

## IMPACT OF MOBILE BANKING AND INTERNET BANKING DURING COVID-19 PANDEMIC

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**Abstract** We contribute to the identification of challenges of using mobile financial services focusing on COVID-19 pandemic by extending Technology acceptance model. The pandemic has caused significant shifts in online transactions that will influence individuals, organizations, communities, and nations. In this paper, we will apply partial least square method to explore challenges of mobile banking adoption in crisis situation which people consider in mobile financial transactions. The challenges include perceive risk, perceive privacy, cost, privacy, and customer satisfaction. Perceived risk and perceived privacy also result in perceived security of customer information but quality of mobile banking services and perceived capability have positive impact on customer satisfaction to mobile banking services. Our results, in line with mobile banking literature, show that users are confronting challenges in using mobile financial services though they want to conduct banking staying at home and ensure health safety. In particular, people want to get a stress free life that is being hit by the pandemic itself. Indeed, these challenges were vulnerable before crisis and still exist. Investment to enhance integrity, transparency, and communication can help to eliminate the challenges of using mobile financial services and enhance the well-being of users.

**Keywords:** mobile banking, challenges, COVID-19 pandemic, financial transactions

### INTRODUCTION:

Electronic communication has become an important means for conducting banking activities, as the banking industry becomes more competitive as a result. People now rely on technology as a mechanism for improving their quality of life and economic growth. As a highly dynamic business entity in the world network, bank offers better services to people who use online banking. This allows banks to offer their products and services and to buy and sell them. One of the newest activities using electronic services is providing banking and financial services through mobile phones. As a result, the financial sector is becoming increasingly competitive worldwide with demanding customers. Due to the COVID-19 pandemic, demand for mobile banking services for financial transactions has grown significantly.

Mobile-banking is considered as one approach for providing financial services through ICT which facilitates selection of mobile services even by those with low incomes. Most Perceptual Compatibility effects on behavioral intent; on the other hand, Credibility, performance expectations, effort expectations, and social influence, in order of their impact, significantly affects people's attitudes towards mobile banking. Behavioral Intention Researchers have used it to conduct research Technology Acceptance Model (TAM) describe a Individuals accept mobile banking. they have Added some factors to explain user intent Use mobile banking. established normative beliefs, Use Cases, Privacy, Security, Utilities, and Earlier Experience, technical ability, lifestyle, trust, etc. reputation. Another study in Tanzania showed Two additional factors are cost and demographics. Other research highlights satisfaction, trust and usage is the variable that determines customer loyalty to mobile devices Bank. Therefore, mobile banking has become Primary way of conducting financial transactions Infected by coronavirus. But most studies Skip the challenges of adopting mobile banking Financial Services. Financial Institutions Mobile Banking Allows Users Access their facilities anytime, anywhere. Such equipment has advantages over traditional equipment Bank. Because there are more mobile phones than computers, Mobile banking is more popular than c-banking among bankers. Phones have also improved the quality service, as customers can handle their financial tasks anytime, anywhere. Therefore, obviously, using Mobile phones for banking make sense for both customers and benches. This leads to the creation of a more robust Relationship between financial institutions and customers.

Consumers are very reluctant to use mobile banking Related to technical knowledge, perceived ease Use, efficacy and risks of using technology. Lack of differentiation among banks, etc. Lack of trust in the system, objectivity or lack of The certainty and uncertainty here lead to reluctance to accept Mobile Banking Services. German consumers say only 12% use their Mobile phone for banking or shopping.

In step with a Current study by using charge waterhouse conducted in 2013 Regarding 157 managers for generation and structures for Financial institutions in 14 predominant markets in the usa, Europe and the asia-pacific, the burden

of virtual Channels in retail banking will develop drastically inside the Coming years, the variety of cell banking (or M-banking) users will growth with the aid of sixty four% until 2016; and Folks who make purchases through social networks and Use on line banking may even drastically boom, fifty six% And 37% respectively younger human beings (elderly 25-34) are Specifically inquisitive about cellular-banking .

Also, Younger humans, in comparison to different customers, are greater Predisposed to undertake and use cell-banking service, for Those services are commonly low-cost and in shape extra with their Life-style Regardless of, growing desire of financial institution proprietors to provide monetary offerings through cell generation, the wide variety of users is lots decrease that what's predicted by using the professionals of the enterprise . Below such situation, technological advances and increase inside the accessibility of electronic services will now not lead customers to the adoption and use of 0.33-generation technologies . Researchers have performed many studies to take a look at the elements figuring out cell banking model for monetary services .

Research on edition of cell banking for economic offerings has discovered exceptional types of challenges. Customers consider privateness and safety hazard of mobile banking posed upon their monetary records. In cellular-banking, the statistics enter and output mechanisms of cell banking might save you people from trusting in those offerings, as some users display anxiety that they will make mistakes when doing their bank affairs thru cellular smartphone. Cellular banking services' cost to customers Which store time, deliver real-time information, and provide clients a exquisite manipulate which are anticipated through customers at some stage in covid 19 pandemic regardless of all of this , it's miles vital to focus on that the number of customers that operate through on line banking has now not elevated as a good deal as it was expected. Consequently, this paper targets to identify the demanding situations which limit the use of cellular banking. The findings have to assist banking entities apprehend the issues of their customers and, consequently, be able to cope with and deliver reliable cellular banking services that meet their clients' expectancies for their well-being in pandemic.



**Mobile banking: all banking activities are conducted using mobile application.**



**Conventional banking: personal interactions are required to conduct transactions.**

## **LITERATUREREVIEWS:**

Factors influencing acceptance and adoption of cell banking were the region of consciousness to many studies. The commonplace determinant elements are character recognition, perceived usefulness, perceived advantage, and price impact of mobile banking generation. Mobile banking has come to be the supply of major buy in covid-19 pandemic. This technology helps to preserve protection for the people the world over via shopping items on line and making on-line fee. On line transactions conducted through mobile devices, which include smartphones, is anticipated to play a bigger function inside the near destiny, with extra than 1/2 1,000,000 consumer global buying thru mobile devices by means of 2015 rapid boom within the use of cellular phones has driven Many corporations to develop cellular enabled commerce transactions.

