The Role of Information Quality Management toward Bank Performance Among Jordanian Commercial Banks

Tariq Barjes Al-bloush, Norailis Bt Ab Wahab.

Abstract:Information quality management measurement in online banking has been gaining wide attention presently and thus, many prior studies have sought to show major components of Information quality management linked with electronic environment. Excellent quality of online banking is a significant matter to improve performance. It is the factors that will allow the banks to attract more clients to adopt online banking". The aims of this quantitative research were to empirically determine the significant predictors of Jordanian commercial banks performance, namely: information management components (information quality, e-service quality, system quality) and bank performance. The goal of this study examines the effect of information management components on the performance of Jordanian commercial banks, and investigate the applicability of dimensions of Information System Success (IS Success) and Electronic Service Quality (E-SERVQUAL) in explaining of bank performance. A survey was conducted a pilot study by using a convenient sample among 384 customers in thirteen Jordanian commercial banks located in three areas (North, Middle, and South) in Amman. Data were analyzed using Statistical Package for Social Sciences (SPSS) and PLS-SEM analysis. The findings revealed that: (1) that information quality (INQ) has a positive direct effect on commercial banks' performance (PER), (2) that e-service quality (E-SQ) has a positive direct effect on commercial banks' performance (PER), (3) that system quality (SYQ) has a positive direct effect on commercial banks' performance (PER). Furthermore, the findings of this study present the analysis and advice to the banks' managers which can be utilized to develop Information Technology and improve performance.

Index Terms: Components of Information Quality Management, Bank Performance, Online Banking, Jordanian Commercial Banks.

I. INTRODUCTION

In the age of openness, several services can be done through the internet, as well depend on the user's target to access to Online Banking "O-Banking" transactions that previously required a visit to the bank, access to knowledge and social communication. The internet has become unavoidable dynamic part of today's by companies that help positively to enhance the comprehensive efficiency of the process, retain clients, low costs, and reduce time (1),(2). According to Martins et al.(3)the banking field has been utilizing the internet not only to perform online business

Tariq Barjes Al-bloush*,Faculty of Economics and Muamalat, Department of Management, Universiti Sains Islam Malaysia, Negeri Sembilan, Malaysia,tariq_albloush@yahoo.com.my

Norailis Bt Ab Wahab,Faculty of Economics and Muamalat, Department of Management, Universiti Sains Islam Malaysia, Negeri Sembilan, Malaysia.

activities and to provide new products but also to introduce key services to their customers.

According to Abu-Assi et al.(4) that the banks offer O-banking to reduce difficulties and provide comfort to their clients through conducting banking transactions immediately at anywhere and anytime in the world. In the first phase of the growth process plays online banking a prominent role in influencing between the bank and client, nevertheless, cannot dispense other distribution channels (5). As well the banks need to supply clients with the modern financial services described in a comprehensive options assortment because it that increases the market share of bank and enhances clients' retention (6). Consequently, the strategic thinking of the bank management shifted in order to enter into a competition environment toward providing services low-cost and high level of quality by means of following a multi-channel approach "O-banking" (7). At a present time, the clients demand the high level of quality with the lowest cost, making financial institutions establish a more client-focused infrastructure (8). The organizations are constantly trying improvements to online service provided in order to raise quality level, increased the ability of banks in performance and productivity, in addition, to decrease costs (9). This can be accomplished by investments in Information Technology "IT"(10). With attention to that introducing and spreading the use of IT in banks is constantly increasing, but, the findings of these investments have not been accurately tested and applied (11). With regard to banks performance, to create profit, they must not only focus on attracting new clients but they must also focus to avoid losing the existing clients (12).

In contrast, that providing high-quality service considered an important strategy for success in the competitive environment (13). Several researchers confirmed that O-banking has a clear effect on the relationship among electronic quality and performance. In another meaning, the introduction of online services may change decisively the way of the bank performance in build and maintain their client's relationships(14),(15). In addition, that the process of quality improvement is considered from the priorities of the global service strategies, as well as the Jordanian banking sector, the reason is that improving quality plays a prominent role in influencing the organization performance (14),(16),(17),(18). Therefore, this sector continuously seeks to improve e-service quality offered to the customers within the possibilities available (19).

