
The impact of banks adoption of multi-channels mix on the internet banking service encounter quality: the case of Arab Middle East region

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Abstract: The aim of this paper is evaluating the impact of degree of adopting multi-channels mix on the quality of internet banking service encounter quality in the Middle East region. Fifty banks were surveyed; the surveyed banks were located in all Arab countries in the Middle East region. Two questionnaires were used to collect data; one of them was directed to professionals in order to weight the quality dimensions. Another one was used to report the quality dimensions and degree of adopting e-banking and traditional banking. Analysis methodology called quantitative evaluation was adopted to weight and rate quality dimensions, further, Sperman correlation coefficient was used to analyse the relationship between the degree of adopting banking channels and quality dimensions. The study revealed that; there is a negative relationship between the degree of adopting traditional banking and accessibility dimension. Also, there is a positive significant relationship between degree of adopting e-banking and accessibility and content quality dimensions.

Keywords: internet banking; Middle East; service encounters; quality; traditional banking; e-banking.

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1 Introduction

Since the mid-1990s, e-channels have become ever prominent in retail banking (Ardill et al., 2013). The rapid expansion of online banking services is most remarkable in the developed countries where the availability of smartphones and computers with simple access to internet enables adaptation of online banking. Despite the fact that, this adoption still faces some limitation and appear to take its place at the slower manner. Efficient banks that located in urban areas are more likely to adopt online banking services (Jenkins, 2007).

The adoption of online banking helping banks in reducing cost, improving response time, providing higher service quality and helping in saving clients time (Ardill et al., 2012). The customers are able to access the services at any time from more convenient places (Santos, 2003; Hussien and El Aziz, 2013).

Despite the maturity of using online banking in Arab Gulf region not reaching the developed countries; the Gulf Arab banks managers consider online banking as a key strategic element in their channel mix. This channel is expected to grow over the coming years (Ardill et al., 2013). The number of online banking users in the Arab Middle East and North Africa region will exceed 80 million by 2017 (Baghadadi, 2016).

Accordingly, the banks of Arab Middle East region are competing in expanding the branches network and providing a wide range of e-banking delivery channels as call centres, internet banking, mobile banking, and ATMs (Kadir et al., 2011). During this era of adopting multi-channels mix in the Arab Middle East region, peering in mind the direction toward launching more online banking services, the valid question is; to what extent the adoption of the multi-channels mix has an impact on the quality of services provided via online banking?. Answering this question will help banks managers in examining the effectiveness of the multi-channels strategy.

This research question has not been addressed by the previous studies. The majority of previous studies have investigated the quality of internet banking service from the

customers perspective by using ESERVQUAL model (e.g., Loiacono et al., 2002; Kadir et al., 2011), other studies have investigated the readiness of customers toward adopting e-banking by using TAM (e.g., Poon et al., 2008; Chandio et al., 2017; Adapa, and Roy, 2017; Safeena et al., 2017). This study is one of the very limited studies which investigate the adopting of multi-channels and its impact on the quality of e-banking service encounter.

This study adopted a unique methodology which is called quantitative evaluation, accordingly, the bank's website were revised and rated by team of researchers, also the opinion of experts was used for the purpose of multi-objective evaluation of banks' internet banking service encounter and degree of the adopted multi-channels mix.

To answer the research question the following objectives were realised:

- reporting the internet quality of banking services encounter in the Arab Middle East region
- reporting the degree of adopting multi-channels mix as the degree of adopting traditional and electronic banking channels
- examining the impact of adopting multi-channels mix, on the internet banking service encounter quality in the Arab Middle East region.

