IJRAR.ORG E-ISSN: 2348-1269, P-ISSN: 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

Adoption of Technology on the Attitude of Consumers in Banking Sector using TAM Model

Dr. Monica Sainy* Dr. Tejaswini Singh

Professor, Amity Business School. Amity University, Chattisgarh, Raipur
Assistant Professor, SRM University, Sonipat

ABSTRACT

Banking services and technology are being used together since last 2 decades, but the pace with which technology being used in banking services has increased in last few years. The year 2020 marked with the global pandemic Covid 19 has accelerated the use of technology in banking services at a very high pace. This research paper aims at finding the impact of adoption of technology for banking services on the attitude of customers by utilizing the extended TAM model. Perceived usefulness (PU), Perceived ease of use (PEOU) and Perceived risk (PR) are used as three independent variables and attitude is used as independent variable. The effect of demographical variables such as gender and age are also seen on adoption of banking technology 101 responses were collected. The scale of Cheng et all (2006) and Feartherman and Pavlou (2003) was used to collect the responses. T-test, one way ANOVA and Linear Regression are used to analyse the data. The result shows that the effect of age and sex are insignificant in adoption of technology for online banking and the perceived ease of use, perceived usefulness and perceived risk shows the significant effect on the attitude of consumer in online banking.

Key words: Adoption of technology, Attitude, TAM Model

INTRODUCTION

The e- banking has created a new wave in the banking sector. The information and communication technology play inseparable role in our lives. Information Technology can be defined as "a technology which uses computers to gather, process and transfer information." But in today's context it is more precise to term Information Technology as Information and Communication Technology. During the last decade India had witnessed as marked by proliferated application of electronic commerce in Banks (Saffu et al. 2008). The revolutionary change of using information and communication technology to provide services in a better way to its customers has taken place in last 20 years. Whether it's the matter of ATMs or online payments, banks are using information and communication technology in innovative ways to provide customers the desired services. This makes the customers to feel easy and timely access to money and payment systems. This combination of information and communication technology and banks together is called as Banking Technology. Banks are forced to invest huge investment in developing information technology infrastructure, new innovations to differentiate between competitors. Thus, banking technology provides banking services to customers in a very reliable, secure, affordable, and accurate manner. The degree of mobile/internet banking

services usage of the respondents has increased during the pandemic in comparison with the period before the pandemic, Daniel,Gardan,Claudia, (2020), their survey indicate the need to increase the efforts of banks to offer financial education courses to all categories of bank customers. Tammana Muzawar,(2020), points out that due to covid-19 pandemic and nationwide closure people believe that visiting branches and availing banking services is not safe and secure .As the banks have modernized they have encouraged their bank customers to avail benefit of online, internet and mobile banking services.

The usability of all the services provided by banking technology depends upon how well customers adopt the technology. To determine the acceptance of a technology, Davis et al. put forth a model known as Technology Acceptance Model (TAM) in 1986,1989. This model was based on Theory of Reasoned Actions (Fishbein & Ajzein, 1975) which claims that beliefs impact attitudes, which gives rise to intentions and thereafter behavior is formed. Based on this, Davis introduced these constructs of TAM – Perceived Usefulness (PU), Perceived Ease of Use (PEOU), attitude and behavioural intensions to use. Out of these constructs PU and PEOU form the beliefs of end users about the technology, thereafter his/her attitude is predicted which in turn predicts the acceptance of technology. This model is widely used, and many extensions are made by other authors to it. One of such extension was done by Featherman and Pavlou (2003). They added the construct – Perceived Risk to TAM which included the possible losses while using a technology.

The year 2020 is landmarked by the outbreak of pandemic COVID 19 caused by novel corona virus. The lockdown has affected health sector, education sector, banking sector, IT sector, general market, and each & every aspect of lives. This in turn affected the economy poorly. Banking sector being the backbone of economy need to stand in this pandemic situation also. They restructured their framework to respond in this pandemic situation by accelerating digitization. The present research aims at finding the impact of adopting the banking technology on the attitude of consumers using TAM model while considering various factors such as age, gender, residential area, etc. during the pandemic Covid 19. It also tries to find whether customers have become more techno savvy for banking transactions due to covid 19 or not.

