

THE IMPACT OF ACCOUNTING INFORMATION SYSTEMS DEVELOPMENT ON IMPROVING E-COMMERCE IN THE JORDANIAN PUBLIC SHAREHOLDING INDUSTRIAL COMPANIES

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ABSTRACT

As there a new type of commerce which can be practiced using internet (Electronic Commerce), it was necessary to make sure of having developed informative and technological systems which can be used as a method to verify the proper functioning of commercial operations using electronic commerce. This study's aims to Identify the impact of the AIS development on e-commerce in terms of auditing, effectiveness of transactions, effectiveness of customers' communication and the flexibility of legislations to deal with type of commerce, and identifying whether there were any difficulties and obstacles facing e-commerce that may prevent utilizing the advantages of this commerce. A total of 130 questionnaires were sent to 36 industrial public shareholding companies in Jordan and 128 were analysed. The researcher used Descriptive and Analytical method. The study main result is: there is a significant statistical impact for AIS development on e-commerce in the Jordanian public companies.

Keywords: AIS, E-Commerce, Financial Resources, Industrial Companies, Jordan.

INTRODUCTION

Business organizations can achieve their objectives by putting resources in an effective formula; Information system is one of these resources. The Financial and non-financial resources are two resources of Information System which should be operationalized. Since business requirements are evolving, it was necessary to develop information systems such as Accounting Information System (AIS); as it developed from being manual into computerized system and from being simple systems and programs into intricate and integrated systems. Therefore, it was essential to have sufficiently flexible systems that can deal with this change which serves as a user-friendly and modern resource for the new requirements of business organizations. As there is a new type of commerce which can be practiced using internet (Electronic Commerce), it was necessary to make sure of having developed informative and technological systems which can be used as a method to verify the proper functioning of commercial operations using electronic commerce. AIS and E-Commerce have a Two-pronged relationship. As some researchers studied the impact of electronic commerce on accounting information system; this study came to discuss the impact of the development of computerized Accounting Information System, give confidence and guarantee sufficient censorship to practice and expand electronic commerce.

Many studies have discussed the impact of Electronic Commerce on AIS (Qataweh, 2012). Correspondingly, the researcher believes that the development in Accounting Information System properties, security, auditing and monitoring had an impact on the expansion of e-commerce. In addition, with these AIS related issues, customers will feel safe to use electronic

funds transfer. Certainly, it depends on the upgrade of Information technology. Despite the fact that Jordan is a developing country; the efforts to practice e-commerce were satisfying. The targeted sector which includes the Jordanian Public sector.

THEORETICAL FRAMEWORK

Electronic Commerce and Accounting Information System

E-commerce paved a way for unlimited chances for organizations to practice marketing, selling commodities and provide services. In fact, it surpassed organizations to be a way for promoting and selling commodities at the individual level to global level using advertisements and applications that depend on internet. It is defined as the electronic transactions between different parties who deal with an organization using internet (Lord, 2004). It also defined as an electronic market where the parties of trading process can communicate, so it provides virtual and digital commodities and services which indicate an electronic monetary dealing.

Corporations can achieve satisfying profits using e-commerce; these markets are limitless. Normally, it requires regulations for electronic transactions between purchaser and seller depending on any of the forms to guarantee safe delivery and cash returns. The importance of these forms appeared in the following advantages: low expense, exceeding boundaries of country and liberalization of obstacles. Moreover, e-commerce provides additional advantages, as: wide existence and global deliberation, easy communication between the parties of commercial transaction, easy access to information, ability to reach the targeted customer. Furthermore, the need to activate EDI (Electronic data interchange) and EFT (Electronic funds transfer), decreasing the number of employees. Thus, it decreases the wages comparing to the traditional trading process. Therefore, e-commerce can arguably beneficial for organizations in terms of save time, decreasing the expenses of contracting procedure, reaching international markets, unrestricted widespread promotion for the organization and its products, guaranteeing security on prices and markets for parties (Gupta & Dubey, 2016; Niranjnamurthy et al., 2013). As for individuals, the advantages can be summarized in providing products for comparison, taking great advantage of wide and free auctions and bargains, shopping at any time and in any place. For that e-commerce has four types based on types of consumers: Business to Business (B2B), Business to Consumer (B2C) (Bulsara & Vaghela, 2017), Business to Government (B2G) and Government to Consumer (G2C).

