

FACTORS AFFECTING THE ADOPTION OF ICT IN BANKING SECTOR A SURVEY OF EMPLOYEES IN PUBLIC & PRIVATE BANKS OF D.I. KHAN KPK PAKISTAN

¹Muhammad Toseef, ²Najeeb Ullah, ²Qamar Afaq, ¹Yasir Hayat Mughal & ¹Gohar Nadeem

¹Department of Management Sciences, Qurtuba University of Science & IT Dera Ismail Khan

²Department of Public Administration, Gomal University Dera Ismail Khan

ABSTRACT: *Banking sector is the nervous system of the economy. The advancement of technology lead banking sector to operate globally with speed and accuracy. In this paper, a survey of banking sector of D.I.Khan, KPK Pakistan has been done to evaluate the behavior of employees towards the adoption of information & communication technologies to serve customers. Strategic advantages, risk, cost and training are the critical factors shaping employee behavior to support & adopt ICTs. The population of the study, consist of 758 employees of public & private banks. A sample of 175 was selected using stratified random sampling from the population. A structured questionnaire was used to collect data and 150 questionnaires were received out of 175 with 85% response rate from the bankers. Correlation and Regression analysis was run to investigate cause an effect relationship b/w predictors and criterion variable. The results of the study highlighted significant correlation of cost, risk, training and strategic advantages with ICT adoption. The results also indicated 45% variation in ICT adoption explained by the predictors. Moreover, strategic advantages & cost have highly significant role in decision to adopt ICT in banking sector of Dera Ismail Khan KPK Pakistan.*

Keywords: *Strategic Advantages, Risk, Training, Cost, ICT Adoption*

INTRODUCTION

Information and communication technologies are “the result of automation, controls and information production using computer, telecommunication, software and other equipment”. Combining these technologies, the information transmission takes place in an accurate mode and organizations are the beneficiary of these trends in the information and communication technology [1]. Authors in [2], argued that, the application of information & communication technologies (ICTs) have great influence on the business world, ICT products cover the whole business activities. ICT rapidly changing global production, work, business methods, trade and consumption patterns of enterprises and consumers. According to [3], the developments in information and communication technologies are significantly changing the stage of financial activities of a business. In [4], banks now employ different channels such as online banking, mobile banking and automated teller machine to deliver their services. These extreme developments have opened-up new debates, perspectives and delivery channels for banking products and services. Innovation in ICTs provided an effective channel of distribution for banks to utilize in service delivery [5,31,32]. State banks annual report (2003) mentions that, Information and communication technologies are the recent concept introduced in Pakistan. Credit cards, mobile banking, internet banking and cyber cash lead towards the effective channel for the delivery of services to the customers. The reason behind the late introduction of IT based services in Pakistan was due to reforms, cost, regulatory problems and lack of technological know-how.

LITERATURE REVIEW

Concept of ICT

According to [6], information communication technology and information technology are the two synonymous terminologies. Here the concept of information refers to “idea” generated by humans and communication is the movement of information from initial source towards the final source to transform receiver’s behavior. Some [7]

defined ICT as “the science and activity of processing, storing and sending information by using computers”. It was further explained that Communication Technology is the use of hardware and software to enhance communication. These technologies combine transmission, accessibility and operating information technologies. ICTs consists of multiple components like computer, internet and computing devices [8].

Technology Adoption

The concept of adoption is stated by [9] in following words, “adoption is usually an absorbing state, in the sense that we hardly ever observe a new technology being neglected in favor of an old one”. This is because the decision to adopt faces a huge assistance minus cost hurdle. Where technology adoption refers to “the choice to acquire and use a new invention or innovation”. According to [10] ICT adoption refers to “a stage in which decisions are to be taken about whether to adopt a new IS/IT”. Others [9] defined term technology adoption as “the choice to acquire and use a new invention or innovation”. Moreover, adoption is usually an absorbing state and the contribution of new technology to economic growth can only be realized when, and if the new technology is widely diffused and used. According to others [11], technology adoption is a state of diffusion to the speed of growth and variation of productivity of the economy instead of innovation or invention for the welfare. Moreover, the history of diffusion of innovation can’t be limited to a small number of characteristics of overall slowness of the process and the variation rate of acceptance of technology. Adoption is usually an interesting situation, in the sense that we rarely observe a new technology being neglected in favor of an old one. This is because the decision to adopt faces a large benefit minus cost hurdle.

