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Impact of Information Systems on Innovation (Product Innovation, Process Innovation) - Field Study on the Housing Bank in Jordan

Shadi Abualloush¹, Khaled Bataineh² & Atef Saleh Aladwan³

¹ Department of Management Information Systems, Faculty of Administrative Science and Finance, Irbid National University, Jordan

² Department of Business Administration, Faculty of Administrative Science and Finance, Irbid National University, Jordan

³ Department of Business Administration, ALbalqaa Applied University, Jordan

Correspondence: Shadi Abualloush, Department of Management Information Systems, Faculty of Administrative Science and Finance, Irbid National University, Jordan.

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Abstract

The use and activation of information systems is now considered an important measure of the extent of organizations growth and progress. Thus, many of organizations accelerated and rushed today to find, develop and benefit from such systems to achieve its objectives. Perhaps the successive technological developments have made access to information quickly and easily, especially in light of the low costs of obtaining and using such systems; and to meet the needs of organizations and support performing the administrative functions therein. The aim of the study was to demonstrate the effect of management information system (TPS, MIS, DSS, ESS) on innovation (Product and process). The study population consisted of the Housing Bank branches in Irbid Governorate in all senior, middle and lower administrative levels. Sample was taken from all employees in the branches of the Housing Bank in Irbid Governorat. Approximately 160 questionnaires were distributed. About 152 questionnaires were retrieved. About 13 questionnaires were excluded due to non-validity of the statistical analysis, so that the questionnaires valid for analysis would become 139 questionnaires to form the percentage of (91%). The study reached to conclusion of, Existence of positive significant correlation between each of the management information system, decision support system, Executive Information Systems and innovation (product and process). Lack of positive correlation between the Transaction Processing Systems and innovation (product and process). The researcher recommended, focusing on the use of decision support systems for the nature of the data which can be provided, as it depends on the internal and external data systems, which assist the organization in studying and analyzing the internal position of the organization that is reflected on its external position which contributes to increase its competitiveness through discovering new services and products increase the satisfaction of the customer's desire.

Keywords: information system, TPS, MIS, DSS, ESS, innovation (product and process)

1. Introduction

Our current world faces significant and complex challenges as a result of the continuous developments which are witnessed by our institutions, in both public and private. Particularly after the emergence of the phenomenon of globalization and great development in technology, especially communications and information revolution, which forced the organizations to invest this technology and to use it in developing its business both inside or outside the organization in order to improve productivity and service operations that the organization has to keep up with remaining and facing the competition. The organizations of current era live in the information society, a society in which the individual exceeds the barriers of time and distance, limits, traditional and bureaucratic means; a society that seeks to innovation and collective efforts, where the current economy become not depending on traditional means of production which are capital, land, labor and human resources, but it's reliance has become on knowledge and information systems (Al Tai, 2009).

The pursuit of permanent organizations towards success and excellence needs to constantly improve its capabilities to match the needs of its customers and their expectations. This improvement requires distinct human resources in

addition to the existence of an infrastructure to modern and advanced technology. The use of information systems in the competitive world worked on forming and shaping the work. The information revolution and the development of its systems led to what is known as Cognitive Labor (Al Wandawy, 2012). The business activities in the modern business organizations can only be executed through information systems, tools and technology; particularly, if the business activities and other operations are designed to work with information technology. Many of the organizations stop its work once the information systems work stops, as the case in commercial banks, insurance companies, transportation and pharmaceutical companies (Yassin, 2012). The use and activation of information systems is now considered an important measure of the extent of organizations growth and progress. Thus, many of organizations accelerated and rushed today to find, develop and benefit from such systems to achieve its objectives. Perhaps the successive technological developments have made access to information quickly and easily, especially in light of the low costs of obtaining and using such systems; and to meet the needs of organizations and support performing the administrative functions therein (Khuraisat, 2009).

Hence, this study came to promote the concept of information systems and its major types (Management Information Systems, Transaction Processing Systems, Decision Support Systems and Executive Information Systems). This study increases its value upon studying the effect of such organization in achieving strategies of the organization which are represented in innovation (process and product).