2 Literature review

The adopting of multi-channels mix means the bank move the information and transactions volume from branches to online channels, and refocusing branches on sales activities and potentially restructuring the branches network, this strategy is also called online plus (Ardill et al., 2013). The banks in the Middle East region and overall the world are widely adopting this strategy. The research contribution on this area of study is still limited, Migdadi (2011) has addressed some aspects of this strategy, according to this study the impact of adopting e-banking in Jordan on the traditional banking strategy is still limited, so despite the banks direction toward adopting e-banking channels, the traditional banking is still the dominant. No previous study has addressed the impact of multi-channels adoption on the internet banking service encounter quality. Accordingly, this study will bridge the literature gap by examining the impact of adopting multi-channels mix on the quality of internet banking service encounter quality at the regional level.

2.1 The dimensions of internet banking service encounter quality

During the last decade, electronic service quality has become a popular area of investigation by both researchers and practitioners. E-service quality can potentially increase online competitive advantages; therefore, it has a great effect in determining the success or failure of electronic services. Service quality, which is usually measured by how the service was received and matched customer expectations. Accordingly, researchers developed multidimensional service quality evaluation tool known as SERVQUAL (Santos, 2003).

Banking websites have been evaluated from various perspectives using many criteria. And some researchers have proposed a model to assess the quality from the users

viewpoint, while other researchers have proposed a specific framework model for website evaluation such as Diniz's model or Herey's model (Hasan and Abuelrub, 2008).

In order to gain the highly competitive internet banking industry, we need to understand the dimensions used to judge service quality. This research suggested several dimensions that may affect the success of building high-quality banking website. The investigations of these dimensions are in the context of developing website forms based on this research.

Website designers are encountering complex questions regarding how to design popular and attractive pages. Abels et al. (1999) suggested six operational definitions for using criteria such as content, structure, linkage, search and appearance. While Dholakia and Rego (1998) proposed a list of features that are considered important such as the number of links, the frequency of changes, number of pictures etc.

The literature describes a number of quality dimensions of service encounter that can help to evaluate websites. The explosion of the internet has created the need for a method to measure and assess the features of websites such as usability and accessibility of a web application, where the goal is to make a website useful, gainful, user linking, and accessible to all. A list of proposed quality dimensions was adopted by the previous studies that are presented in Table 1, and each dimension contains several items.

Table 1 Quality dimensions' definitions as addressed by previous studies

<i>Quality dimensions</i>	<i>Definition</i>	<i>References</i>
Functionality	The purpose of website whether as informational, relational or transactional	Cebi (2013), Delone and McLean (2004), Baghdadadi (2012), Migdadi (2008), Liébana-Cabanillas et al. (2013), Poon (2008), Hasan, and Abuelrub (2008)
Accessibility	the technique, which maximises the ability of users to access services and information It is generally related to the implementation of website content in a way that allows users to access their information and services	Godwin-Jones (2001), Ahmad and Al-Zu'bi (2011), Cebi (2013), Webb and Webb (2004), Migdadi (2008), Liébana-Cabanillas et al. (2013), Poon et al. (2008) and Hasan and Abuelrub (2008)
Navigation	The efficiency of websites in transforming information depends on the designer's easiness of design and the target audience	Cebi (2013), Webb and Webb (2004), Migdadi (2008), Hasan and Abuelrub (2008) and Sadiq and Shaikh (2008)
Content	Web content is the visual, textual or aural useful information that is encountered as part of the user interaction on websites	Ahmad and Al-Zu'bi (2011), Doll and Torkzadeh (1988), Migdadi (2008), Poon et al. (2008), Hasan and Abuelrub (2008), Sadiq and Shaikh (2008) and Pinho et al. (2011)
Customisation	The process of tailoring the content of a website based on the needs of users	Hasan and Abuelrub (2008)
Security	Security a dimension concerning about protection of users from fraud and risk of financial loss	Ahmad and Al-Zu'bi (2011), Keffala (2010), Cebi (2013), Webb and Webb (2004), Sadiq and Shaikh (2008), Poon et al. (2008), Hasan and Abuelrub (2008), Sadiq and Shaikh (2008), Pinho et al. (2011), Polasik and Piotr Wisniewski (2009)

2.2 The impact of degree of adopting e-banking on the internet banking service encounter quality

The Variety of e-banking technologies has greatly expanded in recent years. Such technologies as automated teller machine or mobile banking can reduce cost and speed processing. Adopting e-banking as a self-service technology defined to include products and service banking through electronic channels as online banking, mobile banking, offline banking or ATM (Yibin, 2003). Moreover, Banks employees and managers prefer to expand electronic application in servicing customers, but not to convert all banks operations to become electronic (Siam, 2006).

