

The Impact of Digitalization on the Profitability of the Banking Sector

(An Empirical Study of the Leading Banks of Pakistan)

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Abstract

The following research paper aims to identify the impact of digitalization on the profits of the banking industry of Pakistan. During the course of research, few scheduled commercial banks of Pakistan were chosen to test the hypothesis. Their progress over the last decade was observed and is statistically presented. The primary data was gathered from over 100 respondents across Karachi who are the customer of various banks as well as interviews were also conducted from the managerial levels of these banks. The findings indicate that there is a direct and positive relationship between banking technology automation and the profits of the banking industry.

Key Words: *Digitalization, Profitability, banking industry, relationship, technology, automation.*

Introduction:

In the late 1990s, Pakistan's banking industry came across a significance shift from manual to process automations with the introduction of IT in its operations. During this time, several foreign banks began operations. The global evolution of the Internet and the economic liberalisation occurred virtually simultaneously. The introduction of technology in the banking and economic sector brought several changes as Magnetic Ink Character Recognition (MICR), Image Based Clearing System, Real Time Gross Settlement (RTGS) etc. that enhanced the efficiency of the work flow by fastening up

the services being provided. Customers are no longer required to visit the branch to do transactions. Customers' lives have been made simpler by ATMs, mobile banking, and online bill payments. This resulted in improved customer service, but the issue is whether this investment in IT benefited bank profits.

The Journey of Banking Industry of Pakistan:

The banking industry began in Pakistan after partition in 1947 when Habib Bank Limited moved its operations to Karachi Pakistan while Muslim Commercial Bank moved its head quarters to Dhaka Bangladesh (formally the East Pakistan). Currently, the banking sector of Pakistan is comprised of 41 scheduled banks (15 private sector banks, 3 nationalized banks, 3 privatized banks, 14 foreign banks, 4 specialized services banks, and 2 provincial banks), 6 DFIs and 2 Microfinance banks. During the journey, banking industry of Pakistan marked major milestones as Nationalization in 1974, Privatization in 1991 and introduction of Islamic Banking in early 2000s.

The most remarkable development in the history of banking was in the late 20th century when banking started going digital. Journey that began with the ATMs and Plastic money in late 1960s, crossed the face of milestone of online banking in 1980s with the introduction and rise of internet, accelerated in early years of 21st century with the introduction of smart phones and handheld devices to today, when the entire bank is just a finger click away. Platforms as RAAST, Connect, Omni Cash, PayPal, RTGS and Roshan Digital Accounts etc. turned the bricks and motor banking into purely digitalized banking and thus, the concept of branchless banking flourished across the world.

Research Methodology:

Keeping in view the growth noticed in the banking sector of Pakistan, the factors to support this progress must be identified. One factor amongst many others is adapting the digitalization in their systems and procedures to increase the efficiency and reduce the overhead expenses. To further enlighten the relation, the paper identifies the following area of issue:

Statement of Problem:

Banking industry is one of the largest growing industry of the world in terms of its size, its business and the profitability of the organizations. Not only is the growth of the industry contributing towards the economic development of the nations, the industry also serves in the maintenance of the sound position of the economy. Banking sector regardless of its growth, is prone to a number of problems and difficulties that, if dealt with in an appropriate manner, can turn into opportunities. Several problems identified by the scholars being the rise in competition, the amendments in regulatory compliances leading to penalties, the demand for a higher degree of personalization by the present day consumer, the prone to internet security breach and the paradigm shift from manual work flow to process automation with the help of Artificial Intelligence. This paper aims to explain the cultural shift towards a technology-first attitude and its impact on the profits of the banking industry of Pakistan.

Review of Literature:

The digitalization in the banking products is undergoing a significant rise in the present times. The primary cause for it is understood to be the risk mitigation. A lot of study based evidences has been found on the digitalization of banking industry and their significant impact on the profitability of the Commercial Banks around the globe.

