

THE RELATIONSHIP BETWEEN KNOWLEDGE-BASED SYSTEMS (E-SYSTEMS) AND COMPETITIVE ADVANTAGE

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ABSTRACT: *The study aimed to examine The Relationship between knowledge-based systems (E-Systems) and Competitive Advantage in competitive advantage commercial banks. To achieve this objective, a questionnaire was developed for data collection. The number of valid questionnaires for analysis was (147), and (SPSS) Version 16 to analyze the data. The most important findings of this study were the following: The perceptions of Respondents for knowledge-based systems (E-Systems) were at a high level. And, the perceptions of Respondents for competitive advantage were at a high level. There is the effect of E-Systems on competitive advantage, the dimensions of the dependent variable explain (53%) of variation in the dependent variable (competitive advantage).*

Keywords: Enterprise Resource Planning ERP, Intelligent system, Knowledge-Based System, competitive advantage

INTRODUCTION

Competitive advantage specifically addresses what the organization has in stock that will achieve an edge, over others, in the competitive market. From the literature, constructs like strategic planning, competitive intelligence, corporate social responsibility, innovation, and creativity, among others, are used interchangeably with competitive advantage, and their respective measuring constructs [1, 2, 3, 4]. However, on another end, competitive advantage is also defined as a performance construct which shows a phenomenon of organizational progress. In this instance, constructs like organizational performance, operational efficiency, financial performance, financial sustainability, among others, are used [5, 6, 7, 8]. With this, varying, but valid, factors have been identified as antecedents to competitive advantage. As noted by [9] one of the prominent concepts of information and communication technology (ICT) strategy to actualize competitive advantage

Also, the use of data resource management, telepresence systems, enterprise resource management systems (ERP), e-commerce systems, and decision support systems have been appraised as strategies that have influenced organizational competitive advantage [10, 11, 12].

Problem Statement

However, despite the high use of internet-based technologies, the application of e-business strategies in the adoption of banking software (for knowledge-based systems (E-Systems), in the form of enterprise resource planning [13], knowledge-based systems (E-Systems) s [14], knowledge-based systems and yet, their impacts on banking competitive advantage have not been empirically investigated. This, summarily, informs the need to investigate E-Systems (with Enterprise Resource Planning ERP, Intelligent Process Planning, and Intelligent Design as sub-variables).

Knowledge-based systems (E-Systems) Strategy

Organizations are now employing the use of many software systems of different capacities and capabilities. The leading systems adopted so far in the banking industry are enterprise resource planning (ERP) [15]. Biometric system is also a good example of knowledge-based systems (E-Systems). This study captures all the intelligence-based software systems used for banking activities as knowledge-based systems (E-systems). E-system strategy is therefore defined as processes, methods, and techniques through which

organizations deploy E-Systems for optimal performance [14].

The Relationship between knowledge-based systems (E-Systems) and Competitive Advantage

The adoption of knowledge-based systems (E-Systems) in organizations has also been attributed to one of the factors influencing organizational competitive advantage [16, 17, 18]. This construct covers all organizations that adopt intelligent and enterprise resource planning systems (ERP). They are operationalized as an E-system strategy and one of the sub-components strategies under e-business strategy.

In the study conducted by [18], the integration of information technologies and knowledge-based systems for the enhancement of production and inventory control, as a measure of competitive advantage, was investigated. The paper found that a knowledge and intellectual capital-based economy is yet to be fully explored as organizational tools for driving growth and enhancing performance. It is regarded as a vital asset that is however not common and has not been skillfully managed. Knowledge and intangible value exchanges through the integration of knowledge management and procurement inventory control (PIC) aid in building a strong foundation for the emerging networked economy. In the same vein, [15] investigated the effects of e-procurement adoption on organizational knowledge management using a case study of the electronic firm. E-procurement is a knowledge-based system used for checking an EP project in progress and to motivate the actors involved. It therefore aids how the project impacts the organizations and improves traditional procurement performances.

In [16,17, 19] are the empirical studies that investigated the effect of E-system adoption on firm performance. Empirically investigated ERP and e-business system development, innovation, and business performance. The study stated that there has been extensive theoretical work on the potential of information and communication technologies (ICT) to drive significant innovations that can enhance firms' performance dramatically. The study therefore investigates empirically and compares the effects of the two most widely used types of information systems which are the ERP and the e-business. It investigated their effects on business performance mediated by innovation using data collected

from interviews of the decision makers of firms from 29 countries. The study concluded that both ERP and e-business IS have a positive impact on innovation, but ERP has a stronger influence on innovation drivers than e-business IS. However, most of their positive impact on business performance is mainly through automation and existing process support and only a small part of it is through innovation.

