

# The effect of technology perception of employees on organizational performance; in the public and private banks of Pakistan

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## Abstract

*This paper aims to explore the technology perception of employees and its impact on organizational performance while considering its inordinate influence on digital inclusion and divide. Age, gender, qualification and organizational type data of employees was collected from the public and private sector banks of Pakistan to assess the trends of employee's technology perception. This is a quantitative study in which 400 questionnaires were floated in the public and private banks; response rate was 70% with the usable number of 252 questionnaires. This study used SPSS to extract results of numerical data by employing descriptive statistics, T-Test and One-way ANOVA. The study leads us towards the acceptance and rejection of several propositions which further formed basis for concluding the findings. It was seen that there lie significant differences among employee with respect to their technology perception and so the varies its impact on organizational performance.*

## 1. Preliminary Considerations and Study Background

Today every individual is exposed to technology across the globe. The success and failure of every organization is somehow connected with it. No organization can assume to grab greater market shares without updating their systems and procedures and going hand in hand with the changing trends of technology. It is of inordinate importance to investigate the barrier on the way towards digital inclusion. State plays a vital role in bridging digital divide and increasing digital inclusion which is notably seen through the various strategies it employed to bridge digital divide. Perception plays vital role in modeling one's attitudes and behaviors. Technology Perception of employees play a vital role in bridging or creating digital divide which made us studies this. In Pakistan's public and private sector, it is seen that the elder employees tend to escape technological changes. They resist the technological change as per they reach in that phase of career where they are left with few working years before retirement. They usually find it difficult to learn in their very age group which proves to be a hurdle on the way towards digital inclusion which ultimately reduces organizational performance. A variety of studies are done across the globe in very dimension but in Pakistan no such work is published to date. A study was done in 2015, highlighted the literary gap to fulfil. This study was published in Emeraldinsight entitling "Multidimensionality: redefining the digital divide in the smartphone era" by Eun-A Park and Sangwon Lee. In this study mutidimensional approach was used to ascertain the smart phone divide. Another study was done in Australia in which socio-cultural differences in internet usage were studied. Its backed by a paper presented at the conference, in Spain. "International Assosiation for the Development of the Information Society 10-13 March, 2011". With special reference to Pakistan, this research dimension is a blind alley which must be enlightened with the facts and figures. This study will give a clear insight into the technology perception of employees among various age groups in public and private sector banks of Pakistan. Though previously extensive work was done in the domain of digital divide but the relationship of technology perception employees was not tested worldwide with an aim to ascertain the relationship between the computer and internet usage trend of employees and organizational performance.

## Technology Perception of Employees

There are manual work methods and their technological substitutes available which the employees are to adopt and due to generational divide, many difficulties are met on this journey. As per the generation varries so the perception of employees which model their attitudes toward certain things vary. Helsper relates generational differences with technology and concluded that the ability to use new technologies has a great impact by the generational differences (Helsper & Eynon, 2010). Individual's personal factor age plays a vital role in developing their capabilities necessary for the adoption and

learning of new set of skills (Hill, Beynon-Davies, & Williams, 2008). Employees' gender, experience, designated division and appointment were examined to analyze the research phenomena. It provided the evidence that the personal factors affect the employee's perception of information technology application, knowledge capacity and organizational performance (Kuo & Ye, 2010).

### **Organizational Performance**

Organizational performance is the way organizations performs to meet its objectives. It is a quantifiable measure to indicate the progress of the company (Hamon, 2003). Organizational performance can be assessed through company's efficiency and effectiveness in reaching its defined goals (Robbins & Coulter, 2012). Countries with less human capital and more technological dependence tend to succeed more than those having more human capital and less digital exposure. ICT skills affects the performance of employees and its absence leads to generational divide at workplace that reduces the Organizational Performance (Mankiw, Romer, & Weil, 1992). Bray and companions explored whether the employee's perception about organizational formal incentives, normative values, inter-employee trust and enabling knowledge technologies affect the organizational performance and found out that the perceptions of employees can affect the organizational performance positively or negatively (Bray & Konsynski, 2007). Studies show that impact of collaborative technologies positively influence the organizational performance and concluded that firm's performance can be enhanced using collaborative technologies through informational orientation (Meroño-Cerdan, Soto-Acosta, & López-Nicolás, 2007). Organizational innovation directly and significantly affects organizational performance (Ho, 2011). Drucker studied the employee's readiness to learn new technologies, adopted by their companies is influenced by their perception towards technology as innovation in not just a process that continues in isolation. Rather it is influenced by several factors out of which composition of employee's demographics is one (Drucker, 1993). As the previous studies state that reduced organizational performance is guaranteed if the employees are resistant towards the company's adopted technology. Hence the organizational performance can be enhanced by eliminating technology resistance (Leavy, 1998). Product and process innovation ensures the increase in organizational performance (María Ruiz-Jiménez & del Mar Fuentes-Fuentes, 2013). Literature takes us at the shore that the organization's performance can be enhanced by innovating its product, service and processes and by revolutionizing its administrative style.