(Kaya, 2019) focused the results of e-banking, digitalization and web based banking applications on the performance of the commercial banks in the developed countries. In the economies like USA and European countries the study has shown a significantly strong relation of the electronic banking applications backed by advanced technology and AI system with the profitability of the banks. Particularly, the internet and e-banking has a momentarily positive influence on the performances of the banks developing a competition amongst the banking industry. Therefore, it is stated that internet banking practices strengthen banks' tendencies towards technological innovations (Arnaboldi & Claeys, 2008), Observations has shown that internet based banking products has also reduced the operational risks of the banks (Hasan, 2002); and has increased the operational profitability and ROA performance (Kagan, 2005)

Statement of Hypothesis:

In the procedures of business, Digitalization is the utilization of online technologies to alter the business model in order to provide novel avenues for value producing opportunities and revenue generation to move the business to a click. It is the process of using digitalized information to creating a rather easy and flawless workflow to increase efficiencies.

While Profitability is a term derived from the Financial Statements of the organization that measure the financial gain in relation to the expenses incurred by the organization in a certain period of time. the term is closely related to profit which is an absolute amount while profitability is relative. It is metric that determines company's profit scope with relation to its size. Profitability measures the efficiency of the organization and is the ability of a business to produce return on invested resources comparative to its alternative investment.

The hypothesis developed based on literary evidences to study thus, comprises of 2 variables; the; 'Digitalization' and the 'Profitability' as followed:

H1: Digitalization has a positive influence on the profitability of the banking sector.

Structural Model:



Population, Sampling and Research Instruments

This study focuses on examining the impact of digitalization on profitability on the banking industry of Pakistan. An online questionnaire was developed to study the view of the users of banking services over the hypothesis developed. 100 banking customers of different banks participated in the research of the study and were selected using convenience sampling and were analysed on a 5-point Likert scale using SPSS Software. Additionally, 5 managers of different commercial banks were also interviewed using an unstructured, direct set of questions to understand the insight of the industry.

Digitalization and Profitability:

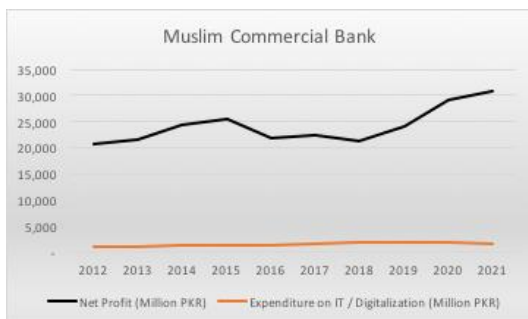
‘**Digitalization**’ can be termed as the automation of the processes of work flow system. (Schumacher, Sihn & Erol, 2016). According to Hagberg et al, digitalization is composed of both, the conversion from analogue to digital (as shift from physical paper based currency to electronic transfer of digital currency) and the assistance to create value at each step in terms of Availability, Accessibility and Transparency (Hagberg, 2016). Batchimeg speaks of ‘**profitability**’ as a measure to compare the organization’s earned profits in comparison to the expenses incurred during a certain period of time (Batchimeg, 2017). According to Riyadi, profitability in terms of accounting is at any given condition when the revenue an entity surpasses its expenses (Riyadi, 2017).

Findings:

To further support the hypothesis, we analyzed the financial statement of leading private banks of Pakistan for the last decade and tried to examine the relation amongst 2 components, EBIT (Earning Before Interest and Taxes) and investment made on procedural digitalization (including the cost incurred on maintenance of hardware and software etc.). the results are shown as under.

Overview of Market Insight

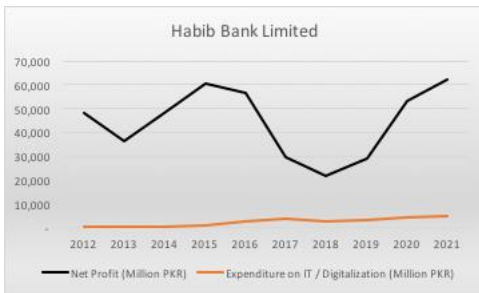
1- Muslim Commercial Bank:



The graph illustrates that the investments made on the technological development in the Muslim Commercial Bank of Pakistan has been constantly in a trend of change. The graph shows rising trend in the investment made on digitalization while started falling since 2019 mainly due

to the impact of COVID 19. In comparison, the trend of profits keeps on fluctuating. Important aspect to note here is that the investment decreased since 2019 but profits were the highest in that period. Conclusion here could be made that MCB does not show a higher dependency on the technology to enhance the profits.