2. Theoretical Framework

2.1 Information Systems

The world is witnessing the emergence of influential forces reshaping the economy and management system. It requires a fundamental change in the organizational strategies. These forces are represented in globalization, intensity of competition, high degree of complexity, new technology, and change in the economic and political structures (Vescoukis, Vassilios, Doulamis, Nikolaos & Karagiorgou, Sofia, 2012) This force is reflected on the organizations in all its forms and on the necessity to be quick in adapting, responding and taking the lead, so that it can maintain its existence and sustain (Efrain Turban et al., 2007). The current century twenty-first is the era of knowledge and information, where the studies indicate that the information and data multiply rapidly and every (18) months. As some organizations now have a tremendous amount of data which must be used properly as required to discover knowledge (Sommer Dan, Richardson James, Gartner group, 2004).

Information systems are defined as information systems based on computer which make the information available to users in the organization according to their needs. It provides the Organization Management with previous, current and future predictive information that assists in making decisions (McLeod, Raymond, JR & Schell, George, 2007). This was affirmed by Stair & Reynolds, whereas they indicated that the information system is a set of human and automated elements, which work together to collect, process, analysis and classify data according to the rules and procedures which are determined for specific purposes, in order to make it available to researchers, decision-makers and other beneficiaries, in the form of appropriate and useful information. In another definition of management information systems, it is defined as one of the types of information systems designed to provide employees of the organization with information to carry out their functions to the fullest and take appropriate decisions (Hassania, Salim (2011).

The studies that talked about information systems were numerous. Such studies differ in mentioning the types of information systems. But for the purpose of this study, the types of information systems have been tackled, which are (TPS, MIS, DSS, ESS). Such types shall be discussed in this study.

2.2 Transaction Processing Systems

It is a computerized information system. It conducts frequent basic operations and daily routine activities, such as buying and selling transactions, payroll statements and expenditures recording. The management in the operational level benefits from the transaction processing systems by the immediate registration of the data through what is provided of supporting the structural decisions. The outputs of the transaction processing systems are considered the inputs of other systems. As it paves the way for the work of the senior and middle management of the organization, without having a direct link to these managements (Louden & Louden, 2014). The transaction processing systems are considered of a great deal of importance in all sectors (Al-Zhrani, Saleh, 2010), because of their prominent role in dealing directly with customers, such as depositing checks system and cashing it from banks, reservation system in hotels and airlines (Malkawi, 2007).

2.3 Management Information Systems

It is one of systems serving the (tactical) administrative level in the organization, which is a system provides the managers in middle management of the Organization with immediate reports on the current performance and date reports (Louden & Louden, 2014). Whereas these systems enable to carry out administrative functions of planning, organizing, directing, controlling and decision-making by providing them with various reports on the current trends in the organization and by depending on the transaction processing systems. As it provides weekly, monthly and yearly reports to those who need of the managers (Al Tahir, 2011).

2.4 Decision Support Systems

It is computerized information systems, which are useful in supporting administrative decision-making processes. Whereas these management systems assist in making semi-structured decisions and non-structured decisions, which are related to the senior management and the semi-structured decisions, which are related to the middle management (Oz, Effy, 2004). The decision support systems work on supporting the providing the user with information, models and user interface, which are used in the manner sought by the user, either through data analysis, graph and simulation that are required by the customer, or to focus on models in the case of a private business (McLeod, Raymond & Schell, George, 2007). The Decision support systems were designed to support individual decisions. It is unsuitable for making group decisions. Thus, Group Decision Support Systems have emerged. It is a sophisticated generation for decision support systems at the level of computer equipment software, media and technical support for group work. These systems work on supporting decision-making process in the presence of the collective mind of the decision-makers. One of the tools which such systems use is GDSS Electronic Brainstorming (Yassin, 2012).