### **Digital Divide**

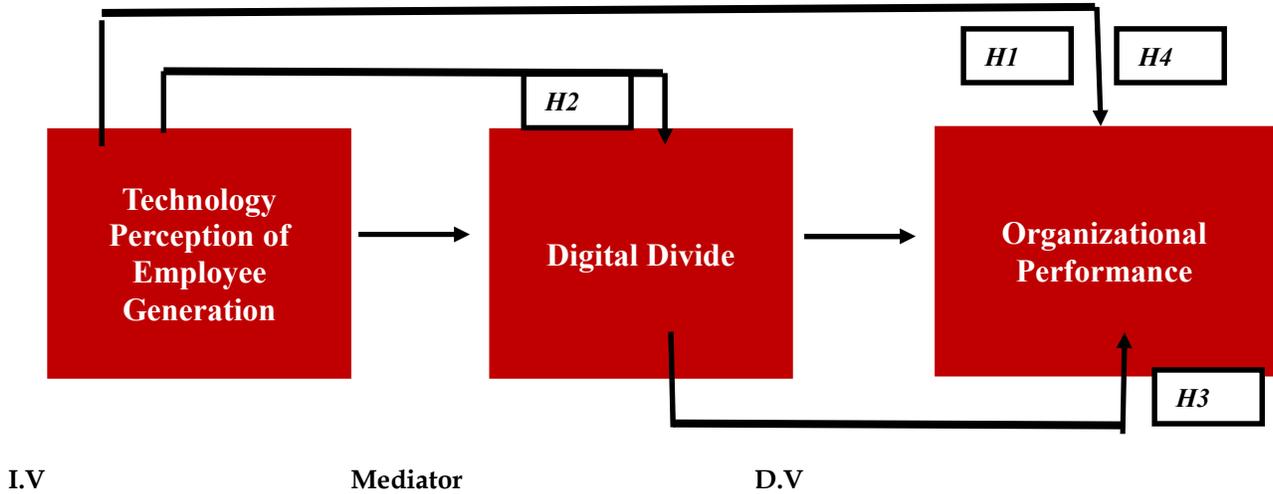
Digital divide at its simplest narration means the gap between "haves" and "have nots" of information. This vacuum appears due to the hindrance in the access to technology and the late technological diffusion effect due to social and geographical differences (Becchetti & Adriani, 2003). Dewan & Riggins concluded that "Digital Divide" is an access-based border between individuals on the grounds of ICT information. Individuals are not able to access computers or internet due to certain factors such as age, race, gender, geography, educational level, and awareness (Dewan & Riggins, 2005). In Generational Digital Divide this phenomena gets more intense when the older workers become unable to use or access ICT due to their reduced capacity to learn with a decline in their vision, hearing and manual dexterity. This generational effect hinder the performance of an employee at workplace (Today'sgeriatricmedicine.com, 2015).

Digital Divide is a gap among users and non-users of technology due to the variations in information technology access, usage and capability (van Dijk & Hacker, 2003). Approaching exploration of the digital divide in terms of the impact of demographic variables reveals how individuals who are disadvantaged in their internet ownership, access and usage are significantly similar to those individuals who can be demographically characterized as socially excluded in other, non-technological aspects of society (Selwyn et al., 2003). The consequences of differences among people on the basis of presence and absence of digital divide should be focused in order to increase the practicality of research (Mason & Hacker, 2003). Employee's various trends toward computer and internet usage affects their work attitudes. It was empirically and statistically found significant that the demographics of individuals play an important role in developing their perceptions which throws an impact on the organizational performance (Kuo & Ye, 2010).

**Theoretical Framework**

This study forms a conceptual framework based on literature. Table No. 2.1 shows the relationship between the variables and enable us to draw six hypotheses out of it.