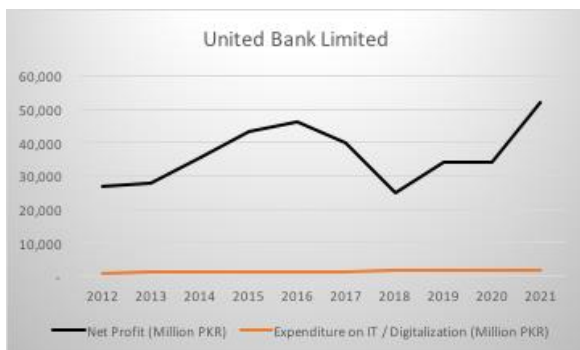
2- Habib Bank Limited:



The graph illustrates the total investment being made on the digitalization of banking practices and the EBIT of HBL over the past decade. The trend of investment on digitalization reflects that the organization has been constantly increasing

its budget allocated towards the technological advancements and digitalization. The net profitability curve, however, has been through all the stages of the economic cycle (Expansion, Depression, Recession and Revival) over the period of the decade. The most important key to note here is that, in the same year of having the least investment on digitalization (2017 – 2018), the net profits of HBL also touched its lowest point. And, started to increase with the rise in the investments made. We can extract here that their might exist a position co-relation between these two variables at HBL.

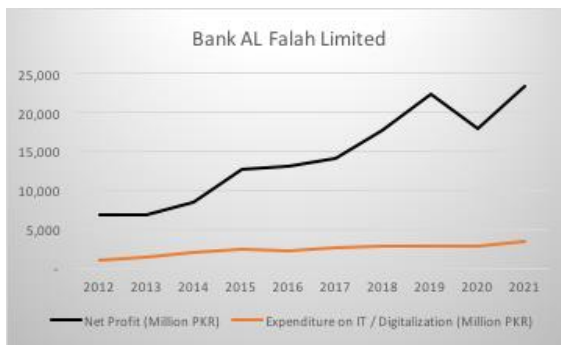
3- United Bank Limited



The investment of United Bank Limited on the Digitalization as reflected in figure has always been on a steady growth with no major change being noticed. However, the investment was made highest in the fiscal year 2020 – 2021 mainly as the impact

of COVID – 19, technology dependency and the rising demand in branchless banking. The Net Profitability chart on the other hand reflects the constant change in the net profitability status of the organization. The graph reflects the unsteady growth of the organization in monetary terms. The drastic downfall in the profitability position of the United Bank Limited in the financial year 2017 – 2018 was mainly due to the uncertain economic conditions of Pakistan because on the elections of the National Assembly. Regardless of it, UBL maintained its position in digital banking.

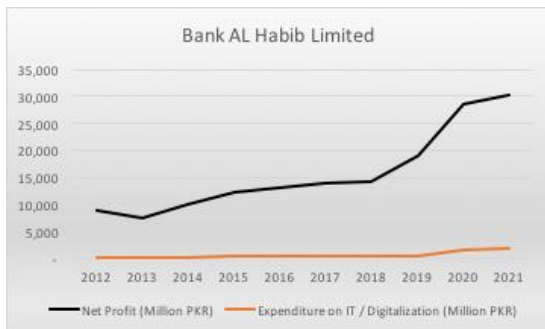
4- Bank AL Falah Limited:



The graph shows Expenditure made on the digital banking over the past decade made by the Bank Alfalah Limited in comparison to its profits. The investment of automation has been growing steadily in order to meet the rising competition amongst the

industry and particularly the giants for the acquisition of the customer base. The profit condition however, also replicates the trends of the investments and has a steady growth while the fiscal year 2019-2020 faced a drop down in the profitability due to the COVID – 19 pandemic impact. Nonetheless, the important part is the realization that no matter what the economic and social conditions are, reducing investment from the digital banking might result in drastic change on the numbers of the financial statements.