2.5 Executive Information Systems

It is information systems that work on meeting the needs of the (strategic) Executive management of the necessary information for the purposes of decision-making not the structured. It needs special analytics and capabilities to be taken as such systems are related to the future of the organization. It has a degree of uncertainty and risk. Thus, it needs information from the external environment, such as information about legislation, competitors, suppliers, consumers and other (stair: 2012), in addition to short, deep and comprehensive reports on the organization and its internal activities depending on the management information systems, decision support systems and transaction processing systems, so that such systems can explore and anticipate the opportunities and threats, and analyze and competitiveness of the Organization upon which the innovation strategy is built (Yassin, 2012).

3. Innovation

It is the process of creating new ideas and putting them into practice, as the best organizations are the one which reaches creative ideas and then put it in practice. The innovation is to reach what is new in the form of orderly development or practical application of a new idea, which means that innovation, does not stop on the threshold of the new idea, but it crosses to the practical application in achieving the objectives of the organization in the market. Aboud believes that innovation is the company's ability to reach what is new that adds value bigger and faster than the competitors in the market. This definition means that the innovative company must be the first in comparison with competitors to reach a new idea or a new concept and be the first to reach a new product or the first to reach the market (Aboud, 2012). Al Zoubi explains that innovation is to introduce a new element in a new place to perform a new job in order to get the best results. It needs an innovative director who has the courage to make decision by putting the innovation into practice and execution and to achieve an advantage by finding new methods to perform the work. This includes and contains the development of new services / products, or new methods of production or distribution of services or products (Al Zoubi, 2005).

3.1 Product Innovation

The product innovation is the innovation, which aims to change the physical and performance characteristics and components of the commodity or service by improving, developing or producing alternative or completely new (). Al Taher and Al Ghalibi believe that product innovation is a change in the physical characteristics of the products, so that we get a new product or improve the performance of currently existing products. Frank T rothermel indicates that product innovation is the activities related to developing new commodities and services or improving the goods and services that already exist (Rothermel, 2013).

3.2 Process Innovation

It is the innovation based on the basis of changing, improving or developing the methods of manufacturing, production, distribution and management in the organization. (Satish and Srinivasan, 2009) indicate that the process

innovation is the modernity of new processes and the ability to develop new processes. Each of (Seng, Yusof and Abidin, 2011) believe that process innovation is the changes made in the production methods of the organization that reflect the improvement of production methods (Al Shaar and Al Nagar, 2015). Rothaermel defines the process innovation as the development of new processes in the production of products or the improvement of currently existing processes, or as the activities that improve or transfer processes used in the production of goods and services, which lead to lowering costs, reducing the time and improving the quality and flexibility (Rothaermel, 2013).

3.3 Information System and Innovation

Information plays a vital role in the organization, as through organizations can achieve a high competitive advantage, Especially when you concenter the information as one of the organization's resources, Which in turn enables managers to predict the future, Which encouraged managers to use information systems in the organization that helps to motivate employees and extract their creative potential, which leads in turn to stay and excellence (O'Brien, James A. et al., 2003).

The information systems support the organizations to be competitive, Successful organizations mostly have one of the elements of competition that enable it to perform better than other organization, Which may be anything ranging from new product development to customer service, information input is important in the possession of these ingredients (Kenneth C. Laudon and Jane P. Laudon, 2014), Accordingly, the investment in information, contribute to encouraging innovation and creativity, Where studies have demonstrated a relationship between information and innovation. They contribute to the liberation of individuals from routine work and pushing them toward creativity, Including altabishat (study the role of information systems in achieving innovation) where the researcher concluded that he can achieve the development of innovation and creativity at the organizational level through the use of information systems (Altabishat ali, 2004).

