



**MANAGEMENT INFORMATION SYSTEMS AND ACHIEVEMENT OF SUSTAINABLE COMPETITIVE ADVANTAGE IN  
THE KENYAN BANKING SECTOR: CASE OF KENYA COMMERCIAL BANK LTD**

**PREXADES CHEPKORIR NGELECHEI, DR. TOBIAS OLWENY**

**MANAGEMENT INFORMATION SYSTEMS AND ACHIEVEMENT OF SUSTAINABLE COMPETITIVE ADVANTAGE IN THE KENYAN BANKING SECTOR: CASE OF KENYA COMMERCIAL BANK LTD**

<sup>1\*</sup> Prexades Chepkorir Ngelechei, <sup>2</sup> Tobias Olweny

<sup>1\*</sup> Jomo Kenyatta University of Agriculture & Technology (JKUAT), Nairobi, Kenya

<sup>2</sup> Jomo Kenyatta University of Agriculture & Technology (JKUAT), Nairobi, Kenya

Accepted May 2, 2016

---

**ABSTRACT**

*Management information systems have attracted much academic and non-academic research in the last few decades due to their role and importance in education, employee productivity, institutional performance, and enhancing sustainable competitive advantage. However, technology alone cannot be a strategy in itself and it is only by integrating it into an overall strategy that it will become a powerful source of competitive advantage. The purpose of the study was to establish the effect of MIS on achievement of sustainable competitive advantage in the Kenyan banking sector. The specific objectives of the study were to establish the effect of knowledge sharing, operational efficiency, customer relationship management and market intelligence on achievement of sustainable competitive advantage in the Kenyan banking sector. Descriptive case study design was applied in this study. The population targeted in this study was all the management level employees at KCB Kencom House Moi Avenue. Stratified sampling was employed. Questionnaire method was utilized to collect data in this study. Data analysis was through descriptive statistics and regression. The results of the descriptive and inferential analysis were presented using tables. The study established that MIS enabled knowledge sharing, operational efficiency, customer relationship management and market intelligence significantly affect achievement of competitive advantage by KCB. The study recommends that organizations should enhance knowledge sharing environment by creating policies and processes that make it efficient and easy to share knowledge through the ICT systems in place. Further, the study recommends to management to use MIS to eliminate non-value-adding tasks or to make them more efficient. Lastly, organizations should ensure that when MIS is adopted, all facets of the organization (individuals, teams and departments) should be well coordinated to ensure that the MIS is well integrated with all organizational units for it to be useful. Moreover, organizations should continually update both MIS and employee skills in light with the changing environmental and competitive factors.*

**Keywords:** *knowledge sharing on achievement, operational efficiency, customer relationship management, competitive advantage, market intelligence.*

---

## **Introduction**

The information revolution is affecting competition in the current business environment in three vital ways: it changes industry structure and, in so doing, alters the rules of competition, it creates competitive advantage by giving companies new ways to outperform their rivals and it spawns whole new businesses, often from within a company's existing operations (Chukwunonso *et al.*, 2011). However, companies have not always been successful in employing MIS to gain sustainable competitive advantage (Hemmatfar *et al.*, 2010). Gupta and Collins (2015) note that only 50% of MIS investments translate to sustainable high business performance. Moreover, not all MIS investments may result in positive outcomes or their sustainability may be short lived. In addition, there can be a lag time between making MIS investment decisions and seeing their intended outcomes (Bilgihan *et al.*, 2011).

Porter (2001) argued that technology alone cannot be a strategy in itself and that it is only by integrating it into an overall corporate strategy that it will become a powerful source of competitive advantage. Technology need to be linked with business strategy to produce the desired outcomes. This therefore indicates that organizations must consider the linkage and support role that MIS plays to enable the organization attain competitive advantage. To enable MIS play its supportive role, organizations must have a way of managing knowledge effectively, apply the MIS to make activities efficient, apply the MIS to serve their customers and be able to apply the MIS to gather and analyze market intelligence. To perform these tasks, the organization needs to have employees with the required competences and skills to perform the various organizational tasks.

