this article is to explore the factors that affect the growth of agritourism as an industry in Lesotho. The study further aims to contribute towards agritourism development by identifying related studies and proposing guidelines to overcome the negative impacts of agritourism growth. The main objectives of this article are:

- to determine the types of ICT used by farmers in agritourism
- to investigate how ICT can contribute towards agritourism development

- to determine the factors that affect the use of ICT in agritourism
- to propose guidelines for ICT use by rural farmers in agritourism.

Theories of ICT use and adoption

Internet technology contributes significantly to the everyday life of people and is rapidly becoming visible in society and agricultural practices (Chong et al. 2010). There are a number of theoretical models that attempt to guide farmers who wish to use a practical approach towards information and technology for business operations and other activities. Other models attempt to explain the relationship between the users' attitudes and beliefs regarding the use of technology.

These theoretical models include the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM) (Althunibat, Zain & Sahari 2011) and the Information Innovation Adoption model by Alvarez and Nuthall (2006). Parker (2009) states that amongst these models, TAM is said to be the most commonly accepted model because it explains and predicts users' behaviour concerning IT. The author concludes that TAM is considered an influential extension of Theory of Reasoned Action (TRA), as presented in Figure 1.

TAM is an adaptation of the Theory of Reasoned Action (TRA) to the field of Information Systems. TAM suggests that perceived usefulness and perceived ease of use determine an individual's intention to use a system, with intention to use serving as a mediator of actual system use. Perceived usefulness is also seen as being directly impacted by perceived ease of use.

The purpose of TAM is to provide a basis for tracing the impacts of external variables on internal beliefs, attitudes and intentions. TAM has been applied in studies to test user acceptance of IT. According to Masrom (2007), the use of ICT is considered as a system that uses the Internet to accomplish its mission of delivering information to, and interacting with, potential customers through the electronic medium.

Althunibat et al. (2011:2) state that 'TAM (Figure 2) has introduced two important concepts being, the Perceived
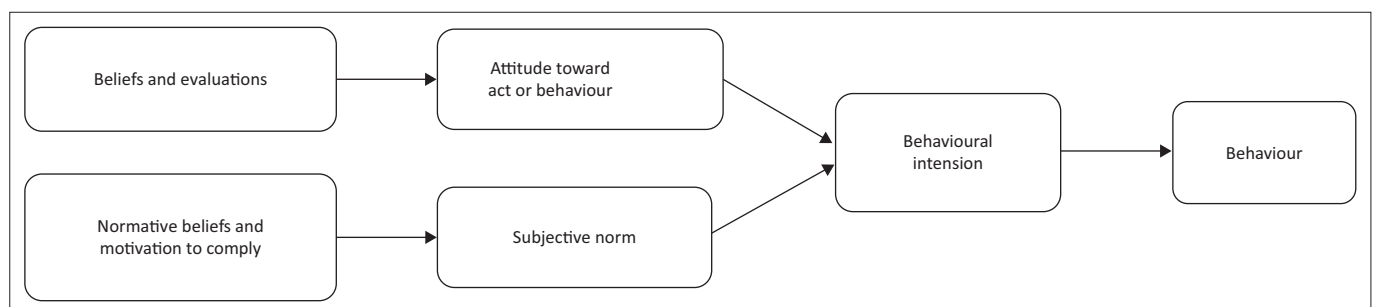
Source: Davis 1989:984

FIGURE 1: Theory of reasoned action.
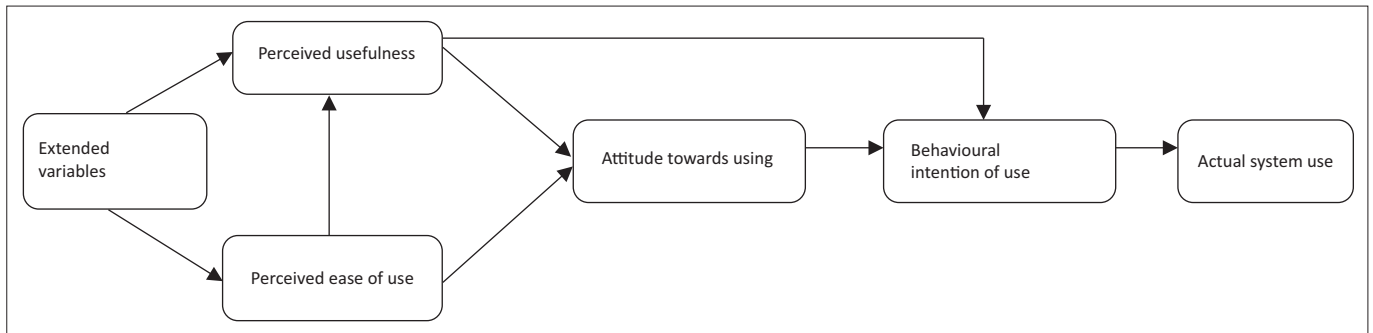
Source: Davis 1989:985

FIGURE 2: Framework of technology acceptance model.

Usefulness (PU) and Perceived Ease of Use (PEOU)'. PU refers to the degree to which an individual believes that using a particular system would enhance job performance, whilst PEOU refers to the degree to which an individual believes that use of a particular system would be free of physical and hard labour. In TAM, individual beliefs determine the attitude towards using the system, and, in turn, the attitude helps to develop the intention to use.

Theoretical framework underpinning the study

Because the study focuses on investigating the potential use of ICT by farmers, it adapts the Information Innovation Adoption Model (IIAM) of Alvarez and Nuthall (2006) to explain the behaviour of farmers and employees with regards to ICT use. Alvarez and Nuthall (2006) use two farming communities (Canterbury, New Zealand and Florida, Uruguay) to develop the model (IIAM) that explains the uptake and use of computers with the objective of gaining a better understanding of the processing. The IIAM uses information from both users and non-users of ICT. According to Alvarez and Nuthall (2006), the views and information from non-users of ICT are critical to improving effective adoption and use of ICT by farmers. The summarised factors that influence the uptake of ICT are as follows:

1. Farmers' characteristics (age, experience, personality, education).
2. Community culture (network, associations).
3. Farm characteristics (size, type, geography).
4. Goals and objectives (attitude towards learning).
5. Decision-making and information management style (time, information sources, number, intensity in use, extension usage, and support from the outside).
6. Other elements: trust.

