



Does the Management Information System Causes Competitive Advantage for Banks Working in Jordan?

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ABSTRACT

The current study aimed at identifying the role of Management Information System (MIS) in achieving competitive advantage for banks operating in Jordan. The study examined the dimensions of the following competitive advantage: Cost, quality, presentation, flexibility and creativity. In order to achieve the objectives of the study, a questionnaire was distributed to the sample of 78 respondents from randomly commercial and Islamic chosen banks in Jordan. The data were analyzed through the use of the statistical analysis program SPSS. The study found that there is a statistically significant relationship between the MIS and the achievement of a competitive advantage in banks operating in Jordan. The study recommended that banks should offer training courses for employees to raise their awareness of the importance of MIS and their role and contribution to the excellence of the banks. The researchers also pointed out to the need of increasing bank's financial allocations to purchase machines and software that are seen to develop the business of banking.

Keywords: Management Information Systems, Competitive Advantage, Quality

JEL Classifications: D83, G411, M41

1. INTRODUCTION

Management information system (MIS) is a computerized administrative and financial information database, which is designed to produce organized reports about operations for each level of management in the company easily and quickly. The main purpose of MIS is to provide the Bank's management with information related to overall performance and assist in the decision-making process. This is due to the fact that the banking sector is one of the most vital and productive sectors of the services provided and the major role that it plays in the national economy.

Based on this, general information technology and MIS in particular have a strong impact on competitive advantage, both in terms of cost, which means managing operations at low prices compared to competitors or differentiation in quality, which means

performing operations correctly to provide products that fit the needs of customers.

Hence, this study is intended to identify the role of MIS in achieving a competitive advantage for banks operating in Jordan.

1.1. The Significance of the Study

The significance of the study stems from the fact that it links two important topics: MIS and competitive advantage in such an important economic sector like banks. While the competition among banks is at its peak, MIS has become an important resource for banks to track their competitors, fulfill their clients' desires and cope with rapid changes taking place in the outside environment.

1.2. Problem of the Study

The main problem of the study is to answer the question: "Is there a role for MIS in achieving competitive advantage in banks

operating in Jordan?” This question is to be answered through the study of the dimensions of the competitive advantage of (cost, quality, presentation, flexibility, creativity).

1.3. Hypotheses of the Study

The study hypotheses are based on the following main null hypothesis: “There is no statistically significant relation between administrative information systems and the achievement of competitive advantage in banks operating in Jordan”

The five sub-hypotheses are as follows:

Hypothesis 1: There is no statistically significant relation between the MIS and the reduction of the cost of services provided by banks operating in Jordan.

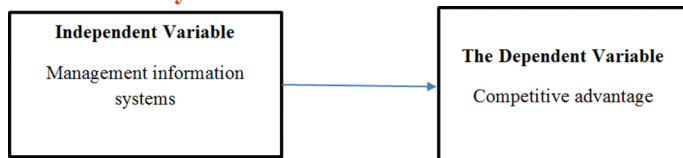
Hypothesis 2: There is no statistically significant relation between MIS and improving the quality of services provided by banks operating in Jordan.

Hypothesis 3: There is no statistically significant relation between MIS and improving the presentation of services provided by banks operating in Jordan.

Hypothesis 4: There is no statistical relation between the MIS and the flexibility of the system of services provided by banks operating in Jordan.

Hypothesis 5: There is no statistically significant relation between MIS and improving creativity in banks operating in Jordan.

1.4. The Study Model



2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. MIS

MIS is considered as one of the computerized information system application that provides information to management on a regular basis in the form of printed or presented reports or in the form of responses that appear on the computer screen, which contributes to decision making. It is a means of achieving mutual communication through providing fast, accurate and low-cost communication between the levels and functions of banks to facilitate the flow of information within the banks themselves and with their external environment (Taha, 2000).

These systems are based on development, improvement and decision-making because of their viability with the Organization, and their uncomplicated and inexpensive maintenance. They are flexible and capable of changing the organization. Moreover, they are able to store and process an enormous amount of information with a small storage space in the fastest and most accurate manner (Salem, 1985). The MIS components are inputs, processes and outputs (Idrees, 2007).

MIS support the organization’s ability to build a strategic database that contains many information on the operations and activities

of the organization, customers, suppliers, competitors and the surrounding environment that assist the organization in strategic planning and strategic initiatives (Abdelqader, 2010).

