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RESEARCH ARTICLE

ANALYSIS OF IMPLICATIONS OF DIGITAL INNOVATION IN THE BANKING INDUSTRY OF PAKISTAN

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ABSTRACT

With the transformation of technology, the banking industry has also changed in terms of innovations in the digital era. This article has been aimed at analysis of implications of digital innovation for banking industry of Pakistan has been conducted. The objectives of this article included: a) analysis of literature regarding digital innovation in the banking sector, b) evaluating the extent to which banks in Pakistan have embraced electronic banking, c) analyzing the influence of digital innovation on performance of banks in Pakistan and d) proposing recommendations to banks for adopting successful digital innovation in Pakistan. This study has been conducted through primary data collected from 300 employees of 5 major banks in Islamabad. The survey has been personally administered that generated 94.33% response rate. This study found that Pakistan's banking industry has also been going through digital transformation. It was found that from cost reduction to increase in customer base and profitability, digital innovations and internet do have impact on banks. This study found that banks do face challenges from multiple perspectives such as investment availability, availability of technology and customer acceptance. The technological adoption and innovations reduce cost of banking operations, increase banks' profitability and enhance its customer base.

INTRODUCTION

Technological innovation has largely changed the scope and perspective of business across several industries in the world. Generally, innovations can be understood in following terms (**Biernacki, 2013**): a) it refers to the introduction of a new product or series of new products that have not been introduced yet, b) it refers to the new methods of production or business that has not been introduced yet, c) it opens new markets that have not been dealt in the industry yet, and d) it may refers to the acquisition of new resources for production. One of the products of digital innovations is the electronic banking that has been recognized as one of the contemporary modes of banking system (**Hyun and Steege, 2013**).

Research Problem

Financial innovations can be explained into three categories (**Biernacki, 2013**).First represents the category of products and services that are not offered yet in the market. Second, it may also represent the new channels of distribution for existing products and services. Third, it may also represent the new processes or business modes for achieving organizational objectives (**Biernacki, 2013**). The digital innovations in the financial industry have emerged electronic banking system by which banks offer products and services through internet or related technologies (**Chang and Hamid, 2010**). The technology has changed rapidly through development of internet that has also impacted the performance of banking industry. In this article, analysis of implications of digital innovation for banking industry of Pakistan has been conducted. Although several studies have been conducted regarding electronic banking innovation (**Alsajjan and Dennis, 2010; and Chang and Hamid, 2010**), but the contribution of literature from perspective of Pakistan's banking industry is not sufficient. Therefore, this article is going to fill gap in literature.

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Objectives

This particular study has addressed following objectives: a) analysis of literature regarding digital innovation in the banking sector, b) evaluating the extent to which banks in Pakistan have embraced electronic banking, c) analyzing the influence of digital innovation on performance of banks in Pakistan and d) proposing recommendations to banks for adopting successful digital innovation in Pakistan.

Literature Review

The rapid development of digital innovation within financial industry has changed the way banks and other organizations used to operate. These innovations are largely visible in the banking industry and impacted the ways this industry traditionally operates. There has been a considerable literature steam that suggests that the banking industry has been greatly affected by digital innovations specifically through growth of internet (**Akhlaq and Shah, 2011**).This literature stream suggests that the basis of this transformation is the development in the internet and advancement of mobile devices.

Biernacki (2013) has noted that future banking will be impossible to consider without internet or mobile services. There have been several studies that pointed out the tendency of banks to adopt digital innovations specifically internet. For instance, **Biernacki (2013)** has suggested that banks are more likely to adopt digital distribution channels for attracting customers. This study has also noted that 63% banks surveyed have adopted digital channels for providing their banking services to customers. However, this study has also noted that customers still prefer to contact their bankers personally for getting more complex banking products and services. The digital channels of banking have been used for accomplishing transactions as a complementary mode of distribution of baking services. Despite of the development of internet and other mobile devices, bankers still believe that the best channel to expand services is to drive customers to the banks (**Biernacki, 2013**). **Biernacki (2013)** has also noted that the traditional brick and mortar branches of banks still get 90% of total sales of the banks. This implies that digital innovations are not largely accepted by banks. However, it is also important to note that banks have been integrating the traditional and digital channels for delivering banking services to customers for enhancing their experience.

