

# Evaluate the e-banking services on North Africa Bank: Case of Tripoli branch

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## Abstract

Coping with the latest information communication technology by organizations becomes one of this era aspects. This study aims to study the e-banking services in the North Africa Bank in Libya. The quantitative approach is followed to identify the impact of six assigned factors on the implementation of e-banking in North Africa Bank. Four factors that economic characteristics, human capital, political and regulatory environment, and ICT infrastructure and services have revealed a significant influence on the implementation of the e-banking in the bank. The result of this study paves the fertile ground to make the optimal decisions toward assessing the level of bank readiness.

*Keywords:* E-banking, economic characteristics, human capital, political and regulatory environment, ICT infrastructure and services

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## I. INTRODUCTION

The globe has witnessed a rapid developing in the field of Information communication technology during the last decade [3]. Electronic government concept is one of the outcomes of this development. In this regard, adopting the e-government concept by several countries has tied to the capability of implementing a complete or partial e-government concept [4]. The Libyan government has paid high attention toward improve its public institutions services, providing wide services to the public by using the latest techniques [5]. An initiative toward penetrating the era of information technology has adopted by The Ministry of Communications and Informatics in 2011. This initiative aims to transform the government services from the traditional concept to the e-services by employing the latest development in information and communication technology. In 2011, Price Waterhouse Coopers (PWC) has awarded a tender to execute the e-strategy of Libya. Later in 2012, PWC has got the permission from the prime minister to start executing the project. According to the execution phases of the project, ten milestones have identified to be achieved during the period from 2013 to 2018 [6, 7].

According to the UN e-government development report; Libya country has ranked 118 globally as shown in table (1) [8]. The orientation toward implementing the e-government in Libya is still restricted to the Libya e-strategy initiative, as well as the progressing still cloudy. North Africa Bank (NAB) is considered as one of the government banks within

the country. Since its foundation, NAB strived to provide a multiple and modern banking services, but the lack of the bank to keep pace with latest technological developments seems evident. With a total of over 54 branches within the country, but the e-services still limited to issuing ATM cards only. Establishing a new era of the e-services is more related to the general orientation of the government toward adopting an e-government concept. In this regard, NAB as one of the financial government institutions is tied to the e-strategy initiative, which required a well prepared from the government institutions toward implementing the fully e-government concept by 2017. This paper aims to evaluate the readiness factors that impact the e-banking implementation by the North Africa Bank (NAB).

## II. E-BANKING CONCEPT

Electronic banking can be determined as the utilization of electronic supplying methods for banking commodities and services, and a subcategory of electronic finance. The primary electronic delivery methods are the Internet, wireless communication networks, automatic teller machines, and telephone banking [9]. The Internet banking is a subcategory of e-banking that is mainly conducted by methods of Internet. The phrase transactional e-banking is utilized to differentiate the utilization of banking services from the simple providing of data [10]. Electronic banking services are proposed in two major methods: either conventional brick or mortar bricks amalgamate conventional and electronic supplying methods, or banks distribute their commodities and services via electronic delivery methods without having an affiliate network [11].

These banks are known as virtual banks. The deposit and withdrawal of cash can be done via ATMs. Establishing licensed virtual banks can be done in three steps. First, they can be formed as a new independent virtual bank by gaining a license from the banking controller. Second, present banks can form virtual banks as self-funded banks within a bank holding corporate framework. Thirdly, a traditional bank can be alteration into a virtual bank under its present authority. Another method is forming a virtual bank via the formation of trade name virtual banks. These are formed as separately functioning parts of present banks without an independent authority [12]. The electronic money commodities are closely referred to e-banking performance. Determinations of e-money practiced by authorities may differ, primarily because of unceasing technical innovations. The Bank for International Settlements (2010) determines e-money as prepaid payment systems for performing computer networks like the Internet. E-money varies from e-banking because balances are not retained in financial accounts with financial organizations.

### **III. E-BANKING DEVELOPMENT**

The technological turnover in the utilization of the Internet has affected on world banking activities and financial rules, the expansion of computer access, together with innovation in banking services and approaches, has developed pace in productivity, costs and customer assurance in banking mechanisms [13]. These improvements are represented in many commercial banks which deliver e-banking services to their individual consumers. The online banking services delivered by these banks incorporate investigations for account balances, interest rates and exchange rates, practices for credit equipment, appeals for credit cards, payment of bills, cash transferences between accounts and announcement of alteration of address. Moreover, the majority of banks thinks up of the next stage in their e-banking mechanisms to more development of customer services [14].