5- Bank AL Habib Limited



The Bank AL Habib Limited is one of the growing banks of Pakistan that adapted the changes and advancements being offered by the technology religiously. The figure shows that the rigorous investments being made on the digitalization of the

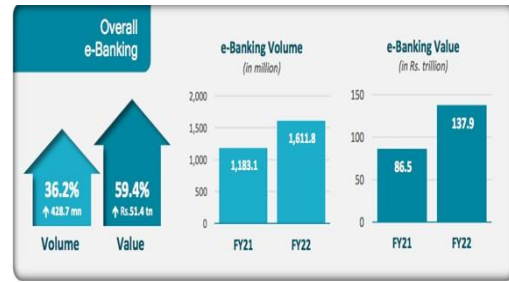
practices were not practiced until the financial year 2019. After the period, against the industrial trend, it spent the highest on tech development during the times of COVID-19 and capitalized the opportunity of remote and branchless banking in an efficient manner and since the adaptation of technology, its profits started reaching a considerably higher scale than previous years supporting our argument.

Insights of the regulator:

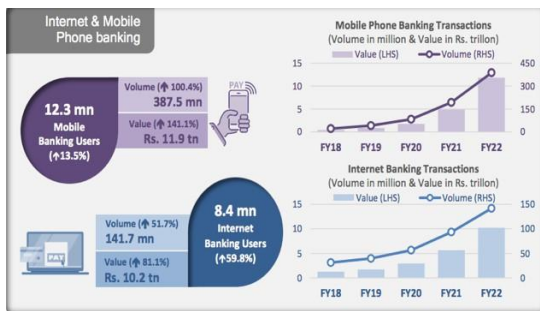
The State Bank of Pakistan is sole regulator of the banking industry and payment systems in Pakistan and that gives it the edge to modify the regulations of the banking sector in order to achieve better

and stable economic position of the country. One of the concern of attention for SBP has been tech addition in the operations to ease the procedures.

The *Payment System Review Report (FY 2021 – 2022)* published by SBP analyzed that the trend of digital banking continued its growth in the fiscal year



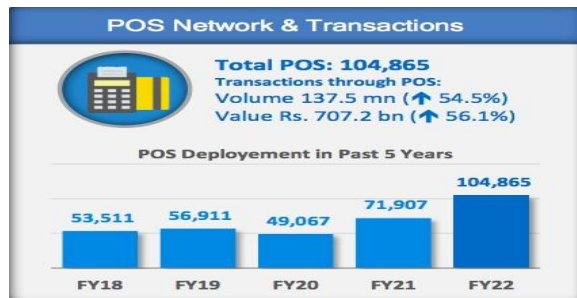
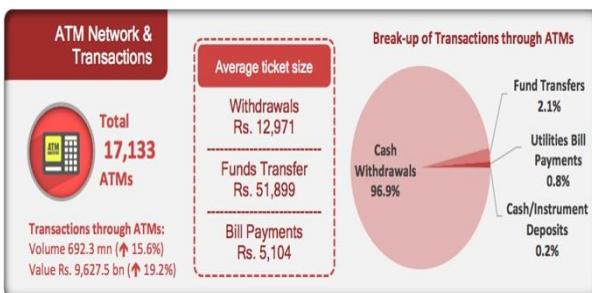
2022. The overall e-banking transactions witnessed a favorable growth of around 36.2% in terms of



the volume while grew by 59.4% by value.

The end of the fiscal year in June 2022 showed highest number of registration of new customers for mobile and internet banking with the yield of growth of 13.5% and 59.8% respectively as shown in the figure.