For example, cellular banking gives a convenient street for clients to fulfill their banking desires by using permitting access to finish and timely statistics at the customers' convenience . Several prior studies have been carried out to observe customers behavior a good way to recognize how users behave whilst the use of mobile banking, in a single such look at, tested amongst clients residing in finland and south africa and located that consider performs a good sized

role in promoting continuous utilization of cellular banking. Some other take a look at on sustained use of cell banking offerings indicated that perceived usability, channel choice, and perceived cost are 3 major determinants of sustained cell banking usage. discovered that usefulness and facilitating conditions have been the most crucial factors keeping apart mobile banking users from non-customers, cell banking enables its users in getting both location and time unbiased access to banking offerings therefore it assists customers in making ubiquitous payment .

Every other examine by indicated that believe creates a tremendous dating with mobile banking pride But, there stays some challenges concerning privacy renovation of customers' personal information, customers' self belief degree in handing new era, provider usages fee, users fear of incurring monetary loss and so on. And all of those may inhibit users' cell banking adoption price. Several researchers have found out some elements that are influential for mobile banking provider rejection.

Six dimensions of chance notion highlighting social, overall performance, belief, monetary, time, security and privacy difficulty have been examined to discover the relationship of perceived threat with behavioral purpose to apply . To protect the safety and privacy troubles of customers, it is critical to expand perceived accept as true with worthiness or credibility . Again, if person can agree with that their private statistics will stay included and their banking activities may be done in a secured manner will motivate users to just accept cell banking and because of this, perceptions concerning security and privateness are vital to generate accept as true with or credibility.

Furthermore, users' perceived consider of the use of mobile banking is sizable for aim conduct. As, loss of consider will inspire the customers to reject or no longer to continue with this digital banking offerings. Consequently, banking industry imparting cellular monetary offerings need to prioritize all of these important issues. As, overcoming cellular banking obstacles will ensure big acceptance of cellular banking offerings tested that relative mind-set and relative subjective norm definitely stimulated respondents to replace from net to cell banking at the same time as relative perceived conduct manipulate deterred

respondents from transitioning. There had been a number of studies regarding mobile banking ideas and customers' adoption behavior over the previous few years. The subsequent desk depicts some research reflecting influential and resisting elements in the direction of customers' intention to accept cell banking services. In association with the tam principle, indicating customers' tendency to just accept new generation , this have a look at attempted to discover the difficult problems that are crucial for the continuation of cell banking generation. This have a look at will be supportive for each mobile telecommunication and banking industry in minimizing the adoption resistance of cell banking services.

Researcher	Independent variables	Dependent variables	Key findings
1	TAM and theory of planned behavior (TPB)	Internet banking adoption	Security, privacy, self-efficacy, govt. and technology support affect the adoption of internet banking
2	Perceived risk	Internet banking adoption	Time, financial, performance, security and privacy risk have significant negative effect on the intention to adopt Internet banking.
3	usefulness, Ease of use, social norms, social risk, previous experience, security perception	Mobile banking adoption	All variables positively influence adoption of mobile banking except social risk.
4	Perceptions regarding usefulness, benefit, social risk, performance risk	Attitude to adopt mobile banking service	These benefit and risk dimensions have direct impact among young users' adoption behavior.

5	traditional financial setting	Banking for poor people using mobiles	The traditional financial setting does not allow the poor to access to the financial services by mobile phone
6	Information and guidance	Mobile banking resistance	These two factors are significant in mitigating mobile banking resistance like usage barrier, value barrier, risk barrier, image barrier.
7	Cost, lack of relative advantage, perceived risk, unsuitable device, complexity, lack of information, lack of observability	Non-users mobile banking adoption	Perception of cost, perceived risk, low perceived relative advantage and complexity are the main reasons of not using mobile banking
8	Knowledge and learning needs, additional banking charges, poor telecommunication network, preferences for traditional means.	Mobile banking rejection	These four factors inhibit mobile banking adoption rate.
9	Perceived risk, perceived cost	Intention to use mobile banking	These antecedents have negative influence towards mobile banking use intention mediated by users' attitude.
10	Social influence, financial cost, performance expectancy, credibility perceptions	Individuals' tendency to accept mobile banking	All dimensions are remarkable for mobile banking adoption.
11	Initial trust	Perceived usefulness	This construct has impact on perceived usefulness and both initial trust and perceived usefulness are significant for usage intention.
12	Trust, adaptation with life style, need for interaction, perception regarding creditability, usefulness, ease of use, risk, cost	Individuals' intention to use	All determinants are influential for mobile banking service adoption. Trust and compatibility with life style had been the most important determinants in this study
13	Mobile network trust, mobile banking website trust, mobile phone trust	Mobile banking satisfaction	These three trust groups are positively correlated with mobile banking satisfaction.
14	Poor network coverage, poor security of network, ATM breakdown and threats, lack of users' knowledge	Obstacles towards mobile banking adoption	These barriers have negative influence towards adoption behavior.
15	Perceived security, perceived privacy, trust	Behavioral intention to adopt	These three constructs are influential for mobile banking service adoption

## **RESEARCH DESIGNS AND METHODOLOGY**

### **METHODOLOGY:**

This is a retrospective analysis, which means it focuses on Mobile Banking during covid-19 pandemic. This research is focused on both primary and secondary. Primary data is obtained after doing survey with the help of questionnaire and secondary data is obtained from the websites of bank and annual reports. The data is evaluated using ratio analysis, and the bank's efficiency over the sample period is easily described. With the help of this both ways we are going to find

out the financial performance of Mobile Banking and the thought of investor and management on financial analysis. The purpose of this study is to assess the contribution of online banking to stop the pandemic of Covid-19. A survey has been conducted within the Gaya District of Bihar. Primary data have been collected from the city area of Gaya by using questionnaires. A questionnaire designed to collect the primary data. Primary data have collected from the 25 respondents. Questionnaire consist of 5 questions related to feeling safe in using online banking in which each question has 5 points.