The Jordanian banking sector as in various countries is deemed one of the major props of the emerging Jordanian economy. According to the central bank of Jordan (CBJ) quarterly report 2017, financial institutions contributed 18.82% of the gross domestic product; nevertheless, the economic value of the banking sector in Jordan is not only incarnate with its effective contribution to gross domestic product, it is also deemed as one of the significant institutions in the financial sector and in Amman Stock Exchange having the biggest market capitalization (14).

Jordanian commercial banks are a good case for investigation due to the existence of a lack of studies conducted on O-banking(4). Deutsche Bank Research stated that the main problem of online banking analysis is the lack of enough data in different countries(20). In contrast, Abu-Assi et al. (4) stated that O-banking is one of the new and most promising delivery channels for clients O-banking. Therefore, the Jordanian financial sector is going into a period of significant change, the effect of which is changing the system financial services are offered. These developments include a fundamental rise in several of substitution channels obtainable to provide services. The bank system also provides a modern channel for financial services is the internet (21). Also, prior studies indicatedthat the knowledge of the role of banking information in explaining changes in the bank performance is still insufficient(22), (14). Accordingly, there is a lack of studies conducted on the Jordanian commercial banks because the adoption of O-banking is still low and the historical data is limited.

In this research will be measured the role of information quality management components (INQ, E-SQ, and SYQ) towards bank performance. In addition, determine the main factors that interest the clients through benefiting from the online banking and working on improving this service by the banks, hence raising the level of skill and performance among Jordanian commercial banks.

II. LITERATURE REVIEW

A. Information Quality Management (IQM)

Excellence in Quality Management (QM) includes using a phase of the art information technology; the industry depends on best practice about software criteria and providing performance free of defects. The importance of IQM can be achieved through improving gain margins for the organization, providing easy to use and beneficial applications, in addition to designing and preparing software easily maintainable. IQM as conformity indicates designing systems that adapt to the external customers' information requirements and abide by industry criteria. Meeting customer needs of IQM is realized by offering attractive, interfaces of easy to read and navigate, meeting user needs for changes and satisfying the decision-makers of the IQM. The quality definitions widely describe IQM measures based on (23),(24),(25),(26),(27),(28),(29) namely: Information Quality (INQ), E-Service Quality (E-SQ), and System Quality (SYQ).

B. Components Assess the Information Quality Management

1) Information Quality (INQ)

Information quality is a criterion of client-perceived efficiency of the electronic system and describes the scope of online content; content includes all of the relevance, error-free, completeness, consistency and timeliness. (30),(31). In besides, DeLone & McLean (32) also confirmed in his described that IQ is features of output provided by the information system, e.g. completeness, error-free, timeliness.

The findings showed previous studies that ease of access and control plays a vital role in assessing information quality perceived by the clients. Free information from errors, timely, and completeness was classified as the key standards for INQ in e-services afforded by a bank. Furthermore, there are significant results for this research namely that electronic commerce and IS theory are suitable for use in the area of the appraisal of services(33). After a review of previous studies have been observed that information quality measurement criteria differ in approach and application, while the frameworks share a number of attributes. According to prior studies, this research adopted the criteria of Lee et al. (34) to measure information quality, these criteria such include as "timeliness, believability, consistency, appropriate amount, security, free-of-error, understandability, relevancy, interpretability, objectivity, reputation, completeness, and accessibility".

2) Electronic Service Quality (E-SQ)

Unlike the service quality literature, the number of studies related to E-SQ is still in its first stage both from practical and theoretical viewpoints (35). Exactly, E-SQ is a modern idea and the method it is imagined differs considerably. E-SQ is increasingly significant in impacting client appraisals and judgments concerning the E-SQ performance in a virtual marketplace. The E-SQ is highly worried as a result of it highly related to the failure or success of the Internet-based organization such as online banking in B2C. O-banking in B2B includes online users accessing the websites to conduct banking transaction; hence the extent to which their desires are met is necessary.

According to group of researchers such as Zeithaml (29) described the concept E-SQ is the extent to which a website smooth's effective and efficient use, in order to conduct banking transactions, in addition, that Website's quality plays a vital role in identifying the online experience of the clients by three phases are before, during and post-website aspects of service(36). Santos (37) described the E-SQ as an overall customer assessment and judgment of e-service delivery in the virtual marketplace. In another meaning, it is the internet-based service or a reactive service which is delivered on the web, like online banking. In O-banking, clients will interact with the bank (service providers) by their websites. Based on past studies, the measurement tools for electronic service quality are multiple, this study was therefore adopted E-SERVQUAL scale, proposed by Parasuraman et al.(26) comprising of "efficiency, fulfillment, system availability, privacy, responsiveness, compensation, and contact", to measure E-SQ variable.