Like any other technology; e-commerce facing some challenges (some of them found in Jordan (Kalboneh et al., 2015) some of these challenges are: Computer viruses, Internet Hackers, developing non-integrated systems which unsuitable for electronic commerce, High expense for securing systems and programs, Legal issues faced by e-commerce, Difficulty in coping with the accelerated development in programs, so there is vital role for the internal control system in overlap obstacles, and guaranteeing rights of parties using an integrated system of legislations. because of that AIS plays a major role in organizations; The outputs of this system help in taking rational decisions, the AIS is defined as a coordinated and integrated group of strategies, procedures and methods designed to deal with incidents and economic realities that affect the output of an organization and its financial status. It also indirectly contributes to protect its findings by providing the suitable information for beneficiaries in the suitable time (Al-Dalabeeh & Al-Zeaud, 2012; Porter et al., 2006; Sačer & Oluić, 2013).

In order to provide useful information for taking the right decisions and improve performance. The Accounting Information System; especially the computerized one, should be

characterized by the following: high level of accuracy and timeliness of financial data, suitable and synchronized information with decision making, simplified and understandable information, adequate flexibility for change and development (Kimwele, 2015). Moreover, being able to connect and integrate with other subsidiary systems. The existence of this integration guarantees efficient practice of e-commerce (Shahjee, 2015; Marshall & Steinbart, 2015). AIS developed as a result of the evolving needs of its users in terms of increasing storage capacity, large processors, also the need for high speed in retrieving and recovering stored information, dealing with big data set, complicated systems, financial and non-financial integration. Thus, the need to upgrade control system to cope with this development in AIS has increased.

LITERATURE REVIEW

Many researchers discussed the e-commerce subject and its relation to information technology. On the other hand, the development in information technology and its elements are considered to be the foundation stone for practicing e-commerce in organizations. All organizations seek to get benefit of the features and advantages (mentioned previously) (Moon et al., 2017; Mehra & Khurana, 2015) such as the increase of the number of dealers, customers, new markets and expansion in the organization's business, long-term cost efficiency (Dakduk et al., 2017; Kabugumila & Lushakuzi, 2016), speed in commercial transactions; especially in stock market which is expected to be characterized by speed in commercial exchange and deliberation (Laveena et al., 2015). These characteristics were the reason for achieving competitive features between one and another (Chen & Zhang, 2015; Vargas, 2015). The features of e-commerce have encouraged investment in Corporations that use this type of commerce for its returns to investment and investors (Turri et al., 2007), within multi strategies and the globalization of businesses platform which is one of the e-commerce types (Fauska et al., 2013), where many Corporations compete to activate exchanging services and to communicate using this platforms, for instance; using electronic invoices (Penttinen et al., 2018). Typically, this requires a legal umbrella the guarantees through its binding legislations the rights of the parties of e-commerce (Mengrui, 2015).

Information technology had a significant impact on the development of Accounting Information System. Moreover, it allowed providing financial and accounting information with quality (Sacer & Oluic, 2013). As management gives a significant importance for the efficiency of information system (Shagari et al., 2017). In addition to its flexibility and adaptation with the changes that occur in an organization in terms of; information, easy access (Stefanou, 2002), that guarantees having the necessary data for decision-taking which are characterized by speed, accuracy and quality (Salehi et al., 2010).

Despite that many researchers discussed the impact of e-commerce on the development of Accounting information system (Qatawaneh, 2012; Al-refaee, 2012; Ahmad, 2013), this does not mean that it is not acceptable to think the opposite way, the relationship is close to be reciprocal. Moreover, the development in Accounting Information System could be a reason for the use of e-commerce (Moqbel, 2014). It's commonly known that the human resource has a role in these systems, as the human resource is the programmer, designer and user of electronic accounting information system (Okab & Al-oqool, 2014), which will work on using the available technology to develop the Accounting Information System that will be used to give a reason and an opportunity to get benefit of this electronic service and practice e-commerce (Khan, 2016). Accordingly, the main question that could be raised is:

1. Is there an impact for the AIS development on e-commerce?
2. Are there obstacles facing e-commerce transactions in the Jordanian Corporations?
3. Is there an impact for the AIS development on e-commerce according to the Demographic factors?

Based on the questions, following hypotheses are developed:

H1: There is no statistical impact for the AIS development on e-commerce in the industrial Jordanian public shareholding Corporations. Subsidiary hypotheses:

1. *There is no statistical impact for AIS Development on auditing e-commerce transactions.*
2. *There is no statistical impact for AIS Development on efficiency of e-commerce transactions.*
3. *There is no statistical impact for AIS Development on the legislations of e-commerce transactions.*
4. *There is no statistical impact for AIS Development on communication efficiency with the dealers of e-commerce transactions.*

H2: There are no obstacles facing the e-commerce transactions in the industrial Jordanian public shareholding Corporations.