Based on Figure 3, there is a probability that farmers will keep searching for information until they feel that the cost incurred by continuing the search exceeds the benefits that can be secured by the information attained (Rajkai 2010:31). The IIAM shows that the use of technology by farmers relies on three types of variables, but the relationship amongst these variables is not a simple and direct one. The first group of variables consists of antecedent variables that are indicated by circles in Figure 16. In this model, the antecedent variables

include characteristics of a farmer such as age, income, personality and formal education; farm characteristics such as farm size and crops grown on the farm; and community culture, which involve values, ideas as well as principles that were shared by the farming community when farmers were still young and developing their thinking (Alvarez & Nuthall 2006).

The second type of variables consists of mediating variables (which consist of coping style of farmers, use of ICT in decision-making, information management style, goals and objectives pertaining to ICT) that describe how the effect will occur by accounting for the relationship between the independent and dependent variables. Mediating variables explain why antecedent variables affect the outcome variables. It also provides an explanation and better understanding of information management behaviour. Lastly, the outcome variable reflects the use of an on-farm computerised information system. Outcome variables depend on antecedent and mediating variables. The current use of IT depends on community culture, farm and farmers' characteristics, farmers' goals and objectives, as well as management style.

Figure 16 also indicates that there is a direct and indirect relationship between the antecedent and outcome variables (Alvarez & Nuthall 2006). The authors explain that the reversible arrow on the antecedent variables indicate a one-way relationship between the variables, meaning that one variable can have a positive or negative effect on the other. One-way arrows indicate the link between antecedent and mediating variables and the final outcome variable. Each antecedent variable can, therefore, have either positive or negative effect. All these variables influence the final outcome variable, which is the use of information technology represented by the hexagon in Figure 16. All these groups of variables are investigated in the study and the data collection instruments have relevant questions that were asked about these variables.

Respondents who were targeted by Alvarez and Nuthall in 2006 were dairy farmers from two communities. In this study on agritourism in Lesotho, it was considered important to include farmers, farm employees, tourists and government officials as respondents. Farmers make decisions on which
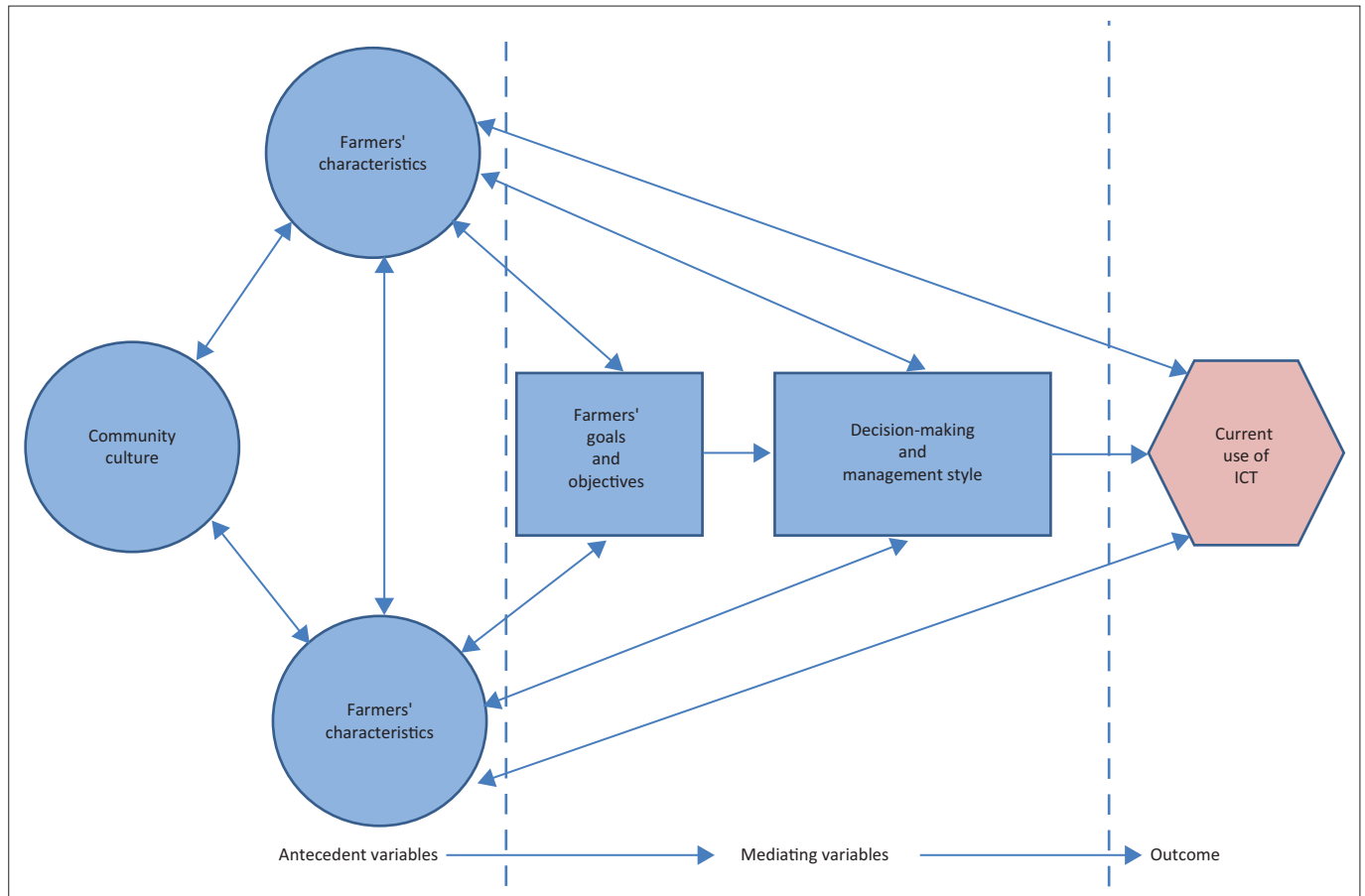
Source: Alvarez and Nuthall 2006:51

FIGURE 3: Information innovation adoption model.

ICT is suitable for use on the farm, whilst employees execute tasks given by farm owners. Tourists make use of these technologies to search, compare and book agritourism products and services, whilst government is involved in making rules and regulations when it comes to ICT deployment and use in the country (Tembo 2008).

The extended model is presented in Figure 17 and will be subject to modification, if necessary, to suit the result of the study.