At the same time service providers making significant investments to take the most advantages of opportunities offered by internet technology. Delivered value added from mobile services becomes increasingly important to gain a competitive advantage in the business area. For example, mobile services provide true, mobility, temporal, spatial flexibility and ubiquity to internet banking.

As a result, mobile banking is defined as customer interaction with the bank through mobile devices such as a smartphone, cell phone, or personal digital assistant (PDA) (Laukkanen and Kiviniemi, 2010). Therefore, increasing the number of branch locations (Acharya et al., 2008).

Automatic Teller Machines (ATM) as the main IT investment to all banks that offer significant benefits to both banks and depositors. The machines allow depositors deposit their cash at convenient times and places than through banking hours waiting at branches. ATMs have many benefits in reducing the costs of meeting depositor demands. The cost of a single transaction conducted by ATM is potentially less than the cost of a transaction performed from a teller since ATMs are able to handle extra transactions per unit of time than tellers. Although a fall in the price of ATMs, services and an increase in the installation costs for ATMs have contributed to the diffusion of the ATM (Humphrey, 1994).

However, the rapid diffusion of ATM machines is attributed mainly to the increase in tellers wages and the decrease in ATMs prices, but the ATM machines are still not a perfect substitute (Kumar et al., 2011). Another new potential technology is mobile phone banking involving integrating short message service such as push SMS or pull SMS features with an existing IVR telephone banking service as a new method of delivering transaction confirmation messages (Peevers et al., 2011).

Even the internet banking innovation has been diffused well in many countries. The number of consumers is not yet willing to adopt using mobile banking services is significant (Laukkanen and Kiviniemi, 2010). In addition, an increasing use of the internet as additional channel of banking services has significant relation in improving the financial performance of banks; the results also encourage community banks to adopt new information technologies offering online services (Acharya et al., 2008).

In order to adopt any new technology and offer online services, the guidance and information offered by banks have the most significant impact on decreasing usage barriers subsequently by image, value and finally the risk barriers. In addition, this study provides better understanding of how information can affect customer attitudes and resistance on mobile banking (Laukkanen and Kiviniemi, 2010).

H1: There is statistically significant relationship between degree of adopting e-banking and the internet banking service encounter quality at the significance level ($\alpha \leq 0.05$).

2.3 *The impact of degree of adopting traditional banking on the internet banking service encounter quality*

Moreover, many researchers have argued that larger branches network will consider an online banking as a cheap means to increase the customer base (i.e., Malhotra and Singh, 2007). Given this ambiguity, it is not hard to make presumptions on the impact of branching intensity on adopting internet banking (cited in Malhotra and Singh, 2007). Using automated services channels does not affect the number of branches or number of teller's stations. The branches are still working beside the internet banking channels (Migdadi, 2011). However, the branching intensity did not significantly reduce the possibility of failure even understanding banks structure for diversity branching is needed (Hendrickson et al., 2014).

H2: There is statistically significant relationship between degree of adopting traditional banking and the internet banking service encounter quality at the significance level ($\alpha \leq 0.05$).

3 Research methodology and methods

3.1 *The population and sample of study*

The unit of analysis of this research is the bank, so a sample of 50 banks in the Arab Middle East area were reviewed. This study endeavours to gather information through the Multi-stage sampling method. Analysts normally utilise this system when a complete list of the considerable number of individuals from a population does not exist or is hard to gather.