H3: There are no statistical differences in the AISs development on e-commerce in the Jordanian public industrial shareholding Corporations according to demographic variables (job status, scientific qualification, specialty, experience, characteristics of information system followed in the company and the information system type.

METHODOLOGY

The study sample consisted of Public Shareholding Industrial corporations which were 36 company listed in Securities Depository Centre (SDC, 2018). As for the sampling unit, it consisted of (Financial and Information Systems' managers, heads of accounting departments, internal auditors and accountants in the Jordanian public industrial shareholding Corporations. The researcher reached to (36) company and (130) questionnaires into the sample of the study. Only 128 questionnaires were valid for analysis. The researcher used the Descriptive and Analytical method to describe the impact of development on AIS in the JPSC.

A questionnaire of five Likert scales of approvals which was developed by the researcher to investigate the variables, the questionnaire consisted of 47 items and it was divided into three parts (Appendix 1):

1. **The first part:** the sample's characteristics which consist of 6 paragraphs.
2. **The second part:** items of studying the impact of systems' development on the following dimensions: The first dimension: include 10 paragraphs-auditing e-commerce transactions. The second dimension: include 12 paragraphs-efficiency of e-commerce transactions. The third dimension: include 5 paragraphs-e-commerce legislations. The fourth dimension: include 6 paragraphs -The communication efficiency of dealers in e-commerce.
3. **The third part is:** include 8 paragraphs-Obstacles facing e-commerce in the Jordanian Public Shareholding Industrial Corporations.

Statistical methods through SPSS were used to test its hypotheses: Reliability and Validity test for the study's tool, Standard Deviation, percentages, Frequencies and Coefficient of Variation, (Kolmogorov-Smirnov) test and One Sample T-test for testing hypothesis.

RESULTS AND DISCUSSION

T-test has been used to test hypotheses. The standard of acceptance or rejection of hypotheses is the level of statistical significance (5%). The Normal Distribution test to ensure the results analysis' accuracy and reliability.

Normal Distribution Test

Kolmogorov Smirnov-test was used to test the normal distribution of data when the p-value is higher than the statistical significance level (5%). Table 1 showed the test's results.

Studied data	Sign. value	Significance	Results
AIS development on auditing e-commerce	0.060	No sig. Difference	Normal distribution
AIS development on efficiency of e-commerce	0.087	No sig. Difference	Normal distribution
AIS development on e-commerce legislations	0.085	No sig. Difference	Normal distribution
AIS development on the communication efficiency of dealers	0.066	No sig. Difference	Normal distribution
Obstacles facing e-commerce	0.075	No sig. Difference	Normal distribution

According to the above table, the statistical level for all the studied data is bigger than (5%), this means that the Confidence Interval is (95%). There are no statistical differences between all variables which mean that the distribution is normal. Therefore, it accepts Null Hypothesis and rejects the Alternative Hypothesis which says that the data do not have a Normal Distribution. Thus, t-test can be used.

Results of T-Test

T-test is used to study the impact of an independent variable on a dependent variable. The following are the results for t-test on the main and subsidiary hypotheses.

Test Value=3						
Hypothesis	T	df.	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
1 st dimension	18.437	127	0.000	1.3281	1.1856	1.4707
2 nd dimension	16.419	127	0.000	1.1823	1.0398	1.3248
3 rd dimension	16.880	127	0.000	0.9516	0.8400	1.0631
4 th dimension	26.056	127	0.000	1.2578	1.1623	1.3533
Total	25.752	127	0.000	1.2107	1.1177	1.3037

The first main hypothesis test: *“There is no statistical impact for the AIS development on e-commerce in the industrial Jordanian public shareholding Corporations”*

According to Table 2, t-value was (25.752), the variation factor was (1.2107), Freedom level was (127) and the p-value was (0.00), which is less than (5%). Also by observing Table 3, by analysing the 1st main hypothesis we found that the first major hypothesis “*there is no statistical impact for the development of Accounting Information System on e-commerce*” was rejected and the Alternative Hypothesis “*There is an impact for the AIS development on e-commerce at the significance level ($\alpha \leq 0.05$)*” was accepted.

The first subsidiary hypothesis: “*There is no statistical impact for the Accounting Information development System on auditing e-commerce transactions*”.

Test Value=3						
Hypothesis	T	df.	Sig.	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
1 st main	25.752	127	0.000	1.2107	1.1177	1.3037

Table 2 showed that t-value was (18.437), the variation factor was (1.3281), the level of freedom was (127) and p-value was 0.00 which is less than (5%). Accordingly, the first subsidiary Null Hypothesis “*there is no statistical impact for the AIS development on auditing e-commerce transactions*” was rejected and the Alternative Hypothesis “*there is a statistical impact for the development in Accounting Information System on e-commerce transactions at the level of significance ($\alpha \leq 0.05$)*” was accepted.