ATM machine is the the most widely and easily available mode of banking. In Pakistan, the number

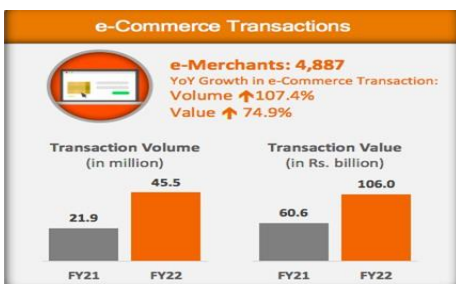


ATM networks noticed an expansion to 17,133

of

by

the end of FY 2022 from 16,355 at the beginning of the same fiscal year across Pakistan showing a growth of 4.8%. Amongst the total, 14,095 are on-site ATMs while 3,021 are off site and 17 of them are the mobile ATMs in Pakistan. While, the closing of fiscal year 2022 marked the total of 104,865 POS machines (incl. 426 closed loop POS machines) with the addition of 32,985 new POS machines.



The growth in other digital banking channels was also followed by the e-commerce sector of the economy when banks and MFBs (Micro Finance Banks) started the digital on boarding of more and more e-commerce merchants to better

facilitate with the payment related services and solutions to the merchants and their customers.

Around 4887 new e-commerce merchants associated themselves with the digital channels of banking and micro finance banks. The total number of registered e-commerce merchants grew by 62.7% as compared to last fiscal year.

The initiatives like such has resulted in the reduction of the financial cost has increased the accessibility of banking products across the national and international borders of the country.

In the years followed, SBP projects to promote the digital payment system further not only to each household, but in the government and private sectors of the economy as well by having more emphasis on the *Digitalization of the supply chain*.

Results:

The study was made on the data collected by the customers of different banks in Karachi. The data for the study was analysed using the SPSS Statistics Software (Statistical Package for Social Sciences). A questionnaire based on the variables of the hypothesis was filled by around 105 customers of various banks of Pakistan. Out of these 105 responses, 100 (N) were deemed correct and were selected for the analysis of results.

Descriptive Statistics:

	N	Minimum	Maximum	Mean	Standard Deviation
I am actively engaged in E- Banking.	100	-2	2	1.09	0.98
It is easy for me to funds transfer electronically.	100	-2	2	0.84	0.99
The representatives of E- banking responds to my queries satisfactorily.	100	-2	2	0.28	0.37
I am being encouraged to use E-banking	100	-2	2	0.14	0.70
E- Banking satisfies my banking needs	100	-2	2	1.07	0.92
E-Banking is user friendly	100	-2	2	0.94	0.87
The E-banking channels I use are timely updated as per my need.	100	-2	2	0.49	0.48
I am satisfied with the E-services provided.	100	-2	2	1.12	1.09
I am willing to use Bank with effective E-Banking	100	-2	2	0.73	0.65
I might Switch if I found inefficient E-Banking services are being provided.	100	-2	2	0.75	0.64

Statisticians have concluded that values with a range of no more than plus or minus 2 standard deviations indicate measurements that are closer to the true value than those with a range more than ± 2 standard deviations.

A low standard deviation indicates that the data

are clustered near to the mean, whereas a large standard deviation indicates that the data are widely spread. The table also displays the average value of the information collected for each component.

We gave the following identifiers to the Likert scale's divisions for the sake of data analysis: 1 means agree, 2 means strongly agree, 0 means neutral, -1 means disagree, and -2 means strongly disagree.

Table 2: Frequency Distribution Table

Item 01: I am actively engaged in E- Banking				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	50	50	50
	1	21	21	71
	0	19	19	90
	-1	3	3	93
	-1	7	7	100
Total		100	100	100

Item 02: It is easy for me to funds transfer electronically.				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	43	43	43
	1	27	27	70
	0	11	11	81
	-1	5	5	86
	-1	14	14	100
Total		100	100	100

Item 03: The representatives of E- banking responds to my queries satisfactorily.				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	27	27	27
	1	33	33	60
	0	17	17	77
	-1	16	16	93
	-1	7	7	100
Total		100	100	100

