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## Factors That Influences the Adoption of E-Commerce in the Ghanaian Banking Industry

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### Abstract:

*The liberalisation of the banking and telecommunication sectors in Ghana has resulted in the increase in the number of banks and internet service providers in the country. Adopting technological developments over time, banks in Ghana have gradually shifted from dependence on physical presence of clients for financial transactions to branchless and e-banking. In addition to improvements in services and products, banks also operate in an environment of e-commerce in which some business transactions are performed using telecommunication channels. Various factors have been reported to influence the adoption of e-commerce in Ghana. This study considers factors which influence e-commerce adoption in the banking industry in Ghana.*

**Keywords:** E-commerce, e-banking, e-readiness

### 1. Introduction

Calls for innovation in businesses, including financial services, have been made alongside improvements in technology<sup>1</sup>. E-commerce is the conduct of commercial transactions using telecommunications networks<sup>2-5</sup>. These transactions include information exchanges, marketing, buying, selling, and maintaining business relationships<sup>2, 5</sup>. Due to differences in existing technologies, the conduct of e-commerce varies across countries. There is a shift from dependence on electronic data interchange (EDI) to internet-based transactions, and this has further affected the meaning of e-commerce across different countries<sup>6, 7</sup>. The forms that e-commerce takes include business-to-business (B2B), business to client (B2C), and business to government (B2G)<sup>8</sup>.

An important factor in the conduct of most economic activities including e-commerce is a channel for financial flow, mostly provided by banks. Banks are legally mandated institutions that manage funds<sup>9</sup>. Globally; the banking sector has witnessed modifications over the years<sup>1</sup>. The evolution of banking services has been in response to client demands and technological improvements. In Ghana, the decision by the Bank of Ghana to liberalise the financial sector is credited for the increase in the number of banks from 1 in 1874 to 34 as at December 2016<sup>10,11</sup>. Of significant note is the provision of traditional and new banking services to clients using an electronic channel, and known as electronic-banking<sup>12</sup>. This has resulted in a shift from traditional banking practices and services to include internet banking, mobile banking and the use of ATMs<sup>1</sup>. With e-banking facilitating branchless banking, it has reduced the need for the physical presence of clients as previously required for banking transactions<sup>13</sup>.

E-banking services have grown from *information-push* systems, through *information-download* systems, to *full-transactions* systems which allow clients to initiate transactions to which their bank provides the services requested<sup>14</sup>. Banks now provide some of its clients with tailored e-banking services; in response to the recognition of e-banking as a better tool for banks to gain an edge in its competitive market. In Ghana, e-banking was introduced in the 1990s, and services include checking account balances, funds transfer, payment of bills, and requesting for account statements<sup>14</sup>.

In Ghana, the introduction of the National ICT for Accelerated Development policy by government in 2003 is seen as a deliberate effort to facilitate ICT based development including e-commerce<sup>3</sup>. However, the technological capabilities of banks in influencing e-commerce is affected by the broader technological conditions of the country in which the bank operates<sup>3</sup>. This is in addition to individual differences which make banks differ in their facilitation of e-commerce<sup>3</sup>. The importance of e-commerce includes a reduction in transaction costs, creation of ICT business employment opportunities, and improvement in efficiency in commercial transactions<sup>1, 15-17</sup>.

Different factors have been indicated as influencing e-commerce in the banking industry. Some include pre-adoption knowledge, internet accessibility, security of the online service, and a supportive environment as influencing e-commerce<sup>14</sup>. Others also report social networks, managerial capabilities and government commitment as influencing the adoption and use of e-commerce<sup>3</sup>. For this study, an assessment of factors which influences e-commerce in banks will be based

on the Perceived Organizational E-Readiness (POER) model, in which managerial, organizational and technological factors of banks would be considered<sup>3, 15, 18</sup>.

## 2. Materials and Methods

This study was conducted as a survey. The study population included all the 34 formally registered banks in Ghana. Using a confidence level of 90% and a 10% margin of error, a sample of 29 banks were selected using simple random technique. Targeted respondents were individuals with knowledge about the e-commerce and e-banking services of the bank. For primary data, a questionnaire was administered to the respondents and responses ranked using a Likert scale. Secondary data were obtained from existing literature to allow comparisons to be made from results obtained from the study. Results were presented as frequency tables.