The second subsidiary hypothesis: “*There is no statistical impact for the Accounting Information System development on efficiency of e-commerce transactions*”.

According to Table 2, t-value was (16.419), the variation factor was (1.1823), the freedom level was (127) and p-value was less than (5%). Thus, the second subsidiary null hypothesis “*there is no statistical impact for the AIS development on efficiency of e-commerce transactions*” was rejected and the Alternative Hypothesis “*the AIS development has an impact on the efficiency of e-commerce transactions at the level of significance ($\alpha \leq 0.05$)*” was accepted.

The third subsidiary hypothesis: “*There is no statistical impact for the Accounting Information System development on the legislations of e-commerce transactions*”.

According to Table 2, it is noted that the t- value was (16.880), the variation factor was (0.9516), the level of freedom was (127) and the p-value was (0.00); which is less than (5%). Accordingly, the third subsidiary null hypothesis “*there is no statistical impact for the AIS development on the legislations of e-commerce*” was rejected and the Alternative Hypothesis “*there is a statistical impact for the AIS development on the legislations of e-commerce*” was accepted.

The fourth subsidiary hypothesis: “*there is no statistical impact for the Accounting Information System development on communication efficiency with the dealers of e-commerce transactions*”

According to Table 2, it is noted that the t-value was (26.056), the variation factor was (1.2578), the level of freedom was (127) and the p-value was (0.00); which is less than (5%). Therefore, the fourth subsidiary null hypothesis “*there is no statistical impact for the AIS development on the communication efficiency of the dealers in e-commerce*” was rejected and the Alternative Hypothesis “*there is a statistical impact for the AIS development on the communication efficiency of the dealers in e-commerce*” was accepted.

The second main hypothesis test: “*there is no obstacles facing the e-commerce transactions in the industrial Jordanian public shareholding Corporations*”

Test Value=3						
	T	df.	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
obstacles	26.502	127	0.000	1.3096	1.1817	1.3349

According to Table 4, the t-value was (26.502), the variation factor was (1.3096), the level of freedom was (127) and the p-value was (0.00), which is less than (5%). The second main hypothesis “*there were no obstacles facing the e-commerce transactions*” was rejected and the Alternative Hypothesis “*there were obstacles facing the e-commerce transactions in the Jordanian public and industrial shareholding Corporations*” was accepted.

The third main hypothesis test: “*There are no statistical differences in the AISs development on e-commerce in the Jordanian public industrial shareholding Corporations according to demographic variables*”.

ANOVA test was used to test the features of study’s population; the respondents on one hand and Corporations on the other hand in terms of the impact of AIS development on e-commerce. And the results were as the following:

Effect	Sig. value	F	Variable	Decision
No effect	0.120	1.347	Job Pos.	there were no statistical differences in the AISs development on e-commerce in the Jordanian public industrial shareholding Corporations according to demographic variables.
no effect	0.294	1.145	Qualification	
No effect	0.350	1.099	Specialization	
effect	0.000	19.198	Experience	
effect	0.000	2.375	Info. Sys. used	
effect	0.000	2.388	Sys. Type	

According to Table 5, the significance level was higher than (0.05) for the variables: (job, scientific qualification and the specialization). As for the variables (experience and the system used in terms of its mechanism and its nature; administrative, or financial, or mixed), their level of significance was less than (0.05) which means that at the confidence level at (95%), there were no statistical differences in the development of Accounting Information System on e-commerce in the Jordanian public and industrial shareholding Corporations attributed to the job, scientific qualification and the specialization variables. And so, the Null Hypothesis was accepted. While the Null Hypothesis “*there is no impact for the development in Accounting*

Information System on e-commerce in the Jordanian public and industrial shareholding Corporations attributed to (experience, and the system used in terms of its mechanism and its nature; administrative, or financial, or mixed)” was rejected as the significance value was less than (0.05). The alternative hypothesis *“there is an impact for the development in Accounting Information System on e-commerce in the Jordanian public and industrial shareholding Corporations attributed to the variables (experience, and the system used in terms of its mechanism and its nature; administrative, or financial, or mixed)”* was accepted.