The adapted information innovation adoption model

The IIAM was adapted to give a clear explanation for the use of ICT by agritourism farmers in rural communities of Lesotho. Figure 4 shows the adapted model of the IIAM for the study. As this study sought to investigate the use of ICT by farmers, the relationship between the three types of variables was explored to determine which variables affect the use of ICT by farmers.

The adapted model assisted in identifying factors that affect the use of ICT in agritourism. It shows how the identified factors contribute towards agritourism development as well as the shaping of government policies on agritourism development.

Alvarez and Nuthall (2006:51) define culture as the 'farming culture that involves the values, ideas as well as principles that farming communities and farmers shared when they were children and developed their thinking'. Tembo (2008) notes that when farmers make decisions to further their business goals in a commercial enterprise, cultural values are taken into consideration. Farm employees can also not choose whether to use ICT or not at the work place. Their role is to perform activities assigned to them by their employers. Tourists can also not choose the type of technologies farmers decide to use because their deployment of technology is also determined by availability of ICT resources.

From the framework, variables that are significant and a relationship with ICT use (shown in Table 1) in agritourism, were evaluated.

Research methodology and design

Based on the need to understand the contextual and natural settings that affect the potential growth of agritourism in rural communities of Lesotho, an interpretive paradigm appeared to be appropriate for this study. This type of study has never been undertaken before in Lesotho, so the researcher employed a qualitative approach mainly because it provides rich data about the problem under investigation.
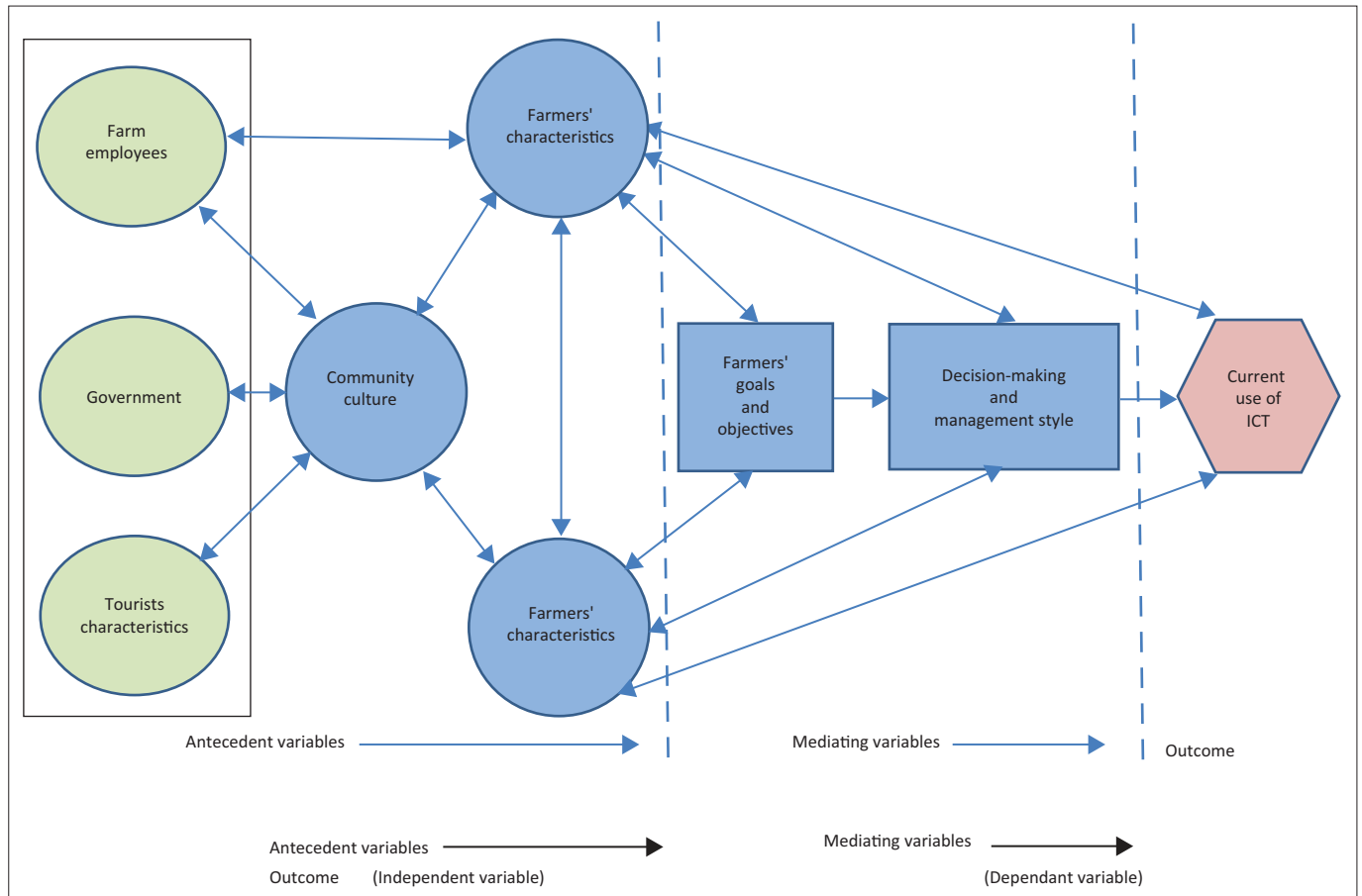
Source: Alvarez and Nuthall 2006:51

FIGURE 4: Adapted model for ICT use in a developing context.

TABLE 1: Variable characteristics of the adapted IIMA model.

Farms and farm employees	Variable characteristics		
	Tourists	Farm	Government
Age	Motivation	Farm size	Legislation
Income	Income	Farm activities	Governance
Experience	Skills/Education	Location	Policies
Mobility	Location		Procedures
Skills/Education	Attitude towards ICT		Support
Attitude			
ICT access			
Training			

Multiple-case studies were used as a research strategy. According to Dobson (1999), a multiple-case study presents a suitable example on interpretive research. The intention of multiple-case studies in the context of this study was to gain an in-depth understanding of the problem under investigation. Non-probability sampling with judgemental sampling techniques were used to select a total number of six farms around the rural communities of Maseru that are involved in commercial farming.