Multistage sampling refers to a technique where the sampling is put through several stages using smaller and smaller sampling units at each stage. In the two-stage sampling design, a sample of primary units is selected, followed by a sample of secondary units within each primary unit (Krebs, 1999). This is done after identifying the number of local and foreign banks in each country in the Middle East area. The following are the steps followed to identify the targeted sample

- Compute the total number of banks in the Arab Middle East region. Table 2 shows the total number of banks in the Arab Middle East region which are 375, the number of local banks is 226 and the number of foreign banks is 149.
- Calculate the ratio for each country by dividing the number of banks in this country by the total number of banks in the Arab Middle East area; for example, the number of banks in Jordan is 30, thus the result will be $(30/406) = 0.073$.
- Calculate the number of banks that should be investigated for each country by multiplying the result in step one by the total number of banks in each country; for example, the number of banks that will be studied in Jordan is $(0.073 \times 30) =$ approximately 3.

- Calculate the number of local banks that should be studied for each county by doing the following:
 - dividing the total number of local banks in each country by the total number of banks in the same country to calculate the local ratio; for example, the local ratio for Jordan is $(17/30) = 0.566$. (Note: 17/30 from Table 2)
 - multiplying the local ratio by the number of local banks in a specific country, for example, the total number of local banks to be studied in Jordan is two.
- Calculate the number of foreign banks which should be studied for each county by doing the following:
 - dividing the total number of foreign banks in each country by the total number of banks in the same country to calculate the local ratio; for example, the foreign ratio for Jordan is $(13/30) = 0.433$
 - multiplying the foreign ratio by the number of local banks in the specified country, for example, the total number of foreign banks to be studied in Jordan is one.

After applying the previous formula for all the countries in the Arab Middle East region, the sample of the study is identified as presented in Table 3. Table 2 shows the sample of study, it can be seen that; the number of banks served was 50; 27 local banks and 23 foreign banks.

Table 2 Population of the study (total number of local and foreign banks in the Arab Middle East)

<i>Country name</i>	<i>Total numbers of banks</i>	<i>Local banks</i>	<i>Foreign banks</i>
Jordan	30	17	13
Kuwait	21	11	10
Iraq	57	40	17
Emirates	73	28	45
Bahrain	46	35	11
Yemen	25	15	10
Lebanon	46	33	13
Saudi Arabia	24	16	8
Qatar	21	11	10
Oman	16	8	8
Syria	16	12	4
Total	375	226	149

Table 3 The sample of study (number of local and foreign investigated banks)

<i>Country</i>	<i>Local banks</i>	<i>Foreign banks</i>	<i>Total</i>
Jordan	2	1	3
Kuwait	1	1	2
Iraq	6	3	9
Emirates	5	9	14

Table 3 The sample of study (number of local and foreign investigated banks) (continued)

<i>Country</i>	<i>Local banks</i>	<i>Foreign banks</i>	<i>Total</i>
Bahrain	4	2	6
Yemen	1	1	2
Lebanon	4	2	6
Saudi Arabia	1	1	2
Qatar	1	1	2
Oman	1	1	2
Syria	1	1	2
Total banks	27	23	50

3.2 *Developing data collection instruments*

Two data collection instruments were developed. The first one is a questionnaire which was directed to the experts in order to weigh the quality dimensions. The second data collection instrument is a questionnaire which was used by the researchers to collect the facts of the websites.

The first questionnaire was developed by using the literature. The number of questionnaire items was nine. The rating scale was five points Likert scales as follows:

- 1 not important at all
- 2 not very important
- 3 somewhat important
- 4 important
- 5 very important.

Another Questionnaire used to collect facts. This survey was developed by using the literature review (e.g., Migdadi, 2008; Miranda et al., 2006). The scale of the majority of items is nominal according to the availability of function or the attributes. Some item's scales were ratios as the number of times the websites have been updated, the age of online banks, the number of internal and external links etc.