Alserafi, (2005), indicates That the information system based on the computer by processing the data that flow from internal sources or from external environment surrounding the organization, in appropriate manner in order to provide information to beneficiaries in the form and at the right time, And to help the decision makers in the organization And he confirms that the system supports the functions of planning and control activities and processes which is required in all areas of activity, So that the information system will help in forecasting, setting goals and developing policies, it also helps to regulate human efforts and coordinate responsibilities. The reasons for the attention of organizations for information systems (Masa'deh, 2013). Is for sharing different sources of information and knowledge, as that the organization relies on information from various sources, whether internal or external, such as sources of information on competitors or customers, high processing power of information helps to deliver innovations and new creations for the leadership of the organization to survive and successes, (Masa'deh, R. and Obeidat, B., 2015) diversity of Innovation helps the Organization to work within the various complexities and variables in the organization and the surrounding environment affecting them, The information systems focus on supporting the administration in solving organizational problems and make decisions that contribute to achieving the organization goals , by providing direct information that helps the organization to, provide products and services for new designs or enter new markets, and the information systems significantly contribute to innovation through an environmental survey to understand the opportunities and threats and then guide the innovation process, And helps to build a vision of creating products, services and processes, and organizational change the organization by linking strategy to innovation processes, And the promotion of creative thinking as it helps to strengthen and improve the brainstorming process by sharing and exchanging, information. It is also working to secure ideas for the development of new products, services and operations (R.B. and Ferreira, M.A.T., 2001).

Both Al-Khawalde and Al-Hunaiti in (the relationship between the use of information systems and innovation) clarified that the use of information systems contribute significantly to facilitate the process of innovation, as a result of skipping a lot of routine work, that's get the job done quickly and efficiently and greater accuracy and precision and less cost. As the attention of organizations for competitive advantage driven toward the use of information systems, which is reflected in the increased interest in research, training and development which contributes to the construction and development of creative capacity (Al-Khawaldeh Riyad A. and Al-Hunaiti Mohammad F., 2008)

The research and development is the most important aspects of technological development, it represents an important means to expand the technological knowledge that provide the process of innovation and creativity. The use of information systems contribute to further strengthen communication and cooperation between the administrative levels, which is reflected in the form of favorable opportunities for new innovative processes. In addition, the interest in finding the competent departments of the creators and provide the necessary technological means allowing them to conduct experiments and encourage them to put forward new ideas and to provide material and moral support to

them. It contributes greatly to the success of the creative process and exit into being (Al-Khawaldeh Riyad A. and Al-Hunaiti Mohammad F., 2008).

Licht G. and Moch D. Confirmed the increase in organizational innovation and creativity are by activating the process of generating and applying ideas and methods for the production of goods and services, And distributed to customers and create new areas in the work that has economic and technical benefit, And exploit marketing opportunities using the new networks and decrease the time to develop the necessary products and services (Licht G. and Moch D. 1997). This is what Louden and Louden, emphasized that the process of developing the creativity and organizational innovation is through the use of available knowledge in the various areas where the smart operations contributed to ease for information systems to facilitate the development of goods and services, processes and methods of production and distribution (Louden and Louden, 2014).

4. Methodology and Procedures

For the purpose of achieving the desired objectives of the study, the study adopted descriptive research methodology and analytical field research. At the level of the descriptive research, the office survey has been conducted; the theoretical and field studies and research have been viewed in the field of subject literatures in order to develop the basis and starting points upon which the theoretical framework is based. At the level of the field analytical research, the exploratory survey has been conducted to a sample of study population members whom were requested to answer questionnaire paragraphs designed for this study. Then, the data were analyzed through a questionnaire by using the Statistical Package of Social Science software (SPSS). (After analyzing the data and drawing the initial results, the hypotheses of the study, which have been developed for the purpose of achieving the objectives of the study, were tested by appropriate statistical means.