### **IV. CHALLENGES OF E-BANKING IMPLEMENTATION**

The e-banking services are progressively beginning to be part of the business environment. The evolvement of information technology, the ever transforming customer lifestyle and needs, and liberalization of the financial department have assisted to substitute firm competition amid financial organizations. To completely use the perspective of e-banking services, banks ought to be capable of appreciating all feasible advantages that may originate from the representation of e-banking equipment. Information relating to the equipment delivered by the banks are usually posted on their websites. E-banking provides banking services outside of the usual opening hours [15]. It has successfully opened banks for business

24-hours a day. The consumers can perform their daily banking activities without standing in a queue. It is mainly advantageous to consumers who have a difficult to keep track of their funds [16].

Moreover, several banks deliver PC-oriented home banking commodities and services to implement a variety of e-banking activities at home. E-banking delivers electronic services that authorize the customer to check the balances in their accounts, transfer cash amid accounts and much more services. Malhotra and Singh (2011) discovered that the majority of banks in India deliver customer correspondence and balance inquiry while in Oman Country, the majority of the bank consumers signified that they utilized e-banking equipment to make statement requests and to perform service disbursements. In the USA, e-banking raised considerably between 1998 and 2000 when roughly 8% of all households were allegedly utilizing e-banking services. The households ranked the capability to consider cheque clearings and account balance information. Bank consumer readiness and encouragement to practice e-banking may be considered utilizing the technology acceptance pattern [17]. The model is by the theory of reasoned action. Chang (2003) discovered that the practice of e-banking is affected by gender, age, marital status and the extent of acquaintance with e-banking and by the qualities of the banks [18].

### **V. EVALUATING FACTORS**

E-Government promises to increase the overall functionalities and businesses of any government[29]; however, this vision is not without several serious road blocks [19]. The complexity of employing and maintaining e-Government to promote these services are increasingly high that generally in most governments, obtaining a true e-Government is extremely hard and sometimes impossible [20]. Country such as Serbia with various obstacles is the best example for this thesis. Problems to implementing and increasing of existing e-Government prevent this country to be able to well establish e-Government services and features. Malaysian's transition towards e-government was only available in the early 80's with the intention of moving the US government into a world-class user of information technology [21].

Starting from 1957 the year of establishing the concept of e-government in Britain [22]. Several authors have paid attention toward evaluating the main dimensions of establishing an effective e-government, which able to meet the expectations of users [23]. The last two decades have witnessed a turnout interest from many developing countries, transformation from the traditional approach of managing the communication information to the new era of electronic communication information. In this regard, assessing the readiness of governments toward implementing the e-government has filled by many

researchers. Mutula and Van Brakel (2006) have identified five dimensions of assessing the e-government readiness; these dimensions form an integrated framework for evaluating organizations toward implementing an effective e-government, their five dimensions were as follows [2]: Enterprise e-readiness segment; Human resources readiness segment; Information readiness segment; ICT readiness segment; and External environment readiness segment.

Alghamdi, Goodwin, and Rampersad (2011) have structured six dimensions for assessing the readiness toward implementing e-government; their framework was focused on user access dimensions, e-government program dimensions, ICT architecture dimensions, business process dimensions, ICT infrastructure dimensions, and human resource dimensions. In addition to ignoring organizational issues, existing tools do not place sufficient emphasis on e-government considerations. Studies of e-government framework assessment point out that some e-readiness tools do not comprise e-government in their assessments [24]. These tools mainly evaluate e-services and accessibility, support and usage of ICT [25]. E-readiness assessment tools are inadequate in considering factors relating to e-government, such as culture and technology acceptance of public officials [26], excellence of ICT infrastructure in government organizations, strategies, national e-government program architecture[29, 30]. There is insufficient research linking e-readiness and e-government implementation in a nation [27]. A concentration on the mainly specific issues to e-government when endeavoring to measure it is highly recommended [28]. This study has assigned six factors of evaluating the e-banking as shown in Figure 1, these factors have adopted from two previous studies that [1, 2].

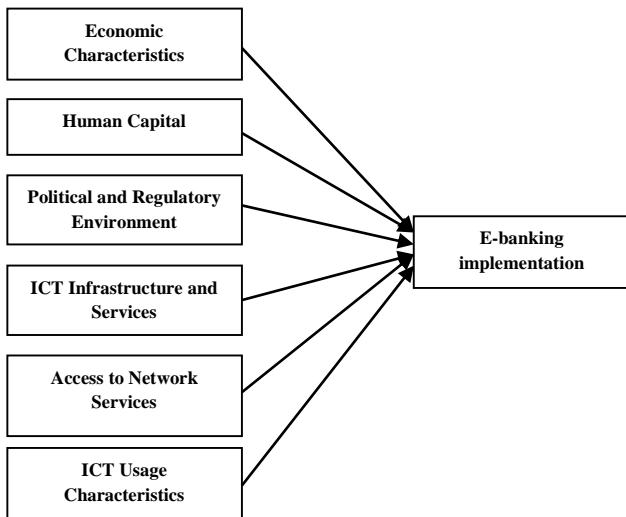


Figure 1: Conceptual Model

Source: [1, 2]