The study applied content analysis as an appropriate approach for analysing data collected from face-to-face interviews. Interview questions were compiled to produce reliable response from the sample to determine what participants do, think and feel about specific factors affecting agritourism growth. According to Myers (1997), content analysis is used for making replicable and valid reference from data to their context. The reason behind this was to explore data in-depth and obtain a valid reference of the cases. Data from interviews were recorded and transcribed so that detailed analysis could be carried out. Data were then coded by looking for specific words relevant to the topic for which themes were identified in the text provided for analysis. Data were then grouped and distilled from the text and list of common themes to give expression to the communality of voice across participants.

Results

A total number of 23 respondents that were judgementally selected from the rural communities of Maseru, were asked what type of ICT farmers use in rural communities and the information that they need to successfully run their farms. They were also asked about the factors that affect the use of ICT in agritourism and how they can use ICT to enhance agritourism growth in rural communities.

The results showed that agritourism farmers use several technologies for agritourism purposes. These technologies include cell phones, radio, television, landline phones, computers, Internet, digital cameras and fax and voice recorders. The majority of the respondents mentioned that

the most accessible ICT in rural communities are radio and television. Some of the respondents regarded Internet and fax as important technologies that farmers can use. Digital cameras and voice recorders are mostly unused technologies. The lack of Internet connectivity with sufficient broadband and network coverage in rural communities are major stumbling blocks that hinder the effective use of ICT in the development and growth of agritourism as an industry.

The results of the study showed that farmers in rural communities make use of ICT to gain access to information relevant to agritourism. Some of the respondents mentioned that they use technologies to obtain information regarding best practices in the agritourism industry. Some of the respondents need information on market share as well as market prices. Others mentioned that they need new information technology that is being used in the agritourism industry. Some need information on funding as well as agritourism products and services that they can offer to their customers. These findings showed that farmers recognise the importance of ICT to access information relevant to agritourism, but it does not mean that farmers own these technologies.

The findings of the study revealed that the majority of respondents are aware of the technologies that are being used in the agritourism industry. However, there are certain factors that affect access and use of these technologies, especially in rural communities. The majority of the respondents mentioned that they find it expensive to purchase, use and maintain these technologies. Some of the respondents mentioned that the lack of infrastructure such as network connectivity, coverage, broadband availability and absence of electricity in rural communities hinder the growth and development of the agritourism industry. Some of the respondents mentioned that the level of education affects the farmers' ability to use ICT effectively, therefore they recommended training. Some said they are aware of these technologies but do not know how to use or maintain them. This makes it difficult for them to gain the benefits and explore the opportunities that ICT offers.

The results of the study also revealed that farmers in rural communities can make use of ICT to gather information relevant to agritourism products and services in a quick and affordable manner. Respondents mentioned that they use cell phones to communicate with customers and suppliers through the use of Short Message Service (SMS), and this has assisted them in reducing communication and travelling costs. Some of the respondents mentioned that they use ICT to market their products and services to target markets. This finding shows that, even though farmers recognise the importance of ICT for marketing, it does not mean they have ownership of these technologies but suggests demand. The results also show that farmers use ICT for business transactions. Some of the respondents mentioned that they purchase some of their products online as well as perform online banking. Respondents also mentioned that it saves them time and effort for communicating important information.

Some of the findings showed that the government of Lesotho has taken necessary steps to promote higher levels of technology access and use in communities and schools. Respondents mentioned that the government is working on developing and improving existing ICT systems to enhance radio and television transmission and increase their coverage.

Discussion

The main issues that were identified with regards to the factors affecting the growth of agritourism as an industry in Lesotho were lack of infrastructure, lack of knowledge and need for ICT. Whilst the demand and access to technology is increasing, farmers need to bear in mind which technologies are easily accessible and being used in rural communities. The findings showed that radio and television are the mostly used and easily accessible technologies, even though accessibility by cell phones has increased.

With regard to lack of infrastructure, it is evident that the high cost of ICT infrastructure hinders access and use of certain technologies. Despite the lack of and poor infrastructure in the country, the government has been tasked with providing affordable, sustainable, reliable and highly quality ICT as a means of promoting economic development in the country. Lesotho is still amongst the least developed countries with regard to technology establishment. Amongst other ICT initiatives and projects, the government of Lesotho has also adopted a National ICT Policy that makes reference of and gives priority to the education sector.

Agritourism offerings depend on ICT and, as the results showed, it is evident that farmers are aware of certain technologies that are used in the agritourism sector. Farmers also view these technologies as necessary tools that can be used to improve the quality of information relevant to agritourism, and that they can help to promote agritourism products and services to a wider market through the use of the electronic media. As there is a need for ICT in agritourism, the government of Lesotho, together with the policy-makers need to invest in ICT infrastructure such as Internet access points, network signals, electricity, decent roads and all at low cost.

Another constraint on the use of technologies for agritourism growth remains lack of knowledge on how to use ICT. To overcome this constraint, ICT training and awareness campaigns should be provided to farmers, local communities and schools. Training is an important factor that will ensure that farmers are ready to use these technologies to promote sustainable development and enhance growth of the industry. Farmers are also encouraged to start saving for and investing in new technologies.

Conclusion

Based on the findings from the literature and interviews, it is evident that the majority of farmers are aware of certain

factors that affect the growth of agritourism, especially in the rural communities of Lesotho. Technology plays an important role in promoting sustainable development and improves the lives of farmers in rural communities. The study shows that the role of technology in agritourism has been recognised. However, businesses that do not have access to technologies such as the Internet and other related technologies may not benefit from electronic services that are offered and, therefore, will not be able to compete globally.

The study was able to identify the different types of technologies farmers use in rural communities. These consist of cell phones, radio, television and computers. Although these are technologies that are mostly used by the majority of farmers, they may still be unable to use these technologies to their full extent because certain factors hinder them from using them. The findings indicated that factors such as lack of infrastructure, lack of knowledge and high cost, amongst others, should be taken into consideration as they are the main factors affecting the use and growth of the agritourism sector in rural communities of Lesotho.

Recommendations

The researchers recommend that the following action steps be taken:

- Identify technologies that are being used in the agritourism industry.
- Explore which of these technologies are available to farmers in rural communities.
- Determine barriers that inhibit access and use of these technologies.
- Determine the cost of technologies in general (purchase, maintenance).
- Identify sources of funding for acquisition of technologies.
- Establish relationships with government, IT specialists and other stakeholders involved in agritourism.
- Determine the cost of information access through the use of technologies.
- Determine the cost of training for ICT use.
- Identify awareness programmes that specialise in technology use in businesses.
- Ensure that infrastructure needed for ICT use is available in the area.
- Enhance ICT use in rural communities as a priority for sustainable development.