4.1 Study Model

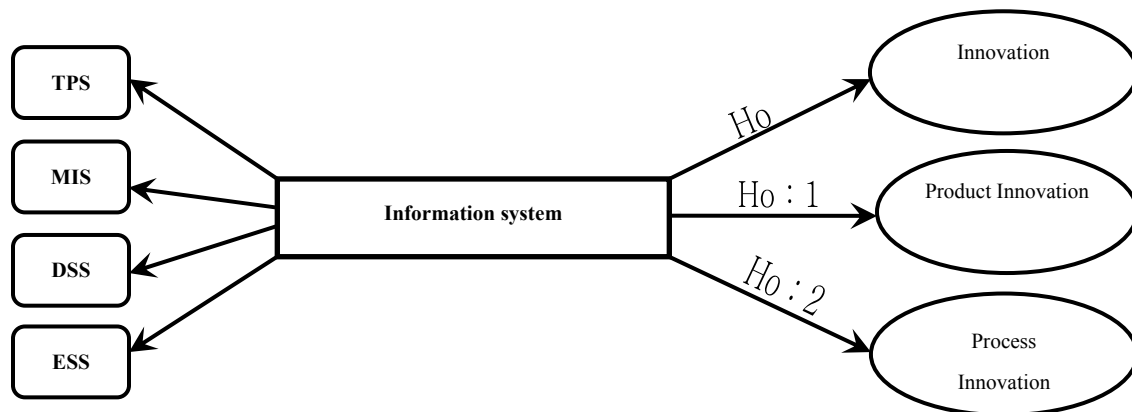


Figure 1. The research model

The study model is composed of two variables, which are:

The first is the independent variable which is information systems, where the researcher tested four information systems which are (TPS, MIS, DSS, ESS) based on the following references (Laudon & Laudon, 2012) (Obrian, 2010) (Turban, 2008) (Obeidat, 2014) (Khadam, 2014) (Stair, 2008). The second is the dependent variable which is composed of process innovation and product innovation based on the following references (Rothaermel, 2013) (Alsahr, 2014) (Alnajjar & Alshar, 2016) (Muhammad Al Quraishi, 2013)

4.2 Study Hypothesis

The study mainly aimed to test the impact of Information system (TPS, MIS, DSS, ESS) on Innovation. Therefore, the main hypothesis is:

H0: There is no impact with statistical significant at ($\alpha \leq 0.05$) of Information system (TPS, MIS, DSS, ESS) on Innovation. This hypothesis generates the following sub-hypotheses:

H0:1 There is no impact with statistical significant at ($\alpha \leq 0.05$) of Information system (TPS, MIS, DSS, ESS) on Innovation product

H0:2 There is no impact with statistical significant at ($\alpha \leq 0.05$) of Information system (TPS, MIS, DSS, ESS) on Innovation process.

4.3 Study Population and Sample

The study population consisted of the Housing Bank branches in Irbid Governorate in all senior, middle and lower administrative levels. Sample was taken from all employees in the branches of the Housing Bank in Irbid Governorat. Approximately 160 questionnaires were distributed. About 152 questionnaires were retrieved. About 13 questionnaires were excluded due to non-validity of the statistical analysis, so that the questionnaires valid for analysis would become 139 questionnaires to form the percentage of (91%).

4.4 Characteristics of Study Sample

It can be seen from Table 1 that the number of respondents to a questionnaire study was 148 employees, employees at all levels of management, the lower, middle, upper, with respect to variable sex, the number of males reached (109) employees make up (73.6%) while the number of females (39) representing (26.4%), either with respect to variable life emerges that 117 employees under the age of 40 years by (79%) of the total number of respondents staff questionnaire, and concerning variable experience shows that the number of employees that increase their experience of five years amounted to 92 employees, either as regards the practical qualification turned out that the majority of staff have a minimum of a bachelor's degree.

Table 1. Characteristics of study sample

Variable	Frequency	Percent
Sex		
Male	109	73.6
Female	39	26.4
Total	148	100%
Age		
Less than 30	52	35.1
30 - less than 40	65	43.9
40 – less than 50	17	17.5
50 – over	14	9.5
Total	148	100%
Educational Level		
High school and diploma	23	15.5
Bachelor	108	73.0
Master	15	10.1
PhD	2	1.4
Total	148	100%
Experience		
1 year less than 5	56	37.8
5 year less than 10	49	33.1
10 year less than 15	17	11.5
15 year more than	26	17.6
Total	148	100%
Position		
Lower management	119	79.7
Middle management	19	12.9
Top management	11	7.4
Total	148	100%