On another hand, [19] evaluated certain e-business strategies on firm performance using adaptive algorithm modeling as an alternative strategy to the managerial approach. The innovative adaptive algorithmic modeling approach is used in solving a wide range of e-business and strategic management problems under uncertainty conditions. The methodology proposed is based on a basic idea and four key-field interrelated sciences. These are applied mathematics, computing science, economic science, and management sciences. E-business performance measurements under certain environmental pressures and organizational constraints are used in describing the relationships between technology, innovation, and firm performance. These are considered effective applications of the proposed adaptive algorithmic modeling approach. It is a theoretical time-dependent model for the evaluation of firm e-business performance. Though, as acknowledged by (16, 14) few studies are recorded in the investigation of the impact of ERP and knowledge-based systems (E-Systems) s on organizational performance and none in financial organizations, it can be inferred from the few reviewed studies that E-Systems adoption affects organizational competitive advantage. Table 2.4 presents the summary of studies that investigated the impact of e-business strategies on competitive advantage.

Entrepreneurial marketing

Entrepreneurial marketing functions within an organization as a series of intricate processes aimed at crafting, communicating, and delivering value to customers. Its primary objective is to effectively nurture customer relationships in a manner that maximally benefits the organization and its stakeholders. This approach is substantiated through the application of innovation and a willingness to undertake calculated risks. Additionally, it embodies proactive strategies, often even in situations where resources might be limited and under control,[20].

Entrepreneurial marketing functions as a sequence of intricately interwoven processes encompassing value creation, communication, and provision. These processes are guided by a logical framework that proves its efficacy, particularly when operating within the context of a highly uncertain business environment. Delving into the dimensions of entrepreneurial marketing, as highlighted by [21], reveals the existence of seven key facets: opportunity-driven mindset, responsiveness to changing dynamics, focus on innovation, dedication to customer needs, propensity for risk-taking, adept utilization of resources, and the overarching goal of

value creation. These dimensions gain further credence from the findings presented in the research by [17]. In an alternative perspective, the latter group proposes a framework consisting of four dimensions within entrepreneurial marketing: fostering opportunities, developing products grounded in customer intimacy-driven innovation, augmenting available resources, and establishing legitimacy. Synthesizing the viewpoints above, the central dimensions that emerge within the realm of entrepreneurial marketing encompass a strategic emphasis on identifying and seizing opportunities, a readiness to adapt to changing circumstances, an unwavering commitment to fulfilling customer demands, a penchant for calculated risk-taking, a skillful leverage of available resources, a steadfast dedication to value generation, and an unceasing drive for innovation.

Research Framework

The conceptual research model is proposed. This is done principally based on the gaps observed from existing literature, the scope delineated for this study.'

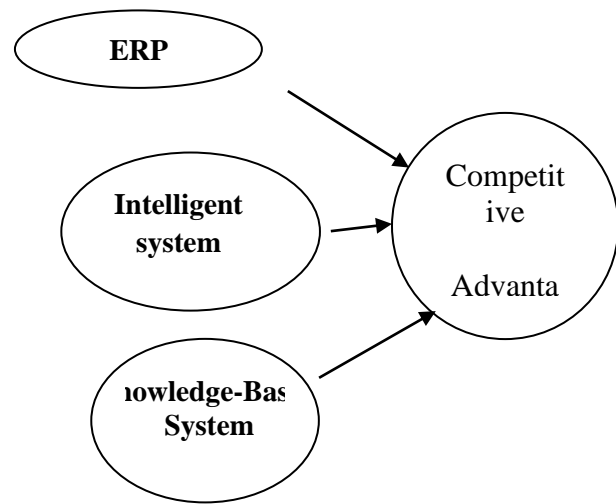


Figure 1: Research Framework.

Hypothesis:

- H₁:** knowledge-based systems (E-Systems) positively influence the competitive advantage of commercial banks.
- H_{1a}:** ERP analysis positively influences the competitive advantage of commercial banks.
- H₂:** Intelligent system positively influences the competitive advantage of commercial banks.
- H₃:** knowledge-based systems positively influence the competitive advantage of commercial banks.