3) System Quality (SYQ)

System quality depends on clients' needs, as determined by the system's report and development. It is a critical factor in client satisfaction related to the website technology besides its technical competence, privacy, appearance, navigation, security, and delay(38). SYQ was tantamount to a technical standard of communication (39). On another hand, SYQ deemed a criterion of the data processing operation itself. Comparable to INQ, SYQ based on three characteristics: ease of use, accessibility, and interactivity. Accessibility indicates to system availability and responsiveness, which is selected as a criterion of SYQ. Whereas, the interactivity element considers another significant feature of SYQ (40).

Speed and availability of the system are important because it allows clients to achieve their purposes without taking too much time waiting (41). As that a high-quality system can offer clients more convenience in addition to privacy and responsiveness (33). Gable et al. (42) have been stated that SYQ is a criterion of the information system from a design viewpoint and technical. Hence, system quality can be described as tasks and procedures to evaluate an information system from a technical and design viewpoints. SYQ has been used in many different methods in the information system literature. This research adopted the ISO 9126 standards according to Ali et al. (43), these contain such common characteristics as "system reliability, usability, functionality, efficiency, maintainability, and portability", to measure SYQ component.

C. Organization Performance

Companies are constantly attempting to grow and survive by controlling performance, but they often fail to achieve it. In order to achieve the best outcomes, companies must change their strategy to enhance performance by conducting organizational evaluations on a continuous basis (44). In general, performance evaluation consider a strategic process in business companies, because it helps companies' in obtaining valuable information about their performance, in addition, determine significant items that may help or hinder the achievement of their outcomes by strengthening strengths and trying to redress weaknesses. In summary, the performance of the organization is not an end in itself but is a vital tool for continuous growth whether on an individual level or the overall employees' performance in a company (45),(44).

The concept of performance appraisal in the company focuses on knowing and determining the variations among what has been achieved and what is planned, as well as among the actual performance and the performance required. Also, there is general agreement among writers and researchers about the meaning of evaluating the performance of the organization despite minor differences among themselves. There are many concepts have been used by writers to illustrate performance appraisal but as a general idea, the performance evaluation is a methodical process for getting valid information regarding organization performance and the factors that influence performance. It differs from other kinds of assessments because evaluation focuses on the organization as the primary system of analysis(44). Furthermore, Banks should integrate clients'

requirements and desires, as well should meet their desires as an aspect of performance planning. Finally, according to Almaghribi (46) that evaluates the performance of organization from the customer perspective is the best way because the client is a fair judgment compared with the rest of other assessment methods.

III. METHODOLOGY

A. Study Subjects

The essence of this study is the user of online banking in the state of Jordan especially in Amman city that was surveyed by distributing questionnaires to customers Jordanian commercial banks in Amman. This activity of sampling has been held from October to December 2018. In total, 384 of surveys were distributed and then collected, with the response rate of 100%. After eliminating invalid surveys, there are 372 questionnaires, with a valid response rate of 96.88%.

B. Research Tools

The study tool consists of two sections. Firstly is the research of literature, collecting all the data that is contained in relevant Jordanian commercial banks. Secondly, using the components of E-SERVQUAL and IS Success model. Hence it is measured by a Likert scale which will organize by 1= strongly disagree to 5 = strongly agree and which takes the weight of (1 to 5) respectively.

C. Study Structure

According to the objective of the literature review, this research developed the model (shown in Figure 1) by E-SQ and ISS to investigate the influence of information quality management components toward the performance of Jordanian commercial banks.
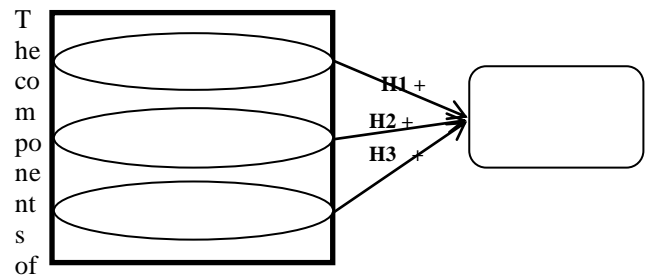

Fig.1. Research Model

D. Research Hypotheses

This study based on the research model as the basis for the develop hypotheses. There are three components forming the bank performance are information quality, E-service quality, and system quality. All these three are the most critical base components for measuring bank performance, according to Al-mamary et al. (16)found that INQ and SYQ are significant influential components in determining the organization performance. The result that adds and supports that E-SQ is an influential component significant in determining the firm performance(14). Therefore, this research proposes a formulation of the issue as follows: Information quality management components (INQ, E-SQ, and SYQ) have a significant influence on bank performance (Jordanian commercial banks).