The question that lingers is the extent to which the Kenyan banks have implemented MIS to achieve

sustainable competitive advantage. Further questions that need answers are effects of the MIS on knowledge sharing, creating efficiencies in operations, relating well with customers and in gaining market intelligence. This is because there are limited studies on how MIS has assisted banks to achieve competitive advantage not only globally but also locally (for instance Gupta & Collins, 2015; Zineldin, 2013; Okiro & Ndungu, 2013; Zineldin, 2012). This study therefore sought to contribute to the subject area by assessing the effect of MIS on achievement of sustainable competitive advantage in the banking sector.

## **General Objectives**

The main objective of the study was to establish the effect of MIS on achievement of sustainable competitive advantage in the Kenyan banking sector.

## **Specific Objectives;**

- To establish the effect of knowledge sharing on achievement of sustainable competitive advantage in the Kenyan banking sector
- To determine the extent that operational efficiency affects achievement of sustainable competitive advantage in the Kenyan banking sector
- To investigate the effect of customer relationship management on achievement of sustainable competitive advantage in the Kenyan banking sector.
- To establish the influence of market intelligence on achievement of sustainable competitive advantage in the Kenyan banking sector.

## **Literature Review**

This section discusses past empirical studies that have been conducted globally, regionally and locally in relation to MIS and achievement of sustainable competitive advantage. The literature focuses on

how MIS enables knowledge sharing, operational efficiencies, customer relationship management and market intelligence to drive competitive advantage.

### **Knowledge Sharing**

Lin and Chen (2008) with the purpose of examining the influence of internal integration and external integration on three types of shared knowledge (shared knowledge of internal capabilities, customers, and suppliers) and whether more knowledge sharing leads to superior firm innovation capability and product competitive advantage. The paper draws on results from a large-scale survey. The empirical data used in the study comprised of 245 high technology firms in Taiwan. This study applied the confirmatory factor analysis to examine the reliability and validity of the measurement model, and the structural equation modeling (SEM) to investigate the hypotheses and research model. The results show that internal integration and external integration significantly influence shared knowledge of internal capabilities, customers and suppliers among new product development (NPD) team members. The results also indicate that team members' shared knowledge enable the firm to improve innovation capability and new product competitive advantage.

Awazu (2014) noted that knowledge sharing creates opportunities to maximize organization ability to meet those needs and generates solutions and efficiencies that provide a business with a competitive advantage. In a study in the Chicago based logistics companies, Awazu established that informal network players, knowledge integration, and sharing enabled logistics companies to be at the top of their game. Shared knowledge is one of the unique, valuable, and critical resources that are central to having a competitive advantage. Firms increasingly rely on building and creating a shared knowledge base as an important resource capability (Ward, 2010). Additionally, shared knowledge is

viewed as an understanding and appreciation among different functions, and effective shared knowledge is regarded as a synergy between team members.

### **Operational Efficiencies**

Gupta and Collins (2015) observed that financial institutions, and banks, in particular, are one of the largest investors in management information systems and information technologies and there are indications that this trend is likely to continue. However, there is growing concern that MIS investments are not yielding the anticipated results, an issue that is of grave concern to many CEOs and top managers. To address this concern, they analyze the relationship, if any, between investments in MIS and an organization's efficiency measures. The survey was mailed to the CIOs of all member banks of the Florida Bankers Association (FBA). The survey indicated a growing use of several intelligent support systems (ISS), such as decision support systems (DSS), executive information systems (EIS), and geographical information systems (GIS).

#### **Customer Relationship Management**

Zineldin (2012) conducted a study to theoretically and empirically develop a better understanding of quality and customer relationship management (CRM) impact on banking competitiveness in Sweden. The study examined the product and service quality and customer relationship factors that influence the customer selection and image of the principal banks. The results indicated that a bank has to create customer relationships that deliver value beyond that provided by the core product. This involves added tangible and intangible elements to the core products, thus creating and enhancing the product surrounding. One necessary condition for the realization of quality and the creation of value added is quality measurement and control. This is an important function to ensure the fulfilment of given customer requirements. The study by Zineldin (2012) revealed that key ways to

building a strong competitive position are through CRM, product and service quality and differentiation.