4.5 Study Tools and Obtaining Information Sources

The theoretical side is relied on many sources that are represented in the references from books, magazines, studies and theses relevant to the subject. As for the main study tool, the researcher relied on the questionnaire as a tool for collecting data, which included three main parts that include: the first part includes the personal information of the study sample, which is represented in (age, sex, educational level, experience, and administrative level). The second part includes paragraphs, which aim to measure the dimensions of the independent variables. It is divided into four main dimensions which are (TPS), which was measured by paragraphs from 1 to 4; (MIS) which was measured by paragraphs 5-8; (DSS), which was measured by paragraphs 9-12, and ESS which was measured by paragraphs 13-16. As for the third part, the paragraphs which measure the dimensions of the dependent variable are divided into two dimensions namely product innovation. It was measured by paragraphs from 17 to 20. The process innovation was measured by paragraphs 21-26. The answer rate was ranging from (1 to 5) according to LIKERT fifth scale completely agree is 5, agree is 4, neutral is 3, do not agree is 2 and completely do not agree is 1.

4.6 Instrument Validity

The questionnaire was presented to a group of professors and specialists in the field of administrative sciences to express their opinion therein. Whereas the suggestions and recommendations received from them regarding the phrases thereof have been taken. The necessary amendments have been conducted to the paragraphs of the study. Some of the paragraphs of the study have been rewritten and reformulated.

4.7 Instrument Reliability

For measuring the study tool reliability (questionnaire), the reliability coefficient (Cronbach Alpha) has been used to show the extent of the internal consistency of the phrases forming the standards which were adopted by the study, as the results indicate that the reliability coefficient of all dimensions not less than (0.60). The reliability coefficient of all the paragraphs of the questionnaire was (0.84). This means that the study tool is characterized by being stable. It is considered acceptable in the researches related to human sciences.

4.8 Hypotheses Testing

The study hypotheses were tested by using simple and multiple linear regression. The main hypotheses are:

H0: There is no impact with statistical significant at ($\alpha \leq 0.05$) of Information system (TPS, MIS, DSS, ESS) on Innovation.

Table 2. The results of multiple regression analysis indicate that the Information system (TPS, MIS, DSS, ESS) affects the Innovation

Information system	(B)	(β)	T	p-value
TPS	0.243	0.143	3.215	0.430
MIS	0.284	0.245	3.460	0.000
DSS	0.233	0.377	3.145	0.000
ESS	0.275	0.365	4.465	0.000
R			0.634	
R ²			0.423	
F			78.174	
P-value			0.000	

*The effect is statistically significant at the level of ($\alpha \leq 0.05$).

Table 2 shows us the results of multiple regression analysis to the impact of information systems with its four dimensions as independent variable in the innovation by its elements or dimensions (product innovation and process innovation). Table 2 shows that the value of the coefficient of determination is ($R^2 = 0.423$). This explains a percentage of (42.3%) of the impact of information systems on Innovation (product innovation and process innovation). The correlation coefficient has reached ($R = 0.634$), while the value is ($F = 78.175$). The potential value was ($P\text{-value} = 0.000$); thus, it is lower than the approved significance level (0.05). Accordingly, we reject the null hypothesis H0, which states that there is no statistically significant impact of information systems on innovation. We

accept alternative hypothesis, which states the presence of a statistically significant impact of information systems on innovation.

Table 2 also shows the impact of each dimension of information systems on innovation (Product and Process). Where the results indicated that the dimensions that have a statistical significance and impact on innovation which is management information systems that reached ($\beta = 0.245$). This is a statistical significance, because the value is ($t = 3.460, P \leq 0.05$). The decision support systems which value has reached ($\beta = 0.377$), this is a statistical significance, because the value is ($t = 3.145, P \leq 0.05$). The executive systems which value has reached ($\beta = 0.365$), this is a statistical significance, because the value is ($t = 4.465, P \leq 0.05$), while the results did not show any trace of Transaction Processing Systems on innovation (product and process).