2.2. Competitive Advantage in Banks

Competitive advantage is the companies’ ability to provide a product with characteristics of differentiation, lower costs, and creativity. This feature is able to attract more purchase requirements for products and the create alliances and partnerships with international industrial companies, which positively reflects on consumer confidence and product quality. It, likewise, improves the level of national income (Al Talbany, 2012).

The competitive advantage of the bank lies in the discovery of new and more effective methods other than those used by other competing banks. It is also known as the skill, technology or supplier that enables the bank to provide better values and benefits compared to the competitors. It also emphasizes its excellence and difference to customers (Mohammad, 2017).

2.3. The Role of MIS in Achieving Competitive Advantage in Banks

MIS helps banks in: (Mohammad, 2017) and (Hawary and Winton, 2004)

1. Improving the productive efficiency of the bank through the following dimensions:
 - Cost: This means that the Department of Operations reduces the cost of providing services compared to competitors, until it reaches a premium.
 - After quality: Refers to the performance of services properly, to suit the needs of customers.
 - Flexibility: It means responding quickly to changes that may be needed in the design of products or services to fit the needs of customers, or change the ways of service performance, or change the performance time.
 - Delivery: Design and delivery of new services to customers in the shortest time, i.e., speed of delivery, and speed of development.
2. Contributing to the achievement of creativity in: Where the information management systems contribute to the development of new services, and the development of methods and methods of efficient design and delivery of services, and extends to after-sales services.

2.4. Literature Review

Mohammad’s (2017) study entitled “The characteristics of MIS and their impact on achieving sustainable competitive advantage: From the point of view of workers in the banking sector in the state of Khartoum - Sudan” aimed at identifying the effect of the characteristics of administrative information in achieving sustainable competitive advantage from the point of view of workers in the banking sector in Khartoum State. The study found that there is a relationship between the characteristics of administrative information systems in achieving the competitive advantage of sustainable banks. The study found that there is a strong and positive relationship between the characteristics of a MIS and competitive advantage in the banking sector in the state of Khartoum, and that the presence of scientific qualification helps

to enhance this competitive advantage. The study recommended that attention should be paid to administrative information systems in all banking departments and to intensifying training courses for bank employees.

Mobaydeen's study (2015) "strategic information systems and their impact on achieving competitive advantage in Jordanian potassium companies" The study aimed at measuring the impact of strategic information systems in achieving the competitive advantage of potash companies in Jordan. The study found that the application of strategic information systems contributes in the achievement of competitive advantage at the latest (low cost, differentiation, alliances). The study concluded that in order to develop the company's profiles, it is necessary to rely on market research and identify the need of customers and work to establish organizational culture within the company based on employment strategies Information Systems. The study recommended that attention should be given to building strategic information resources, focusing on their inputs and increasing the efficiency of coordination between the operational operations of the subsidiary companies of the factory.

Abu Kareem (2013) studied the relationship between MIS in improving administrative performance in non-governmental organizations in Gaza Strip. The study found that computers, followed by users, and software, are the most important and influential resources to improve the performance of administrative information systems, and the least influential are specialists, technicians and databases. The study concluded that improving the performance of administrative information systems is related to improving the administrative performance according to the variable years of service and scientific qualification. The study recommended that the development of the performance in companies and non-governmental organizations in Gaza Strip depends heavily on the existence of an information technology department and the appointment of specialists.

Abu Baker (2013)'s study entitled "the role of strategic information systems in supporting and achieving the competitive advantage of Egyptian insurance companies." The study aimed at evaluating the effectiveness of the information systems used in the insurance sector and presenting the problems faced by these companies and determining the role that strategic information systems play in achieving competitive advantage. The study found that in order to achieve competitive advantage, it is necessary to invest the strategic information learned from the strategic information systems for the development of services and the quality of strategic decision-making. The study concluded that the process of data processing, data storage and strategies is characterized by their high capabilities in strategic information systems, which is reflected positively in decision-making and achieve competitive advantage. The study recommended that these companies raise their capabilities and provide the capital needed to invest in information technology.

A study of (Shaheen, 2011) entitled "factors affecting the efficiency and effectiveness of computerized accounting information systems in commercial banks in Palestine" analyzed factors and

effects that determine the level of efficiency and effectiveness of accounting information systems and their impact on Palestinian commercial banks. The study found that the legal factors and professional controls, social and economic culture are the most important factors affecting effectiveness and efficiency. The study concluded that these factors vary depending on the level of interest and support received from the banking department. The study recommended that the technical factors have a significant impact on accounting systems and that more efforts must be made in order to develop them.