The reliability test of all of the variables is presented in the Table 1. As can be observed from Table 1, all the independent variables passed the reliability test since the reliability values were all above 0.700. This suggests that the independent variables are reliable and the results obtained can be generalized.

Variables	Items	Cronbach's Alpha
Technology readiness (TR)	9	0.901
Organizational Commitment (OC)	3	0.877
Perceived Benefit (PB)	4	0.895
Competition Intensity (CI)	4	0.763
E-commerce Adoption (EC)	5	0.970

Table 1: Reliability Analysis

## 3. Results

### 3.1. Demographic Characteristics of Respondents

Out of the eight-seven (87) respondents selected from twenty-nine (29) banks, only seventy-eight (78) questionnaires were retrieved for the analysis representing a response rate of 89.7%. Table 2 presented the demographic characteristics of respondents. Most of the participants were operations manager (representing 30.8%). About 19.2% were branch managers, while others were Assistant Vice President, OG-2, OG-3, IT officers and clerks. Also, it was observed that most of the banks (representing 50%) have operated for over 10 years, while remaining respondents indicated their banks have operated for a period ranging between 4 to 10 years.

Again, 35.9% of the respondents indicated that their banks have between 15 to 20 branches. About 32% of the respondents noted that their banks have more than 20 branches. Finally, most of the respondents (representing 39.7%) are bachelor's degree holders, 30.8% are post-graduate degree, 15.4% have HND certificate and 14.1% are professional certificate holders. Majority of the respondents indicated that some of the e-banking product offered by their banks are ATM/Debit card services, transfer funds to other customers in different domestic banks, transfer funds between customers' accounts at the bank, email notifications services, request cheque books and initiating loan repayments.

Variable	Frequency	Percent (%)
Position		
Assistant Vice President	5	6.4
Branch Manager	15	19.2
Operation Manager	24	30.8
OG-2	6	7.7
OG-3	9	11.5
IT Officer	10	12.8
Clerk	9	11.5
Years in operations		
4-6 years	28	35.9
7-10 years	11	14.1
Above 10 years	39	50.0
Number of Branches		
6-10	10	12.8
11-15	15	19.2
15-20	28	35.9
Above 20	25	32.1

Variable	Frequency	Percent (%)
Education		
HND	12	15.4
Bachelor's Degree	31	39.7
Post-Graduate Degree	24	30.8
Professional certificate	11	14.1

Table 2: Demographic Characteristics of Respondents

Figure 1 presented the responses provided by respondents on the issue of customers patronizing e-banking services. As shown in Figure 1, most of the respondents (representing 79.5%) indicated that customers patronize their e-banking services while 19.2% did not know if customers patronize e-banking services.

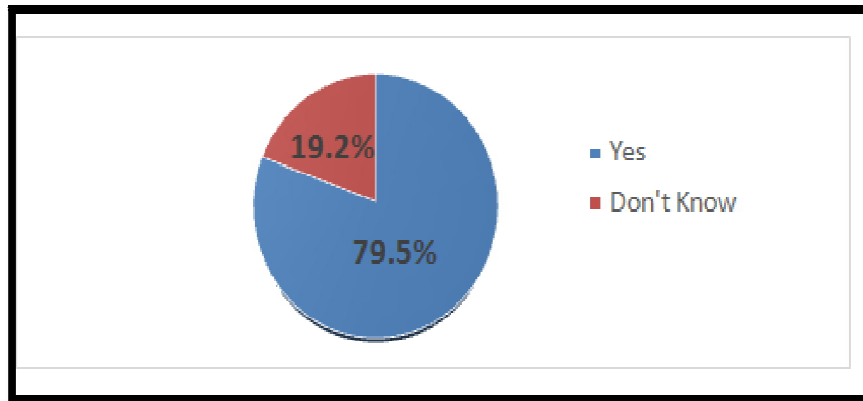


Figure 1: Are Customers Patronizing E-Banking Services

### 3.2. Multiple Regression Analysis Results

Before conducting the multiple regression analysis, a test for normality, linearity, multicollinearity, homoscedasticity and checking outliers were performed. Based on the test conducted it was shown that the data used satisfied all the requirement of multiple regression analysis. Table 3 presents the Analysis of Variance results. As can be observed from Table 2, the adjusted R-square obtained was 0.780. This implies that 78% of the variations in e-commerce adoption can be explained by the independent variables (technology readiness, organizational commitment, perceived benefits and competition intensity). Also, overall regression model obtained a F-statistic of 68.455 with a p-value of 0.000. This implies that collectively all the independent variables included in the model have significant effect on e-commerce adoption.