In the questionnaire 1 mean is highly unsafe feel, 2 mean is unsafe, 3 mean is normal, 4 mean is safe and 5 mean is highly safe. TAM has been used a great deal for model user acceptance of information technology. Many researchers have used TAM to study the use of M- banking; in Iran by, in China by. This research is based on the following extensions of technology acceptance model to identify challenges of using mobile financial services for day-to-day transactions during pandemic.

### **Personal Interaction:**

Mobile technology acceptance occurs in the context of banking when interaction of the shopper occurs with that of technology in banking activities not with clients. Mobile banking examine user do their transactions using cell phone and remain business clientele until the time they do so. There is a everlasting interaction between the mobile purchaser and service provider. Service encounters involve interpersonal interactions between clients and service providers. investigate the effect of the need for personal relations on the intention to use internet banking and found out a negative bond. In this study, by need for dealings it is meant a personal tradeoff between the client and bank clerk which may cause the infection of Pandemic. Thus, those who need less personal relations would use more mobile banking services. In this regard, the following suggestion is presented:

suggestion 1: Absence of personal relations (PR) positively effects attitude toward the usage of mobile banking.

### **Perceived potential:**

Perceived potential is the ability of technology to formulate and build up new products and related processes and in the context of mobile banking, perceived potential is efficacy of mobile banking technologies to perform banking activities. recommend that successful digital transformation requires an association to develop several capabilities in many different areas and these capabilities may differ depending on the particular sector and the specific needs of the group. Perceived potential affects perceived behavioral control, rather than having an contact on behavioral intent to adopt mobile banking. Where there is a higher perceived potential of mobile banking to conduct transactions, the higher will be the potential to use mobile banking for the purpose there of. Mobile banking requires special technological capabilities to maximize usage across diverse areas to keep users away from direct transactions and provide safety from Coronavirus. Thus the proposed suggestion:

suggestion 2. Limited perceived potential has negative impact on behavioral intention in mobile banking adoption.

### **Professed Cost of Use:**

The cost of acquiring and using of new technology is another barricade of technology adoption. Besides, the real costs of acquiring and using new technologies usually involve a range of moderately hidden costs which are mostly involve the costs of adoption of business via phone. Previous studies have revealed that professed costs can be a large barricade to M-banking adoption. In a study on the effect of cost on usage intention, finished that there is a negative relationship between professed cost and intention to use M-

banking. People are getting work less during pandemic and extra cost may deter people from using mobile banking technology. In Bangladesh, customers have to pay BDT 18.5 for per 1000 BDT cash out via M-banking. In this regard, a suggestion is formulated as following:

suggestion 3. Existing professed costs of use negatively influences the adoption of mobile banking.

### **Value of Mobile Banking Services:**

value of service in electronic businesses is the overall appraisal of the excellence and quality of the customers' services in the virtual market. Value of service is increasingly considered as an important factor of online business because the online evaluation of products and services usually has no cost and is faster than the comparison of products using



traditional channels. As the value of the service improves, the customer's satisfaction increases, meaning larger levels of contentment lead to positive results in the customer's behavior. Improving the value of service can increase the intention to use mobile banking to minimize the uncertainty of getting infected by COVID. far above the ground level of quality M-banking services may motivate to use technology-based mobile financial services. Therefore, the following hypothesis proposes that;

suggestion 4. Value of M-banking services (VoMBs) positively influences to mobile banking adoption.

### **Perceived hazard**

Perceived hazard constitutes a multidimensional construct built from financial, physical, psychological, or social risks in online transactions. Some studies on the new technology adoption shows that an individual's perception of risk is important in the adoption of that technology.

The danger factor is considered very significant in mobile services, because mobility increase the possibility of financial failure. found out that the risk linked with M-banking is high because of the high probability of theft and loss of a mobile device. Perceived danger harmfully influences approach of adopting remote or mobile payment systems. In our research, perceived risk is critical since it is measured an ancestor of conducting transactions during pandemic. Therefore, we propose this research hypothesis:

suggestion 5. Perceived hazard (PH) demotivates users' in using mobile financial services.

### **Perceived Risk and Perceived safety**

safety issues have deterred customers from resorting to mobile-banking options which mainly arise from risk. There is new risk in M-banking in evaluation to other permanent plans due to far-away connection. Trust is highly important in purchasing products or service online besides coronavirus pandemic because customers want to maintain the privacy of their financial in sequence. Mobile banking is supposed as the connection of higher risk compared to conservative bank the primary risk of the customers in services is articulated as the necessary security factor for using movable bank. during pandemic across the world has added extra safety requirements for clients. Thus the proposed suggestion: suggestion 6: Perceived risk has an power on perceived risk usage challenge to M-banking.

### **Perceived Privacy**

Privacy is defined as the protection of individuals from the collection, storage, and distribution of in order about themselves and the possible compromise resulting from unofficial release of that information. Privacy assault is a circumstances in which someone criminally tries to find out information about another person's private affairs. The build perceived retreat is the possibility of collect data about individuals and use them rudely. The concern regarding the safety of consumers' retreat has become a key barrier to the spread of E-commerce. A study conducted by revealed that 93% of Internet users in the US decline to provide their private information because they do not trust most websites. report that customers' readiness to manage online depended on their perceived privacy control. Based on this analysis, it is postulated that:

suggestion 7. Perceived privacy negatively influences the aim towards mobile banking adoption.

### **Perceived Privacy and Perceived safety**

Customer perceptions regarding safety depend largely on how confident a bank can make them feel that their financial data are risk free and safe. Information position of safety issues exclude clients from using M-banking option in its position of relying on conventional banking options. Perceived risk and perceived retreat are the two mechanism forming perceived safety in M-banking. Overall perceived safety create circumstances, event with the potential to cause financial hardship to data or network resources in the form of pulling down, divulgence, modification of data, refusal of services or scam. Perceived safety is a subjective probability of viewing, storing, and manipulate customers' special information during dealings and store in a method incoherent with their confidence position. Pandemic results in financial disaster to a lot of people across the world. That is why, people are more careful about the loss of their money. Therefore, we propose the following suggestion:

suggestion 8: Perceived privacy has negative effect on users' security to use mobile banking.