Factors of technology adoption

[12] stated that organizational environment and technology, influence to achieve the highest position. Multiple factors sever as a threat or an opportunity depending upon the situation and dealing, if dealt positively then creates many superior results on the other side if neglected, creates

problems for an organization. Organizational environment indicates methods of production, operations, policies, resources. Micro and macro factors around organization constitute an environment that shapes attitude toward the adoption of ICTs. The developments of technologies have gained attention from the last few years, which improved the ability of the companies to serve their customers more efficiently. Especially service-oriented technology has helped organizations to be more flexible and improve services to gain their customer as well as employee attention with satisfaction [13,14] stated that financial capacity, education, knowledge affects the adoption and usage of ICT in banks in a big way. Moreover, training programs are also essential to develop employee technical skill to take the fruits of ICTs in business. Therefore, it is imperative to have the proper environments within a firm.

Strategic Advantages

[15] found that information and communication technologies are proficient to offer business enterprises an extensive choice of potential for improving their competitive edge such as provide mechanisms for receiving access to new market opportunities and dedicated information services. A large power relationship with opponents, enable nations to control the course of situations. According to [16] Information technology becomes a strategic asset making the entire business adaptive and set for revolutionizing by connecting people, process and information to acquire outcome. [17] explains that technology brings advantages to the business and refers these advantages to the term, relative advantage "The degree to which an innovation is perceived as better than the idea it supersedes". [18] stated the importance of ICT, such as Internet banking services present expediency as well as advantages to the clients as they are able to access bank account from across the globe.

Cost

[19] acknowledged numerous factors of ICT adoption, resources like finance and workforce that have profound effects. The introduction of ICT infrastructure in business firms is dependent on the financial position of the firms. [20], argue that, in the present economic circumstance, there is a strong concern about ICTs investment and benefits received by the organization. Moreover, organizations are taking a thoughtful decision to invest in the information technology and identified cost-associated components like hardware, software, user training and supporting ICT user. [2], reasoned that ICT adoption in the business includes cost of implementation of networks, PCs, data storage, demonstration, servers, software, hardware and other peripheral devices. According to [3] use or innovation of new technology often involves huge cost of research, training, marketing. Cost has been seen from two angles, technology adoption cost and cost saved by using technology by customers and banks. Technology is the best solution to a number of issues and results in qualitative products or services, but also burdened organizations at the time of purchase.

Risk

Oxford dictionary defines risk as "a situation that could be dangerous or have a bad result". Further, explain the concept of risk in the business perceptive as, a person or business,

bank or insurance company's' willingness or unwillingness to lend money or sell insurance due to pay back capacity etc. Innovation generally refers to introducing something new with an intent either to increase value (either to customer or producers) to solve some problems. The new "things" include ideas, methods, digital content or devices [21]. Innovative computerize networks also provide loops and holes that expose the whole network. To avoid some risks a proper control system is the main concern in IT oriented branchless banking. Cash stealing, frauds and risk put a question mark on branchless banking that utilizes ICTs in their operations [22]. Nigerian banking sector identified that usages of ICTs active unauthorized user access in the form of fraud and other fake and wrong practices. These challenges are serving as an obstacle in boosting ICT based banking. The adoption of innovative technologies not provide justification for its adoption, knowledge and curative measure for handling of uncertain situations are also point of concern [23].

Training

Others [24], defined the term training as "the process that involves the acquisition of skills, concept, rules or attitudes to enhance employee performance". [25] explained the relation of training and technology in the words that, mostly training is intended for upgrading and improving employee technical skills, including basic as well as specific competencies. The majority of jobs today have become more complex than a decade ago. The emergence of computerized factories and offices, digital equipment's and other type of sophisticated technologies. There is a need of employee reading and computer skills. [9,28,29,30] suggested that adoption of new technology always a need for the employees to be trained to operate the new technology. His suggestion highlighted the importance of training in the effective utilization of adopted technologies. Employees as user of IT, requires intention, training and involvement, in IT process for the acceptance and adoption of IT.

METHODOLOGY

This research study was based on quantitative techniques to investigate the factors of information & communication technologies adoption in banking sector of Dera Ismail Khan KPK Pakistan.