### **Market Intelligence**

Qiu (2008) assessed empirically how entrepreneurial attitude and normative beliefs influence managerial scanning for market intelligence and how managerial scanning efforts subsequently impact managerial interpretation of organizations' strengths and weaknesses in the competitive arena. A structural equation model was tested with survey data from 309 managers from diverse sectors in the US. The results indicate that entrepreneurial attitude orientation and market orientation significantly impact managerial scanning for competitive intelligence, which in turn leads to managerial representations of competitive advantage. The competitive intelligence gathering capability of managers is improved by the availability of information systems (Zineldin, 2013). Market intelligence is a valuable methodology which helps to make thorough observations about the data and information systems of an organization. It is a tool that analyses both the internal as well as external data that is stored for decision making purposes. It helps reduce the companies' costs and increase its revenue and performance. To create a competitive advantage in the market, firms need to understand that efficient use of relevant information is required. Businesses may all be different but their core activity is to analyze the trends in the previous data to make future decisions. This is possible with the help of these market intelligence software. Various MIS all understand the importance of software and are fully integrated with these information systems (Zineldin, 2013).

### **Methodology**

Descriptive case study design was applied in this study. The population targeted in this study was all the management level employees at KCB Kencom

House Moi Avenue. The population of potential respondents at Kencom House was 191 according to Human Resource Department of KCB (KCB, 2015).

The sampling frame was used to get the sample from the eligible 191 management level employees. The frame was sourced from the HR department. Due to the different categories of the target population, stratified sampling was employed. The three strata were the top management, middle management, the lower management.

Questionnaire method was utilized to collect data in this study. A questionnaire is a form with questions that a respondent is required to respond to. Gillham (2008) observes that use of questionnaire brings several advantages including efficiency, standardized responses and ease of analysis of the data therein.

Two types of validity were important in the questionnaires that were used. These are content and face validity. Content validity assesses the level to which the test is about the variables under study. It is a test that depicts to establish whether the questionnaire in this study was measuring MIS application into attaining sustainable competitive advantage. Face validity test involved determining whether the questionnaire serves the purpose at hand.

### **Results**

#### **Effect of MIS on sustainable competitive advantage**

The general objective of the study was to establish the effect of MIS on achievement of sustainable competitive advantage of KCB.

#### **Knowledge Sharing**

The study had an objective of establishing the effect of knowledge sharing on sustainable competitive advantage. Respondents were required to indicate the level of agreement to the statements listed on how MIS had enabled knowledge sharing at KCB. These statements were related to knowledge

sharing through MIS and its contribution towards achievement of sustainable competitive advantage. The rating of the statements was on a scale of 1 – 5 (1- Not at all, 2 – Small extent , 3 – Moderate extent, 4 – Great extent and 5 – Very great extent). Analysis was done using mean scores (MS). Results are presented in Table 4.3. The study results reveal that respondents indicated that to a very great extent, MIS enables sharing staffs’ talents and expertise (4.65), the activities of the different divisions in the bank are well coordinated through MIS (4.58) and that MIS enables sharing process, technical and service capabilities (4.53). Moreover, respondents indicated that MIS has enabled management in the bank to share knowledge on the dominant customer preferences (4.51) to a very great extent. However, the study findings indicate that respondents indicated that MIS enables sharing understanding of suppliers’ design, process, technical, service and integration capabilities (2.17) and sharing understanding about capabilities of partners (2.31) to a small extent. These findings show that MIS is applied at KCB to share knowledge about processes, product design, customer information, management information and learning.

