

## Perceptions and Emergence of Digital Banking During Pandemic - A Structural Equation Modelling (SEM) Approach

**Vishnu Murthy**

*Aditya Institute of Technology & Management, Tekkali, K  
Kotturu, Srikakulam Dist, Andhra Pradesh 532201.*

### Abstract

The study analyzes the perspectives and services of digital banking in India that has played a vital role in the lives of people given the pandemic of COVID-19 that has shattered many lives. The World we know has now entered and being sustained in modern culture which make people buy, sell and communicate from a single location. The objective of this study is to assess the impact of digitalization on traditional banking using Structured Equations Modelling (SEM), to understand the adoption of online banking uses by the customers and the popularity of digital banking between different age groups. The study attempts to identify the rationale of launching comprehensive online transactions and it the same are safe from a security perspective. Future studies could be focused to determine if India as a nation may move from a plastic-oriented banking economy to completely cashless given that the banks now move from traditional approach to a digital world.

**Keywords:** Digital banking; Structured Equations Modelling (SEM); Ascertained ease of use; Service quality; Modeling; Technology adoption mode.

### Introduction

Digital banking helps to decrease a person's visit to a bank or remote themselves and he/she can access banking functions online using mobile phones, computer etc. It is an arrangement which helps people to do transactions like fund transfer, loan payments, EMI's, deposits and withdrawal of cash virtually without visiting the bank branches. Due to its several benefits the COVID-19 pandemic has fast-tracked the process of digital banking.

This helps the users in quick transactions and 24/7 banking facilities. Digital banking also helps people go cashless and reduce the spread of COVID-19. Many users shifted to mobile banking for their own safety and convenience.

The mobile banking registrations increased to 200% in April [1,2]. The pandemic pushed almost all people despite their age adopt new technology and pressured all banks who were deliberate to adopt these skills to come up with digital banking practices. Almost all banks responded and made these services available [3].

The transaction between two parties is a lot quicker online compared to offline banking transactions. People can use various methods of UPI (Unified payments interface) like Google pay, Phone-Pe, Paytm etc. There are many banking mobile apps such as Kotak 811, SBI YONO, Axis mobile etc. [4].

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**Correspondance to:** **Vishnu Murthy**

*Aditya Institute of Technology & Management, Tekkali,  
K Kotturu, Srikakulam Dist, Andhra Pradesh 532201,  
India.*

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## Literature review

Covid-19 Pandemic and Lockdown Impact on India's Banking Sectors: A Systematic Literature Review [5,6].

This research paper emphasizes on the heavy impact of COVID-19 on banking institutions, educational institutions, public and private offices and interruption of transport throughout the whole country [7]. The severe effects of the pandemic are shown in this report. The study frameworks the sudden operation of banking services [8] during the Covid-19 catastrophe and how banking sectors helped the people in numerous ways.

"Customer Preference and Perception towards Digital Banking" -Omar Sultan [9].

The main point of the study is to explore the important issues that impact performance of digital banking to study the break-down of client's insight towards banking. The study displays that the most of the people in the country mobile transactions instead of visiting the bank because they are appropriate, easy to use, safety, time-efficient, reliability [10].

"A study on customer approval of UPI" – Ravish Rana

The study reports that acceptance of mobile payment is because of the knowledge a person has or the information he gains from the internet [11]. If he/she has more knowledge on how the mobile banking works then they will definitely prefer mobile banking [12]. It is found that in some states and urban areas with high level knowledge skills are inclined to take the possibility of digital payment. The growth in use of smartphones is high by the adoption of digital banking.

"Analysis of banking Sector in India: Post COVID-19" – Ashish Bagevadi & Dewang Dhingra

This study emphasizes on pre and post consequence of Covid 19 on the lending institutions. The way people will adopt to banking payments post COVID-19. It also emphasizes on how the COVID-19 is going to affect the environment [13].

"A study on Impact of Covid-19 on banking sector: An Indian Perspective" dated June 2020 [14].

This research focuses on crippled health systems, manufacturing problems, supply chain disturbance, decrease in productivity of corporate. Financial and banking sectors suffer from losses.