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Effect of evaluation on SMMEs' new technology decision-making processes

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The complex nature of difficulties and constraints encountered by small businesses in their operations identified Information Technology (IT) as a tool with the potential ability to enhance small, micro and medium enterprises (SMMEs) productivity, efficiency and growth. Despite the increased spend on IT, many SMMEs still do not understand the importance of IT investment evaluation in decision-making processes to realise potential and expected benefits. This study aimed at exploring the impact of evaluation and non-evaluation on the decision-making process of SMMEs when adopting new technology. A further aim of the study was to contribute to decision-making of SMMEs by proposing a set of guidelines for IT adoption. A multiple case study was employed as the research strategy. SMMEs were selected using non-probability sampling techniques and purposive method. The unit of analysis consisted of 15 managers and/or owners of the selected SMMEs. Data were collected in the form of semi-structured interviews and analysed using thematic analysis whilst employing hermeneutics to derive deeper and richer meanings. SMMEs risk failing because of the impulsive and excessive buying of technology when disregarding evaluation of the technology for the business process. SMMEs often base their decision to adopt new technology on speculative and empirical knowledge from their personal judgement, communication preferences and individual experiences. The lack of proper understanding of the implications of adopting new technology for the business in entirety may lead to the adoption of inappropriate technology or the non-adoption of a potential new technology. The study therefore recommends a set of guidelines to assist SMMEs in the process of new technology decision-making.

Introduction

There is growing collective acceptance about the significant role small, micro and medium enterprises (SMMEs) play in the economies of both the developing and developed world, especially in stimulating economic growth through increased job creation and promoting innovation (Fatoki 2014). The impact of IT on the contribution of SMMEs to the economy of developing countries, such as South Africa, is well researched and documented (Berry et al. 2002; Ndiege, Herselman & Flowerday 2012; Nguyen 2009). Mohamad and Ismail (2009) and Al-Qirim (2007) also posit that the characteristics of IT are well founded in antecedents, and it is arguably the most important means of sustaining, facilitating and promoting SMMEs' business operations and efficiency. The OECD (2010) describes IT as a tool that enables SMMEs to steadily develop in status nationally and globally, enhancing cross-country relationships and transactions in the global world. To achieve this it is necessary to identify and invest in technologies that can assist in increasing the efficiency of SMMEs.

Various studies have been carried out to investigate the motives behind the adoption and non-adoption of IT in various types of businesses, including SMMEs, with a vast majority of the work carried out in developed countries (Booyens 2011; Marais & Pienaar 2010; Uden 2007). The impact of new technology on the organisational performance is visible in aspects of profitability, efficiency, market value and shares, productivity, quality and competitive advantages. The concept of the adoption of new technological innovation as a powerful competitive weapon is illustrated and emphasised by past and present literature (Boateng et al. 2010; Chan, Chong & Zhou 2012; Mata, Fuerst & William 1995). Although SMMEs' importance to economic development of South Africa is recognised, emphasis should be directed on SMMEs' knowledge and acquisition of available technologies that can be utilised to improve business processes (Govender & Pretorius 2015). The importance of strategic business planning and operations is emphasised with research showing 70% to 80% of new SMMEs created in South Africa do not succeed within the first two years of operation (Adeniran & Johnston 2012).

Introducing new technology within a company involves a broad decision-making process which not only affects the individual users but the stakeholders as well. The decision-making process is in alignment with many of the technology acceptance models that embrace the fact that social, environmental, organisational and governmental factors contribute to the user's perception and acceptance of new technology (Abulrub, Yin & Williams 2012; Cowan & Daim 2011). Whatever the factors involved in the choice and adoption approaches implemented by SMMEs, the ability to successfully adopt, integrate and manage new technology lies largely in the evaluation procedures which lay the foundation for successful adoption and integration (Brown & Russell 2007; Cragg, Mills & Suraweera 2010; Love et al. 2005; Rodríguez & Pozzebon 2011). Serafeimidis and Smithson (2000) argue that the evaluation of new technology is often a complex but important part of the organisational process, which involves decision-making. Decisions on new technology by SMMEs are crucial because of the high capital outlay required and the considerable degree of uncertainty applicable to the technology (Love, Irani & Edwards 2004). According to Fitzgerald (1998), decisions on Information Communication Technology (ICT) investment is a difficult process, especially to determine the return on investment. The failure to evaluate and the lack of proper understanding of the implications of adopting a new technology on the business in its entirety, may lead to the adoption of inappropriate technology or the non-adoption of a potential new technology with advantages for business growth (Abulrub et al. 2012; Palvalin, Lonnqvist & Vuolle 2013).

The evaluation process starts from the point of no knowledge or first knowledge to increased knowledge of its features and characteristics, to an in-depth evaluative measurement, which results in an analytical and predictive conclusion (Cowan & Daim 2011; Dyerson, Harindranath & Barnes 2009; Palvalin et al. 2013). From the no knowledge to the first knowledge level a familiarisation of the advantages, implications, constraints, information and potential of the new technology ensues. When knowledge of a new technology has been obtained, the adaptability, applicability, compatibility and capability of the technology determine the decision to possibly accept, adopt and implement the new technology (Dyerson et al. 2009). Thus, non-adoption of technology is often based on the lack of evaluation of the potential and constraints relating to the adoption and utilisation of the new technology (Cowan & Daim 2011; Cragg et al. 2010). SMMEs are predisposed to investing and adopting new technology for the business when it offers them a competitive advantage and enables them to increase their efficiency and productivity rate even though constrained by limited resources (Dalipi, Idrizi & Kamberi 2011). Such a position is only relevant when SMMEs understand the value and ramification of key decisions that can only be guaranteed by proper knowledge and evaluation of the new technology. A competitive advantage gives businesses a leading edge over competitors, and it is used as a strategic tool to positively bring about organisational change in the business process (Nguyen et al. 2013).