Al Yassiry and Nawras, (2007) investigated the role played by the strategic information systems in measuring the impact of strategic information systems on the outstanding performance of the Iraqi private banking sector. The study found that banks are aware of the importance of strategic information systems and their keenness to develop their performance to achieve a competitive advantage provides them with a sustainable competitive path through the provision of effective strategic systems. The study recommended that banks should recognize outstanding performance to ensure that competitive opportunities for sustainable development are promoted.

A study of Abdelqader, (2010) entitled "the role of strategic information systems in enhancing competitive advantage: The case of Algerian institutions." The study aimed at linking the role of information systems with the competitive advantage in the Algerian administrative environment. It also linked the role these systems play as a strategic tool to achieve this advantage. The study found a positive correlation between statistical requirements of information systems and the competitive advantage of Algerian industrial establishments. The study recommended the need for Algerian industrial institutions to increase their capabilities by adopting a kind of partnership in them, such as mergers or strategic alliances to provide the necessary capital to invest in information technology, support research and development functions and the need to deal with information as a major and important resource for the company.

We note that previous studies have been applied to banks operating in other countries such as the study of (Mohammad, 2017) which has been applied in Sudan and study of (Hawary and Winton, 2004) in Algeria, but this study has been applied in Jordan.

3. METHODOLOGY

3.1. Data Collection Sources

There were two types of sources of data collection. The primary sources constitute the questionnaire that was used to collect data about views of the study sample. The questionnaire was designed according to the Likert scale from 1 to 5. The secondary sources of data are books, periodicals and websites related to the topic of the study.

3.2. Population and Sample of the Study

The population of the study consists of all banks operating in Jordan, local and foreign; commercial and Islamic. The Central Bank of Jordan website has shown that the number of banks involved in the study reached the number of 25 including one

commercial bank and four Islamic banks (Central Bank, 2018). The sample of the study included a random sample of 78 respondents from the employees of these banks at different administrative levels. Ninety questionnaires were distributed among which 78 were analyzed. The following Table 1 describes the sample of the study.

3.3. Statistical Analysis

The following statistical methods were used in data analysis and hypothesis testing:

1. Reliability test (α) reliability analysis: The Alpha-Cronbach test was used to measure the internal stability of the resolution paragraphs and the internal consistency between respondents' responses where the coefficient of stability (α) 85.2% which is excellent compared to the acceptable rate of 60%.
2. The normal distribution test (Kolmogorov-Smirnov): After conducting the necessary statistical analysis, the data were distributed naturally. The mean Z for all hypotheses was greater than the significance level of 5% as shown in the Table 2.
3. Testing the strength of the model: The strength test of the model is used to ensure that there is no overlap between the hypotheses, where the correlation matrix is extracted between these hypotheses (correlation matrix). The inflation factor (VIF) Variance Inflationary Factor is calculated and amounted to 2.514. This means that there is no overlap between the hypotheses of the study and VIF is calculated as follows:

$$VIF = \frac{1}{1 - R^2} = \frac{1}{1 - (0.776)} = 2.514$$

R is the highest link strength within the correlation matrix.

Table 1: Study sample description

Description	Commercial Count (%)	Islamic Count (%)	Total Count (%)
Age			
24–35 years	24 (47.1)	9 (33.3)	33 (42.3)
33–44 years	18 (35.3)	18 (66.7)	36 (46.2)
45 and over	9 (17.6)	0 (0.0)	9 (11.5)
Qualifications			
Diploma	0 (.0)	1 (3.7)	1 (1.3)
BA	31 (60.8)	21 (77.8)	52 (66.7)
M.A.	15 (29.4)	5 (18.5)	20 (25.6)
Ph.D.	5 (9.8)	0 (0.0)	5 (6.4)
Experience			
<4 years	18 (35.3)	6 (22.2)	24 (30.8)
From 4 years to 7 years	9 (17.6)	12 (44.4)	21 (26.9)
From 8 to 14 years	18 (35.3)	9 (33.3)	27 (34.6)
15 years and over	6 (11.8)	0 (.0)	6 (7.7)
Position			
Deputy or assistant general manager	1 (2.0)	4 (14.8)	5 (6.4)
Department director	11 (21.6)	3 (11.1)	14 (17.9)
Branch manager	17 (33.3)	6 (22.2)	23 (29.5)
Employee	22 (43.1)	14 (51.9)	36 (46.2)
Total	51 (100.0)	27 (100.0)	78 (100.0)