**Perceived safety and Mobile Banking Challenge**

The generation of security has been considered as decisive force to stimulate mobile banking adoption. The lack of any realistic guarantee, the customer cannot be certain that the seller will not restore to uninvited transactions in online such as illegal use of credit card information or illegal transactions. Thus, the user will be perverted by a sense of uncertainty and apprehension about the privacy. As financial disaster exist during Pandemic, people are more suspicious about the safety and privacy of their financial in sequence. Therefore, the suggestion is;

suggestion 9: The element of perceived safety deters customers from using M-banking services.

**Quality of Mobile Banking and approval**

Quality of service is defined as the customers' overall appraisal about the excellency and quality of offering in electronic businesses. Value of service is more and more considered as an significant issue in online commerce and online evaluation substantially has no cost and is faster than the evaluation of products using conservative channels. client satisfaction depends on the value of examination and is a key factor of client retention because buyers become satisfied when they are truly offered everything they expect. It is necessary to know customers' vision well in M-banking to offer a repair that meets their needs. Thus, the quality of the mobile banking service has a positive influence on customer fulfillment and accordingly the following suggestion proposes:

suggestion 10: The value of mobile banking services (VoMBs) influences satisfaction of mobile banking users.

**Perceived Cost of Use and approval**

Internet and M-banking cost is an issue that decide the satisfaction and adoption of M-banking. Most of the user's in foreign witness that the service helped them access financial services in an easy way. Acceptance of internet banking involves internet access cost, device cost and tune access cost which are determinates of mobile and internet banking adoption. Because users may irritate if the cost involve in using mobile banking services becomes load to them. Perceived cost of use has negative effect on behavioral intention for using M-banking and the satisfaction of clients. Corona inspire people to involve in M-banking in different ways to make them tolerate satisfied. Therefore, the suggestion relating to perceived cost of use and approval is as;

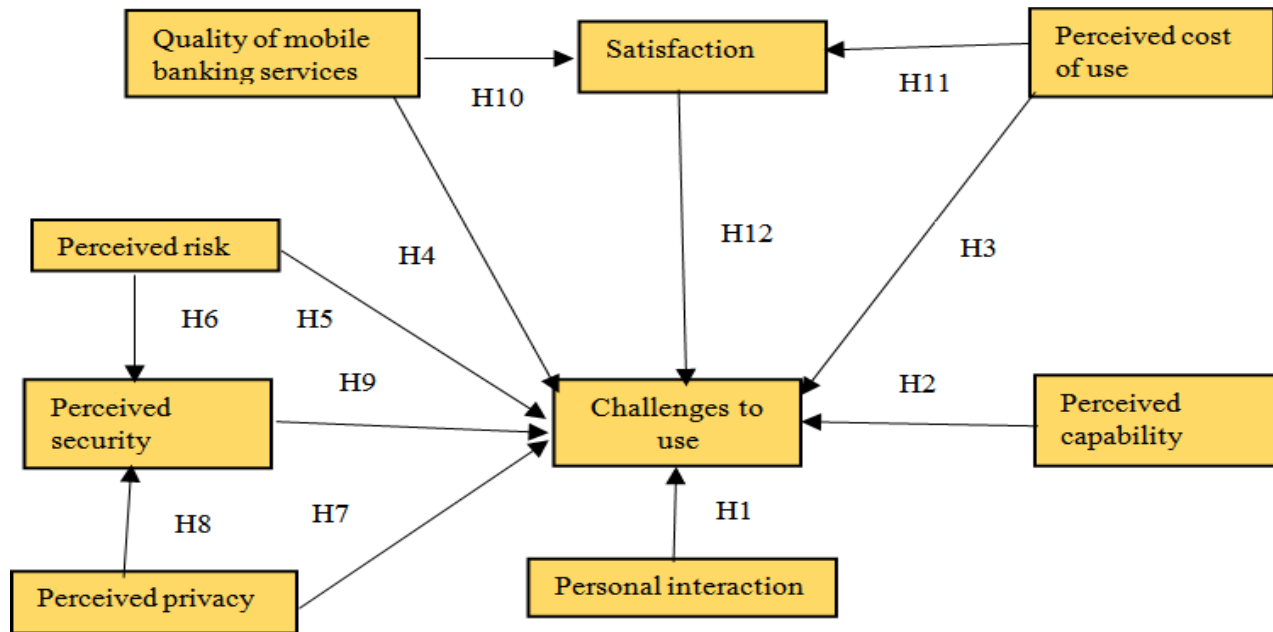
suggestion 11: Perceived cost of use significantly influences the level of satisfaction of mobile banking users.

**Approval and the Intention to use Mobile Banking**

Customer approval is one of the key factor of measuring success of the use of M-banking. A satisfied client is a committed to the service of the association and liable to be a realistic client. Successful companies across the world try to develop their client satisfaction. It is a potential determinants of client loyalty to create a long-term commercial relationship. Satisfaction increases the awareness of credibility and benevolence of the other party and increases the probability that customer renew trust. It has been proven that the tendency to continue financial transactions using mobile technology is dependent on the satisfaction of previous transaction experience. At the very beginning of COVID-19 pandemic, government and WHO are inspiring people to use internet banking for the security of user. In accumulation, different features are adding to help users adopt portable financial services. But M-banking users continually face low value and cost load in conduct dealings. Thus, the following suggestion proposes;

suggestion 12: Customer satisfaction has a positive impact on the use of M-banking.

Based on the suggestion and literature review of the study, the proposed model is developed for investigation in Figure 2. The planned model shows the challenges of adaptation in terms of a blend of perceived risk, cost, happiness, perceived privacy, perceived safety, quality of mobile banking services, personal interaction, and perceived skill.



This research was mostly quantitative. The character of the study is a graphic. The research was approved out using expediency sampling. Shortest sampling of persons in the inhabitants was perform because it enable despicable, quick access to information. We gather data by gathering answers from an online questionnaire designed in Google Docs sent to the methodically selected respondents who are user of mobile banking or familiar with M-banking. The request to the online review was conducted by social media and email due to their earlier retort which involve a group of 15 students from department of management information systems at Galgotias campus. Questions used to measure other additional constructs are adapted from prior studies .