Further this research proceeds as theoretical background, literature review, objectives and hypothesis, research design and methodology, data analysis and interpretation, results and discussion followed by limitations of the study and further scope of research.

THEORETICAL BACKGROUND:

TAM model was first introduced by Davis in 1986 to identify how well customers adopt a new technology. The model was based on theory of reasoned actions (Fishbein & Ajzein, 1975). TAM model introduced two significant factors – one is Perceived Usefulness (PU) which reflects how useful is the new technology and other is Perceived Ease of Use (PEOU)which reflects the level of easiness in using the new technology.

Perceived usefulness: According to TAM model perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance." This means that whether the technology will act as drive to enhance the quality of performance of any task in lesser time which is not possible in absence of the technology.

Perceived ease of use: According to TAM model perceived ease of use is "the degree to which a person believes that using a particular system would be free from effort." This means that whether the technology is free from barriers such as interface barriers, cost barriers, support services, etc. Besides these two factors, the model also considered attitude and behavioral intentions to use. Many extensions are made to this model afterwards. One of such extension was made by Featherman and Pavlou (2003). They added the construct perceived risk to the model.

Perceived Risk: According to Featherman and Pavlou (2003) perceived risk is "the possible loss when pursuing a desired result." It means that this risk covers all the negative factors which affect the attitude of customers towards the use of new technology. Researchers have found that it is a multi-dimensional construct. For online banking it covers following dimensions-

Performance risk -The possibility of the product malfunctioning and not performing as it was designed and advertised and therefore failing to deliver the desired benefits.

Social risk- Potential loss of status in one's social group because of adopting a product or service, looking foolish or untrendy.

Financial risk -The probability that a purchase results in loss of money as well as the subsequent maintenance cost of the product.

Privacy risk -Potential loss of control over personal information, such as when information about you is used without your knowledge or permission.

Time risk- Consumers may lose time when making a bad purchasing decision by wasting time researching and making the purchase, learning how to use a product or service only to have to replace it if it does not perform to expectations.

Physical risk -The probability that a purchased product results in a threat to human life.

REVIEW OF LITERATURE

Au and Enderwick, (2000) found in their study that external environmental forces did not significantly influence the formation of a behavioral intention to adopt but the cognitive process determined the attitude towards adoption was found to be affected by six beliefs i.e. perceived difficulty, adoptive experiences, suppliers' commitment to the firm, perceived benefits, compatibility and enhanced value. Howcroft, et al. (2002) revealed in their studies that consumer preferences are not generally predisposed to change their behavior radically and adopt widespread usage of telephone and internet banking. Changes in the use of delivery channels will occur naturally as the population matures and computer usage seeps up onto the older age groups. The results were not able to suggest that either telephone or internet banking will necessarily replace the branch network as the dominant delivery channel. Hosein, (2009) focused on the reliability and validity of the data and measurement model, and the path coefficients and goodness of fit of the structural model. This study found that two of these independent variables – quality of incentives and knowledge of computers – significantly predict expectations within the theoretical model as well as perceived ease of use of the Internet Banking system is an important factor in adopting Internet Banking services. The author developed an undisguised questionnaire as well as conducted in-depth interview with bankers and 'goodness of fit' SEM was performed for analyzing the data. Lee, 2009 proposed the model which incorporated five categories of perceived risk to provide a more comprehensive investigation. The results shows that the proposed model confirmed its robustness in predicting customers' intentions to use such services. Chen and Li (2010) used the three antecedent constructs from "Theory of planned behavior" that are attitude, subjective norms and perceived behavioral control the result shows that the factors namely attitude and perceived behavioral control have direct influence on the continuous usage intention and subjective norms were not able to produce significant impact on continuous behavioral intention. Users' technology readiness had the strong influence on these factors. Dash, et al. (2011) in their study has taken the perceived ease of use and social influence are predicting variables, affecting perceived usefulness and attitude as intervening variables, and intention to use internet banking as dependent variable. The result shows that perceived usefulness and perceived social influence has a direct effect on intention while perceived ease of use has indirect impact. Hsu, et al. (2011) in their study revealed that consumers' intention to use Mobile Financial Services (MFS) can be explained by the proposed model. Perceived usefulness, attitude and subjective norms significantly and directly influence intention to use Mobile Financial Services. Consumers having an intention to use an Mobile Financial Services not only rely on their affective feelings towards use but also but also base their decision on a cognitive judgement of how an MFS will help them attain a valued goal. The authors collected empirical data by conducting an online survey of MFS users. Al-Ajam and Nor (2013) provided evidence for the theoretical model embracing TAM, and the results supported the view that perceived relative advantages, perceived ease of use and Internet banking trust are predicting variables and they have influenced individuals' attitudes towards adoption of internet banking. The instrument was designed to evaluate