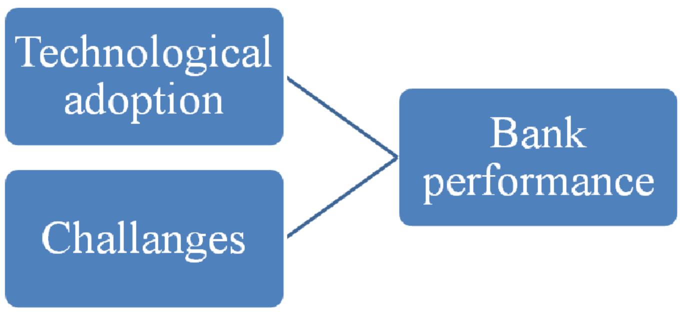
Sayar and Wolfe (2007) have suggested that before the development of internet, banks have already been adopting technology for delivering automated banking services in their back office operations. The digital innovations in the banking industry have started with the development of automated teller machines (ATM). This adoption has extended to the start of internet banking services. Several researchers have found that adoption of internet banking has resulted in cost reduction, high service quality and efficient banking services (**Rotchanakitumnual and Speece, 2003; and Kundi and Shah, 2007**).Others have noted that adoption of digital and traditional banking services is critical for retaining customer base, reducing cost, and attracting new customers and also for improving competitiveness of the banks (**Sayar and Wolfe, 2007**).

Jayawardhena (2004) has conducted research to analyse the implications of internet for service quality of banks. This study has revealed that five dimensions are critical for describing service quality of banks in perspective of internet. These dimensions include: a) website interface, b) access, c) attention, d) trust and e) credibility. The website interface and access are found to be more important than attention that is more associated with the personal touch. This implies that the provision of efficient website tools is important for enhancing service quality in the banks. This has also been elaborated by **Bughin (2004)** who suggests that internet is critical for attracting customers towards banking services. Internet has been regarded as one of the huge pool of information that is frequently and conveniently accessible. Several researchers have noted that information accessibility through internet has reduced the switching barriers for customers and paved way for customers to adoptinternet banking services (**White and Nteli, 2004; Akhlaq and Shah, 2011 and; Xue *et al*., 2011**).

The literature has also noted the barriers for banks for adopting internet banking mechanisms. For instance, **Bradleyand Stewart (2002)** have reported that decision of banks to adopt digital innovations is associated with the number of others banks adopting such innovations, external factors, customer demand, competitive forces in the industry and availability of technology. This has also been confirmed by other researchers who revealed that decision of adoption of technological innovations results in cost reduction, high revenues, high accessibility of banking services and expansion in distribution channels (**Xue *et al*., 2011**).Contrary to this, others have suggested that security issues, privacy concerns, and authentication issues (**Akhlaq and Shah, 2011**). This implies that the adoption of technological innovations and internet banking is beyond **challenges.Mols (2001)** has revealed that future orientation and management issues are critical for driving innovations in the banking industry. Besides this, **Bughin (2003)** has proposed that size and cost effectiveness are important decisions considered by banks for adopting digital innovations. In the same perspective, **Furst *et al*. (2002)** have found that larger banks are more likely to adopt digital innovations and internet for long time than smaller banks. Moreover, larger banks are also likely to provide wide range of banking services via internet than smaller banks. On the other hand, **Flavian *et al* (2004)** have noted that digital innovations and internet have enhanced the accessibility of wide range of banking servicesby customers. They further noted that internet banking has also enhanced the image of the banks.

Overall, the literature has noted that digital innovations have transformed the traditional banking to contemporary banking services. However, the literature regarding the adoption of online banking and other digital innovations is not largely developed from perspective of Pakistan. Therefore, this study has contributed in overcoming this literature gap.

Theoretical Framework



MATERIALS AND METHODS

For conducting this particular study, quantitative methodology has been used. The quantitative methodology has been effective for demonstrating the numerical evidence of extent to which banks in Pakistan have pursued digital innovations and online banking. The quantitative methods are appropriate to get the numerical interpretation of the challenges faced by banks in adopting online banking system.

This study has involved primary data that is collected from employees of banks in Pakistan. The primary data is the most fresh and original data that is collected directly from participants (**Bryman and Bell, 2011**). This study targeted the employee population of banks in Islamabad, Pakistan. From 5 major banks in Islamabad, primary data has been collected by using a close ended questionnaire. For collecting primary data, the researcher has selected 300 employees of 5 major banks in Islamabad. The survey has been personally administered that generated 94.33% response rate.

The results of this particular study have been analyzed through statistical and descriptive means.

RESULTS AND DISCUSSION

Demographics

From sample of 300 employees of banks, 279 appropriately filled questionnaires were gathered. It was found that 61% of the respondents were males whereas the rest of them were females. About age groups, it was found that most of respondents were between 35 to 44 years (39%). 26% respondents were between 25-34 years of age and 18% were up to 24 years of age. 9% were between 45-54 years of age and the rest of them were above 55 years of age.