#### **MIS and Operational Efficiency**

The study had an objective of determining the extent that operational efficiency affects achievement of sustainable competitive advantage in the Kenyan banking sector. Statements that related operational efficiency made possible through MIS were listed and respondents were required to indicate their level of agreement to the provided statements. The rating scale was 1 – 5 (1- Not at all, 2 – Small extent, 3 – Moderate extent, 4 – Great extent and 5 – Very great extent). Responses were analyzed through mean scores and presented. Results indicate that to a very great extent, MIS have enhanced coordination in the value chain (4.85), the rate of customer complaints have reduced due to the MIS (4.73), MIS have reduced

the time taken to share information (4.73) and the information from the MIS is generally accurate (4.64). Further findings show that MIS have enabled workers to improve on their productivity (4.45) and also enabled reduction in error rates (4.43) to a great extent. These study results reveal that adoption of MIS at KCB has enabled the bank to be able to reduce its costs, reduce time taken to perform some activities and also reduce the number of complaints from customers.

#### **MIS and Market Intelligence**

The study sought to establish the influence of market intelligence on achievement of sustainable competitive advantage in the Kenyan banking sector. Mean scores were used to analyze study responses where respondents had indicated their ratings to listed statements on how management information systems in the bank enabled managers to gather market intelligence. The results reveal that to a great extent, KCB had used MIS to gather market information (4.81), greatly enabled collection and analysis of customer data (4.69), enhanced analysis of market data (4.62) and greatly enabled analysis of marketing campaigns (4.60). Study results also indicated that MIS at KCB had greatly enabled continuous, real-time information gathering (4.56), greatly enhanced marketing by making the market and customer focus the driving force of strategic planning (4.43) and greatly enabled analysis of competitor marketing (4.42). These results imply that MIS at KCB has been greatly applied in gathering and using market intelligence.

#### **Sustainable Competitive Advantage**

The study was also focused on establishing the extent to which KCB had achieved sustainable competitive advantage. Thematic areas for competitive advantage were listed and respondents were required to indicate the extent to which KCB excelled in those areas. The results indicate that KCB had to a very great extent achieved sustained

improvement in market share (4.87), sustained improvement in customer numbers (4.81), sustained above average financial performance (4.76) and achieved improved customer retention rate (4.75). These findings imply that KCB had been able to cut a niche for itself in the banking sector. These findings concurred with KCB audited financial statement that indicated that loans and advances to customers has improved at a rate of 14% over the past 5 years with a similar growth in customer numbers. Moreover, the bank reported rise of on average 4% in return on assets over the five years. These figures indicate that the bank has been able to sustain above average performance.

### Correlation Results

Bivariate correlation analysis was performed on the data with the relationship between the variables being sought for the study. This was aimed at establishing whether there was linear relationship between the independent variables (knowledge sharing, operational efficiency, market intelligence and customer relationship management) and the

dependent variable (sustainable competitive advantage). The results of the correlation analysis are presented. The results reveal that there was strong relationship between operational efficiency and competitive advantage ( $r = 0.763$ ;  $p < 0.05$ ) and also between customer relationship management and competitive advantage ( $r = 0.689$ ;  $p < 0.05$ ). These results imply that improvement in MIS application in enhancing operational efficiency will strongly enhance achievement of competitive advantage. Moreover, improvement in the use of MIS in enhancing customer relationship management will relate to the bank enhancing its competitive advantage. However, there were weak positive relationships between knowledge sharing and competitive advantage ( $r = 0.277$ ;  $p < 0.05$ ) and also a weak positive relationship between market intelligence and competitive advantage ( $r = 0.0323$ ;  $p < 0.05$ ). These findings indicate that improvement in knowledge sharing and market intelligence will have a weak but positive effect on achievement of competitive advantage.

**Table 1: Correlation of the Study Variables**

		KS	OE	CRM	MI	CA
	Correlation Coefficient (r)	1.000				
KS	Sig. (2-tailed)	.				
	N	73				
	Correlation Coefficient (r)	.026	1.000			
OE	Sig. (2-tailed)	.755	.			
	N	73	73			
	Correlation Coefficient (r)	.428**	.295**	1.000		
CRM	Sig. (2-tailed)	.000	.000	.		
	N	73	73	73		
	Correlation Coefficient (r)	.185*	.060	.125	1.000	
MI	Sig. (2-tailed)	.025	.472	.134	.	
	N	73	73	73	73	
	Correlation Coefficient (r)	.277**	.763**	.689**	.323**	1.000
CA	Sig. (2-tailed)	.001	.000	.000	.000	.
	N	73	73	73	73	73

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

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

### Regression Results

Regression analysis was performed at 95% confidence level to test the statistical significance of the independent variables in explaining the dependent variable. The average ratings for the questions in each variable were used as the measures of the variables which enabled input into

SPSS Version 21 that enabled the multiple regression analysis. The variables included were knowledge sharing (KS), operational efficiency (OE), customer relationship management (CRM) and market intelligence (MI). The results from the regression analysis follow.