"The impact of COVID-19 on consumer behaviour in retail banking" - Gârdan Daniel Adrian & Epuran Gheorghe [15].

The main goal is to inspect the effect of the catastrophe on buyer behaviour in banking. The field survey based on questionnaire is performed. Many responses were collected from the people. The study shows perception on the facilities provided by the bank throughout and the ongoing catastrophe and corroborates theoretical method regarding the facilities.

"A meta-analysis of mobile commerce adoption and the moderating effect of culture" – School of Information Management [16].

This study aims to determine the overall issues that surprise mobile banking in the country. The previous practical trainings on individuals' mobile banking behaviour are shown and the projected mobile banking acceptance model is confirmed with operational modelling.

"A Cultural Comparative Study of Mobile Banking Adoption

Factors" - C Changchit, Tim Claus & R Lonkani ~ Journal of Computer Sciences [17].

The paper examines on how banks need to play an important role on which features are inspiring or disheartening the people from using mobile facilities. It further investigates whether the customers' perceptions are prompted by society [18].

*Consumers' mobility, Expenditure and Online-offline substitution response to COVID-19: Evidence from French Transaction Data" [19].*

This paper examines people's behaviour in reply to a number of wide-ranging phenomena. We come across a lot of fluctuations in changes in consumers taste, defensive actions even there is an announced limit.

*"The promotion of digital transactions during COVID-19"- H Mansour [19].*

This article proves to portion whether the catastrophe has encouraged administrations to follow certain rules and actions to promotion of mobile banking and monetary transactions to inspire events and attain financial presence.

*"Banking Sector Performance During the COVID-19 Crisis"- Alvaro, Claudia [20].*

The study analyses charges of the bank around the world to measure effect of the catastrophe on the banking institutions. The paper also shows the role of monetary sector role announcements on the act of bank activities using certain policies. The research suggests that the bank is under serious pressure with the money being drifted from their domestic markets and other non-banking institutions.

*"Social media uses of mobile banking shift during COVID-19 catastrophe"- Mohammad Naem [20].*

The research focused mainly on how people made habit of the community apps during the outbreak. This study shows that staying at home and following social distancing has improved the amount of time people stay connected with their phones and the amount of knowledge they are gaining at the same time.

*"Digital technologies in micro and small enterprise: evidence from Uganda's informal sector during the COVID-19 pandemic"- Kasimu Sendawula [21].*

This study is conducted in Uganda. The study is to explore the intension of growing businessman to implement modern skills as an approach to assemble growth of Uganda's economy. This study accepted a best quality, various case design. The review team consisted of the owners operating in the country.

*"The Dynamic Relationship between FinTech and Social Distancing under COVID-19 Pandemic: Digital Payments Evidence [22].*

It examines the progress under limits of physical distancing under the Tech. The study is been conducted. The complete results show that social distancing may affect digital payments. This has been continued for grocery, pharmacy and other working institutions lacking various needs.

*"Cashless Transaction in India: A Study"- Preethi Garg & Manvi Panchal [23].*

This study proves that people is showing positive opinion about banking transactions online and helpfulness of cashless

country but one key problem in the working of cashless country is hackers and other computer masterminds. The strengthening of Internet Security from defence against online frauds should be achieved. This implementation of cash less system in India requires the people to follow many measures to bring transparency and efficiency.

*“Community Banking and Its Impact on America: Updated Analysis for the COVID Economy”- Marshall Lux*

This working study focuses on the banking industry of the US community, trends regarding to development in the past five years. The perspective includes both from past and present-day situation regarding the banking sector with the goal of understanding which community bank assists better.

*“Online banking adoption: A factor validation and satisfaction causation study in the context of Indian banking customers”- Pallab Sikbar [19].*

The study reflects of five reasons toward mobile banking implementation in the situation of people in the country and confirms the standard. The complete satisfaction of customers during the effect of authenticated factors.

*“Exhibiting the difficulties of internet banking in the Indian situation” [24].*

This study shows that the online banking is broadly accepted and valued in emerging and advanced countries and is making its way to become a part of day-to-day life but there are many customers who resist these banking facilities. Therefore, the main goal is to identify the barriers holding them.