Table 4, represents estimated model. As can be observed from Table 3, all the independent variables have a positive effect on e-commerce adoption. Three out of the four independent variables had a p-value which was below the significance value of 0.05 and they are technology readiness, organizational commitment and perceived benefit. Thus, technology readiness, organizational commitment and perceived benefit have a significant effect on e-commerce adoption. It can be noticed that competition intensity had a p-value greater than 0.005 suggesting that it does not influence ecommerce adoption.

Model	Sum Squares	of	df	Mean Square	F	Sig.	Adjusted R squared
Regression	24.220		4	6.055	68.455	.000	0.780
Residual	6.368		72	.088			
Total	30.588		76				

Table 3: Anova Results

a. Dependent Variable: E-Commerce Adoption

b. Predictors: (Constant), Ci, Tr, Oc, Pb

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-2.116	.462		-4.584	.000
TR	.640	.185	.542	5.464	.000
OC	.704	.113	.544	6.253	.000
PB	.734	.143	.537	5.120	.000
CI	.161	.145	.111	1.117	.268

Table 4: Estimated Model

Table 4 presents the relative importance index (RII) result on barriers to ecommerce. As can be noticed from Table 4, all the sixteen (16) challenges to ecommerce adoption obtained a RII score above 0.5. This suggests that respondents identified all the sixteen (16) factors as challenges to ecommerce adoption. However, the top five challenges to ecommerce adoption are as follows: cost factors (RII=0.930), reduction in customer – bank relationship (RII= 0.926), internet support systems (RII=0.921), reduction in customers trust in bank (RII=0.894) and limited skills base of staff (RII=0.894).

Challenges	RII	Rank
Lack of applicability to business	0.782	15
Preference for traditional transacting methods (paper-based transactions)	0.802	13
Enabling factors (ICT skills, qualified personnel, network infrastructure)	0.785	16
Cost factors (of ICT, network, software, e.g.)	0.930	1
Security and trust factors	0.881	6
ICT competencies in business firm	0.881	6
Internet support systems	0.921	3
Lack of familiarity	0.862	10
Cultural reluctance	0.869	9
Perceived customer readiness	0.827	12
Reluctance of companies to network with other companies	0.808	13
Lack of executive support	0.846	11
Lack of Technical and managerial skills	0.881	6
Limited skills base of staff	0.894	4
Reduction in customers trust in bank	0.894	4
Reduction in customer – bank relationship	0.926	2

Table 5: Barriers to E-Commerce

#### 4. Discussion

This study examined the factors that influence ecommerce adoption in the banking industry. Technology readiness had a positive effect on ecommerce adoption. This implies that banks with good telecommunication infrastructure and highly specialized and knowledgeable IT employees are likely to adopt ecommerce in their operations. This finding is consistent with previous studies such as Lin & Lin (2008); Morrison & King (2002) and Wang & Cheung (2004).

Their studies revealed that companies with sufficient level of information technology resources have increased their chances to successfully adopt e-commerce. Also, the study showed that organizational commitment has a positive effect on e-commerce adoption. This result suggests that banks with consistent work practices and existing beliefs have higher chance of adopting ecommerce in their operations. This finding is consistent with the findings of Al-Qirim (2005), Gibbs & Kraemer (2004). Perceived benefit has a positive effect on ecommerce adoption. This means that banks will adopt ecommerce only if it has more advantages than previously used technology. This finding is consistent with the findings of Lin & Lin (2008) who found that higher the level of expected advantages of e-commerce adoption will promote the use of e-commerce by firms.

#### 5. Conclusion

Based on the findings from the study, it can be observed that the adoption of e-commerce by banks in Ghana is influenced by factors such as technology readiness, perceived benefit and organizational commitment. The study also established that the main challenge to ecommerce adoption among banks is the cost factor of ICT, network and software.

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