**Theoretical Framework**



**Research Methodology**

**2.1. Research Design**

Business Research has several types with respect to approach, purpose, time horizon and method which channels a researcher toward an appropriate research design. This study is done through quantitative research. This is an explanatory study where remains a causal relationship between the independent and dependent variable. It tries to explain relationship between variables. It is the highest order research having the essence of both exploratory and descriptive research. Explanatory research connect ideas to understand cause and effect (Malhotra, 2008, p. 642).

**Data Collection**

In this study, primary data is used for which survey method was employed. The population of this study is banking sector of Pakistan including public and private banks. Selection of respondents is done through purposive sampling technique. Purposive sampling is used as per certain information is available with the specific type of people because only they have required information (Sekaran, 2003). Sample size of this study was 252. Response rate remained 70%.

**2.3. Data Measurement**

Measurement of variables is done by operationalizing the variables of the study. In this study, questionnaire was used with the close-ended statements on it. The study has three variables; Technology Perception of Employee Generation, Digital Divide and Organizational Performance. Technology Perception of Employee Generation is measured over ten statements used by the similar study. It was done by David E. Fleming and companions (E. Fleming, B. Artis, & M. Hawes, 2014) and questionnaire items were adopted from another study (Edison & Geissler, 2003). Digital Divide was measured against 7 statements from two papers referred respectively (Shenkar, 1987) and (Park & Lee, 2015). Organizational Performance is measured against ten statements over Likert scale which was taken from the study done by (Taherparvar, Esmailpour, & Dostar, 2014).

**3. Data Analysis and Results**

Data is analyzed using Factor Analysis, Regression Analysis, T-test and One-way ANOVA. In Factor Analysis, Kaiser-Meyer-Olkin (KMO) and Bartlett's test ensures that the analysis is appropriate. It is used to analyze the factor loadings so that they might be used in further proceedings of analysis. When minimum number of factors are needed to represent the set of data, Principal Component Method is appropriately used. Table No.3.1 depicts that the KMO value is greater than 0.5 with the significance level 0.000, this significance makes the factor analysis appropriate. Bartlett's test of sphericity

is a test statistic which examines the hypothesis if the variables are uncorrelated in the population (Malhotra & Dash, 2007, p.642) (Component Analysis is enclosed in the annexure).

**Table No 3.1. Kaiser-Meyer-Olkin (KMO) and Bartlett's test**

Kaiser-Meyer-Olkin (KMO)	Sig. of Bartlett's
.841	.000

### Hypotheses Testing

This study generates six hypotheses. All are tested using different test tools of statistical software SPSS version 22. Out of the six proposed hypotheses, five were accepted and one was rejected. H1, H2 & H3 were tested using Linear Regression whereas H4 used Multiple Regression Analysis. H5 was tested using One-way ANOVA and T-test was used to test the null hypothesis H6.

**H1: There is a significant relationship between Perception of Employee Generation and Organizational Performance.**

H1 is accepted because there exists a strongly significant relationship between Perception of Employee Generation and Organizational Performance. therefore, this hypothesis is accepted. Significance of Beta(.240) and F(15.258) is <.05 which is evident of its significance as depicted by Table No.3.2.

**H2: There is a significant relationship between Perception of Employee Generation and Digital Divide.**

Significance of Beta(.235) and F(14.626) is less than .05 that makes us accept H2 saying there is a significant relationship between Perception of Employee Generation and Digital Divide. Employees of public and private banks of Pakistan believe that technology perception of employees may result in Digital Divide.

**H3: There is a significant relationship between Digital Divide and Organizational Performance.**

Beta of H3 is .401 with the significance .000 and F values is 47.982 with the acceptable level of significance, hence H3 is also accepted. Digital Divide affects the performance of an organization as less technology is being utilized by them which serves in limiting the performance.