Abulrub et al. (2012) and Cowan and Daim (2011) state that evaluation procedures of technology forecasts need to evaluate each particular technology and SMME according to the individual context or their characteristics. The evaluation incorporates surrounding factors such as environmental, political, cultural, ideological, religious, economic, geographical, organisational and regulatory policies and behavioural tendencies of the business (Landt & Damstrup 2013). The relating relevant factors present must all be taken into account in the evaluation process. The evaluation should be properly investigated, documented and should show the advantages and disadvantages of the potential technology. The result of the projected impact of the new technology on the business, over a set period and range of time, should be clearly stated. Another key factor to take note of is the risk involved in the uncertainty of the future of the technology, although it is generally expected that return on technology should outweigh the risks associated with the adoption (Abulrub et al. 2012; Chan et al. 2012). However, Lee et al. (2010) and Love et al. (2005) state that decisions of owners and/or managers also depend on how much the decision-makers are willing to accept as an equitable risk to balance the level of uncertainty and probability of the outcome, which is relatively unknown. Investment decisions have now been further simplified by the application of risk analysis using financial techniques to support informed investment decision-making processes in the business.

The challenges SMMEs face are linked to the problems that emanated from the non-evaluation of the potential of a new technology before adoption (Chan et al. 2012; Kim & Garrison 2010; Nguyen 2009). As a result of the non-evaluation and non-adoption of new technology, SMMEs forfeit the opportunity to gain a competitive advantage for their businesses regarding increase in growth and efficiency rate and improvement in the quality of goods and services rendered (Boateng et al. 2010; Maryeni et al. 2012; Verhees, Meulenberg & Pennings 2010). The challenge for SMMEs remains in the lack of adequate resources and proper knowledge needed to obtain the necessary information and data needed for accurate evaluation for the new technology to be beneficial to the business (Chan et al. 2012; Cragg, Caldeira & Ward 2011; Dyerson et al. 2009). To address the problem of non-evaluation of the significance and appropriateness of technology which often leads SMMEs towards practices that ultimately endanger their businesses and places them in precarious situations, the following questions were asked, 'How can SMMEs evaluate the business potential of new technologies?' 'How does the evaluation of new technology affect the decision-making of new technology in SMMEs?' These questions were aimed at understanding how SMMEs determine technologies suited for the business. And also to find a process to assist SMMEs to evaluate the business potential of new technologies and also to explore the significance and contribution of the evaluation process towards decision-making on adoption of new technologies.

When it comes to small business practice, the practicalities involved require a change in orientation on how evaluation is perceived by business managers, and it requires an understanding of the concept and values of risks analysis and benefit management practices in business (Palvalin et al. 2013; Serafeimidis & Smithson 2000). Contrary to the objection of cost and unavailability or limited resources as main barriers of new technology adoption, studies have recently found the absence of proper planning and evaluation as the main barrier to new technology adoption by small businesses in the USA (Ghobakhloo et al. 2011). Therefore, the more effort is put into a detailed plan and analysis of a new technology, the better knowledge is gained of the potential impact of the technology and its usefulness to the business. New technology adopted with disregard to the factors and relationships that exist within the dynamics of evaluating the new technology, jeopardises the potential benefit and realisation of the benefits accruable (Aleke, Ojiako & Wainwright 2011). The stages of strategic acceptance as proposed by Abulrub et al. (2012) show key considerations and steps required to evaluate and adopt new technology by SMMEs. Abulrub et al. (2012) state that the stages of initial awareness, personal and/or user acceptance, value cost and risk assessment, strategic acceptance leading to final acceptance and adoption are important considerations for SMMEs acceptance and adoption of new technology for the business. Failure to cover the strategic steps affects the ability to make informed decisions, thus leaving the business vulnerable to danger and challenges.

The Diffusion of Innovation (DOI) and Technology, Organisation, and Environment (TOE) frameworks are the only two prominent technology adoption models that acknowledge the essence of decision-making and elements of new technology diffusion in an organisational context (Oliveira & Martins 2011). The composition of the components of DOI and TOE elements, which describe a suitable approach for adoption decision-making applied in the context of SMMEs in developing countries, lends credence to the relevance of the research study. The TOE theory, developed by Tornatzky and Fleischer in 1990, was proposed to accommodate organisational elements and components that influence technology adoption decisions of a firm. The construct of the TOE framework is based on three contexts, namely: (1) technological – includes both externally available technology and current internal technologies of relevance to the organisational process, (2) organisational – describes the characteristics of the organisation with regard to size, scope of business and management structure and (3) environmental – describes elements pertaining to the business environment, for example physical location, competitors, industrial sector and interaction with government agents. According to Tornatzky and Fleischer (1990) cited by Dalipi et al. (2011:113), the three components of TOE are factors in decision-making for adopting new technology and imply 'constraints and opportunities for technological innovation'. Therefore, the three influential factors describe the way a business identifies the need for new technology, conducts a search for it and makes a decision to adopt the new technology.

For a business to fully realise the accruable beneficial impact of new technology, the technology must be aligned with the business processes to function appropriately (Palvalin et al. 2013). The alignment between business and IT strategies will improve the functioning of the business and will result in an increase in profits. Despite many adoption models of technology being proposed, there is still a slow uptake of new technology by SMME's (Oliveira & Martins 2011). There is a lack of planning and evaluation on the side of the SMMEs when adopting or attempting to adopt new technology (Ghobakhloo et al. 2011). The study was aimed at exploring the impact of evaluation and non-evaluation on decision-making process of SMMEs when adopting new technology for the business. A further aim of the study was to contribute in practice to decision-making of SMMEs by proposing a set of guidelines for IT adoption.

Methodology

The research has an ontological perspective with a subjective stance, which connotes that a situation having come into existence does so only through the action of humans in creating and recreating the phenomena observed (Orlikowski & Baroudi 1991). The research is based on an inductive approach because of the need to better understand the problem and to develop guidelines based on the empirical observations to address the identified research problem. The research strategy followed was a multiple case study design with analytical concepts by providing a detailed description of each case within a unit and generally comparing themes across cases (Saunders, Lewis & Thornhill 2009). The units of analysis were SMMEs (15) across the City of Cape Town Metropolis, South Africa. The units of observation were owners and/or managers and decision-makers in the business and technology management sections of their businesses. The SMMEs that were chosen by non-random, purposive and judgemental sampling were all financial service providers (FSPs). The assumption was made that these FSPs must at least have some technology available to them and are using the technology to execute the business processes. Data were collected using an interview guide with a semi-structured questionnaire by means of one-to-one interviews (Miller & Glassner 2009). Interviews were transcribed and given to the participants to verify that the transcription were correctly transcribed and mirrored the intent of the participant. The data were analysed using a simple thematic coding system by reading through all the data extensively, summarising all of the data collected, taking note of all the similarities that occur in the data, grouping key concepts into themes and identifying key themes according to their appearances in groups (Quinlan 2011).