3.3 *Data collection and analysis*

The quantitative evaluation method (QEM) is a capable technique used to evaluate the artefact quality (e.g., Miranda et al., 2006; and Evan and King, 1999). The process of the quantitative evaluation method consists of categorising, distinguishing the dimensions, recognising weights, rating the components of dimensions, lastly scoring of aggregate quality.

Distinctive specialists as IT experts, security administrators, software engineers, website developers, system administrators scholars, academic specialists and bankers were chosen to estimate the weight of various dimensions. The data was collected through interviews whether face to face or by telephone. Then After that, calculating all rates related to its dimensions, the sum of all rates from the main dimensions determines the total rates for all dimensions, which will be 669 in this case. After all, the weight of

each dimension is obtained by dividing all rates related to its dimension by the total rate of all dimensions. As a result, ranking the dimensions based on its weights as presented in Table 4.

After weighting, the teams of researchers collected the facts about the quality dimensions by reviewing the bank's websites. Data about few items are measured by utilising different tools instead of direct revision which is presented in Appendix B, this incorporates the sub-items of navigation, accessibility and content dimensions. The available features were reported on a questionnaire designed for this purpose. Then, the collected facts were rated according to scale designed for this purpose. The total maximum rates assigned for each bank service encounter is 1000 points divided between the quality dimensions as presented in Table 5. Such rating scale is unique and developed by researchers as following; the weight for each dimension was multiplied by 1000 points. The rate for each item is obtained by dividing the result of step 1 by the number of items in each dimension. The total rate for each dimension is obtained through multiplying the number of items of each dimension by the rate of each item.

The data related to degree of adopting traditional and electronic banking was collected for each bank by revising banks websites and annual reports. Table 6 shows the measurement scales of each dimension of e-banking and traditional banking. The benchmarking with the best bank's score was used for the purpose to have standard measure of adoption, then the total relative score was computed for each banking channel.

Finally the impact of degree of adopting multi-banking channels on the internet banking service encounter quality was analysed by using Spearman correlation coefficient which is non-parametric statistical technique, this technique was used since the sample size is too limited so it is impossible to use a parametric statistical technique like person correlation or linear regression analysis (Taylor, 2005).

Table 4 Ranking the main dimensions based on weights

<i>Quality dimension</i>	<i>Rank</i>	<i>Weight</i>
Security	1	0.224
Functionality	2	0.183
Navigation	3	0.168
Accessibility	4	0.161
Content	4	0.168
Customisation	5	0.124

Table 5 Total rates for each dimension

<i>Dimension</i>	<i>Total rate</i>
Security	220
Functionality	188
Navigation	176
Accessibility	162
Content	136
Customisation	125

Table 6 How to measure the degree of adoption e-banking and traditional banking

<i>Degree of adoption</i>	<i>Adoption elements</i>	<i>Measurement scale</i>
E-banking	Number of ATMs	Ratio which computed by (Number of ATMs/Maximum number of ATMs in that country)
	Age of online bank	Age of online bank/oldest online bank in the country
	Push SMS	One point for each service
	Pull SMS	One point for each service
	Mobile Banking	One point for each service
	IVR (<i>Interactive voice response</i>)	One point for each service
Traditional banking	Number of branches and offices	Ratio which computed by (Number of branches and offices/maximum number of branches and offices in the country)

4 Data analysis and findings

4.1 The descriptive statistics of quality rating scores of internet banking service encounter in the Arab Middle East region

Table 7 shows that the average rating score of quality dimensions of every country in the Middle East region. The highest value for the quality of internet banking websites in the Middle East are in functionality and accessibility, banks website are rich with respect to informational content more than other sub-dimensions of functionality, the second sub-dimension is the transactional and the third is relational.