IV. DATA ANALYSIS

This research uses the software, SmartPLS 3.0 and SPSS v20 for data analysis procedures. Statistical techniques used by this research are described as follows:

This research used descriptive statistics as a data analysis pillar to reveal online banking user data was collected, make the outcomes of the control variables at the Jordanian commercial banks' clients who respond to this research.

Path analysis is utilized to present the findings of the analysis regarding significance relationship and the impact of IQM components toward the performance of Jordanian commercial banks.

V. RESULTS AND FINDINGS

A. Sample Characteristics

Table1: Summary of Respondents' Demography

Item		Frequency	Percent %
Gender	Male	182	48.9
	Female	190	51.1
Age	18-24	184	49.5
	25-31	89	23.9
	32-38	43	11.6
	39-45	29	7.8
	46-52	17	4.6
	>52	10	2.7
Education Level	High school or	11	3.0
	Diploma	26	7.0
	Bachelor	260	69.9
	Master	55	14.8
	Ph.D.	20	5.4
Experience	Less than 1 year	105	28.2
	1-4 years	130	34.9
	5-9 years	74	19.9
	10-14 years	33	8.9
	15-19 years	19	5.1
	20 years and	11	3.0
Usage	User	241	64.8
	Non User	131	35.2

This section consists of the respondents' profile in terms of gender, age, education level, experience, and e-banking usage. Referring to Table 1, more than half (51.1%) of the respondents were female and (48.9%) were male. In terms of age, the largest percent of respondents from age category 18-24 years (48.9%), which accounts for almost half of the sample size, followed by (23.9%) between 25-31 years, (11.6%) between 32-38 years, (7.8%) between 39-45 years, (4.6%) between 46-52 years, and finally (2.7%) more than 52 years. In terms of education level, the majority of respondents (69.9%) had bachelor degree, followed by (14.8%) of respondents had master degree, (7%) of respondents with diploma degree, (5.4%) of respondents had Ph.D. degree, and only (3%) of respondents had High school or less degree. In terms of experience, (34.9%) had 1-4 years, (28.2%) had less than one year, (19.9%) had 5-9 years, (8.9%) had 10-14 years, (5.1%) had 15-19 years, and (3%) had 20 years and more. The majority of respondents (64.8%)

were users of electronic banking and non-users made up the rest (35.2%).

B. Multicollinearity

This research uses Multicollinearity tested through examination of tolerance and Variance Inflation Factor (VIF) as one of the most important and reliable tests of multicollinearity[47]. Table 2 indicates that the tolerance ranges between 0.492 and 0.820 substantially greater than 0.1 and VIF ranges from 1.219 and 2.034 considerably less than 10. In line with Hair et al.[47], that the tolerance values below 0.10 and VIF values above 10 indicate high collinearity, this result shows that multicollinearity does not exist in this study.

Table2: Multicollinearity Test based on Tolerance and VIF Values

Variables	Collinearity Statistics	
	Tolerance	**VIF**
INQ	.492	2.034
E-SQ	.548	1.824
SYQ	.496	2.016

Note: INQ: Information Quality; E-SQ: E-Service Quality; SYQ: System Quality

C. Convergent Validity

This research conduct analysis of an outer model to confirms that questionnaire items include the constructs they were created to measure, hence assuring that they are valid and reliable. Table 3 show that the Average Variance Extracted (AVE) value of all the constructs exceed the threshold value of 0.50 [48],[49], except for one variable, performance (PER), where the AVE value was 0.42 which is less than 0.5 (ranging from 0.42 to 0.68). In such a case, since the Composite Reliability (CR) value is greater than 0.7, it can be concluded that Convergent Validity (CV) is established [50].