### Research methodology

#### Research design

The primary data sources were utilised in this project report. This study employs a descriptive research design [25]. The primary data consists of original information acquired from a sample size of 75 respondents via Google forms. The basic data of 75 sample size is acquired via questionnaire to analyse customer attitudes concerning digital payments through various apps [26]. Frequency tests are used to investigate a customer’s demographic profile. A test was performed to determine the significance of the hypotheses. A frequency test was showed to regulate demographics and the influence of various aspects on customers [27].

The study is a causal investigation since it is carried out to test and validate hypothesis and correlations [28] that have been established [29]. The research looks into the connection between the technology and human relationships. It also includes a variety of people’s viewpoints on technological advancements.

#### Objectives of the study

- A. To explore the adoption of mobile banking by the people.
- B. The effect of pandemic on traditional banking.
- C. To identify the acceptance of digital banking between different age groups.

➤ Consumer’s attitudes regarding digital payment applications during pandemic are influenced by the Convenience: Moderately visiting the bank through these hard times, it is informal to make transactions at household by means of various apps [30].

➤ Facilitates the transaction process: It is preferable to switch to online transactions because of the fast spreading of Corona virus. The banking institution have come up with convinced banking applications to make transactions convenient to clients of their banks [31].

➤ Customers have several options: Customers can use various apps to make a transaction if one of the apps doesn’t work or is hard to operate [32,33].

#### Data collection

The information is gathered through primary research, which includes questionnaires as well as secondary research [34] which includes several publications released by researchers who studied using technology to get through difficult circumstances [35].

#### Sampling Design

The basic data of 75 sample size is acquired via questionnaire to analyse customer perceptions towards digital payment apps. To perform the research study, a total of 75 respondents were gathered [36]. Individuals who are comfortable and not so comfortable with using online services and applications for their day-to-day needs to make transactions for their daily needs were the target demographic [37]. The study is based on a working population between the ages of 13-65. It is a non-replacement random sampling [38]. There are 75 people in the sample.

#### Tools for data analysis

To investigate the demographic profile of customers, Chi square and frequency tests are used Global Alliance for Banking on Values (GABV) [39]. The hypotheses were tested using Chi square test to determine their significance [40]. The demographics and influence of factors on customers were investigated using a frequency test.

#### Limitations of the study

- Only 87 respondents are considered for the study.
- The study is limited to people with knowledge and skill to operate.
- The study was relevant to the current condition, knowledge and judgement of the people [41,42].
- Only between the age group of 13-65.

#### Data analysis and interpretations

In the research process, analysis and interpretation are crucial processes. The goal of the analysis is to organise, classify and summarise the obtained data so that it can be better understood and analysed in order to provide answers to the research questions. The search for the broader significance of discoveries is referred to as interpretation. Without interpretation, analysis is incomplete, and interpretation is impossible without analysis [43]. As a result, they are both interdependent.

#### Statistical representation - Frequency analysis

One of the statistical metrics used to describe the characteristics of the sample or population as a whole is percentage analysis. Percentage analysis entails computing measurements of the study’s variables and the results are straightforward to interpret for the reader [44]. The frequency table is directed on some of the major questions.

**Table 1:** Gender.

Valid	Frequency	%	Valid %	Cumulative %
Male	60	69.0	69.0	69.0
Female	27	31.0	31.0	100.0
Total	87	100.0	100.0	

**Interpretation:** In the research, it was found that men use the digital banking platform more than women. As per the research the male totalled up to 53 where 21 females made use of the digital payments during pandemic.

**Table 2:** Age group.

Valid	Frequency	%	Valid %	Cumulative %
13-30	65	74.7	74.7	74.7
31-45	11	12.6	12.6	87.3
45-65	11	12.6	12.6	100.0
Total	87	100.0	100.0	

**Interpretation:** In comparison to other age groups, the table above reveals that persons aged 13-30 are majority who have participated in this survey.

**Table 3:** Made use of payment apps during pandemic.

Valid	FREQUENCY	%	Valid %	Cumulative %
Yes	74	85.1	85.1	85.1
No	13	14.9	14.9	100.0
Total	87	100.0	100.0	

**Interpretation:** Table shows that 74 people out of 87 made use of digital payment apps out of which 53 were male and 21 were female and 13 didn't make use of the services.