Table 2: One-sample Kolmogorov-Smirnov test

Hypothesis	H ₁	H ₂	H ₃	H ₄	H ₅	H
Kolmogorov-Smirnov Z	1.794	2.397	2.790	1.946	2.141	2.470

4. Test hypotheses: The hypotheses of the study were tested using the following statistical tests:

- One sample t-test at a significant level (significance) of 5%, according to the rule of decision which provides acceptance of the hypothesis if the calculated T is less than the value of the table, and reject it if it is larger.
- Descriptive analysis which includes the frequencies, the mean and the standard deviation to accept or reject the statements of hypothesis.

The researchers found out the following:

3.4. The Main Hypothesis

There is no statistically significant relationship between MIS and achieving competitive advantage in banks operating in Jordan. Table 3 shows the results of the statistical analysis.

Since the calculated T is greater than the T tabular, this means rejecting the null hypothesis and accepting the alternative hypothesis, that is, there is a statistically significant relationship between MIS and the achievement of competitive advantage in banks operating in Jordan.

3.5. The First Hypothesis

There is no statistically significant relationship between the MIS and the reduction of the cost of services provided by banks operating in Jordan. The following Table 4 shows the results of the statistical analysis.

Since the calculated T is greater than the T tabular, this means rejecting the null hypothesis and accepting the alternative hypothesis. The following Table 5 shows the arithmetic mean and standard deviation of each hypothesis:

3.6. The Second Hypothesis

There is no statistically significant relationship between MIS and improving the quality of services provided by banks operating in Jordan. The results of the analysis are presented in Table 6.

Since the calculated T is greater than the T tabular, this means rejecting the null hypothesis and accepting the alternative hypothesis. The following Table 7 shows the arithmetic mean and the standard deviation of each hypothesis.

3.7. The Third Hypothesis

There is no statistically significant relationship between MIS and improving the provision of services provided by banks operating in Jordan. The following Table 8 shows the results of the analysis of this hypothesis.

Table 3: Results of main hypothesis testing

Calculated T	T Table	SIG T	Result	Mean±SD
13.635	1.986	0.000	Rejected	4.088±0.705

Table 4: Results of first hypothesis testing

Calculated T	T Table	SIG T	Result	Mean±SD
10.150	1.986	0.000	Rejected	4.064±0.926

Since the calculated T is greater than the T tabular, this means that the null hypothesis and accepting the alternative hypothesis. The following Table 9 shows the arithmetic mean and the standard deviation of each hypothesis.

3.8. The Fourth Hypothesis

There is no statistical relationship between the administrative information systems and the flexibility of the system of services provided by banks operating in Jordan. The following Table 10 shows the results of the analysis of this hypothesis.

Since the calculated T is greater than the T tabular, this means rejecting the null hypothesis and accepting the alternative hypothesis. The following Table 11 shows the arithmetic mean and the standard deviation of each hypothesis.

3.9. The Fifth Hypothesis

There is no statistically significant relationship between MIS and improving creativity in banks operating in Jordan. The following Table 12 shows the results of the analysis of this hypothesis.

Table 5: First hypothesis paragraphs

No.	Statement	Mean±SD
1.	The bank is keen to exploit the resources available to it in the best possible way which helps achieving a competitive advantage among its competitors.	4.13±1.011
2.	The bank's provision of its services to its customers by incurring a lower cost than that of the competing banks brings the bank a competitive advantage.	4.04±0.973
3.	The bank's provision of its services to its customers in return for charging them a lower cost than the competing banks brings the bank a competitive edge. The role of MIS in achieving competitive advantage for banks operating in Jordan through the cost dimension.	4.03±0.911 4.064±0.926

Table 6: The results of the second hypothesis testing

Calculated T	T Table	SIG T	Result	Mean±SD
11.256	1.986	0.000	Rejected	3.996±0.781

Table 7: Second hypothesis paragraphs

No.	Statement	Mean±SD
1.	The bank uses a variety of methods to improve the quality of the services provided which helps achieving a competitive advantage for the bank.	4.08±0.879
2.	The bank's use of multiple methods of quality control at the Bank is a competitive advantage.	4.01±0.860
3.	The bank seeks to use ISO standards in quality control to achieve competitive advantage The role of MIS in achieving competitive advantage for banks operating in Jordan through quality dimension.	3.90±0.877 3.996±0.781

Since the calculated T is greater than the T tabular, this means rejecting the null hypothesis and accepting the alternative hypothesis. The following Table 13 shows the arithmetic mean and the standard deviation of each hypothesis.