**VI. METHODOLOGY**

For the purpose of examining the readiness of NAB toward implementing the e-banking; the primary data is obtained by a survey instrument. The populations of this study represents total staff of the NAB headquarter in Tripoli, which are 1,700. The sampling technique of this study relies on Krejcie and Morgan (1970) approach in determining the proper sample size from a determined population. Hence, the sample size of this study is assigned to 313 staff. The correlation and regression analysis have employed by this study, the correlation test is used to examine the relationship among the study variables at significant level 5%. The regression test is used to examine the prediction from each dimension of the readiness to the implementation of e-banking. The value used for Cronbach’s alpha between 0.6 to 0.79 are the lower limit value of acceptability and the values between 0.80 to 0.89 indicate that the questions for the independent and dependent variables are more homogeneous.

Table 1: Reliability Test

Variables	Number of Items	Cronbach’s alpha
Economic Characteristics	5	.924
Human Capital	8	.896
Political and Regulatory Environment	8	.716
ICT Infrastructure and Services	8	.706
Access to Network Services	3	.806
ICT Usage Characteristics	7	.773
E-banking implementation	7	.760

The Cronbach’s alpha for Economic Characteristics (.924); Human Capital (.896); Political and Regulatory Environment (.716); ICT Infrastructure and Services (.706); Access to Network Services (.806); ICT Usage Characteristics (.773), and E-banking implementation (.760). In Table 1 shows Cronbach’s alpha the summary about this result shows acceptability and high internal consistency for these variables

**VII. RESULTS AND DISCUSSION**

The demographic profile for the 246 respondents were gathered in order to provide a clear understanding about the distribution of respondents in terms of gender, age, educational level, job position, and job experience. These properties were included in order to give demographic profile information on the sample. As a demonstrated in the Table 2 among 246 respondents, there were more male

(75.6%) than female (24.4%). In terms of age, Table 2 the majority of respondents was between the ages of 36 and 40, which represented 35.4% of the total respondents. The age of these respondents were almost equally distributed among the age groups of under 26 to 30 (19.5%), from 31 to 35 (29.3%) and above 40 years (14.6%), the respondent age group 17 to 25 only (1.2%). As for the respondents' educational level in Table 2 (46.7%) of the respondents had bachelor of education, (42.7%) were diploma, (3.7%) had a PhD, and (6.9%) other. About job position Table 2 middle got (59.3%), operating (8.5%), and top (32.1%). For the job experience of the respondents in Table 2, 1 to 3 years (69.9%), from 4 to 6 years (23.2%), and from 7 years and above (6.9%).

Table 2: Demographic Profile of Respondent

Characteristics	Frequency	Percentage
<b>Gender</b>		
Male	186	75.6%
Female	60	24.4%
<b>Age</b>		
17- 25 years	3	1.2%
26-30 years	48	19.5%
31-35 years	72	29.3%
36-40 years	87	35.4%
Above 40	36	14.6%
<b>Educational Level</b>		
Diploma	105	42.7%
Bachelor	115	46.7%
PHD	9	3.7%
Other	17	6.9%
<b>Current Job</b>		
Top	79	32.1%
Middle	146	59.3%
Operational	21	8.5%
<b>Current Org</b>		
1 year-3 years	172	69.9%
4 years-6 years	57	23.2%
7 years and above	17	6.9%

Table 3 illustrated that the overall mean for all the constructs ranged between 3.6504 and 3.9088. In specific, the standard deviation and mean for the Economic Characteristics were .81552 and 3.7919, respectively. Table 4.7 also illustrated that the mean for the Human Capital was 3.78, with a standard deviation of .7308. Additionally, the finding indicates (Mean = 3.7967, Standard deviation =

.5783) for Political and Regulatory Environment. Also the mean and standard deviation for ICT Infrastructure and Services and Access to Network Services are (Mean = 3.7093, standard deviation = .63094), (Mean = 3.6504, Standard deviation = .96125) respectively. For ICT Usage Characteristics (Mean = 3.8688, Standard deviation = .62359). And Table 4.7 also illustrated the mean and standard deviation for E-banking implementation (3.9088); (.61257), respectively.