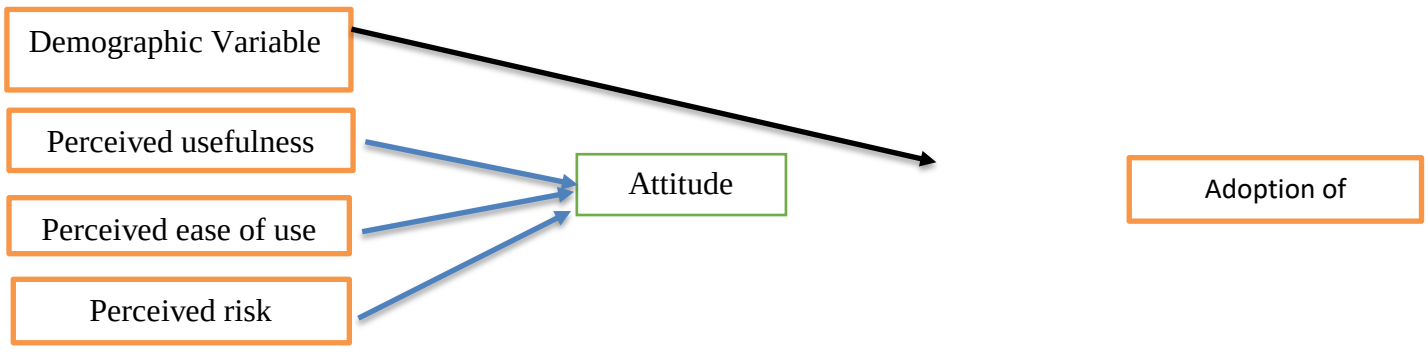
the strength of the relationship between the variables and primary sources of data are used to fill the instrument. Alsoufi and Ali (2014) provided an extended TAM model. The construct used for the study were Perceived usefulness (PU), perceived ease of use (PEOU), Perceived cost (PC), and perceived risk (PR). The result shows that perceived usefulness strongly affected by customer service and efficient transaction factors with the standardization coefficients of 0.389 and 0.325 respectively as well as perceived ease of use affected strongly by compatibility and self-efficacy factors with the standardization coefficients of 0.460 and 0.225 respectively but perceived risk and perceived cost had no effect on the intention to use factor. In contrary to most of the previous research, **David and Deb,** (2014) found that there was a negative relationship between facilitating conditions (FC) and attitude towards M-Banking but other variables had shown a positive relationship with attitude towards M-Banking. To explore the existence of segments the study employed clustering analysis as it makes no advance assumptions about differences within a population. The two step procedure were employed in this study which involved developing an effective measurement model and analyzing the structural model.Bashir and Madhavaiah,(2015) has proposed the model which develops a new theory by building new variables in an integration of Technology Acceptance Model (TAM) and theory of Planned Behavior (TPB) and applying them to a new context. The results revealed that if consumers' beliefs about trust, usefulness, enjoyment, and features of IB are appropriately managed, their willingness to adopt internet banking will increase. Alalwan, Dwivedi and Williams, (2016) propounded the Unified Theory of Acceptance and Use of Technology (UTAUT 2) and Perceived Risk to examine the Jordanian customers' intention and adoption of telebanking. They have coupled six fundamental constructs from UTAUT 2 namely performance expectancy (PE), effort expectancy (EE), social influences (SI), facilitating conditions (FC), hedonic motivation (HM) and price value (PV) with Perceived Risk (PR) and formulated them as the direct predictors of behavioral intention (BI). The authors used primary sources for data collection and SEM was employed to analyze the data obtained from convenience sampling method from Jordanian banking customers.