**H4: Digital Divide mediates the relationship between Technology Perception of Employee Generation and**

Regression Analysis						
Model		R <sup>2</sup>	F	Sig.	Beta	Sig.
Model 1 Organizational Performance	(TP) Employee Generation	.058	15.258	.000b	.240	.000
Model 2 Digital divide	(TP) Employee Generation	.055	14.626	.000	.235	.000
Model 3 Organizational performance	Digital divide	.161	47.982	.000	.401	.000
Model 4 Organizational performance	(TP) Employee Generation	.183	27.967	.000	.154	.009
	Digital divide				.365	.000

**Organizational Performance.**

### Table No.3.2. Regression Analysis

The analysis shows that the Digital Divide partially mediates the relationship between Perception of Employee Generation and Organizational Performance. Therefore, the hypothesis H4 is rejected. There are theoretical ties between Technology Perception of Employees & Digital Divide and Digital Divide & Organizational Performance which are also significant statistically yet we cannot declare the mediation as it was a partial mediation with the F value 27.967 and Beta .365.

Table No 3.2 presents the regression analysis through which H1- H4 are tested. Regression results also includes Model Summary which carries the R and R square values. R shows the degree of simple correlation ("Linear Regression Analysis in SPSS Statistics - Procedure, assumptions and reporting the output.", 2016). R<sup>2</sup> value of this study is .183 which is statistically significant but low. R<sup>2</sup> shows the percentage change caused by the dependent variable. R<sup>2</sup> here is .183 which means that 18.3% of the total variance in the Organizational Performance is explained. There are certain reasons for which R<sup>2</sup> is low. R<sup>2</sup> is low because the technological perception of employees in Pakistan is different from the other countries

due to difference in national culture. This study researched this phenomenon in the specific context of Pakistan and it was found out that the results are significantly different. The number of years of experience and the educational level of all the employees who were taken as sample; could not be ignored. R2 is low also because the fact that this study has explored the employees' behavior and environment naturally and it was found out that there are considerable differences from the conclusions of literature. It is also stated that there is no such research work is done in this filed in Pakistan which provides a reasoning of low R2.

**H5: There is significant difference between Public and Private sector with respect to Organizational Performance.**

Table No. 3.3 shows the results of T-test. Mean of public sector banks was 2.6625 while the mean of private banks is 1.4677 and both the means are statistically significant. Hypothesis 5 is accepted as there is seen much difference between the means of both the sectors which shows that the employees of Public sector banks more strongly perceive that the organizational performance can be enhanced through employeeding advance technology as compared to the private sector employees.

**Table No.3.3. T-Test**

T-TEST				
Organizational Performance	Organizational Type	N	Mean	Sig. (2-tailed)
	Public	107	2.6625	.000
	Private	145	1.4677	.000

**H6: There is significant difference between age groups with respect to Technological Perception.**

Table No. 3.4 depicts the results of One-way ANOVA through which it is evident that there are significant differences between age groups with respect to technology perception. Employees belonging to diferent age groups responded differently over the research questionnaire which made the results of the study categorically different. Significance of the test shows that the hypothesis is accepted.

**Table No. 3.4. One-way ANOVA**

Technology Perception of employee Generation				
	N	Mean	F	Sig.
21-30 years	128	1.5458	128.754	.000
31-40 years	95	2.3524		
41-50 years	25	2.8494		
Above 50 years	4	3.0950		

#### 4. Conclusion and Recommendations

The aim of this study is the observation of employees' technology perception at public and private sector banks of Pakistan and it's impact on organizational performance. Primary data was collected from 280 respondents with the usable sum of 252 questionnaires. The logical flow of model and theory provide sound grounds for investigating the research problem (Sekaran, 2003) which was tested using SPSS version 22. After the statistical analysis, certain results were drawn based on acceptance and rejection of hypothesis. Out of the six hypotheses, five were accepted whereas one was rejected.

H1 states that the relationship between Technology Perception of Employee Generation and Organizational Performance is statistically significant. H1 is accepted when the relationship between dependent variable organizational performance and technology perception is found significant. Ku & Ye also studied technology perception of employees and its effect on organizational performance using the similar t-test and ANOVA and concluded that relationship between the said variables is significantly high Kuo & Ye, (2010). Hence our study goes hand in hand with the results of Ku & Ye which can ensure the generalizability aspect of this study. Perception of Employee Generation can positively or negatively affect organizational performance (Bray & Konsynski, 2007).H2 is proposed with the statement that

relationship between Technology Perception of Employee Generation and Digital Divide is significant. Olphert developed a model in his study which might serve in tailoring policies that can enhance the computer and internet usage engagement among older people. Conclusions say that age factor has a relationship with the computer and internet use which can be enhanced through the role of organizational policies (Olphert et al., 2005). H2 is also accepted as there were found strong ties between both the variables. The third hypotheses of the study states that there is a significant relationship between Digital Divide and Organizational Performance. Empirical ties between both the variables were also found. Knowledge sharing can be done using collaborative technologies such as intranet where computer equipment and internet is use as a base. Collaborative technologies increase the organizational performance (Meroño-Cerdan, Soto-Acosta, & López-Nicolás, 2007). Wang and companions also studied the found out that knowledge sharing affects the organizational performance (Wang, Wang, & Liang, 2014). H3 was accepted as it was found through the statistical analysis that the relationship between organizational performance and usage, access, capability divide was strong.