The major portion of respondents were 11-31 years of age (52.5%) and best part of the respondents were 21-50 years of old (93.9%). 54% of the respondents made 1 to 5 dealings per month and 18.4% of the respondents made 6 to 11 dealings per months. Besides, 49.5% of the respondents were job owner, 25.99% were businessmen and 25.15% were students and others.

The respondents were mostly from below 20200 incomes which were 33.55%, 21.99% were from 20000-35001 monthly income stage and 18.70% were from 35001-50005 journal income plane followed by 22.75% were from more than 50005 monthly income level. In totaling, the section of females (23.99%) was fewer than males (76.15%). According to reserve bank of India yearly report for 2017-18, mobile banking qualified growth 93% and 13.5% volume and values. The number of customers increased to 250.5 million at the end of march 2018 from 162.5 million at the end of march 2017 . A study report on 2018 showed 54% UK respondents use mobile device for their last bill payment which is 41% average in Europe. Smartphone was predicted to overtake online banking in2019 and its estimate that around 72% of adults will use mobile banking apps by 2023; in the Netherlands, portable expenses and mobile banking have also grown very popular.

Respondent		Frequency	Percentage
	Male	191	76.1
	Female	60	23.9
	Under19	6	2.4
	19-30	134	53.4
	31-40	85	33.9



	41-50	19	7.6
	51 and Above	7	2.8
	Yes	249	99.2
	No	2	.8
	<20000	84	33.5
	20001-35000	55	21.9
	35001-50000	47	18.7
	>50000	57	22.7
	No answer	8	3.2
	Job holder	123	49
	Businessman	65	25.9
	Student	55	21.9
	other	8	3.2
	1 to 5	133	53
	6 to 10	46	18.3
	More than 10	40	15.9
	None	32	12.8

Table 2. Sample characteristics

## **SURVEYS AND MEASUREMENT BALANCE**

The construct used in this learning are measures adopted from the literature and adapted to go with the situation of the study. The finishing survey consisted of 32 objects. The questions were separated into two sections: 1) questions relating to socio demographic data; and 2) questions relating to the subject of the examination. All these questions communicate to the conceptual hypothetical model defined above, collecting the hypothesize relations. The mass of items (25) presented a commencement according to the Likert-type scales: from 1 (strongly disagree) to 5 (strongly agree). The data collected for these quantity scales were thus analyzed using smart PLS software.

### **Reliability and authority breakdown**

To verify the correctness of data and the measurement scales, a convergent validity test was performed to get assurance that different items of the study used to measure the constructs are in agreement. To review the convergent strength, feature loadings, combined dependability and regular dissimilarity extracted were used as indicator.

The loading price of items exceed 0.75 as per suggestion. The standard variation extracted is between 0.632 and 0.811 where combined reliability is between 0.835 and 0.937. If Average variation extracted is more than 0.51 and composite reliability is higher than 0.70, then convergent validity of the construct is still sufficient. The Cronbach's Alpha values are more than 0.70 for all constructs, which hold up the value recommended by and, also rho A values for all construct. So, the model is superior enough for the examination purpose. Table 3 depict the result of convergent strength.

We calculate the HTMT criterion on the base of the item correlation (Table 4) distinct in the equation (1) for each pair of constructs. The calculation yields values below the entrance values defined HTMT<sub>.86</sub>, HTMT<sub>.91</sub> and HTMT<sub>inferences</sub>. So, the discriminant validity has been recognized under three different hetero method-hetero traits (HTMT) authority determination criteria. The HTMT criterion display discriminant force of inter construct

correlation in which the put up is actually dissimilar from one another. It shows that any approach points to discriminant authority issues at moderately high levels of inter construct correlation as values are under the threshold values (Table 4) which are between (.0211 and .6231).

$$\frac{1}{k(k-1)} \left( \sum_{g=1}^k \sum_{h=1}^k r_{gh}^{h-K} \right) \frac{1}{K^2} \left( \sum_{g=1}^k r_{gg} \right)^2 \quad (1)$$

Constructs	Items	Loadings	Cronbach'sAlpha	rho_A	CR	AVE
<b>PI</b>	PI1	0.723	0.763	0.786	0.863	0.680
	PI2	0.880				
	PI3	0.861				
<b>PC</b>	PC1	0.788	0.828	0.892	0.895	0.740
	PC2	0.877				
	PC3	0.911				
<b>PCU</b>	PCU1	0.801	0.721	0.730	0.840	0.637
	PCU2	0.822				
	PCU3	0.771				
<b>QoMBs</b>	QoMBs1	0.839	0.753	0.757	0.859	0.670
	QoMBs2	0.832				
	QoMBs3	0.783				
<b>PR</b>	PR1	0.701	0.715	0.754	0.836	0.631
	PR2	0.844				
	PR3	0.836				
<b>PP</b>	PP1	0.871	0.882	0.884	0.927	0.810
	PP2	0.934				
	PP3	0.895				
<b>PS</b>	PS1	0.938	0.742	0.854	0.881	0.787
	PS2	0.834				
<b>Satisfaction</b>	Satisfaction1	0.823	0.753	0.755	0.859	0.670
	Satisfaction2	0.847				
	Satisfaction3	0.784				
<b>Challengestouse</b>	Challengestouse1	0.868	0.795	0.805	0.879	0.708
	Challengestouse2	0.824				
	Challengestouse3	0.832				

	Challenges to use	PC	PP	PR	PS	PCU	PI	QoMBs
<b>Challenges to use</b>								
<b>PC</b>	0.361							
<b>PP</b>	0.554	0.284						
<b>PR</b>	0.376	0.395	0.074					
<b>PS</b>	0.022	0.034	0.124	0.334				
<b>PCU</b>	0.181	0.219	0.130	0.502	0.618			
<b>PI</b>	0.456	0.113	0.294	0.440	0.332	0.327		
<b>QoMBs</b>	0.347	0.175	0.311	0.262	0.200	0.154	0.346	
<b>Satisfaction</b>	0.410	0.490	0.323	0.624	0.109	0.308	0.414	0.412

### Structural model

The relationships among studies constructs developed inside the theoretical version in the course of speculation development may be examined the usage of structural version. We proceeded with hypothesis checking out assuming that the dimension model meet validity and reliability estimation. The predictive accuracy of the version was assessed in terms of the variance element explained. The result of structural equation modelling is presented in table 5.