Sub-Hypotheses: of this hypothesis for the analysis of simple linear regression, analysis to determine which forms of Information system (TPS, MIS, DSS, ESS) affects the Innovation.

H0:1 There is no impact with statistical significant at ($\alpha \leq 0.05$) of Information system (TPS, MIS, DSS, ESS) on Innovation product.

Table 3. The results of multiple regression analysis indicate that the Information system (TPS, MIS, DSS, ESS) affects the Innovation product

Information system	(B)	(β)	T	p-value
TPS	0.422	0.257	4.562	0.230
MIS	0.456	0.246	5.432	0.002
DSS	0.364	0.233	4.422	0.000
ESS	0.354	0.244	5.342	0.000
R			0.642	
R2			0.434	
F			14.67	
P-value			0.001	

*The effect is statistically significant at the level of ($\alpha \leq 0.05$).

Table 2 shows us the results of multiple regression analysis to the impact of information systems with its four dimensions as independent variable in the innovation by its elements or dimension product innovation. Table 3 shows that the value of the coefficient of determination is ($R^2 = 0.434$). This explains a percentage of (43.4%) of the impact of information systems on product innovation. The coefficient correlation has reached ($R = 0.642$), while the value is ($F = 14.67$). The potential value was ($P\text{-value} = 0.001$); thus, it is lower than the approved significance level (0.05). Accordingly, we reject the null hypothesis H0, which states that there is no statistically significant impact of information systems on product innovation. We accept alternative hypothesis, which states the presence of a statistically significant impact of information systems on product innovation. Table 2 also shows the impact of each dimension of information systems on product innovation. Where the results indicated that the dimension that have a statistical significance and impact on product innovation which is management information systems that reached ($\beta = 0.246$). This is a statistical significance, because the value is ($t = 5.432, P \leq 0.05$). The decision support systems which value has reached ($\beta = 0.244$), this is a statistical significance, because the value is ($t = 4.422, P \leq 0.05$). The executive systems which value has reached ($\beta = 0.365$), this is a statistical significance, because the value is ($t = 5.342, P \leq 0.05$), while the results did not show any trace of Transaction Processing Systems on product innovation.

H0:2 There is no impact with statistical significant at ($\alpha \leq 0.05$) of Information system (TPS, MIS, DSS, ESS) on Innovation process.

Table 4. The results of multiple regression analysis indicate that the Information system (TPS, MIS, DSS, ESS) affects the Innovation product

Information system	(B)	(β)	T	p-value
TPS	0.452	0.246	5.443	0.345
MIS	0.354	0.238	4.397	0.000
DSS	0.478	0.231	4.132	0.000
ESS	0.364	0.249	4.323	0.000
R			0.654	
R2			0.524	
F			17.456	
P-value			0.000	

*The effect is statistically significant at the level of ($\alpha \leq 0.05$).

Table 4 shows us the results of multiple regression analysis to the impact of information systems with its four dimensions as independent variable in the innovation by its element or dimension (process innovation). Table 2 shows that the value of the coefficient of determination is (R2 0.524). This explains a percentage of (52.4%) of the impact of information systems on process innovation. The correlation coefficient has reached (R = 0.654), while the value is (F = 17.456). The potential value was (P-value = 0.000); thus, it is lower than the approved significance level (0.05). Accordingly, we reject the null hypothesis H0, which states that there is no statistically significant impact of information systems on process innovation. We accept alternative hypothesis, which states the presence of a statistically significant impact of information systems on process innovation.