**Table 4:** Digital applications.

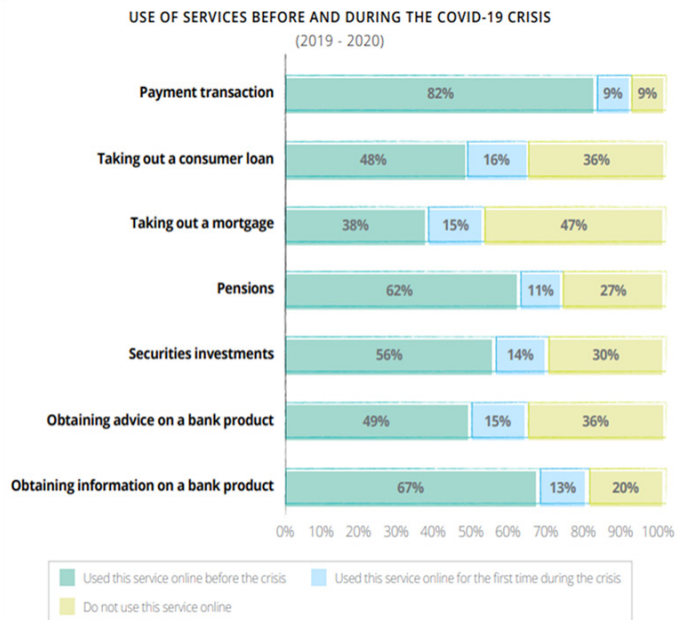
Valid	Frequency	%	Valid %	Cumulative %
Google pay	39	44.8	44.8	44.8
Paytm	15	17.2	17.2	62.0
Phone-Pe	13	14.9	14.9	76.9
Oth. bank apps	7	8.0	8.0	84.9
None	13	14.9	14.9	100.0
Total	87	100.0	100.0	

**Interpretation:** According to this above table most used application this pandemic is Google pay followed by other BHIM and bank provided applications.

**Table 5:** Difficulties faced during transactions online.

Valid	Frequency	%	Valid %	Cumulative %
Network issues	20	23.0	23.0	23.0
Bank server down	37	42.5	42.5	65.5
Cash debited but not credited	19	21.8	21.8	87.3
No	11	12.6	12.6	100.0
Total	87	100.0	100.0	

**Interpretation:** The above table shows that the users totalling to 42.5% of digital platform face issues of poor bank server followed by 23% users facing network issues, 21.8% users facing cash debited from their account but not reflected in their payee's account and 12.6% people facing no issues at all during this pandemic.



**Source:** Deloitte Digital Banking Report Trend analysis 2020-21 (<https://www.deloittedigital.com/us/en/offerings/next-gen-digital-banking/digital-banking-redefined-in-2021.html>).

**Table 6:** Reasons for not adapting digital payments.

Critical Factor (F)	Frequency	%	Valid %	Cumulative %
Lack of Knowledge	0	0	0	0
Dependent on Children	3	3.4	3.4	3.4
Fear of Fraud	8	9.2	9.2	12.6
Traditional Banking	2	2.3	2.3	14.9
None	74	85.1	85.1	100.0
Total	87	100.0	100.0	

**Interpretation:** The above table shows 8 people out of 87 don't use digital applications because of fear of fraud/scam, 3.4% are dependent on children to do the work and 2.3% believes in traditional banking. According to the research the other 74 makes use of the digital payment's applications.

**Table 7:** Preferred mode.

Critical Factor (F)	Frequency	%	Valid %	Cumulative %
Online Banking	59	67.8	67.8	67.8
Offline Banking	28	32.2	32.2	100.0
Total	87	100.0	100.0	

**Interpretation:** The above table shows that 67.8% people prefer online banking whereas 32.2% prefer offline banking services.

**Table 8:** Online Payments post Covid-19.

Critical Factor (F)	Frequency	%	Valid %	Cumulative %
Pre-covid	57	65.5	65.5	65.5
During Covid	16	18.4	18.4	83.9
Never	14	16.1	16.1	100.0

**Interpretation:** The survey shows that 87.4% consumers will still choose digital payments post Covid-19 and 12.6% has shown no interest on digital payments.