Hypothesis	Path	Path Coefficient	t statistics	p values	Decision
<b>H1</b>	PI -> Challenges to use	0.200	3.070	0.001	Supported
<b>H2</b>	PC -> Challenges to use	0.143	1.957	0.025	Supported
<b>H3</b>	PCU -> Challenges to use	-0.028	0.401	0.344	Not supported
<b>H4</b>	QoMBs -> Challenges to use	0.087	1.632	0.052	Not supported
<b>H5</b>	PR -> Challenges to use	-0.161	2.008	0.023	Supported
<b>H6</b>	PR -> PS	-0.279	4.325	0.000	Supported
<b>H7</b>	PP -> Challenges to use	-0.345	5.410	0.000	Supported
<b>H8</b>	PP -> PS	-0.116	1.730	0.042	Supported
<b>H9</b>	PS -> Challenges to use	-0.062	0.903	0.184	Not supported
<b>H10</b>	QoMBs-> Satisfaction	0.296	3.974	0.000	Supported
<b>H11</b>	PCU -> Satisfaction	-0.207	3.411	0.000	Supported
<b>H12</b>	Satisfaction -> Challenges to use	0.023	0.309	0.379	Not supported

table 5 presentations the path coefficient, t-information, p-price, and standing of each speculation proposed inside the examine. The outcomes of speculation checking out display that the absence of personal interaction motivates customers to undertake cell banking for financial transactions even as perceived functionality of conducting transactions, perceived hazard, and perceived privateness are some of the present challenges to mobile banking adoption. Except, in this have a look at, perceived risk and perceived privateness are additives of perceived protection at the same time as excellent of mobile banking pleasure and perceived cost of use are components Of satisfaction of mobile monetary customers. Path coefficient analysis and t-statistics observe the connection among based and impartial variables. From those consequences, h3, h4, h9 and h12 are rejected while rest of the speculation are supported.

	R Square	R Square Adjusted
<b>Challenges to use</b>	0.353	0.329
<b>Perceived Security</b>	0.088	0.080
<b>Satisfaction</b>	0.139	0.132

Moreover, the value of  $r^2$  is 0.353 (see table 6) which means that those impartial variables can explain 35.3% of the variance about the purpose to apply cell banking for monetary transactions with the existence of those demanding situations even as  $r^2$  are zero.088 and 0.139 for perceiver safety and satisfaction. 8 speculation of the study had been supported, whilst 4 hypotheses had been rejected. Therefore,  $h_1$  (t cost = 3.070),  $h_2$  (t fee = 1.957),  $h_5$  (t price = 2.008),  $h_6$  (t cost = four.325),  $h_7$  (t price = five.410),  $h_8$  (t value = 1.730),  $h_{10}$  (t value = 3.974), and  $h_{11}$  (t fee = three.411) are supported.

**5. Discussion of Results: Hypotheses Testing and the Structural Model** This examine considers the TAM to determine the antecedents of demanding situations to cellular banking challenges variation for users in the course of international coronavirus pandemic. The study is an extension of previous empirical works by way of focusing specifically on demanding situations of cell banking adoption in crisis scenario to hold people away from other people settlement. After studying the reliability and validity of the measurement scales of constructs, evaluation of the ensuing structural relationships become performed the usage of partial least square approach to test the speculation. The importance ( $p < .05$ ) of the variables was used to check speculation using the structural equation model. To assess the sem, the statistical importance of its structural masses changed into analyzed.

table 5 and figure three show the outcomes of the structural equation analysis and the consequences of the research hypotheses. With reference to Relationships, the study has to bear in mind the p-cost column corresponding to each variable in which the associated p-cost much less than zero.05 display great Relationships related to respective variables. In our evaluation, 9 relationships are enormous and 4 relationships are insignificant. First, with recognize to the results of perceived cost of use, the end result shows proof to contradict the statements of the hypotheses  $h_3$ . Specifically, the importance of perceived cost of use variable regarding the adoption of the existing cellular banking is tested via the project in the direction of such banking ( $\beta = -0.028$ ;  $p = 0.344$ ). Consequently, perceived fee of use does no longer negatively have an effect on the intentions to mobile banking adoption as it became pointed out through in cell banking context or for journey 2. Zero equipment and exceptional of mobile banking services does not assist hypothesis ( $h_4$ ).