Table 7 Quality score of internet banking service encounter quality dimensions in Arab Middle East region

<i>Country</i>	<i>Dimension</i>							<i>Relative importance index (Sum/1000)</i>
	<i>Functionality</i>	<i>Accessibility</i>	<i>Navigation</i>	<i>Content</i>	<i>Customisation</i>	<i>Security</i>	<i>Sum</i>	
Jordan	108.67	86.50	88.51	64.33	30.33	66.00	444.35	0.444
Kuwait	113.00	108.93	81.62	60.50	49.00	59.00	472.05	0.472
Iraq	83.89	56.90	68.84	53.91	40.44	57.89	361.87	0.362
UAE	129.43	62.80	65.72	44.14	63.00	59.79	424.88	0.425
Bahrain	121.17	96.11	70.42	62.86	47.833	64.00	462.39	0.462
Yemen	111.00	64.28	68.97	66.33	49.00	66.00	425.59	0.426
Lebanon	115.00	83.40	70.24	41.48	38.50	65.33	413.96	0.414
Oman	116.50	119.08	83.16	78.00	38.50	58.00	493.24	0.494
Qatar	120.50	124.60	98.13	78.00	63.00	61.00	545.23	0.545
Syria	95.50	131.03	78.50	75.00	63.00	60.50	503.53	0.504
Saudi Arabia	106.50	122.92	79.01	74.08	12.00	71.00	465.51	0.466

It can be seen that the functionality of website's banks in UAE is the best subject to quality service encounter dimensions, the rating score was (129.42). Syrian bank's websites are the best in accessibility quality dimension, the rating score was (131.03). Whereas Qatari bank's websites are the best in navigation dimensions, the rating score was (98.13). Table 7 shows that; content dimension for bank's websites in Oman and Qatar, customisation of bank's websites in Qatar, Syria and Emirate, Security of Saudi bank's websites are the best quality dimensions.

The overall quality rating score is represented in the sum column. Which is the summation result of quality rating scores of all dimensions of each country. It can be seen that; the rating score range is between 361.87 to 545.23. The best overall score of the quality of the internet banking service encounter dimensions was for the state of Qatar, the summation score was 545.23. On the contrary, the state of Iraq has the worst assessment of performance in internet quality of service encounter dimensions, the summation score was 361.87.

The overall score realised by each country was divided by 1000, which is the maximum rating score could be realised. This result is represented by the last columns which is the relative importance index, and the average is in general 0.4556. It can be noticed from this table that the banks in the Middle East are very close in terms of quality total score (to have more details about quality dimensions' rating scores please see Appendix A).

Table 8 Sperm test results for the impact of degree of adopting traditional banking and e-banking on the quality of internet service encounter dimensions

<i>Quality dimension</i>		<i>Degree of adopting traditional banking</i>	<i>Degree of adopting e-banking</i>
Functionality	Correlation Coefficient	0.095	0.201
	Sig. (2-tailed)	0.509	0.162
Accessibility	Correlation Coefficient	-0.308*	0.458*
	Sig. (2-tailed)	0.029	0.001
Navigation	Correlation Coefficient	0.134	0.27
	Sig. (2-tailed)	0.353	0.058
Content	Correlation Coefficient	-0.084	0.326*
	Sig. (2-tailed)	0.561	0.021
Customisation	Correlation Coefficient	0.228	0.153
	Sig. (2-tailed)	0.111	0.288
Security	Correlation Coefficient	-0.102	0.208
	Sig. (2-tailed)	0.482	0.148

**p*-value < 0.05.

4.2 *The impact of degree of adopting e-banking and traditional banking on the quality dimensions*

Table 8 shows that; there is a negative relationship between degree of adopting traditional banking and accessibility dimension. However, the presented data also indicate that; there is a positive significance relationship between degree of adopting e-banking and two quality dimensions (accessibility and content). Moderate positive correlation

0.458 with Accessibility dimension and 0.362 with content dimension. However, no significant relationship with other dominations (functionality, navigation, customisation, and security). Thus, Hypothesis 1 and Hypothesis 2 are accepted for some quality dimensions.