Table 9: Adapting digital platform.

Critical Factor (F)	Frequency	%	Valid %	Cumulative %
Pre-covid	57	65.5	65.5	65.5
During Covid	16	18.4	18.4	83.9
Never	14	16.1	16.1	100.0
Total	87	100.0	100.0	

**Interpretation:** The survey shows that 65.5% people had already adapted digital payments pre-covid, 18.4% people during covid and 16.1% has never adapted the digital payments during covid.

Table 10: Reasons for the visit.

Critical Factor (F)	Frequency	%	Valid %	Cumulative %
Deposit	39	44.8	44.8	44.8
Withdraw	27	31.0	31.0	75.8
Loan	7	8.0	8.0	83.8
RTGS/NEFT	7	8.0	8.0	91.8
Open account	7	8.0	8.0	100.0
Total	87	100.0	100.0	

**Interpretation:** The above table shows that 44.8% people visited the bank to deposit, 31% to withdraw, 8% to raise a loan, 8% to transact money through RTGS/NEFT and 8% to open an account during pandemic.

Table 11: Visits to bank after lockdown.

Critical Factor (F)	Frequency	%	Valid %	Cumulative %
Once a week	4	4.6	4.6	4.6
Once in a month	16	18.4	18.4	23.0
Twice in a month	16	18.4	18.4	41.4
Once every three months	51	58.6	58.6	100.0
Total	87	100.0	100.0	

**Interpretation:** The table shows that less than 5% people visited the banking premises Once a week, 18.4% visited once in a month and twice a month and 58.6% visited once every three months. Consolidate Factors – Reliability, average variance extracted and discriminant validity [45,46].

#	CRC	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	F-10	F-11
F-1	1.455	1.045										
F-2	1.154	0.744	0.116									
F-3	1.508	1.098	0.613	0.859								
F-4	1.549	1.139	0.455	0.496	1.018							
F-5	1.53	1.12	0.54	0.614	0.569	0.823						
F-6	1.496	1.086	0.429	0.6	0.656	0.662	0.843					
F-7	1.474	1.064	0.436	0.488	0.509	0.529	0.612	0.912				
F-8	1.4	0.99	0.462	0.739	0.412	0.462	0.635	0.479	0.823			
F-9	1.54	1.13	0.356	0.554	0.358	0.438	0.427	0.481	0.744	0.838		
F-10	1.423	1.013	0.321	0.332	0.323	0.34	0.32	0.43	0.409	0.37	0.854	
F-11	1.558	1.148	0.387	0.441	0.332	0.34	0.334	0.338	0.507	0.476	0.43	0.813

**Notes:** CRC-composite reliability co-efficient; F-1: Attribute of portal, F-2- Dependability, F-3- Facilitative, F-4 – Completion, F-5 – Efficiency, F-6 – Confidentiality, F-7 – Smart with Simplicity, F-8 – Recognized reliability, F-9 – Value Added Services, F-10 – Remittances, F-11 – Confirmations & End report.

Findings

The initial conditions that measure Social factors (SF), environmental factors (EF,) and behavioral factors (BF) which are linked to the expenditure boost have been described by a set of variables which are  $h^A$ ,  $h^E$ , and  $h^Q$ . Thus, [47] the general form of the three equations model is:

- (1)  $Income^* = f (Expenditure^*, Population^*, h^A)$
- (2)  $Expenditure^* = g (Income^*, Population^*, h^E)$
- (3)  $Population^* = h (Income^*, Expenditure^*, h^Q)$

Based on the equilibrium framework of the model, a simple liner relationship among the variables can be presented as (where I is income, E is expenditure, and P is population): [48].