Table 3: Mean and Standard Deviation

Variables	Mean	Standard Deviation
Economic Characteristics	3.7919	.81552
Human Capital	3.7891	.73083
Political and Regulatory Environment	3.7967	.57839
ICT Infrastructure and Services	3.7093	.63094
Access to Network Services	3.6504	.96125
ICT Usage Characteristics	3.8688	.62359
E-banking implementation	3.9088	.61257

A correlation analysis is used to define the relationship between all independent and dependent variables namely Economic Characteristics, Human Capital, Political and Regulatory Environment, ICT Infrastructure and Services, Access to Network Services, and ICT Usage Characteristics. Dependent variable is E-banking implementation. Pearson's correlation analysis is ranged between +1 and -1 and such value explains the strength of relationship between independent and dependent variables which has been to categorized in to low, moderate or high based on value of the Pearson's correlation analysis. Overall, Table 4 below shows all independent and dependent variables are significant to each other. The Pearson correlation showed that, Economic Characteristics, Human Capital, Political and Regulatory Environment, ICT Infrastructure and Services, Access to Network Services, and ICT Usage Characteristics, have positive relation with E-banking implementation.

Based on Table 5 shows the R values for economic characteristics, human capital, political and regulatory environment, ICT infrastructure and services, access to network services and ICT usage characteristics is .704. In addition, the R square value is 49.5% of six independent variables; all independent variables together show the variances in the E-banking implementation.

Table 4: Correlation Test

Factors		EC	HC	PRE	ICTI	ANS	ICTU	EBI
EC	Pearson	1						
	Sig. (2-							
HC	Pearson	.896*	1					
	Sig. (2-	.000						
PRE	Pearson	.714*	.723*	1				
	Sig. (2-	.000	.000					
ICTIS	Pearson	.407*	.560*	.793*	1			
	Sig. (2-	.000	.000	.000				
ANS	Pearson	.799*	.757*	.651*	.511*	1		
	Sig. (2-	.000	.000	.000	.000			
ICTU	Pearson	.903*	.839*	.635*	.380*	.857*	1	
	Sig. (2-	.000	.000	.000	.000	.000		.00
EBI	Pearson	.682*	.685*	.540*	.371*	.580*	.641**	1
	Sig. (2-	.000	.000	.000	.000	.000	.000	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The result shows that there are a positive significant relationship between economic characteristics, human capital, political and regulatory environment, ICT infrastructure and services, and E-banking implementation. Also the result indicated that there is a non significant relationship between access to network services, ICT usage characteristics, and E-banking implementation. Based on Table 5 that the coefficient level in beta for variables (i.e economic characteristics, human capital, political and regulatory environment, ICT infrastructure and services, and E-banking implementation are .191, .291, .062 and .104 respectively), which is positive, and significant correlation  $p < 0.05$  between the economic characteristics, human capital, political and regulatory environment, ICT infrastructure and services, and E-banking implementation. Thus, the results are positive and there are significant relationships, which supports the role of these four dimensions, economic characteristics, human capital, political and regulatory environment, and ICT infrastructure and services can contribute to the implementation of E-banking are accepted. In contrast with that, the finding indicated that there are no relationship between access to network services, and ICT usage characteristics on E-banking implementation. The finding indicated that, the

coefficient level in beta for variables (i.e access to network services, and ICT usage characteristics are (.015) and (.066) respectively), which are no significant relationship between access to network services, and ICT usage characteristics, and E-banking implementation

Table 5: Regression Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.577	.264		5.974	.000
EC	.191	.118	.555	4.625	.011
HC	.291	.104	.347	2.810	.005
PRE	.062	.116	.158	2.531	.050
ICTIS	.104	.244	.107	5.110	.013
ANS	.015	.063	.024	.241	.096
ICTUC	.066	.128	.067	.514	.608
R <sup>2</sup>	0.495				

a. Dependent Variable: EBI

The current findings have contributed to theory development and literature on implementing the E-banking. The present study contributes to the body of literature by responding to the need for empirical study on the main factors that influence the implementation of E-banking in North Africa Bank in Tripoli, Libya. The research has indicated how the e-banking performance has begun to be the concentration of several states the globe over, for different causes. Firstly, the turnover in ICT has put tension on states to illustrate social inclusivity, develop service delivery and encourage democratic and comprising governance. In addition, states are being called upon by nationals, improvement associates, opposition parties and civil community to illustrate responsibility and continuity in their activities to give reasons for their proceeded stay in authority.

**VIII. CONCLUSION**

The results have a number of practical implications for North Africa Bank. In the side of assessing the reasons behind the lag of implementing the e-banking, managers of the bank must be aware for four factors that have the significant impact on the implementation. The economic characteristics, human capital, political and regulatory environment, and ICT infrastructure and services have the significant influence on the implementation, as well as the

bank management may refer to the impacted factor to evaluate the implementation delay. This study has found that four factors that economic characteristics, human capital, political and regulatory environment, and ICT infrastructure and services and significant and positive impact on the bank readiness toward implementing the E-banking. Meanwhile, access to network services and ICT usage characteristics revealed a non-significant impact on the implementation readiness.

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