Table (1) Stepwise Multiple Regression effects of Knowledge-Based System (E-system) on competitive advantages				
Order of entry of independent elements in the equation to predict	R ²	(F) Value	T Calculated	Sig
ERP	0.547	309.145	7.472	0.000
Knowledge-Based System	0.581	272.824	8.863	0.000
Intelligent system	0.575	242.824	6.863	0.000

Research Methodology

For effective research, it is imperative to select an appropriate research methodology. An appropriate research design is important to determine the type of data needed, the method of collecting the data, and the type of sampling technique to apply. Therefore, research design is crucial to actualize the research objectives. This study applied a quantitative research design. Quantitative research design will enable the researcher to test the relationship between the research variables. It will also enable the researcher to unvaryingly determine if one concept or idea is better than the others. It can also respond to questions on the relationships that exist among measured variables with the aim of elucidating, envisaging, as well as controlling phenomena [22].

Thus, quantitative research design is an appropriate method for this study since it permits testing the relationship between variables with the use of statistical approaches [22]. This is in line with the main objective of this study that focus thus, quantitative research design is an appropriate method for this study since it permits testing the relationship between variables with the use of statistical approaches.

Population and Sampling:

Sekaran (23) defines a research population as the entire group of people, events, or things of interest that the researcher wishes to investigate. The population size of this study consists of (290) managers, assistant managers, and heads of sections working at departments of commercial banks. The most basic element of a research study is unit of analysis [24]. A unit of analysis can be referred as "the level of aggregation of the data collected during the subsequent data analysis stage" while. Therefore, the unit of analysis is individual-based, which means that data collected from (managers, assistant managers, and heads of sections) in commercial banks is the unit of analysis of the study.

This study used a probability simple random sampling method. Sampling methods can be divided into probability and non-probability sampling. This study adopts the simple random sampling technique, which is a probability sampling method, for each aspect of the population to be represented in the sample [24].

The appropriate sample size for a population size of 320 is 181. According to the recommended [25], as suggested by[(22)]. To lessen sample size error and take into consideration the occurrence of non-response by some respondents, the sample size was increased. Therefore, the sample size of this study had become (181+ 30 = 211). Hence, (211) questionnaires were distributed to the sample, ten of them were excluded because they were not filled completely or correctly so (201) questionnaires were valid.

Testing Hypotheses

H01: Knowledge-Based System (E-system) positively influences competitive advantage at level ($\alpha \leq 0.05$). To test this hypothesis the researcher uses the multiple regression analysis to ensure the impact of E-system according to (ERP, Knowledge-Based System, and Intelligent system) on competitive advantages shown in Table (1).

Table (1) shows that in the order of entry independent variables in the regression equation, the variable ERP occupied the first place with the amount (0.547), while the Effect of knowledge-based systems was (0.581), while the Effect of Intelligent System was (0.575), This Explains Reject the Null Hypothesis and accept Alternative Hypothesis. There is a significant effect of the E-system strategy according to (ERP, knowledge-based systems, and Intelligent Systems on competitive advantage at level ($\alpha \leq 0.05$).

CONCLUSIONS

The Jordanian banking sector, with its expected contributions to the Jordanian economy, demands necessary research and innovation that will aid the sector's competitive advantage, especially in this fast-growing global space. The digitization of business strategies which is exemplified by the adoption and usage of technological tools and devices in executing the hitherto traditional business strategies is leading, in this regard. However, the Jordanian banking sector, partly because of being a developing nation –technologically and economically, has not yet received remarkable research and investigations on the influence of The Relationship between knowledge-based systems (E-Systems) and Competitive Advantage.

REFERENCES

1. Epetimehin, F. M. (2011). Achieving Competitive Advantage in Insurance Industry: The Impact of Marketing Innovation and Creativity. *Journal of Emerging Trend In Economics and Management Sciences*, 2 (1), 18 – 21.
2. Heinz-Theo, W. & Tim, W. (2009). The Impact of IT on Competitive Advantage: A Microeconomic Approach to Making the Resource-Based View Explicit, pp. 1 – 12.
3. Sigalas, C., Economou, V. P. & Georgopoulos, N. B. (2013). Developing a measure of competitive advantage. *Journal of Strategy and Management*, 6 (4), 320 – 342.
4. Basheer, A. A., & Saeed, A. T. (2011). Gaining Competitive Advantage and Organisational Performance Through Customer Orientation, Innovation Differentiation and Market Differentiation. *International Journal of Economics and Management Sciences*, 1 (5), 80 – 91.