Item 04: I am being encouraged to use E-banking				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	26	26	26
	1	37	37	63
	0	23	23	86
	-1	9	9	95
	-1	5	5	100
Total		100	100	100

Item 05: E- Banking satisfies my banking needs				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	35	35	35
	1	42	42	77
	0	18	18	95
	-1	4	4	99
	-1	1	1	100
Total		100	100	100

Item 06: E-Banking is user friendly.				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	31	35	35
	1	44	44	79
	0	17	17	96
	-1	6	6	102
	-1	2	2	104
Total		100	104	100

Item 07: The E-banking channels I use are timely updated as per my need.				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	23	23	23
	1	32	32	55
	0	26	26	81
	-1	13	13	94
	-1	6	6	100
Total		100	100	100

Item 08: I am satisfied with the E-services provided.				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	34	23	23
	1	49	49	72
	0	12	12	84
	-1	4	4	88
	-1	1	1	89
Total		100	89	100

Item 09: I am willing to use Bank providing effective E-Banking				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	29	29	29
	1	34	34	63
	0	27	27	90
	-1	7	7	97
	-1	3	3	100
Total		100	100	100

Item 10: I might Switch if I found inefficient E-Banking services are being provided.				
	Frequency	Percentage	Valid Percent	Cummulative Percentage
Valid	2	27	29	29
	1	38	38	67
	0	17	17	84
	-1	12	12	96
	-1	6	6	102
Total		100	102	100

All the responses received from the respondents are summarized in a frequency distribution table.

This table helps to identify how frequently the response against a certain item asked to the participants occurs in the dataset. The summary metrics followed found in the columns of the frequency distribution table can be identified as following:

The column labelled as “Frequency” identifies the total number of responses in the following category. The proportion of the response received compared to the overall observation of the category is termed as the category “Percent”. The Valid Percent column reflects the ratio of annotations in each category grounded on the total number of attained replies. The Cumulative Percent column of the chart exhibits the cumulative percentage of the model accounted for.

Discussion:

The results obtained from the data collected through questionnaire encourages the hypothesis crafted above. According to the response against the **item 01** I.e. I am actively engaged in e-banking / digital banking to which 78.40% replied positive (Strongly agreed and agreed). This indicated that the digital channels of banking are widely popular amongst the banking customers.

Similarly, 77.4% of the participants believe that they are satisfied with the digital and electronic banking services being provided to them against the traditional branch banking. More than half of the respondents believe that the digital channels of banking are updated in a timely fashioned as per the need of the time and customer (**item 07**) which reflects that the banks are investing in making updated software and technologies for providing users with an efficient and modernized platforms to carry out their banking needs to which 61.8% respondents strongly believed that they are also encouraged by the banking sector to use such platforms for ease, efficiency and fasten up the procedures (**item 04**).

The responses received against the **item 09**; I am willing to use bank with effective e-banking facilities states that 62.8% users of the banking services strongly to moderately agree upon the statement and the reflection on **item 10**; I might switch my banking activities if I am being provided with an ineffective and insufficient digital banking channels suggesting that more than 60% of the respondents support the statement, is a very crucial point for banking sector to understand that the customer demands more updated and effective set up of electronic / digital banking platforms from them or else they might end up losing some crucial business.

The conclusions drawn are backed by the findings from over 500 respondents and is also supported by various authors in their published work.

Interview Responses of Managerial Levels of Banks:

In order to further test the strength of the hypothesis presented, an interview was conducted from the managers of the leading banks of Pakistan to understand the insight of the market. The answers received from them are summarized as under:

It is commonly believed that the digital banking channels are more prone towards security breaches but with the constant support of SBP, the developed procedures have multiple checks in system to stop the scam on introductory stage, as real time verification of the CNIC Number and thumb impression from NADRA, Mobile number verification via PTA, e-mail verification through pin codes and debarred check through FIU, the credibility check of financing seeking customers through e-CIB report etc.