4. RESULTS AND RECOMMENDATION

4.1. Results

After conducting the SPSS statistical analysis, the researcher came to find the following:

1. There is a statistically significant relationship between the MIS and the reduction of the services costs provided by banks operating in Jordan. Offering banking services to customers with the lowest costs makes the bank stand out of the crowd among other competing banks.
2. There is a significant statistical relationship between the MIS and improve the quality of services provided in banks operating in Jordan. This means that the administrative information systems in the bank facilitate the use of various methods to improve the quality of services provided and the use of multiple methods of quality control which helps the bank to achieve Competitive advantage.
3. There is a statistically significant relationship between MIS and the improvement of the services provision by banks operating in Jordan because MIS enables the bank to offer its clients services in the appropriate time and the fastest way possible.
4. There is a significant statistical relationship between the MIS and the flexibility of the system of services provided by banks operating in Jordan. MIS help banks to change the methods of performance of services as required by customers and the rapid response of the Bank to changes in the development of products or services offers a competitive advantage.

Table 8: The results of the third hypothesis testing

Calculated T	T Table	SIG T	Result	Mean±SD
12.939	1.986	0.000	Rejected	4.209±0.825

Table 9: Third hypothesis paragraphs

No.	Statement	Mean±SD
1.	The bank's commitment to time of service delivery provides the bank with a competitive advantage.	4.55±0.878
2.	The speed with which the bank develops the services required by the customer gives it a competitive advantage.	4.05±0.966
3.	The ability of the bank to deliver its services faster than its competitors is a competitive advantage. The role of MIS in achieving competitive advantage for banks operating in Jordan through post-submission.	4.03±0.868 4.209±0.825

Table 10: The results of the fourth hypothesis testing

Calculated T	T Table	SIG T	Result	Mean±SD
12.470	1.986	0.000	Rejected	4.068±0.757

Table 11: Fourth hypothesis paragraphs

No.	Paragraph	Mean±SD
1.	The bank's change of service performance methods as required by customers grants it a competitive advantage.	4.17±0.763
2.	The bank's rapid response to changes in the development of the products or services offered by the bank grants it a competitive advantage	4.12±0.837
3.	The bank's change in the time of performance of the service at the will of its customers brings the bank a competitive edge.	3.92±0.894
	The role of MIS in achieving competitive advantage for banks operating in Jordan through flexibility.	4.068±0.757

Table 12: The results of the fourth hypothesis testing

Calculated T	T Table	SIG T	Result	Mean±SD
12.528	1.986	0.000	Rejected	4.103±0.777

Table 13: Fifth hypothesis paragraphs

No.	Paragraph	Mean±SD
1.	The bank's use of highly efficient methods of product and service design is a competitive advantage for the bank.	4.23±0.867
2.	The bank's use of new and innovative ways of delivering services to its customers is a competitive advantage for the bank.	4.04±0.874
3.	The bank's following up with customers after obtaining products or services and seeking their feedback and suggestions helps to achieve a competitive advantage for the bank.	4.04±0.844
	The role of MIS in achieving a competitive advantage for banks operating in Jordan through creativity dimension.	4.103±0.777

5. There is a statistically significant relationship between MIS and improvement of creativity in banks operating in Jordan. MIS prepare the bank to use highly efficient methods in the design of products and services. Likewise, the bank's following up customers' feedback and suggestions with regard to the products and design it provides grants a competitive advantage.

4.2. Recommendations

1. Banks management should offer its staff courses related to administrative information systems and raise the employees' awareness of the importance of these systems at work in order to achieve the competitive advantage of the bank.
2. Further research should be conducted to investigate the role of the use of administrative information systems and their impact in achieving competitive advantage in sectors other than banks such as hospitals, universities and others.

3. Banks should consider administrative information systems as one of the major and primary of its resources and their employees should be aware of the importance of information technologies leading to the success and excellence of banks.
4. Banks should raise financial allocations for investing in information technology, research and development, design of operations, products and services, and adequate financial allocations for the purchase of modern equipment and software for the Bank's business running.

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