- 4)  $A^* = M_{0A} + N_{1A}F^* + N_{2A}Q + \sum \chi_A h^A$
- (5)  $F^* = M_{0F} + N_{1F}A^* + N_{2F}Q + \sum \chi_F h^E$
- (6)  $Q^* = M_{0Q} + N_{1Q}A^* + N_{2Q}F + \sum \chi_Q h^Q$

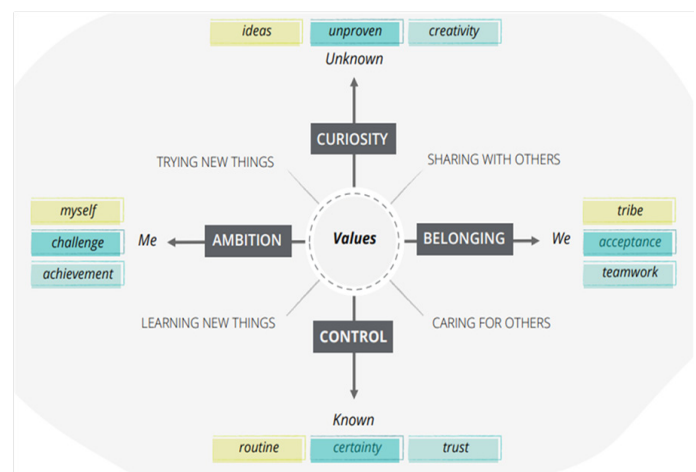


Figure 2: Isolated Variables for Processing Digital Banking Transactions. Source: Deloitte Digital Banking Report Trend analysis 2020-21. (<https://www.deloittedigital.com/us/en/offers/next-gen-digital-banking/digital-banking-redefined-in-2021.html>)

Therefore the partial adjustment equations to the equilibrium levels are as:

- (7)  $A_t = A_{t-1} + \varphi_I (A^* - A_{t-1})$
- (8)  $F_t = F_{t-1} + \varphi_E (F^* - F_{t-1})$
- (9)  $Q_t = Q_{t-1} + \varphi_Q (Q^* - Q_{t-1})$

Referencing the Levels of Income, prospects, the initial equations and their adjustment values are, [49]. The speed of adjustment co-efficient are: Equations Seven and Nine are substituted and hence the model is [50].

- (10)  $\Delta A = M_{0A} + \beta_{1A}A_{t-1} + N_{2A}Q_{t-1} + N_{3A}Q_{t-1} + r_{1A}\Delta E + r_{2A}\Delta Q + \sum \chi_A h^A$
- (11)  $\Delta F = M_{0F} + N_{1F}I_{t-1} + N_{2F}Q_{t-1} + N_{3F}Q_{t-1} + r_{1F}\Delta I + r_{2F}\Delta Q + \sum \chi_F h^E$
- (12)  $\Delta Q = M_{0Q} + N_{1Q}I_{t-1} + N_{2Q}Q_{t-1} + N_{3Q}Q_{t-1} + r_{1Q}\Delta I + r_{2Q}\Delta E + \sum \chi_Q h^Q$

Equations 10-12 estimate short-term adjustments of income, ease of payment, and services taken population ( $\Delta A$ ,  $\Delta F$ , and  $\Delta Q$ ) to their long-term equilibriums ( $A^*$ ,  $F^*$  and  $Q^*$ ). Where the intercepts of each equation are indicated by the  $N$  values [51].

**Suggestions**

- The banks should show attention towards maintaining their servers since people don't get their transactions done in time.
- They should also aim to provide more offers than other applications.
- Consumers of all gender use different applications to make transactions. The banking institution who provides mobile banking services should see to it that no server issues occurs because people might change their use of application.

**Conclusion**

A lot can happen in a decade. Travel to 2030 to see what the future of Digital banking holds for the everyday consumer. Will physical banking become a thing of the past, and how will technology have made services even easier and safer to access? These were some of the questions this research sought to respond to.

➤ A decade goes so fast within the last 10 years technologies changed the way citizens banked; mostly connected to the mobile phones. However, by 2030 the everyday banking experience could be entirely virtual. By then, more than 50 Crore Indian's will have digital bank accounts on digital platforms and just 15-20 of so-called heritage financial services firms would have survived.

➤ It might not be a surprise to note that, some banks will be completely virtual facilitated by open banking fuelled by data stored and shared on the cloud and made faster and safer by Block-chain technology. If Customers want; they would be able to get the equivalent of a private banking service as data aggregators cross-reference spending habits with other parts of that person's online life ranging from specific travel plans to the social media interactions, whereby creating a unique profile for the bank to provide with bespoke services.

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