PURPOSE OF THE RESEARCH

In the COVID times, people faced a lot of difficulties in doing their day-to-day activities which affected their economic and social life structures. Complete lockdown had observed where people are not allowed to go out and avail the services of the banks. Due to these government regulations, people were forced to shift from traditional banking to online banking to fulfill the financial requirements or for ease of doing work from home. Our study is encircling this situation where we consider the variable that helps to evaluate the attitude of consumer and how it is impacted by adoption of technology. We proposed to draw an extension to the Technology Adoption Model (TAM) given by Davis, et al. (1989) and to show how the SARS-COV-2 creates a situation which emphasize on the technology adoption and how it affects the consumer.

CONCEPTUAL FRAMEWORK:

Independent variable **Dependent variable**



OBJECTIVES OF THE STUDY:

1. To measure the effect of the demographic variables on the adoption of technology for online banking.
2. To study the effect of perceived usefulness on the attitude of consumers for online banking.
3. To study the effect of perceived ease of use on the attitude of consumers for online banking.
4. To study the impact of perceived risk on the attitude of consumers for online banking.

METHODS:

The present study is conclusive and descriptive in nature based on the quantitative analysis to test the hypotheses.

Sampling Procedure: Purposive sampling was used for the study.

The sample: Initially, Sample size was 112 but 101 responses were found to be suitable for analysis.

The tools for data collection: Primary and secondary sources were used for data collection. The primary data was collected using the standard scale having 22 items. The scale of Cheng et all (2006) for Perceived ease of use, Perceived usefulness and attitude. Feartherman and Pavlou (2003) scale was adopted to measure the Perceived risk. One more "Physical risk" is added having 2 statements related to COVID.

***The tools for data analysis*:** The SPSS 22 was used for the analysis of the data. The descriptive statistics like screening, coding, decoding and Tabulation were used, besides inferential statistics like Cronbach alpha (to check the reliability). Independents sample t test, One way ANOVA and Multiple Regression analysis were used for the analysis.

HYPOTHESES:

Following Hypotheses were formulated and tested at 5 % level of significance.

H_{o1}: Gender-wise, there is no significant difference in the adoption of technology for online banking.

H_{02}: Age-wise, there is no significant difference in the adoption of technology for online banking.

H_{03}: There is no significant impact of perceived usefulness on the attitude of consumers for online banking.

H_{04}: There is no significant impact of perceived ease of use on the attitude of consumers for online banking.

H_{05}: There is no significant impact of performance risk on the attitude of consumers for online banking.

RESULTS AND DISCUSSION:

The first phase of data analysis began with establishing the reliability of the scale. To ensure the reliability of the constructs Cronbach's Alpha Test Cronbach (1951) was carried out using SPSS-22. The standardized Cronbach's Alpha for Perceived ease of use, Perceived usefulness and attitude was found to be 0.83, 0.86 and 0.78 respectively which is fairly acceptable. In this study to determine the effect of gender on the adoption of technology for online banking T - test was conducted and following result are obtained (Table 1)

Table 1: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
PU	Equal variances assumed	3.668	.059	-1.023	94	.309	-.67442	.65911	-1.98310	.63427
	Equal variances not assumed			-.997	78.015	.322	-.67442	.67659	-2.02140	.67256
PEOU	Equal variances assumed	.122	.727	.123	94	.903	.06845	.55863	-1.04072	1.17763
	Equal variances not assumed			.123	91.445	.902	.06845	.55601	-1.03593	1.17283
AT	Equal variances assumed	.020	.887	-.031	94	.975	-.02062	.65563	-1.32240	1.28115
	Equal variances not assumed			-.031	88.798	.975	-.02062	.65774	-1.32759	1.28634
PR	Equal variances assumed	.204	.652	.471	94	.638	.90434	1.91830	-2.90449	4.71318
	Equal variances not assumed			.469	87.677	.641	.90434	1.92994	-2.93120	4.73988