5 Discussion

The findings indicated that; there is a positive significant relationship between degree of adopting e-banking and two quality dimensions (accessibility and content). Since the websites of banks will have more facts about e-banking services, further, many services will be activated by means of the websites. This result is confirmed by many author's findings such as Malhotra and Singh (2007), Migdadi (2011), Giordani et al. (2014).

The current study concluded that; there is a negative relationship between the degree of adopting traditional banking and accessibility dimension. The customers in the Middle East region still prefer to use the traditional banking instead of e-banking. In addition, the increasing number of branches will make the service available for all people especially who prefers face-to-face interaction, or in the areas suffering from a lack of internet coverage in their areas.

Moreover, in the era of multi-channels mix, the customer services in the branches will be enhanced with more experienced and highly trained staff to solve customer problems. This result agrees with Malhotra and Singh (2007) finding in that there is a significant relationship between the degree of adopting traditional banking and the quality, however, this result does not agree with the Hendrickson et al. (2014) finding.

6 Conclusion

6.1 Contribution and results

The majority of previous studies have adopted TAM to examine the customer's readiness toward adopting e-banking, other studies have examined the quality of internet banking by adopting ESERQUAL model. The perspective of previous studies was the marketing, so the customers were mainly surveyed. This study is one of the very limited studies which examine the quality of internet banking by using quantitative evaluation methodology. The objective facts were collected by direct observation for the bank's websites, or by using other tools and sources as the annual reports. So objective data were collected, then, these facts were transformed into rates.

This study is one of the very limited studies which examine the impact of adopting multi-channels mix on the quality of internet banking service encounter quality, also it is one of the very limited studies that conducted at regional level, and some studies conducted comparison between two or more countries.

This study revealed that; there is a negative relationship between the degree of adopting traditional banking and accessibility dimension; also there is a positive significant relationship between the degree of adopting e-banking and two quality dimensions (accessibility and content).

6.2 *Implications, limitations, and future researches*

The methodology adopted by this study is unique in term of sources of data and research procedures, so the researchers can adopt the same methodology in other countries context. The researchers have good knowledge about the quality of internet banking service encounter in the Arab Middle East regions; furthermore, they have more in-depth knowledge about the impact of adopting multi-channels mix strategy on the quality of internet banking service encounter quality.

The managers of banks in the Middle East regions have good knowledge about the position of each country in term of quality of internet banking service encounter, so the countries have excellent practices should maintain their positions, and others which have deteriorated positions should improve their positions. The effectiveness of multi-channels strategies have been examined in term of quality of internet banking service encounter, so the managers can improve these mix in favour of quality dimensions.

The rating score tool which is appended in this paper could be used by managers and website designers in evaluating the websites domains of different sectors as education, business, government, commerce and others to build an effective quality website systems.

This study did not examine the differences between local and foreign banks in term of quality and the impact of multi-channels mix on the quality of internet banking service encounter quality. Further, this research did not examine the impact of banks size and age, so it is recommended to conduct further future researches in these areas. Cross regional, worldwide analysis could provide better insight about the impact of adopting multi-channels on the quality of internet banking service encounter quality.

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Appendix A The detailed rating scores of quality dimensions

	Total rate for each dimension				Total points for each dimension's classification after approximation	Number of items in each classification		Maximum number of points for each item	
Functionality	188								
Transactional	75	A							
		Non banking	1	0.167	12.5	13	3	4.3	4
		Banking applications	2	0.333	25	25	3	8.333	8
		Core banking transactions	3	0.5	37.5	38	8	4.75	5
Relational	55	B							
		Basic non-direct interaction	1	0.167	9	9	4	2.25	2
		Social media	2	0.333	18	18	2	9	9
		Advanced direct interaction	3	0.5	27.5	28	3	9.33	9

Appendix A The detailed rating scores of quality dimensions (continued)