Table 2 also shows the impact of each dimension of information systems on innovation (Product and Process). Where the results indicated that the dimensions that have a statistical significance and impact on innovation which is management information systems that reached ($\beta = 0. 0.238$). This is a statistical significance, because the value is (t = 4.397, $P \leq 0.05$). The decision support systems which value has reached ($\beta = 0.231$), this is a statistical significance, because the value is (t = 4.132, $P \leq 0.05$). The executive systems which value has reached ($\beta = 0.249$), this is a statistical significance, because the value is (t = 4.323, $P \leq 0.05$), while the results did not show any trace Transaction Processing Systems on process innovation

5. Results Discussion: Results and Discussion

The results of the study indicated that the information systems (TPS, MIS, DSS, ESS) have impact on innovation (Product, Process). This study was in compatibility with the study of Malkawi (2007), as it has showed and demonstrated the impact of information systems on achieving innovation in Jordanian commercial banks, as one of the organizations that supply the economy with money and advisory expertise. The study concluded that providing the regulatory requirements for information systems with high degree in Jordanian commercial banks. Where Jordanian commercial banks are working to properly provide the technological requirements for information systems, as a result of the interest of these banks with the technological requirements of information systems, the level of innovation in these banks has become high. Furthermore, the results of the study were in conformity with the results of the study of Al Jady (2008), which aimed to investigate the role that can be played by the computerized management information systems in encouraging innovation phenomenon in organizations, which reached a positive relationship between management information systems and innovation. It also focused on the importance of increasing awareness among employees of the importance of the use of information that is provided by modern systems, as it facilitates and encourages the creative and innovation process which they have. Moreover, the study is compatible with the study of Irtemh Et Al (2013), which demonstrated that there is a statistically significant relationship between intelligent information systems and innovation of organizations. Furthermore, the results of the study indicated that there is a statistically significant impact of information systems (TPS, MIS, DSS, ESS) on product innovation. This is consistent with the study of Muhammad Al Quraishi (2013), which showed that the information systems became an urgent necessity in the process of innovating and creating products due to the short life of the product because of the intense competition between organizations. There is a positive relationship between information systems and innovation in products, where the information systems have helped dramatically improving the products of the organizations and producing new products as well as placing such products on the market. It is

also compatible with the study of Al Shaar (2014), which showed that there is a positive relationship between information systems and product innovation. Such positive relationship between information systems and product innovation illustrates the awareness of senior management with information systems. The results of the study also supported the third sub-hypothesis, which states the existence of a positive impact of information systems on process innovation. This result is consistent with the study of (Khandakja, 2005) (JCReal, et al., 2006) (Supattra, 2007) (Najar and Malkawi 2010) (Dima Qawasm 2011) (Al Qurashi, 2014), which showed and explained that the information systems work to provide information and knowledge of for employee that lead to increase their learning in a manner that would contribute to the development of innovation management. Therefore, it will maximize the value-added, which the products have. In addition to the fact that providing the information at the right time assists the organizations to reduce the time required to develop production processes and meet customer needs more quickly than competitors. The procedures followed for making the information system works on the success of the Bank's business. This is illustrated through the bank's reliance on providing procedures guide of the information system, which is retained by the employee during his work that reduces the percentage of errors and mistakes, and abide by the right and unified procedures of the information system function, which improves the work of the information system and the Bank's commitment to conduct periodic maintenance inspecting the information system.

6. Recommendations

Working on attracting human resources with competence in information systems that have the skill and innovation in using hardware and software, performing the required tasks, training, motivating, maintaining and investing such human resources optimally, working on evaluating the human resources regularly, considering it the strategic supplier of the effectiveness and efficiency of organizations. Such human resources contribute in shaping the integration process between the technology information and various activities of the company. Exploiting and investing information systems to assist the organizations, particularly the Housing Bank in leadership through creativity and innovation to achieve the outputs of high quality. Focusing on the use of decision support systems for the nature of the data which can be provided, as it depends on the internal and external data systems, which assist the organization in studying and analyzing the internal position of the organization that is reflected on its external position which contributes to increase its competitiveness through discovering new services and products increase the satisfaction of the customer's desire and to assist raising the level of efficiency and effectiveness of operations, which are reflected on the satisfaction of the customer through accelerating the operations of providing service and product. The study also recommends conducting further studies on information systems, particularly on the smart information systems such as Decision Support Systems and Executive Information Systems, measuring the impact of its sub-systems, such as artificial intelligence, expert systems, data mining and knowledge management systems, on the development of the performance of the Organization, such as the performance of employees and operational excellence.

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