Regarding existing best of current cell banking services ( $\beta = 0.087$ ;  $p = \text{zero}.052$ ) which does not inspire Customers to depend upon mobile economic transactions, thus ought to be a undertaking. There's empirical proof of the take a look at to simply accept the proposed hypothesis at the bad impact of perceived privateness ( $h_7$ ). Additionally, perceived privacy poses challenge on the use of cellular banking ( $\beta = -\text{zero}.345$ ;  $p = 0.000$ ) is shown, as noted in researches of that credibility significantly affects cell banking adoption. Consequently, the poor impact of perceived privateness creates lack of confidence ( $h_8$ ) and mission closer to adopting cellular banking by means of customers. We can also verify the terrible effect of perceived chance of mobile banking offerings demotivates users to mobile banking offerings that support the assertion of hypothesis ( $h_5$ ) ( $\beta = -\text{zero}.161$ ;  $p = \text{zero}.023$ ), as Perceived chance creates demanding situations on utilization of mobile banking [44] and consequences in security related assignment supporting ( $h_6$ ) that perceived threat negatively effects the use of cellular banking ( $\beta = -\text{zero}.279$ ;  $p = 0.000$ ). The observe also helps exceptional of cell banking services expected through customers' and confirms the high quality effect of satisfactory at the pleasure of using mobile banking for economic offerings  $h_{10}$  ( $\beta = 0.296$ ;  $p = 0.000$ ). As for the impact of fee of use, empirical evidence is found to accept  $h_{11}$ , demonstrating the relevance of price because the challenge to cellular banking users' degree of delight ( $\beta = -\text{zero}.207$ ;  $p = 0.000$ ), because it seemed in studies by . Where, there may be no empirical proof to reject  $h_2$  ( $\beta = 0.143$ ;  $p = 0.05$ ), for that reason Supporting to illustrate the high-quality effect of perceived functionality so that you can use mobile banking. So, regarding the outcomes of private interaction, empirical proof is found to simply accept speculation  $h_1$ . Consequently, we can affirm that private interplay does no longer get significance in banking motivating customers to contain in human loose Mobile banking ( $\beta = 0.200$ ;  $p = \text{zero}.001$ ), which is a contradiction of the findings established in studies by in the mobile banking context. So, the absence of non-public interplay poses no mission in banking sports and therefore motivates the use of mobile baking technology. Furthermore, there is empirical proof of the have a look at on the impact of perceived safety ( $h_9$ ) deterring customers from the use of cellular banking ]. Also, the importance of perceived security on the usage of cellular banking ( $\beta = -\text{zero}.062$ ;  $p = \text{zero}.184$ ) is rejected inside the take a look at that safety deters customers from cell banking adoption. Accordingly, the take a look at does no longer prove that perceived protection deters customers from adopting mobile banking services. In addition, hypothesis ( $h_{12}$ ) concerning wonderful impact of purchaser satisfaction on the use of cell banking isn't always supported ( $\beta = 0.023$ ;  $p = 0.379$ ). So, purchaser pleasure reasons a large project to use cellular banking offerings for economic transactions.

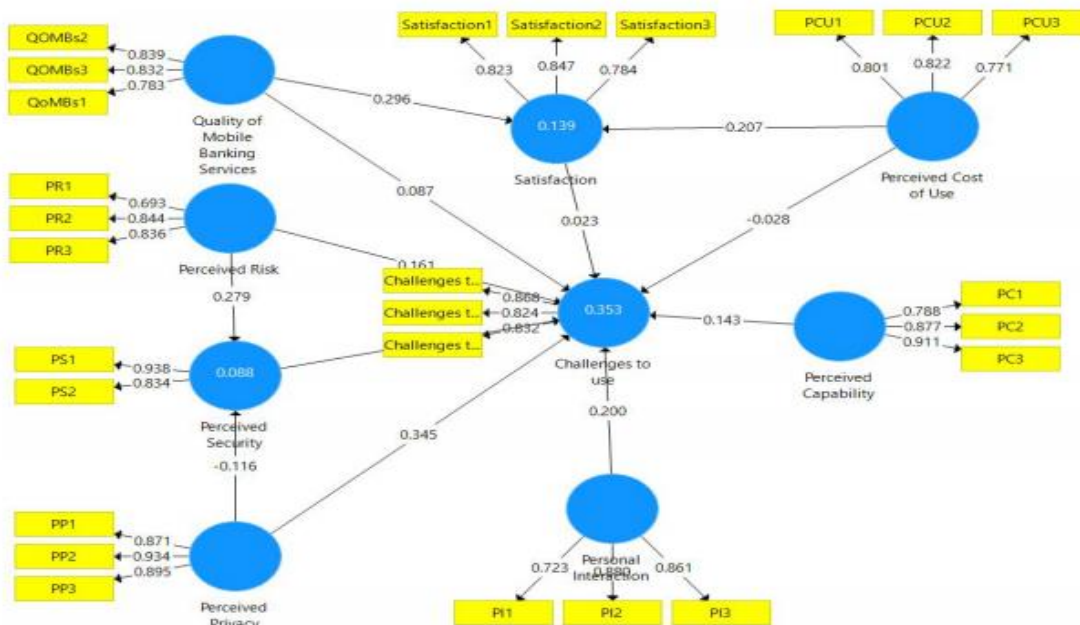


Figure 3. Analyzed Research Model (Standardized betas)

## Conclusions and implications

### Main conclusion

Challenges that have the greatest influence on the intentions to adopt mobile banking, in addition to providing conclusions past mere descriptive analysis. To obtain such objectives of the study, we've brought a few constructs primarily based on tam model, which can be applicable to challenges to mobile banking adoption inclusive of perceived functionality. Value, nice. Danger, privacy, and patron pleasure. An online survey has been released to collect and examine records of the proposed hypotheses the usage of smart pls. That is an important issue due to the fact customers may additionally now not adopt cellular banking generation due to existing Challenges of cellular banking era version. It's far the prediction of banking institutions that when clients Start to use cellular banking generation and grow to be famous with the carrier, they will be inclined to continue the usage of it, especially whilst a demanding situations are resolved with superb carrier [26]. Consequently, the better the demanding situations of satisfactory of cell banking service are, the greater the extent of user dissatisfaction might be, which will translate into avoidance of cell banking generation adoption. On the other hand, consistent with the effects, high-quality of cellular banking offerings act as a key Antecedent to the usage of mobile banking and consumer variation along side perceived price of use, which impact consumer delight. On this experience, the greater satisfied customers are with the generation, the much more likely they could be 'supplied demanding situations are mitigated' to retain using the cellular carrier. But perceived cost of use and great of cell banking services to apply have not established to create direct undertaking in cellular banking offerings, only we are able to nation that the connection may be very negative having no explanatory electricity to illustrate within the case.