	<i>Total rate for each dimension</i>					<i>Total points for each dimension's classification after approximation</i>	<i>Number of items in each classification</i>		<i>Maximum number of points for each item</i>
<i>Informational</i>	58	<i>C</i>							
		General banking information	1	0.067	3.867	4	3	1.333	1
		Contact information	2	0.133	7.733	8	5	1.6	2
		Filtered information	3	0.2	11.6	12	3	4	4
		Reports and branches	4	0.267	15.47	15	5	3	3
		Banking service information	5	0.333	19.33	19	5	3.8	4
<i>Accessibility</i>	162								
		Low importance	1	0.333	54	54	4	13.5	14
		High importance	2	0.667	108	108	2	54	45
<i>Navigation</i>	176								
		Basic Navigation Features	1	0.333	58.67	59	7	8.429	8
		Advanced Navigation features	2	0.667	117.3	117	9	13	13
<i>Content</i>	136								
		Basic Content (Text)	1	0.167	22.67	23	4	5.75	6
		Multimedia	2	0.333	45.33	45	2	22.5	23
		Update	3	0.5	68	68	2	34	34
<i>Customisation</i>	125								
		Basic	1	0.333	41.67	42	2	21	21
		Advanced	2	0.667	83.33	83	3	27.67	28
<i>Security</i>	220								
		Low importance (indirect features)	1	0.167	36.67	37	4	9.25	9
		Basic (moderate)	2	0.333	73.33	37	5	7.4	7
		Advanced (high)	3	0.5	110	110	11	10	10

Appendix B The items measured by using other tools rather than direct revision

<i>Dimension</i>	<i>Item</i>	<i>Tools used to measure the attributes</i>
Navigation	Number of errors	<p>http://validator.w3.org/</p> <p>The Markup Validator is a free service from World Wide Web Consortium (W3C) that allows users to check the validity of XHTML and HTML and other web documents such as SGML or XML DTD. The Markup Validator system is a very important step for site usability and browser compatibility, which has a great effect on saving money and time and consequently improves the quality.</p>
Accessibility	Size, speed	<p>http://sitespeed.me/en/</p> <p>Slow responsiveness website will discomfit and defeat users, sending them to other sites. However, faster website will keep the users more engaged rather than keeping them waiting to load images or scripts.</p> <p>Developers always wish to optimise their websites and reduce hosting costs and bandwidth and as a result rank higher in search engine results. The Site speed website is easy to use: Simply enter the URL for the specific page and then click the button, and the size and speed load time will appear in the end section of the Site speed website.</p>
Content	The number of times the website was updated each year	<p>www.archive.org</p> <p>There is growing awareness and knowledge among libraries, which ensures that historical records are available for all researchers. Backing up and archiving data is essential for website owners, and helps designers to better understand the movement in shaping websites in the past in order to create better ones in the future.</p> <p>Internet archive is a free service provided to the public in order to access collections of digitised materials. It is very easy to use, you only have to access the site archive.org and will notice the search box, in which you enter the link (e.g., www.yourwebsite.com) and then press enter on your keyboard. You will then notice the appearance of a new page, which is the archive of your website, from the entire time of its construction until two days prior to today's date.</p>
Accessibility	Determining the number of internal and external links	<p>http://smallseotools.com/website-links-count-checker/</p> <p>Small See tools is a free service tool that allows users to check multiple issues such as page authority, link tracker, link analyser tool, broken link checker, etc. Link count check is one of the free tools that can be used to identify the number of internal and external links; simply enter the exact webpage that you want to analyse, then the result will be displayed on the screen.</p> <p>It is recommended for website owners to check the number of external links as a starting point to eliminating pages that may damage the reputation. This tool is particularly helpful if the website owner wants to exchange links to avoid purchasing unneeded advertising and to ensure quality. It can also be used to check the Google rank in order to determine if the Google page rank is fake or authentic and to check if there is a benefit from publishing a link or not.</p>