5. Sadia, M. (2011). The Impact of Competitive Advantage on Organisational performance. *European Journal of Business and Management*, 3 (4), 191 – 196.
6. Agha, S., Alrubaiee, L., & Jamhour, M. (2012). Effect of Core Competence on Competence Advantage and Organisational Advantage. *International Journal of Business and Management*, 7 (1), 192 – 203.
7. Vahid, M. D. Mirzajani, F. S., Izadi, S., Hornarmandyar, B., & Negahdary, A. A. (2013). Evaluation of the Relationship between Competitive Advantage and Export Performance (Case Study: Iranian Firms Exporting Biotech Products. *European Journal of Experimental Biology*, Pelagia Research Library, 3 (1), 364 – 370.
8. Heinz-Theo, W. & Tim, W. (2009). The Impact of IT on Competitive Advantage: A Microeconomic Approach to Making the Resource-Based View Explicit, pp. 1 – 12.
9. Hammed, A., Salarzahi, H., Yaghhoobi, N.M., Heydari, A., & Nikbin, D. (2010). Impact of Online/Internet marketing on Computer Industry in Malaysia in Enhancing Consumer Experience. *International Journal of Marketing Studies*, 2 (2), 75 – 86.
10. O'Brien, A. J., & Marakas, G. M. (2011). *Management Information System*. 10th eds. Mc-Graw-Hill: United States of America
11. Bogdan, Q-M., & Marinela, M. (2007). An E-Business Strategy, *Revista Informatica Economica*, nr. 3 (43), 64 – 69.
12. Carolina, M. (2010). The impact of a reward system on employee motivation in Motonet-Espoo. A Degree Thesis in International Business.
13. Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S., & Rao, S.S. (2004). The Impact of supply chain management practices on competitive advantage and organisational performance. *International Journal of Management Science*, Omega, 34, 107-124.
14. Tat Huei, C., Yet Mee, L., Boon Liat, C., & Teck Heang, L. (2016). Determinants of knowledge management systems success in the banking industry, *VINE Journal of Information and Knowledge Management Systems*, 46 (1), 2 – 20, DOI: <http://dx.doi.org/10.1108/VJKMS-03-2014-0021>
15. Massa, S., & Testa, S. (2007). ICTs Adoption and Knowledge Management: The Case of an E-Procurement System, *Knowledge and Process Management*, 14 (1), 26 – 36.
16. Manlio Del Giudice, M., & Rosaria Della, P. (2016). The impact of IT-based knowledge management systems on internal venturing and innovation: a structural equation modeling approach to corporate performance, *Journal of Knowledge Management*, 20 (3), 484 – 498. DOI: <http://dx.doi.org/10.1108/JKM-07-2015-0257>.
17. Hana, U. (2013). Competitive Advantage Achievement through Innovation and Knowledge, *Journal of Competitiveness*, 5 (1), 82 – 96. DOI: 10.7441/joc.2013.01.06.
18. Shadi, E. M., & Mazir, S. (2012). Knowledge Management and Innovation Capacity, *Journal of Management Research*, 4 (2), 164 – 177.
19. Lipitakis, A. & Lipitakis, E. A.E.C. (2012). E-Business and Strategic Management: E-evaluation Quality Performance based on ADAM methods, *The Seventh International Multi-Conference on Computing in the Global Information*, pp. 1 – 7.
20. Kuzic, J., Fisher, J., & Scollary, A. (2002). Electronic Commerce Benefits, Challenges and Success Factors in the Australian Banking and Finance Industry, *ECIS 2002*, Poland, pp. 1607 – 1616.
21. Jones, C. S. (1985). An empirical study of the evidence for contingency theories of management accounting systems in conditions of rapid change *Accounting, Organizations and Society*, 10 (3), 303-328.
22. Sekaran, U. & Bougie, R. (2010). *Research Methods for Business: A Skill Building Approach*. John Wiley and Sons, New York.
23. Sekaran, U. (2003). *Research methods for business: a skill-building approach* Fourth edn. New York: John Wiley & Sons.
24. Zikmund, Babin, Carr, & Griffin. (2010). *Business Research Methods*. 8th Edition, Canada. South-Western Cengage Learning Centre.
25. Krejcie, R. V., & Morgan, D. W. (1970). *Determining Sample Size for Research Activities*, Educational and Psychological Measurement.