Findings and discussion

Making an informed decision is crucial for the continued survival of the business. Some of the SMMEs interviewed feel that evaluation of new technology could give them an advantage when decisions are made based on relevant facts about the technology to enable them to perform better and

deliver more efficiently in their business. SMMEs need understanding that evaluation of technology gives a better understanding of the suitability of new technology for making an informed decision. The significance of new technology evaluation of the business is described by Palvalin et al. (2013), who stress that failure to evaluate and the lack of proper understanding of the implications of adopting new technology for the business may lead to the adoption of inappropriate technology or the non-adoption of a potential new technology. The value new technology offers the business process is a key influence on the decision of SMMEs to adopt the new technology, as the technology is a strategic tool and key enabler of business objectives and goals.

Small businesses often risk failing because of the impulsive and excessive buying of technology without evaluation for their business processes. SMME managers or owners are often found to base their decision to adopt new technology on speculative and empirical knowledge from their personal judgement, communication preferences and individual experiences. The lack of proper understanding of the implications of adopting a new technology on the business may lead to the adoption of inappropriate technology or the non-adoption of a potential new technology. Small business owners and/or managers often base their decisions on their own perception, intuition, trends, attitudes and experience without much consideration for evaluation and operational needs (Rantapuska & Ihanainen 2008). As a result, they are often left with a feeling of inadequacy when they adopt the wrong technology and end up losing money, not knowing what they need to solve their problems.

Evaluation of new technology has been said to play an important role in the adoption process. Not evaluating new technology, and the potential it holds for the business could be to the detriment of the business. The lack of evaluation poses a problem because decisions taken consequently are uninformed, biased and usually based on little or no information. A participant of the study states the following:

> I don't think small businesses evaluate properly before adoption. Businesses end up failing due to excessive buying and disregard for evaluation. People often don't make the right choices because they don't evaluate the right choice. (Respondent 3)

Lack of proper evaluation of significance and appropriateness of the technology is encapsulated by Palvalin et al. (2013), stating that the failure to evaluate and the lack of proper understanding of the implications of adopting a new technology on the business in entirety may lead to the adoption of inappropriate technology or the non-adoption of a potential new technology with advantages for business growth. Respondent 4 argues that '… SMMEs don't realise the urgency, risks and benefits of having the technology in the first place. The lack of information and proper knowledge causes little drive towards technology'. Respondent 6 recounts the experience of non-evaluation in previous attempts to acquire a new technology, thus resulting in buying the wrong technology:

> … we didn't have the experience or knowledge about the technology. We failed to measure the relevance and significance of the technology at that time. What we thought we needed, didn't match the requirements of our clients. We were unsuccessful in mapping out what is our desired future in terms of technology. (Respondent 6)

SMMEs usually act on gut feeling and are easily influenced by current trends in the environment without paying attention to the functionality and appropriateness of the technology to their business. Steyn and Leonard (2012) reveal that many SMME owners often seek the assistance of friends, relatives or other SMME owners in the initial process of adopting new technology. Giving the lack of adequate ICT knowledge and limited exposure to new technology from the people consulted for advice, SMMEs do not necessarily adopt suitable technology because of their ignorance of the potential value and use of technology (Abulrub et al. 2012; Palvalin et al. 2013). According to Buonanno et al. (2005), the decision–making for new technology adoption by SMMEs is mostly affected by spontaneous actions, social activities and trends rather than established process business objectives, proper technology enquiry and evaluation processes. SMMEs need to understand that evaluation of technology gives a better understanding of the suitability of new technology, thus contributing towards an informed decision and active engagement in evaluation to assist in making the right and most appropriate choices regarding the business. Respondent 5's comment encapsulates the case for suitability when he says that SMMEs should go about:

> … observing and absolving what is happening around, and then making decisions to see if it is appropriate. There are certain areas where technology fulfils certain criteria, and then it becomes appropriate. (Respondent 5)

Serafeimidis and Smithson (2000) argue that unsuitable technology brings problems of mismatch or poor fit of new technology to the business process. Such misalignment presents considerable risk to the business with regard to operations, and the costly nature of the problem will impact negatively on the business.

Many of the SMMEs in this study failed to identify, evaluate and adopt new technology and have no knowledge of the benefits accruable from the use of the new technology for their business, hence losing the ability to have a competitive leverage over their competitors. The participants were all in agreement that the technology problems they are facing are mostly as a consequence of not evaluating the new technology before adopting for their business. The SMMEs admitted to rather act on gut feeling and trends rather than verified information. SMMEs are prone to impulsive and excessive buying of technology, disregarding the evaluation of the technology for the business and business processes. This finding is supported by the research of Rantapuska and Ihanainen (2008), stating that SMMEs' owners and managers often base their decisions on their own perception, intuition, trends, attitudes and experience without much consideration for evaluation and operational needs. Aleke et al. (2011) also

showed that new technology is adopted with disregard to the factors and the relationship that exists within the dynamics of evaluating the new technology. The disregard of evaluation of technologies before adopting the technology for the business often leads to business process failure as the newly adopted technology does not support the processes in place. This creates mistrust and eventually the abandonment of the technology. The misalignment of the new technology with the business goals, objectives and processes results in an ineffective and inefficient business (Serafeimidis & Smithson 2000).

Conclusion and recommendations

The evaluation of new technologies, to a large extent, makes it possible for SMMEs to understand the risks and complications associated with a new technology before adopting it for the business. The importance of evaluating new technology is understood by the respondents in this study. However, it is evident that SMMEs do not have existing structures or formalised directions and steps to evaluate new technology for the business. The knowledge required to understand the functionality of a new technology can only be accessed by asking the right questions about the business requirements, measuring the adaptability, capability, compatibility and applicability of the new technology and creating a synergy of business and technology alignment (goals, objective, strategies and business processes), thus facilitating and fulfilling the impact and resultant expectations the business requires. The knowledge and application of improved and advanced technology gives businesses leverage over other competitors in the market. Therefore, evaluation can be described as a key enabler of business. It enables technology to be seen as a means to an end with the ability to be more efficient and productive, which increases economic development and survival of the business.