**Table 2: Regression Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.517	.458	.443	.38585

a. Predictors: (Constant), KS, OE, CRM, MI

Results presented in Table 2 indicate that the r squared for the regression was 0.458 indicating that the four independent variables (knowledge sharing, operational efficiency, customer relationship management and market intelligence) explained 45.8% of the competitive advantage at KCB. This indicates that there are other factors that were not included in the model that explained 54.2% of the

change in competitive advantage of the bank. These other factors may include HRM practices, availability of tangible and other intangible assets, use of alternative delivery channels such as ATMs, mobile banking, internet banking and agency banking, and efficiency and competence of management.

**Table 3: Analysis of Variance of the Regression**

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	17.601	4	4.400	14.555	.000
Residual	20.843	68	.307		
Total	38.444	72			

a. Dependent Variable: CA

b. Predictors: (Constant), KS, OE, CRM, MI

The Table presents analysis of variance which indicates the variance from the regression and variance from errors. The table further indicates that F value was 14.555 and was significant at 95% confidence level. This indicates that the model was statistically significant and provided important predictive power.

greatly enables sharing staffs' talents and expertise (4.65), coordination of bank's divisions (4.58), and sharing process, technical and service capabilities (4.53). Similarly, MIS has enabled KCB management to share knowledge on the dominant customer preferences (4.51) which may have contributed greatly to the competitiveness of the bank. This indicates that any change to knowledge sharing enabled through MIS is expected to have a significant effect competitive advantage of the bank. Moreover, a unit increase in knowledge sharing would lead to a 0.248 increase in competitive advantage of KCB.

### Summary

#### Knowledge sharing and sustainable competitive advantage

The study results showed that knowledge sharing through MIS was a significant predictor of competitive advantage of KCB ( $\beta = 0.248$ ;  $p < 0.05$ ;  $t = 2.696$ ). Moreover, findings indicated that MIS

#### Operational efficiency and sustainable competitive advantage



Operational efficiency brought by MIS was also a significant predictor of competitive advantage of KCB ( $\beta = 0.219$ ;  $p < 0.05$ ;  $t = 2.772$ ). These results imply that improvement in operational efficiency by the bank through the effective application of MIS would lead to achievement of more competitive advantage. Findings further indicated that MIS have, to a very great extent, enhanced coordination in the value chain (4.85), enabled reduction in rate of customer complains (4.73), reduced the time taken to share information (4.73) and improved accuracy of information (4.64). Furthermore, MIS have enabled workers at KCB to improve on their productivity (4.45) and also enabled reduction in error rates (4.43) to a great extent. These findings imply that MIS have been employed at KCB to improve operational efficiency thus enabling the bank to be more competitive.

#### **Customer relationship management and sustainable competitive advantage**

Customer relationship management enabled by MIS had a significant effect on achievement of competitive advantage by KCB ( $\beta = 0.246$ ;  $p < 0.05$ ;  $t = 2.987$ ). major areas in customer relationships that MIS had positively affected included devolving management for service provision by bringing the managers closer to the customers (4.86), effecting changes fast when customers complain (4.76), and enabling the bank to have different channels which managers can use to access customer information (4.60). These improvements in customer relationship management could have contributed to the bank being more competitive.

#### **Market intelligence and sustainable competitive advantage**

Lastly, the study established that market intelligence enabled by MIS significantly affect achievement of competitive advantage by KCB ( $\beta = 0.231$ ;  $p < 0.05$ ;  $t = 2.517$ ). The major contributions of MIS to market intelligence included in collection and analysis of customer data (4.69), analysis of

market data (4.62), analysis of marketing campaigns (4.60), enabling continuous, real-time information gathering (4.56) and making the market and customer to be the driving force of strategic planning (4.43).