Primarily based on those demanding situations recognized within the have a look at, a Version was proposed. This process enabled the mixing of the structural relationships with the variables accomplished Via discriminant validity evaluation and made it viable to demonstrate which of these demanding situations high-quality explains reluctance to cell banking version. From the structural version, the analysis and review of the outcomes displays that the variables that have the greatest demanding situations on mobile banking variation are perceived functionality, first-rate of cell banking services, perceived fee, perceived privateness, and purchaser pride. Nice of cellular banking services and perceived value of use additionally emerge as principal demanding situations, although indirectly with the involvement of internet access value and on occasion failure to get quality products. In step with these results, perceived threat creates venture to cellular banking Adoption. Hence, studies and information evaluation of the research make several theoretical and practical contributions inside the Mobile banking generation. First, and after the analyses had been completed, we found that the perceived capability, with the most powerful venture, determines intention to use cell banking. Those findings suggest that as consumer demanding situations to Cellular banking



adoption exists, customers might be extra possibly to avoid the use of cellular banking technology. In addition, if banking establishments need to maintain strong relationships with their customers, this can generally arise automatically when they provide services minimizing challenges in cellular banking. It can be showed that privacy of the usage of mobile banking has a direct impact on adoption to cellular banking. That is why, privateness of the use of cell banking must be ensured to offer protection of clients' records.

However, in this look at, the price of use, and exceptional had been big Elements in the patron pleasure of cell banking use. This end result may represent the attributes of the respondents Inside the sample, who were broadly speaking professionals familiar with and familiar with interacting with cellular banking.

This challenges probably arise due to the level of current technologies which might be incorporated into the layout of all cellular banking applications inside the marketplace identifying extraordinary challenges for his or her use that restrict users' from free use of cellular banking in the course of covid-19 pandemic. In different words, clients want to reflect on consideration on the level of accept as true with when using cellular banking due to the fact they want to stay their lives constantly related to this type of carrier because of extensive covid-19 pandemic. Perceived protection is a primary mission, on using cellular banking and on privacy. As for its challenges on Use, clients will undertake the cell banking generation less after they partner it with a high hazard because of the unpredictability that the utility includes for the clients and/or the feasible opposing results of Conducting on-line transactions. Moreover, the impact of this impact has been widely confirmed in numerous fields before covid-19 pandemic, and the effects of this take a look at do not assist and give a boost to the formerly formulated thought. Alternatively, the impact on privacy shows that whilst clients reflect on consideration on the acquisition of cellular banking to be risky, trust declines. Regarding agree with, with the help of labor through extraordinary researchers [17], this have a look at validates that it has an instantaneous dating to simply accept mobile monetary technology. As a result, customers will be less loyal when the cell banking services provided through banks build lower degrees of believe. Therefore, banks' best project is to lessen perceived risks to increase consumer recognition regarding consumers' perceptions of chance and accept as true with can be a barrier for cell banking transactions. As a consequence, it could be declared that customers affixed greater cost to banking entities that bring agree with and subject over reducing the danger related to these offerings.

### Contributions to Literature

First, the variables that specify the demanding situations on the use of cell banking and their effects on the usage of mobile monetary technology have been tested. The look at contributes by using coming across the causal relationships among excellent of mobile banking provider and satisfaction, value of use and pleasure, satisfaction and demanding situations, first-class and venture, cost of use and assignment, perceived threat and perceived protection, perceived privacy and perceived security, perceived security and mission, non-public interplay and undertaking, and perceived capability and undertaking to use cellular banking, in addition to the relationship that stimulated this study, namely between demanding situations and use of cell banking in covid-19. Consequently, for this ever increasing adverse effect of covid-19 pandemic, in which cellular banking era helps everyday existence of people across the world, the look at's corroboration of a considerable relationship among cell banking and demanding situations to

Use is an appealing finding inside the financial literature because it's miles new and useful for growing a singular Studies angle. 2nd, a version was advanced for the analysis, in which the relationships among variables that describe demanding situations to use cell banking have been included. To assemble the version, a number of the maximum broadly diagnosed Fashions on mobile banking were reviewed. It's far worth noting that this model describes a brand new relationship (among challenges and use of cell banking), while other research have defined only the goal to use. 1/3, consistent with the examine of the variables that hinders to the usage of mobile banking, a few constructs are not big. Those constructs encompass perceived hazard, high-quality of mobile banking offerings and delight, in particular due to the fact the focal point of this take a look at become on demanding situations to apply mobile banking in covid-19 pandemic, in contrast to other research which have mainly focused on exploring the Factors that influence the purpose to apply cellular banking. Consequently, it's far really worth bringing up that once Analyzing the historical past of the mission of a new generation along with use cell banking in pandemic situation, those aforementioned variables want no longer be examined due to the fact the effects will likely be the identical, as described within the conclusion part of this paper. Sooner or later, the dimension device become designed the usage of the prevailing

literature, with tests of its validity and reliability. It can be used for in addition studies in future.

### Managerial Implications

Demanding situations influence on adaptation method that banks have to constantly and systematically analyze the elements of the use of cell banking that cause reluctance of person to undertake cell banking for economic transactions (mainly delight to use). As in previous research, it has been located that a greater diploma of satisfaction way a better range of unswerving customers. Consequently, banks need to recognition on knowledge present demanding situations and introducing extremely good mobile banking services. The impact of agree with on demanding situations to using cell banking indicates the need for a series of moves to beautify agree with degree on cellular banking. First, integrity and transparency are super matters due to the fact they ought to comply with any Guarantees and commitments made.

2d, the bank's communicate coverage ought to promote the accomplishment of objectives that accompany those of clients whilst supporting the recognition of client properly-being. 1/3, banking entity need to make sure considerable investment and provide assets to enhance venture performance and affirm that clients perceive greater competence and skill in the use of mobile banking. The function of perceived capability within the use of cellular banking have to be controlled properly as customers will behavior their transactions the use of cellular banking offerings because of deadly spread of covid-19. Banks have to make certain their clients that the non-public data will remain exclusive and that there are encoded facts systems to guarantee privateness and protection in mobile banking transactions. Especially, for customers to perceive the bottom viable hazard, clean and comprehensible privateness rules have to be publicized. At the financial institution's internet site. Banks need to also give an explanation for the technique and statistics on a way to address demanding situations in case they get up, in addition to presenting commands about how to use cell banking offerings safely to decrease protection and danger involved in cell banking transactions. Therefore, to expand mobile banking customers' purpose, banks have to paintings on minimizing the challenges that customers have approximately the service. Eventually, thru technological upgrades, they must limit the demanding situations associated with mobile banking particularly in pandemic.

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