The result shows that the p value is more than α at the level of significance of 0.05. Thus, the null hypothesis "Gender-wise, there is no significant difference in the adoption of technology for online banking" is **accepted**. Therefore, it is proved that male and female equally adopted technology for online banking. To determine the effect of age on the adoption of technology for online banking ANOVA test was used. The results are shown in (Table 2).

Table 2 :ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
PU	Between Groups	46.263	3	15.421	1.519	.215
	Within Groups	933.977	92	10.152		
	Total	980.240	95			
PEOU	Between Groups	4.058	3	1.353	.180	.910
	Within Groups	692.442	92	7.527		
	Total	696.500	95			
AT	Between Groups	6.174	3	2.058	.199	.897
	Within Groups	953.066	92	10.359		
	Total	959.240	95			
PR	Between Groups	109.179	3	36.393	.412	.745
	Within Groups	8121.977	92	88.282		
	Total	8231.156	95			

The significant value of ANOVA test is more than α at the level of significance of 0.05. Thus the null hypothesis "Age-wise, there is no significant difference in the adoption of technology for online banking" is **accepted**. Therefore, it is proved that customers of all age groups equally adopted technology for online banking. To study the impact of adoption of technology on the attitude of the consumer, Multiple Regression was used. Three independent variables Perceived usefulness, Perceived ease of use and Perceived risk is taken and attitude is the dependent factor. The result of the model summary suggested that a set of independent variables has higher correlation (0.76) with dependent variable and explain 58.2 percent of variation of the dependent variables. From the above ANOVA table F ration is 42.686 and p <0.05 depicts that there is a significant relationship between the independent variable and the dependent variable, thus regression model is best fit for this data. The above table represents regression model coefficients. The p value for Perceived usefulness perceived ease of use and , perceived risk is less than 0.05 hence we reject the null hypotheses(which suggest that significant impact has seen between the independent and dependent variables.

Based on the above model the regression equation is obtained as:

Y= 8.983+.403(PU)+.433(PEOU)-.063(PR)

Hence it can be inferred from the study that the attitude of consumers for adoption of technology in online banking get influenced by PU, PEOU, PR.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763[a]	.582	.568	2.08783

a. Predictors: (Constant), PR, PEOU, PU

Table 4: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	558.209	3	186.070	42.686	.000[b]
	Residual	401.031	92	4.359		
	Total	959.240	95			

a. Dependent Variable: AT

b. Predictors: (Constant), PR, PEOU, PU

Table 4: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.983	2.230		4.029	.000
	PU	.403	.085	.407	4.732	.000
	PEOU	.433	.100	.369	4.341	.000
	PR	-.063	.024	-.183	-2.629	.010

a. Dependent Variable: AT

DISCUSSION:

The null hypotheses were framed to measure the impact of Demographic factors viz Age and Gender towards the adoption of technology for online banking using TAM model. The T-test was carried out and the results are shown in the table 2. In $H_{01}$and H_{02} Hypotheses the p value of t-test is more than α at the level of significance of 0.05. Thus, the null hypothesis "Gender-wise, and age-wise is accepted as there is no significant difference in the adoption of technology for online banking" which suggest that male and female equally adopt technology for online banking. The similar results were also suggested by Izogo (2012) that age wise no significant difference is seen among the male and females. The hypothesis $H_{03,}$ H_{04} and $H_{05\ studies}$ the impact of adoption of technology on the attitude of the consumer, Multiple Regression was used. Perceived usefulness, Perceived ease of use and Perceived risk is the independent variable, and the attitude is the dependent variable. The $p < 0.05$ depicts that there is a significant relationship between the independent variable and the dependent variable, thus regression model is best fit for this data. The result of the regression model suggests that the p value for Perceived usefulness perceived ease of use and, perceived risk is less than 0.05 hence we reject the null hypotheses which suggest that perceived ease of use and Perceived usefulness shows the significant impact on the attitude of consumers for online banking. Similar result were shown by the research of Yadav et al. (2014) that perceived risk shows the significant influence on the over intention to use e-banking. The present research also shows the significant impact of Perceived usefulness, Perceived ease of use on the attitude of consumers for online banking similar results were also propounded by the Anouze & Alamro, 2019; Nagdev, Rajesh & Misra, (2019) that perceived usefulness, perceived ease of use, on the technology readiness.