Table3: Loadings, Reliability and Convergent Validity Values

VAR	Items	FL	IR	CA	CR	AVE	CV
INQ	INQ1	0.78	0.608	0.925	0.94	0.60	Yes
	INQ10	0.80	0.645				
	INQ11	0.81	0.658				
	INQ12	0.77	0.593				
	INQ13	0.82	0.664				
	INQ2	0.75	0.566				
	INQ3	0.70	0.496				
	INQ4	0.77	0.599				
	INQ5	0.78	0.605				
	INQ9	0.74	0.554				
PER	PER11	0.63	0.392	0.873	0.90	0.42	Yes
	PER12	0.59	0.347				
	PER13	0.69	0.480				
	PER14	0.67	0.444				
	PER15	0.64	0.411				
	PER3	0.71	0.506				
	PER4	0.65	0.426				
	PER5	0.61	0.377				
	PER6	0.67	0.450				
	PER7	0.62	0.382				
	PER8	0.63	0.399				
	PER9	0.62	0.384				

Table3 (Continued)

VAR	Items	FL	IR	CA	CR	AVE	CV
	SEQ1	0.84	0.709				
	SEQ2	0.82	0.674				
	SEQ3	0.82	0.679				
E-SQ	SEQ4	0.79	0.626	0.919	0.93	0.67	Yes
	SEQ5	0.83	0.684				
	SEQ6	0.77	0.594				
	SEQ7	0.86	0.734				
	SYQ1	0.82	0.676				
	SYQ2	0.85	0.729				
SYQ	SYQ3	0.80	0.634	0.905	0.93	0.68	Yes
	SYQ4	0.86	0.731				
	SYQ5	0.80	0.635				
	SYQ6	0.81	0.663				

Note: INQ: Information Quality; E-SQ: E-Service Quality; SYQ: System Quality; PER; Performance; IR: Indicator Reliability; VAR; Variable; CA: Cronbach Alpha; FL: Factor Loading

D. Discriminant Validity

This research adopts the most conventional method in evaluating discriminant validity is Fornell-Larcker standard proposed by Hair et al.(50) to test the indicators' outer loadings. Table 4, reveal that the validity of discriminant can be confirmed when the indicator's outer loading on the construct is greater than all its cross-loading with other constructs.

Table4: Discriminant Validity

Variables	INQ	PER	E-SQ	SYQ
INQ	**0.774**			
PER	0.504	**0.645**		
E-SQ	0.581	0.437	**0.819**	
SYQ	0.615	0.501	0.603	**0.823**

Note: INQ: Information Quality; PER: Performance; E-SQ: E-Service Quality; SYQ: System Quality

E. The Structural Model

This research uses four criteria for assessing the complete fit model, following (51), the criterion of GoF for small, medium and large values are 0.10, 0.25 and 0.36 respectively. For the complete model, the results produced GoF score of 0.401, concluding that the model performed well compared to the baseline values Table 5.

Table5: Goodness of Fit (GoF)

Variables	R Square	AVE
INQ		0.599
PER	0.18	0.416
E-SQ	0.35	0.671
SYQ		0.678
Average	**0.265**	**0.591**
GoF		**0.401**

Small: GoF = 0.10; Medium: GoF = 0.25; Large: GoF = 0.36
Note: INQ: Information Quality; PER: Performance; E-SQ: E-Service Quality; SYQ: System Quality

F. Test Findings of Study Hypothesis

The evaluation of the inner model begins with an examination of the direct relationships between the independent variables (INQ, E-SQ, SYQ) and the dependent variable (PER) which represented by hypotheses 1-3 (H1 to H3). Figure 2; 3 and table 6 present the path coefficients, t-statistics and p-values results of testing these hypotheses.
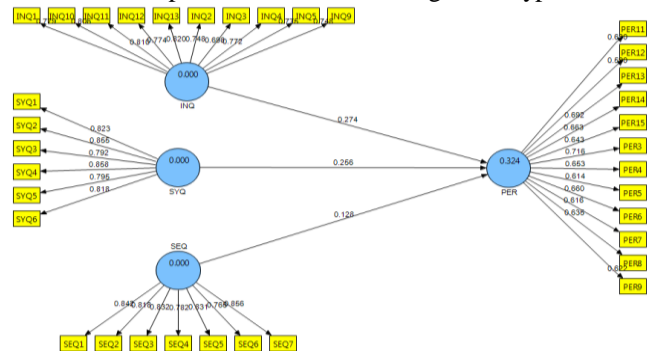