Digital banking has led to electronic archiving and paper less banking saving the cost of security papers and printing costs along with the cost associated with physical archives. Also, through digital platforms, banks now have an access to the remote customers as well to increase their customer base. This facility of connectivity with no regards to borders create the competitive edge between the banks. The introduction of Roshan Digital Account in September 2020 is one of the leading examples of digitalization impact on profits. It is the facility for non residents of Pakistan to open a Foreign currency (FCY) Account to have an access of banking services in Pakistan. Through RDA, the FCY remittance received strengthened the value of PKR against these currencies and the economic growth was also observed.

The digital banking is growing at a fast pace, however, the cost associated in system automation is less than its monetary and non-monetary advantages. The banks are now able to reduce their operational costs while increasing their customer base and their business reciprocity.

Conclusive Remarks and Recommendation:

As per the findings of the study, there is a direct and significance relation between the digitalization of banking practices and profits earned. The results were obtained by deducing various individual elements evaluating the multiple digital banking platforms and how it effects the profits of the banking industry around the country.

In the light of the findings, it is concluded that the banking sector can develop further with a sizeable portion of investment on the digitalization. Through digitalization, the banks can reach to those customers as well to whom branches of the banks can not physically entertain. Also, the banking activities performed through these digital channels provides more security, accountability and accessibility across the nation. Customers have been highly benefited from the technological revolution in the banking industry. The banks should invest more on digitalization of their system and procedures. Investment in the technological sector of the bank is a strategic necessity in order to cope up with the competition and changes taken place in the banking sector. Although entire banking sector has access to the similar level of technologies, it is not possible to generate abnormal profits but adaptation and marketing of the digital facilities can help banks to achieve competitive advantage over others.

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Appendix A: Questionnaire for Consumer

Dear Respondent, I am a student of MS program at KUBS – University of Karachi. I am conducting research on impact of Digitalization on the profitability of the Banks in Pakistan for which I have developed the following questionnaire. You are requested to fill out this questionnaire. I assure you that the information you provide will be used only for academic purpose.

Thank you for your co-operation.

Please rate the following as per your banking activities performed according to the level of your preference

Elements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am actively engaged in E-Banking.					
It is easy for me to funds transfer electronically.					
The representatives of E-banking responds to my queries satisfactorily.					
I am being encouraged to use E-banking					
E- Banking satisfies my banking needs					
E-Banking is user friendly					
The E-banking channels I use are timely updated as per my need.					
I am satisfied with the E-services provided.					
I am willing to use Bank with effective E-Banking					
I might Switch if I found inefficient E-Banking services are being provided.					

Appendix B: Interview questions for the managers:

- 1- The 21st century is known to be the era of technology where the banking services are available to customers on their finger tips. The trends are shifting more towards the branchless and convenience banking. How do you think the trend of digital banking has evolved in the recent times?
- 2- Customers today prefer to perform banking transactions with comfort rather than visiting the branches and waiting in the queues for their turns. What do you think is the impact of technological advancement on the traditional branch banking?
- 3- The annual reports of the leading banks of Pakistan mentions the direct impact the adaption of these technologies have made on their figures of sales and revenue annually. How do you think the digitalization / branchless banking has made an impact on banking consumer base during these recent years?
- 4- Banking sector under constant support and guidance of the State Bank of Pakistan is launching various means of digitalization including RAAST P2P and P2M Payments, Digital on Boarding of customers etc. how well do you think the banking sector is investing on the digital banking?
- 5- With the changes observed in the number of transactions being made through digital channels including mobile, internet and POS banking etc. the industry is known to have made progress now than ever before. What financial benefits has been observed with the adaptation of digitalization on the banking industry?

Author's Biography

Inara Rafiq is a currently pursuing her Masters' degree in the field of Business Administration, with majors of marketing from University of Karachi. Professionally, she is working with one of the leading banks of Pakistan as an Institute of Bankers' Pakistan Certified banking officer. She aims to direct and contribute her efforts to transform the banking sector of Pakistan towards more digitalized and technology oriented and focus on process automation to have a competent banking industry across the globe. Her dedication towards her cause is also reflected in some of her previously published papers as well.