Other contributions of MIS to market intelligence included enabling analysis of competitor marketing (4.42). These results indicate that through enabling the bank to gather and analyze more market data, the bank had been able to use MIS to create effective strategies thus becoming more competitive.

#### **Conclusion**

From the study findings, the following conclusions are made. First, KCB has invested in MIS and used it to enhance knowledge sharing in the organization which has enabled the organization achieve competitive advantage. KCB has successfully promoted a knowledge sharing culture not only by directly incorporating knowledge in its business strategy, but also by changing employee attitudes and behaviors.

Secondly, the study concludes that MIS enables operational efficiency which positively and significantly influences achievement of competitive advantage. The results imply that MIS adoption and its contribution towards operational efficiency has a significant positive relationship with sustainable competitive advantage.

MIS enables better customer relationship management which contributes towards attainment of sustainable competitive advantage. With an MIS, management of customers at KCB has become a fully integrated activity where all managers can have access to important customer information and hence play a role in satisfying customers.

MIS enables the organization to be able to collect and analyze more market information which contributes positively towards attainment of sustainable competitive advantage. MIS has been

applied by KCB to develop market intelligence by enabling the bank to smartly utilize all data and information sources that might help them piece together intelligence that allows their organizations to achieve marketplace advantage.

### **Acknowledgement**

I acknowledge my supervisor mentor and Tobias Olweny PHD whose incisive leadership and constructive critique of the research project progress has been invaluable.

## References

- Adidam, P. T., Banerjee, M. & Shukla, P. (2012). Competitive intelligence and firm's performance in emerging markets: an exploratory study in India. *Journal of Business & Industrial Marketing*, 27 (3), 242 – 254.
- Armstrong, C. P. & Sambamurthy, V. (2014). Information Technology Assimilation in Firms: The Influence of Senior Leadership and IT Infrastructures. *Information Systems Research*, 10 (4), 304 – 328.
- Avgerou, C., & McGrath, K. (2007). Power, Rationality, and the Art of Living through Socio-Technical Change. *MIS Quarterly*, 5 (312), 295 – 315.
- Awazu, Y. (2014). Informal network players, knowledge integration, and competitive advantage. *Journal of Knowledge Management*, 8 (3), 62 – 70.
- Babbie, E. (2011). *The Practice of Social Research* (13<sup>th</sup> ed). Belmont: Wadsworth Thomson.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99 – 120.
- Bilgihan, A., Okumus, F., Nusair, K. & Kwun, D. J. (2011). Information technology applications and competitive advantage in hotel companies. *Journal of Hospitality and Tourism Technology*, 2 (2), 139 – 153.
- Buarki, H., Hepworth, M., & Murray, I. (2011). ICT skills and employability needs at the LIS programme Kuwait: a literature review. *New Library World*, 112 (11/12), 499 – 512.
- Castelli, A. (2012). *ICT practitioner skills and training: banking and financial services*. Luxembourg: Office for Official Publications of the European Communities.
- Cater, T. & Cater, B. (2009). Intangible resources as antecedents of a company's competitive advantage and performance. *Journal for East European Management Studies*, 14 (2), 186 – 209.
- Chukwunonso, F., Omoju, J. O., Ikani, D., & Ribadu, M. B. (2011). Management of information technology for competitive advantage: a savvy case study. *Journal of Scientific Research*, 1 (2), 121 – 129.
- Coolican, H., (2004). *Research methods and statistics in psychology*. London: Hugh Coolican.
- Creswell, J. (2009). *Research Design; Qualitative and Quantitative and Mixed Methods Approaches*. London: Sage.
- Davis, G. B. (2010). *Information systems conceptual foundations: Looking Backward and Forward*. In *Organizational and Social Perspectives on Information Technology*, R. Baskerville, J. Stage, and J. I. DeGross (eds.), Boston: Springer, 61-82.
- Gillham, B. (2008). *Developing a questionnaire* (2<sup>nd</sup> ed). London: Continuum International Publishing Group Ltd.
- Gupta, U. G. & Collins, W. (2015). The impact of information systems on the efficiency of banks: an empirical investigation. *Industrial Management & Data Systems*, 97 (1), 10 – 16.