Fourth hypotheses of this study states that the variable Digital Divide mediates the relationship between Technology Perception of Employee Generation and Organizational Performance. In the existing literature, several studies are found which prove that there is a strong relationship among the three variables. Bray & associates found in their research that employees' perceptions affect the organizational performance by making knowledge technologies in access and use (Bray & Konsynski, 2007). They recommended that organizational performance can be improved by focusing knowledge management. Personal factors of individuals affect the technology perception and organizational performance which is also proved by other studies (Kuo & Ye, 2010). The statistical analysis came up with conclusion that the variable digital divide does not mediated the relationship between organizational performance and technology perception of employees though there is a strong relationship among the three variables. It leads towards the rejection of this hypothesis.

The study developed its fifth hypothesis stating that there is significant difference between Public and Private sector with respect to Organizational Performance. This hypothesis is accepted with the statistical proves that the public and private sector firms significantly differ in terms of their performance as per they have diversity in perceptions with respect to the access, usage and capability of computers and internet. Kuo and Ye, in 2010 found out in there that employees serving in production industry have higher perceptions towards technology acceptance Kuo & Ye, (2010). H6 states that there lies a significant difference between age groups with respect to Technological Perception. The significance of differences among the four age groups remained strong which let us accept the hypothesis that employees differently perceive technology. Kuo and Yu, (2010) found out in their study that individuals' personal factors have an impact on the way they perceive technology Kuo & Ye, (2010). Age groups varies as per employee's learning ability and adoption trends (Hill, Beynon-Davies, & Williams, 2008).

### **Recommendations**

This study encourages us to suggest following recommendations:

- 1) Public and private banks can enhance their performance using more sophisticated technology. In our study, it was found that there exists a significant relationship between the technology perception and organizational performance. It is seen that through technological acceptance and adoption the performance can be enhanced.
- 2) Employees should be taken into confidence about any technological change so that resistance of technology could be reduced. Before introducing any technology, the employees must be invited to present their opinions, ideas and suggestions. Once the employees are aware with any technological upgradation projects that are yet to be implemented; they would be more positive about this change and so the resistance would minimize.
- 3) Since the resistance towards technological change is backed by lack of training. When the employees are unaware of the technology, they would not be able to facilitate the implementation process. Employees should be trained about the new technology adopted by the company. Once the employees knew about the technological change and get trained in the very regard; they would be more motivated to facilitate the technological change.

- 4) Technology resistance could be retarded through ensuring the ease of application and use which could be done through managerial support. Without the necessary administrative support, it could never be possible to room the technological advancement.
- 5) International technology players should stop digital discrimination so that the developing countries may also participate in the walks of life on equity basis. Technology-based alliances should be done to replace digital divide with digital inclusion. Government should play its part in enabling digital inclusion.

### 5. Limitations and Future Research

No one has sailed across the sea of knowledge and found the other shore. Similarly, research is a never-ending journey therefore this study has several limitations too.

1. This study is done in service industry while the product industry is ignored.
2. Only employees from financial services were invited to participate in this study.
3. This study could not maintain gender equality as per the ratio of female employees in Pakistani banks is very low.

### Future Research

Future research could be done on several grounds, as follows:

1. This study is conducted by using quantitative research design which has its own nature of limitations due to quantitative data and its statistical analysis. To get a deep insight into the phenomena and to check the generalizability of this study; it can be conducted through qualitative design in future.
2. Data was collected from the major cities of Punjab and Sindh. Future research could be done by collecting data from across the country and anywhere in the world.
3. The similar can also be conducted in any other sector to analyze the sector-specific scenarios.
4. In this study, ratio of the female employees remained 19.8% over the sample size 252 which does not fully represent the views of female bankers. It was the fact that the ratio of female employees is about 5% of the entire workforce of bankers in Pakistan. This study can be conducted with the equal representation of gender.

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