CONCLUSION:

After implications of various test, it can be concluded that all the people irrespective of their age and sex ,are adopting technology for online banking. The result of this study also shows that perceived ease of use, perceived usefulness and perceived risk are the important independent variable of online banking adoption during COVID. During the global pandemic COVID-19, the study shows that customers are using the online banking irrespective of the factors PU and PEOU.

References:

Al-Ajam, A. S., & Nor, K. M. (2013). Internet Banking Adoption: Integrating Technology Acceptance Model and Trust. *European Journal of Business and Management*, 207-215.

Alalwan, A. A., Dwivedi, Y. K., & Williams, M. D. (2016). Customers' intention and Adoption of Telebanking in Jordan. *Information Systems Management*, 154-178.

Alsoufi, A., & Ali, H. (2014). Customers' Perception of M-Banking Adoption in Kingdom of Bahrain: An Emperical Assessment of an Extended TAM model. *International Journal of Managing Information Technology*, 1-13.

Anouze, A. L. M. & Alamro, A. S. (2020). Factors affecting intention to use e-banking in Jordan. *International Journal of Bank Marketing*.38 (1), 86-112. *DOI: 10.1108/IJBM-10-2018-0271*

Au, A. K.-m., & Enderwick, P. (2000). A cognitive model on attitude towards technology adoption. *Journal of Managerial Psychology*, 266-282.

Bashir, I., & Madhavaiah, C. (2015). Consumer attitude and beahvioral intention towards internet banking adoption in India. *Journal of Indian Business Research*, 1-39.

Chen, S.-C., & Li, S.-H. (2010). Consumer adoption of E-service: Integrating technology readiness with the theory of Planned Behavior. *African Journal of Business Management*, 3556-3563.

Dash, M., Mohanty, A. K., Pattnaik, S., Mohapatra, R. C., & Sahoo, D. S. (2011). Using the TAM model to explain How Attitudes Determine Adoption of Internet Banking. *European Journal of Economics, Finance and Administrative Sciences*, 50-59.

David, E., & Deb, M. (2014). An emperical examination of customers' adoption of M-Banking in India. *Marketing Intelligence and Planning*, 475-494.

Hosein, N. Z. (2009). Internet Banking: An Emperical Study of Adoption Rates among Midwest Community Banks. *Journal of Business and Economics Research*, 51-72.

Howcroft, B., Hamilton, R., & Hewer, P. (2002). Consumer Attitude and the Usage and Adoption of Home based Banking in the United Kingdom. *International Journal of Bank Marketing*, 111-121.

Hsu, C. L., Wang, C. F., & Chuan Lin, J. C. (2011). Investigating Customer adoption behaviors in Mobile Financial Services. *International Journal of Mobile Communications*, 477-494.

Lee, M. C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 130-141.

Muzawar, Tammana(2020). A Qualitative Study on Impact of Covid-19 on Mobile Banking Services with Special Reference to the State of Goa. *International Research Journal on Advanced Science Hub (IRJASH)*, 02.

Saffu, K., Walker, J.H. and Hinson, R. (2008). Strategic value and electronic commerce adoption among small and medium-sized enterprises in a transitional economy. *Journal of Business & Industrial Marketing*. 23 (6), 396-404.

Yadav, R., Chauhan, V., & Pathak, G. S. (2015). Intention to adopt internet banking in an emerging economy: a perspective of Indian youth. International. *Journal of Bank Marketing*. 33(4) , 530-544. *DOI: 10.1108/IJBM-06-2014-0075*