Approach

Researches show that the survey approach to data collection is the "most frequently used mode of observation in the social sciences and the potential of survey is the questionnaire technique" [23]. In this study researcher used survey approach for data collection.

Population

Population is "a collection or set of all possible observation whether finite or infinite, relevant of some characteristics of interest" [26]. The population of this research paper consist of all bank employees (758) from both public (Bank of Punjab, NBP, The Bank of Khyber) and private Banks (HBL, MCB, UBL) in Dera Ismail Khan PKP Pakistan.

Sample

A sample of 175 was selected through Stratified random sampling procedures and after distribution of questionnaire 150 were filled and collected back, the rate of return remained 85%. The sample consists of 55 employees from private banks and 95 employees from public banks.

Data Collection

In this research paper, secondary sources were used for secondary data and structured questionnaire was used by first extracting variables and their related attributes from the wide literature survey. The questionnaire includes four independent variables, one dependent with 5-point Likert scale to record the responses.

Data Analysis

The process of data analysis converts data into meaningful information according to user. In this research paper, correlation and regression analysis were run to measure association, cause and effect relationship between the predictors and criterion variables by the researcher using SPSS 17.

Reliability Statistics

Variables	Cronbach's Alpha	N of Items
Strategic advantages	.960	07
Cost	.883	05
Risk	.901	04
Training	.850	05
ICT adoption	.902	05

The reliability of items were within range of Cronbach's Alpha 0.79 (Bryman & cramer, 2001). There was no need for the deletion of questionnaire items.

Hypothesis# 1: Predictors are highly correlated with Criterion-variable.

		strategic advantages	cost	risk	training	ICTs adoption
Strategic Advantages	Pearson Correlation	1				
	Sig. (2-tailed)					
Cost	Pearson Correlation	.694**	1			
	Sig. (2-tailed)	.000				
Risk	Pearson Correlation	-.300**	-.492**	1		
	Sig. (2-tailed)	.000	.000			
Training	Pearson Correlation	.065	-.066	-.004	1	
	Sig. (2-tailed)	.433	.423	.959		
ICT Adoption	Pearson Correlation	.579**	.199*	-.192*	.215**	1
	Sig. (2-tailed)	.000	.015	.019	.008	

The above table showed the association between predictors and criterion variables. Strategic Advantages have the highest value of $r=.579$ with $p\text{-value}=.000<.05$, indicating a highly significant correlation of strategic advantages with ICT adoption. Staff training came second having $r=.215$ with $p\text{-value}=.008<.05$. Similarly, te cost came third having $r=.199$ with $p\text{-value}=.015<.05$. The results indicating positive relationship the three independent variables with ICT adoption. The results indicated that Risk having $r=-.192$ with $p\text{-value}=.019<.05$. The results indicated the inverse nature of relationship between risk and ICT adoption in the banking

sector. So hypothesis were accepted because ICT adoption was found significantly correlated with predictors (strategic advantages, training, cost and risk).

Regression Analysis

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where "Y" indicates ICT adoption (dependent variable) α is constant

"X" indicates factors affecting ICT adoption

β is the regression coefficient, which may positively or negatively predict dependent by the independent variables.

Hypothesis#: ICT-adoption is predicted by the Predictors

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.673 ^a	.453	.438	.32546

a. Predictors: (Constant), strategic advantages, cost, risk , training,

The value $R^2=.453$ is showing that the predictors bring 45% variation in ICT adoption. Where the value of $R=.673$ is

showing the correlation between independent and dependent variable

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.704	4	3.176	29.982	.000 ^a
	Residual	15.359	145	.106		
	Total	28.063	149			

a. Predictors: (Constant), strategic advantages, cost, risk, training

b. Dependent Variable: ICT adoption

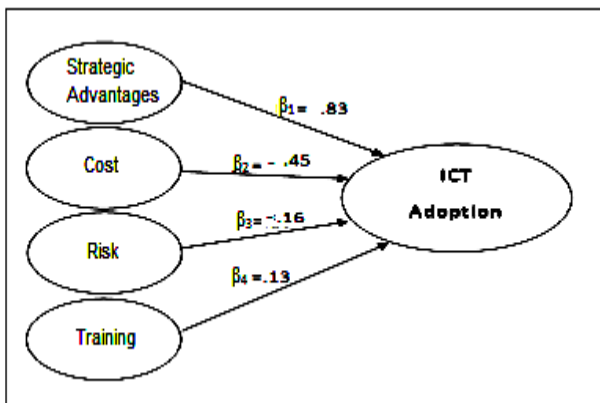
F-value: 29.982 which is greater than Mean square=3.176 with P-value=.000 showing highly significant regression of independent variables on ICTs adoption.