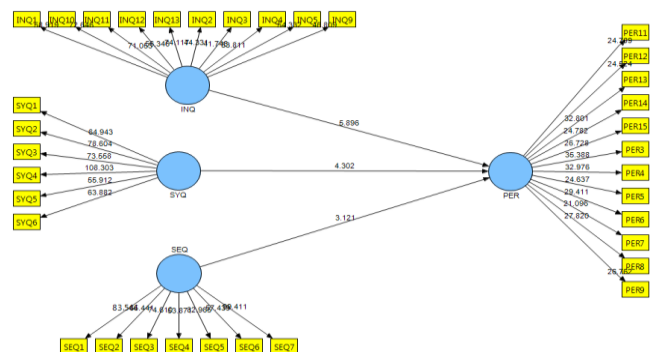**Fig.2.** PLS Algorithm Direct Relationship (INQ, SYQ, E-SQ with PER)

Fig. 3. PLS-SEM Bootstrapping Direct Relationship (INQ, SYQ, E-SQ with PER)

As presented in Table 6 below, hypothesis 1 specifies that information quality has a positive direct effect on commercial banks' performance. This hypothesis is supported ($\beta=0.274$; $t=5.8961$; $p<0.001$). This empirical finding corresponds with the results of prior studies that support INQ positively influences bank performance (16),(52),(18). It shows that the higher the information quality of bank's electronic services, the higher the performance of bank. Hypothesis 2 can be seen which specifies that e-service quality has a positive direct effect on commercial banks' performance. This hypothesis is supported ($\beta=0.128$; $t=3.1208$; $p<0.001$). The results observed in this research mirror those of the prior studies that have reported a positive effect of E-SQ on bank performance (14). It shows that the higher the service quality of bank's electronic services, the higher the performance of bank. Something similar mentioned to hypothesis 3 specifies that system quality has a positive direct effect on commercial banks' performance. This hypothesis is supported ($\beta=0.256$; $t=4.3018$; $p<0.001$). It shows that the higher the system quality of bank's electronic services, the higher the performance of bank. According to the result of this research, prior studies have shown that SYQ positively impacts bank performance (16),(52),(18).

Table6: Direct Relationship (INQ, E-SQ, SYQ with PER)

Hypothesis	Path Coefficient	Standard Error	T-Statistics	P-Value
H1	0.274***	0.047	5.8961	0.000
H2	0.128***	0.041	3.1208	0.000
H3	0.256***	0.060	4.3018	0.000

*: $p<0.05$; **: $p<0.01$; ***: $p<0.001$

VI. CONCLUSION

This study uses the research model, to investigate the three components (information quality, E-service quality, and system quality) as independent variables to explain bank performance, study findings are described as follows:

The positive impacts of significant information quality management components have contributed to encouraging the significant value to the performance of Jordanian commercial banks. According to the results in the prior section of information quality management, it showed that INQ, E-SQ, and SYQ are the major factors relating to improving bank performance. This basically indicates that users regard information quality management components as the major points in their use of online banking. Furthermore, it also can help the decision makers of Jordanian banks to improve and develop a performance with the online banking system. Accordingly, users become aware of the service and feel trusting by continuing to use online banking in the future as well as to recommend the service provided to others.

Finally, the current research is also related to academic authors to develop the model in forecasting adoption of online banking in the future. Through this study, researchers can learn some important lessons, particularly in determining the adoption of online banking in the future. Thus, for the researchers who will conduct the next research or further research relates to this study, this study can be a guidance to derive and determine new evidence relates to the informational content of IQM toward bank performance. It can be assumed that contributing factors of performance are a lesson learn and future directions for Islamic banking research (e.g., technology factors, user factors, and, organization factors) to provide a good service quality it can be started by the ability to create more flexibility in accessing information and developing a system which is trustworthy and strong.

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1. AUTHORS PROFILE

Tariq B. Al-bloush obtained his M.S degree in International Marketing in March 2013, from Cairo University, Cairo, Egypt, and his B.S degree in Banking and Financial Sciences in July 2007, from the Arab Academy for Banking and Financial Sciences. Currently, I am studying Ph.D. in quality management and HR at USIM in Malaysia. His research interests tend to focus on areas of information quality management and online banking.He has participated by research papers in several international conferences.