- Harrigan, P., Ramsey, E., & Ibbotson, P. (2009). Investigating the e-CRM activities of Irish SMEs. *Journal of Small Business and Enterprise Development*, 16 (3), 443 – 465.
- Hemmatfar, M., Salehi, M & Bayat, M. (2010). Competitive Advantages and Strategic Information Systems. *International Journal of Business and Management*, 5 (7), 158 – 169.
- Karim, A. (2011). The significance of management information systems for enhancing strategic and tactical planning. *JISTEM Journal of Information Systems and Technology Management*, 81, 459 – 470.
- Kebede, S. & Bruwer, P.J.S. (2012). *Utilisation of MIS in manufacturing industries*. SAICSIT '12 Proceedings of the 2012 annual research conference of the South African institute of computer scientists and information technologists on Enablement through technology.
- Kurpius, S. E. & Stafford, M. E. (2006). *Testing and measurement: A user-friendly guide*. Thousand Oaks: Sage.
- Lai, F., Zhao, X. & Wang, Q. (2011). The impact of information systems on the competitive advantage of logistics firms in China. *Industrial Management & Data Systems*, 106 (9), 1249 – 1271.
- Lee, C. Y. (2013). Total manufacturing information system: a conceptual model of a strategic tool for competitive advantage. *Integrated Manufacturing Systems*, 14 (2), 114 – 122.
- Lin, M. J. & Chen, C. (2008). Integration and knowledge sharing: transforming to long-term competitive advantage. *International Journal of Organizational Analysis*, 16 (1/2), 83 – 108.
- Luftman, J. (1996). *Managing in the Information Age: Practical Application of the Strategic Alignment Model*. New York: Oxford University Press.
- Mohammad, A., Rashid, B. & Tahir, S. (2013). Assessing the influence of customer relationship management (CRM) dimensions on organization performance: An empirical study in the hotel industry. *Journal of Hospitality and Tourism Technology*, 4 (3), 228 – 247.
- Mosoti, Z. & Masheka, B. (2010). Knowledge Management: The Case for Kenya. *The Journal of Language, Technology & Entrepreneurship in Africa*, 2 (1), 107 – 133.
- Mugenda, O. & Mugenda, A. (2003). *Research methodology: qualitative and quantitative techniques*. Nairobi: Acts Press.
- Mumford, E. (2009). *Organizational and Social Perspectives on Information Technology*. Boston: Kluwer Academic Publications.
- Okiro, K. & Ndungu, J. (2013). The impact of mobile and internet banking on performance of financial institutions in Kenya. *European Scientific Journal*, 9 (13), 146 – 161.
- Oppenheim, A. N. (2006). *Questionnaire design, interviewing and attitude measurement* (4<sup>th</sup> ed.). London: Continuum International Publishing Group Ltd.

- Porter, M. (2001). *Competitive advantage: Creating and sustaining superior performance*. London: The Free Press.
- Qiu, T. (2008). Scanning for competitive intelligence: a managerial perspective. *European Journal of Marketing*, 42 (7/8), 814 – 835.
- Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers*. Oxford: Blackwell.
- Thomas, G. (2011). *How to do your Case Study: A Guide for Students and Researchers*. Thousand Oaks: Sage.
- Ward, T. (2010). Management concepts: management information systems. *Management Decision*, 38, 32 – 39.
- Weissenberger-Eibl, M. & Schwenk, J. (2009). Lifeblood knowledge: dynamic relational capabilities (DRC) and knowledge for firm innovativeness and competitive advantage. *Measuring Business Excellence*, 13 (2), 7 – 16.
- Zineldin, (2013). The royalty of loyalty: CRM, quality and retention. *Journal of Consumer Marketing*, 33 (7), 430 – 437.
- Zineldin, M. (2012). Quality and customer relationship management (CRM) as competitive strategy in the Swedish banking industry. *The TQM Magazine*, 27 (4), 329 – 344.