As far as the service duration of respondents is concerned, it was found that 24% were serving the bank for less than 1 year. 18% respondents were serving the bank for 1-3 years. 39% respondents were serving the bank for 4-6 years whereas the rest of them were working in the bank for more than 6 years.

Correlations

For evaluating the relationship between technological adoption and bank's performance, correlation analysis has been conducted as below:

It is clear from the above table that technological adoption is positively related with the bank's performance. On the other hand, challenges in adoption of digital technology are less likely to be associated with the bank's performance. This implies that higher the challenges in adoption of innovations and technology, lower will be the performance of banks. On the other hand, higher is the technological innovation adoption; higher is the bank's performance.

Regression analysis

For analyzing the implications of technological innovations on bank's performance, regression analysis has been conducted as below:

It is clear from the regression analysis that overall model is significant. This implies that the digital innovations and technology do have positive impact on the performance of banks in Pakistan.

Correlations

		Bank performance	Technological adoption	Challenges in adoption
Bank performance	Pearson Correlation	1	.823	.211
	Sig. (2-tailed)	.000	.000	.000
	N	283	283	283
Technological adoption	Pearson Correlation	.823	1	.579
	Sig. (2-tailed)		.000	.000
	N	283	283	283
Challenges in adoption	Pearson Correlation	.211	.579	1
	Sig. (2-tailed)	.000	.000	.000
	N	283	283	283

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

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
dimension	.863[a]	.810	.721	1.26800	1.7

a. Predictors: (Constant), Technological adoption, Challenges
b. Dependent Variable: Bank performance

Table 1. Model Summary

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.846	5	4.212	2.308	.003
	Residual	355.874	195	1.825		
	Total	372.720	199			

a. Predictors: (Constant), Technological adoption, Challenges
b. Dependent Variable: Bank performance

Table 4.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.32	.012	.320	6.621	.000
	Technological adoption	.324	.059	.409	5.273	.001
	Challenges in adoption	.312	.049	.412	6.825	.000

a. Dependent Variable: Bank performance

This implies that the technological adoption has contributed in cost reduction, improvement in profitability and efficiency in the banking operations. However, it is also important to note that challenges in the technological innovations are also obvious in perspective of Pakistan. These findings are also aligned with previous researchers who found that banks n Pakistan do face challenges in adoption of new technology and internet (**Xue *et al*., 2011**).

Conclusion

This study was conducted to analyse the implications of digital innovations in the banking industry of Pakistan. For this purpose, quantitative and statistical methodology was chosen. This study has concluded that digital innovations have large scale implications for banks for improving their performance from multiple perspectives. From cost reduction to increase in customer base and profitability, digital innovations and internet do have impact on banks. From perspective of Pakistan, it has been concluded that banks do face challenges from multiple perspectives such as investment availability, availability of technology and customer acceptance. However, this study has also concluded that the technological adoption and innovations reduce cost of banking operations, increase banks' profitability and enhance its customer base. These results are in line with the previous studies that reveal that technological innovations have positive implications for banks (**Gan *et al*., 2006; and Xue *et al*., 2011**).

The results of this study are confined to the sample of 300 employees that has been selected from 5 major banks of Pakistan in the Islamabad region. This sample is less likely to represent the banks' perspective in the less developed regions of country. Therefore, the results of this study cannot be generalized to the overall population.

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Appendix

Please highlight your gender group

- Male
- Female

To which age group you belong?

- Up to 24 years
- 25 – 34 years
- 35 to 44 years
- 45 – 54 years
- 55 and Above

Please tell for how many years you have been serving in this bank?

- Less than 1 year
- 1 to 3 years
- 4 to 6 years
- Above 6 years

Please state your level of agreement with the following statements: (1 for strongly agree and 5 for strongly disagree)

	1	2	3	4	5
Technological innovations					
Data base of customers has been maintained in the digital system					
The bank has adopted the electronic customer relationship software					
The bank offers services through internet					
The bank offers online complaint service for customers					
The bank has online helpline for customers					
Internal departments of banks are integrated through software					
Challenges in adoption of technology					
Employees of bank are not ready to accept new technology					
The heavy cost of technology is the hindrance in digitalization of banking operations					
It takes high investment in training of employees for working on digital technology					
Customers are less likely to accept technological innovations in the banking services					
Bank's performance					
It is cost efficient for bank to pursue digital processes					
Employees behave more professionally through new technology					
The quality of products and services of banks has improved through digital operations					
The customer database has enabled management to understand customer demographics					
The digital system has enabled banks to provide personal attention to customers					
The profitability of banks has improved through technological innovations					
The cost of banking operations has reduced through technological adoption					
The efficiency of banking operations has increased through technological adoption					
It has become more easy through technology to get feedback from customers about banking services					

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