Coefficients of Regression

Model	Standardized Coefficients	T	Sig.
1 (Constant)		4.354	.000
Strategic Advantages	.835	9.647	.000
Cost	-.453	-4.769	.000
Risk	-.164	-2.313	.022
Training	.130	2.087	.039

The above table is showing that independent variable: strategic advantages, cost, risk and training are explaining the variation in dependent variable (ICT adoption). The values of regression coefficient (Beta) column for: strategic advantages bring (β_1) 83% variation in criterion variable with P-value=.000, cost bring (β_2) 45% variation in criterion variable with P-value=.000, risk bring (β_3) 16% variation in criterion variable with P-value=.022 and training bring (β_4) 13% variation with P-value=.039. less than .05. The results of the study indicated that strategic advantages and cost are the major predictors, while risk & training has minor role for the adoption of ICT in banking sector of Dera Ismail Khan Khyber Pakhtunkhwa Pakistan. Thus the bankers give preference to the advantages that ICT offer to the organization and also associated cost. Where the role of training and element of risk is also critical for taking decision to introduce technology in banking sector. So the hypothesis

Schematic Diagram of the study



should be accepted that: ICT adoption is predicted by the predictors

DISCUSSION

The banking sector is the backbone for the stability and growth of economy in a country. The study showed the real picture of employee behavior in banking sector of Dera Ismail Khan Khyber Pakhtunkhwa Pakistan, regarding decision to adopt innovative technologies to serve their customer across the globe. Moreover, empirical data was collected about strategic advantages, cost, risk and training. Findings of the study indicated that the use of ICT improves the quality of service thus enhancing the overall organizational performance. The findings of the current study are in line with the findings of [2,26,27], according to them ICT provide timely & accurate information which can be used for the strategic decision making for improving organizational performance. The study findings indicated that hardware, software and network implementation cost influence the behavior of employees for the successful implementation of ICTs, supported by [3] explaining that user support is based on the fact that ICT associated costs should be kept in mind for fruitful results from ICTs in banking sector. The findings of the current also revealed that privacy of information and enhancement of knowledge are the main point of concern in launching ICTs. According to [14] [4], technical problems and improvement of skills reduce the level of risk and improve the quality work of employees in successful organizations.

CONCLUSION

Globalization demands banking sector to operate across geographical boundaries, which is possible only through the electronic means of communion. This study was carried out with an objective to investigate (cause & effect) relationship between factors and information & communication technologies adoption in banking sector. The findings revealed that positive relationship between ICT adoption and strategic advantages, cost, risk and training. Meaning that, these factors bring variation in employee behavior and

intention to use ICTs in routine operations. The findings of this study indicated that strategic advantages & cost were the most influential factors in banking sector to adopt and Use ICTs. The relationship between research variables explained that competitive advantages and management of cost, risk and training is necessary for successful implementation of newly adopted technologies in banking sector. The inverse nature of relationship of risk and cost explained that as low as the cost and risk lead toward the maximum adoption of ICT. The concern for these factors provide base for banks to take multiple utilities and compete in globalized banking sector.

RECOMMENDATIONS

Financial institutions are well equipped to utilize multiple options offered by the adopted new information and communication technologies to work well for maximum satisfaction and mold their employee behavior. Awareness programs are necessary to explain the benefits to induce an employee training and reduce uncertainty among the bank employees to put them on track to use communication technologies.

- Purposeful technologies should be adopted, which gave multiple facilities to the users.
- Cost effective information and communication system should be launched that did not harm employees financially.
- User-friendly technology should be adopted in banking sector.
- Regular training programs should be carried out to improve the skills of employees and to meet the requirements of the adopted technology to use in more a efficient manner.
- Secure technology in terms of hardware and software should be adopted to gain employee trust and confidence to use technical IT based system.

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