Evidence shows that SMMEs do not have the existing structures or formalised directions and steps to evaluate new technology that has been incorporated into their businesses. They have therefore suffered various losses, especially in the early stages of their businesses. Evaluation of technology has been established as a strategic tool to attain business objectives and goals. Making an informed decision on the suitability of new technology is important to the continued survival of the business. Consequently, the lack of evaluation poses a problem because decisions taken are uninformed, biased and usually based on little or no information. Challenges SMMEs are faced with are linked to the problems that emanate from the non-evaluation of the potential of the new technology before adoption which makes them lose the opportunity to leverage their business growth. Therefore, making an informed decision on appropriate technology gives businesses an ability to deliver superior quality goods and services over competitors to ensure sustainability and viability of the business.

The value new technology offers the business process is a key influence on the decision of SMMEs to adopt the new technology as the technology is a strategic tool and key enabler of business objectives and goals. Making an informed decision is crucial to the continuing survival of the business. It enables them to perform better and deliver more efficiently in the running of their businesses. SMMEs need to understand that evaluation of technology provides a better understanding of the suitability of new technology, thus contributing towards informed decision-making to make the right and most appropriate choices regarding the business. The research established that SMMEs find it challenging to make quality decisions about new technology because they often lack ICT expertise and skills, therefore new technology decision-making is often a daunting task for them. Steyny and Leonard (2012) assert that decision-making by SMMEs without the input of a professional exposes the business to failure in the adoption process and jeopardises the survival and growth of the business.

The lack of strategic management skills by SMMEs is made evident by Xesha, Iwu and Slabbert (2014), who declare that half of SMMEs failure in South Africa is as a result of poor decision-making and management capacity. SMME managers and/or owners therefore need to understand the level of maturity of the technology and the value of the potential strategic benefit to the business before a decision is made. The advantage of an understanding of evaluation for managers and/or owners is the ability to make swift, informed decisions which limit the risk of adopting unsuitable and obsolete technology because of lengthy delays caused by uncertainty and hesitation. Therefore, Govender and Pretorius (2015:3) declare that, 'Knowledge of the environment, the need that the technology will address and the skills required for the use of the technology form the source of management decision-making'. It is obvious that SMME managers and/or owners need to proactively engage ICT evaluation and adoption tools to assist in decision-making about new technology, thus minimising the risks they are exposed to through poor decision-making.

The recommendations provided are to guide policy and practice in business and also to promote further research work. Evaluation of new technology should encompass the measurement and establishment of key elements and factors such as effectiveness, cost, quality of functionality, benefits accruable and associated risk, amongst others. SMMEs must establish compelling and relevant evidence pointing to the appropriateness of the new technology and its effective utilisation as an advantage over existing technology with fewer cost implications. Evaluation procedures should be carried out in sequential phases to reduce the risk inherent to the adoption of new technology. At the end of each phase, a decision can be made to proceed to the next phase of evaluation to effect adoption of the new technology. The below-mentioned guidelines are developed for SMMEs to assist in the evaluation and decision-making of new potential technology for their business.

The following recommendations are proposed to guide policy and practice in business and also to promote further research. The SMMEs need to determine the goals and

objectives as well as strategies for their businesses. Once this is done, the current business processes need to be mapped against these factors. To follow this mapping is to map the desired state. By doing so, the gaps needed to be filled to reach the desired state, will show. Only at this point, the technology that is required to support the desired processes and systems can be decided on. To make such a decision an evaluation guide or process needs to be followed. The proposed guidelines could assist SMMEs in their decision-making processes. Once the desired processes and systems are determined, the new technology being evaluated needs to be adaptable, reliably interoperable, compatible and scalable to meet the demands of the business. The technology needs to be able to manage the processes and workload with ease. As the workload changes, the technology should be able to adapt to the required workload. It is also important to understand the level of technical skills required to implement, enhance and maintain the technology. A further recommendation is to take into account the availability of resources to support the technology and the infrastructure needed to run the technology. The ease of training of the employees to operate the systems needs to be evaluated and, lastly, whilst evaluating the new technology a change management strategy should be put in place. These practical guidelines are recommended for proper identification and acquisition of suitable and appropriate technology with relevant application to the business process.

New technology decision guidelines

1. Identify the key features and functions of the new technology, including new features added to the current version.
2. Determine the applicability to the business process, industry standards and business environment.
3. Determine the adaptablity to the existing business process, current operations and the ability and skills of employees.
4. Determine the capability of the new technology to handle and deliver needed outputs at required times.
5. Determine the standard capacity of the new technology to handle required workload, and accommodate an increased production volume whilst performing at a standard level.
6. Establish the technical skills and knowledge required to properly operate the new technology to deliver optimum output.
7. Determine the availability of technological infrastructure needed to support the new technology operation.
8. Determine the scalability of new technology, that is the ability to handle future estimated volume and growth.
9. When applicable, first test new technology for a period of time in the business environment to determine the technology fit and stability of the business.

It is imperative for SMMEs to create an evaluation culture as part of the business process to ensure informed decisions on the suitability and appropriateness of new technology.

The purpose of evaluation is to obtain sufficient knowledge to make an informed decision. The evaluation guidelines will potentially lead to SMME owners and managers making a better choice and decision on the adoption of new technology. SMMEs need to be equipped to make salient and crucial decisions about new technology that will have a large effect on the business. Getting to evaluate and make proper decisions on a proven and standardised process will ensure that SMMEs continue to grow and avoid making ill-conceived decisions that will expose them to various forms of risks that are detrimental to the business. The suitable choice of new technology involves important decision-making processes in an organisation which allows the organisations to derive optimum value from their business processes to improve their position in the market. In conclusion, the statement made by Govender and Pretorius (2015:11), sums it up saying: 'ICT adoption clearly provides a means for organisations to realise their strategic objectives, but it is not without risks and challenges if adopted inappropriately'.

The findings from this study are not generalisable and are only applicable to the SMMEs of the sample in this study. Results have shown the need for SMMEs to be actively aware of their business environments and to take the initiative regarding technology adoption and active usage of technology to promote development and to enhance their sustainability and survival in the market place. Further studies should be directed towards SMMEs of other industries to build a profile of SMMEs for creating a reliable and generalisable evaluation assessment tool to assist in making informed decision on appropriate, current and future new technology for the businesses.

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