The study came up with following results:

1. There is a statistical impact for AIS development on e-commerce in the Jordanian public industrial shareholding Corporations. Despite this result it shows the agreement with Ahmad (2013); and Qatawneh (2012) study which arrive to the existence of the relation between the AIS and e-commerce and agree with Mengrui (2014) study which was applied on service sector.
2. There is a statistical impact for AIS development on auditing e-commerce transactions in Jordanian co.
3. There is an impact for AIS development on the efficacy of e-commerce.
4. There is an impact for AIS development on legislations of e-commerce and that contribute in solving the ethical issues mentioned by Mengrui (2015).
5. There is an impact for AIS development on the communication efficiency of the dealers in e-commerce transactions.
6. There are obstacles facing e-commerce transactions in the Jordanian public and industrial shareholding Corporations which agree with Kalboneh et al. (2015) study.
7. There is no impact for AIS development on e-commerce in the Jordanian public and industrial Shareholding Corporations attributed to (job, scientific qualification and specialization) variables.
8. There is an impact for AIS development on e-commerce attributed to the demographic factors (information system followed and its type).

CONCLUSIONS AND RECOMMENDATIONS

Since there was an impact for the development in the AIS on the e-commerce, and an impact on the commerce transactions, the communication efficiency of e-commerce dealers and legal legislations, and after examining difficulties and obstacles facing commerce, the researcher recommended the following:

1. Working on having legal and local legislations of e-commerce; locally and internationally.
2. Facilitating technological and technical restrictions facing the expansion of e-commerce.
3. Working on creating committees that guarantee coordination between official government authorities and the private sector.
4. Investing in information security and its effort in protecting systems and users of e-commerce using these systems.
5. Raising people’s awareness of using e-commerce through schools, universities and forums.
6. Further research related to overcoming obstacles facing expanding of e-commerce in developing economies.

Appendix 1					
QUESTIONNAIRE OF FIVE LIKERT SCALE					
The AIS Development will	Agree (80-100%)	Agree (60-79%)	Agree (40-59%)	Agree (20-39%)	Agree (0-19%)
1. Improve methods of controlling over electronic commerce operations.					

Appendix 1					
QUESTIONNAIRE OF FIVE LIKERT SCALE					
2. Lead to greater reliability and security for e-commerce processes.					
3. Shorten the exact time of e-commerce operations.					
4. Reduce the effort to audit electronic commerce operations.					
5. Reduce the cost of auditing electronic commerce operations.					
6. Reduce the number of employees in auditing electronic commerce operations.					
7. Lead to the development of the audit process on electronic commerce operations.					
8. Lead to the selection of audit firms from a category to audit electronic commerce operations.					
9. Facilitate the exercise of the control of the Securities Commission on electronic commerce.					
10. Facilitate the practice of income tax and sales auditing on electronic commerce operations.					
11. Lead to a special format for the disclosure of electronic commerce operations.					
12. Facilitate the entry of the Organization into new markets through electronic commerce.					
13. Lead to the provision of adequate financial information for the implementation of electronic commerce operations.					
14. Result in the provision of adequate non-financial information for the implementation of electronic commerce operations.					
15. Facilitates the reception of customers' requests through electronic commerce.					
16. Lead to faster customer demand through e-commerce.					
17. Lead to the faster execution of electronic sales and purchases.					
18. Lead to the execution of electronic sales and purchases more accurately in the details of the sale and purchase.					
19. Lead to the implementation of electronic commerce operations more safely than unauthorized penetration.					
20. Facilitate the application of commercial legislation on electronic commerce.					
21. Reduce the risk of misuse by electronic trading parties					
22. Facilitate the redesign of the way customers communicate through electronic commerce.					
23. Help to reduce or prevent domestic legal irregularities through electronic commerce.					
24. Help to reduce or prevent international legal irregularities through electronic commerce.					
25. Lead to the use of software suitable to its users.					
26. Lead to the use of software that facilitates the process of communication and inquiries of customers.					
27. Lead to the use of homogeneous software with the web page.					
28. Lead to wider options on the company's electronic page.					
29. Lead to clear and detailed price quotes on the company's electronic page.					
30. Keep customers engaged in electronic commerce constantly informed of price, item and service adjustments.					
31. Lead to the effective implementation of online e-commerce operations.					
32. Lead to faster electronic commerce operations than traditional commerce.					

Appendix 1					
QUESTIONNAIRE OF FIVE LIKERT SCALE					
33. Make it more desirable to deal with electronic commerce more widely.					
Constraints facing the implementation of developments in electronic commerce					
1. Local legislation on electronic commerce.					
2. International legislation on electronic commerce.					
3. The level of freedom and openness in the business market in which the organization operates.					
4. The level of coordination between the public and private sectors					
5. Piracy on the company's systems.					
7. Level security system and protection systems used.					
8. The size of allocations on the development of the systems used.					
9. Lack of conviction of customers to deal through electronic commerce.					

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