

## **COVID-19 impact on e-commerce digital transactions on Banking Institutions**

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### ***To Cite this Article***

Pratik Badri, “COVID-19 impact on e-commerce digital transactions on Banking Institutions” *Journal of Science and Technology*, Vol.6, Issue 06-Nov 2021, pp255-268

### ***Article Info***

Received: 30-10-2021    Revised: 08-11-2021    Accepted: 19-11-2021    Published: 29-11-2021

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### **Abstract**

*The outbreak of COVID 19 affected the digital transactions in banking institutions especially in e-commerce. It helped to increase the uptake of the digital payment and online banking solutions with the ac corresponding e-commerce sales shooting by 23 percent. Lenders adapted the importance of the upgrade in the payment system and embraced digital solutions, cloud services, and blockchain. However, other factors like the security threats, specifically hacking as well as the cashier's expectations of regulations were realized. This was brought about when the COVID-19 pandemic broke, which saw people shift their operational activities online hence accelerating future banking changes.*

**Keywords:** COVID-19, Digital Payments, Banking Institutions, E-commerce, Cybersecurity.

## **I. INTRODUCTION**

### ***A. Background to the Study***

The outbreak of the COVID-19 pandemic has significantly changed e-business and transactions as well as influencing banking organisations. It forced the move toward digital, contactless practices: payments, banking and anything else involving human contact [6]. Hence, e-commerce sales grew by 23%, and the usage of digital payment was enhanced, where several countries recorded an upsurge in cashless mode of payment. Free liabilities include such strategies as embracing online banking, cutting down the number of working hours, and developing better customer service methods. However, some difficulties remained, for example, cybercrime vulnerabilities and lack

of offices in remote areas. In general, the pandemic has affected the relationship of the consumer and banks and brought into the spotlight how important it is to have strong digital tools in the future.

### *B. Overview*

This study aims to analyse the effects of COVID-19 on e-commerce digital transactions in banks. This research examines the impact of the COVID-19 pandemic on the use of digital payments and the approaches banking organisations adopt in enhancing their payment services [11]. The study also discusses the place and function of e-wallets, mobile banking, and e-money in overcoming adversities related to post-pandemic business transactions. With these variables, the study aims to evaluate the impact of these factors on how consumers are likely to behave, difficulties that banks are likely to encounter in the future and opportunities in the digital banking field. This implies that it will greatly assist in developing a working strategy for change in banking regarding digitisation [12].

### *C. Problem Statement*

The rationale for choosing this topic for the research is related to the question of how COVID-19 affects e-commerce digital transactions in banks. COVID-19 escalated technology usage while creating new issues like cyber security threats, disruptions of business operations, and compliance concerns. This balances innovation in the banking industry and the sustainability of financial institutions by coming up with concrete measures alongside addressing customer protection and financial inclusion [19]. Moreover, the threats connected to flexible financial technologies and new digital banks appeared on the market. These are some of the challenges and opportunities discussed in this research to enhance knowledge of how banking institutions can operate and survive in the post-pandemic world.

### *D. Objectives*

Some of the research objectives are: 1. To assess the effects of COVID-19 on e-commerce digital transactions in branches of banking institutions. 2. To determine the measures and adjustments that banking institutions have employed towards their digitisation during the pandemic. 3. To assess the possibilities and limitations of the future of digitisation in banking institutions.

### *E. Scope and Significance*

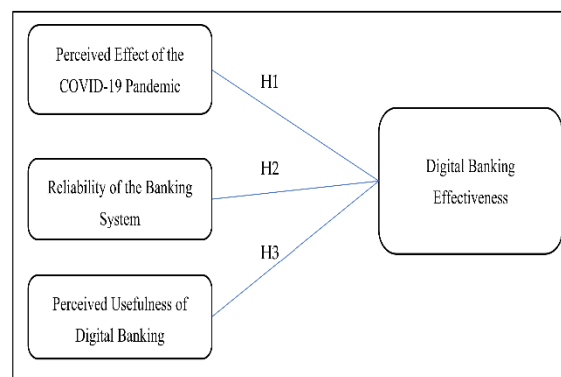
The focus of this study is to assess the impact that the COVID-19 crisis has had on e-commerce digital transactions in the banking industry [15]. They outlined future trends of payments, the

problems of banks and the response from the regulation bodies. The importance of these changes lies in analysing how this change affects consumers, ways and means of access to banking services, and competition. This study explains what can be done in subsequent digitalisation, strengthening the financial position and providing the consumer with increased protection [22]. This study is important and valuable for the policymakers, financial institutions and companies that aim to succeed in the use of digital technologies in the future, after such kind of crises as the COVID-19 pandemic.

## II. LITERATURE REVIEW

### *A. Assess the effects of COVID-19 on e-commerce digital transactions in branches of banking institutions*

COVID-19 has affected e-commerce digital transactions in banking sectors, making it more popular due to the digital transactions and online banking systems adopted during this period. The increase of non-cash payments The measures of social distancing and limitations on movement due to lockdowns prompted consumers to perform most of the payments online, boosting the figure. Banks have been forced to upgrade their payment systems to match those of the new entrants in financial technology and meet new regulations.



**Figure 1: effect of clients' perceived usefulness, reliability, and COVID-19 pandemic on digital banking effectiveness**

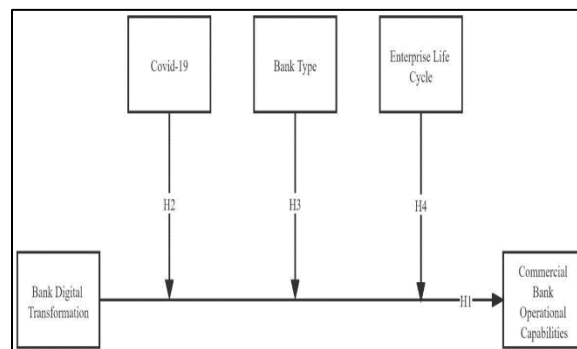
[23]

The other problems that have emerged include the threat of cyber security attacks, because there has been an upsurge in the cases of cyber-attacks carried out against bank consumers. Nevertheless, there have been several aspects associated with digital banking services where consumers have expressed their satisfaction with the services offered because they perceive that banking services

through the Internet are secure. In another way, the pandemic has been seen to have brought a positive change in an area that has increased financially excluded persons' access to financial services in areas of digital payments.

*B. Determine the measures and adjustments that banking institutions have employed towards their digitisation during the pandemic*

Over the recent past, and especially during the COVID-19 outbreak, banking institutions have adopted several measures and changes to drive digital transformation. Accordingly, as reported, they have shifted their call, online, and mobile services to fulfil this rapidly growing digital need, as Deloitte identified. This has equally involved the complete overnight virtualisation of workforces and operations, improving remote work and digital payments.



**Figure 2: COVID-19, Digital Transformation of Banks, and Operational Capabilities of Commercial Banks**

[24]

Banks have also sought to invest in ways to create seamless, integrated customer experience front-end where clients engage with its products and businesses through digital transformation, cloud application, and blockchain technology for more reliability and defence. Further, organisational adoption continues to reach out to fintech firms to avail services like spending analysis or easier loan processing. Due to advanced threats to Internet banking, the risks relating to IT have been enhanced to control the surge in Internet users. Also, they have opted to enhance automation systems and equipment to carry out their operations effectively during this pandemic.

*C. Assess the possibilities and limitations of the future of digitisation in banking institutions.*

The opportunities for further and future digitisation of banking institutions may have great potential or contain various limitations. On the flip side, banking has the prospect of being

transformed by AI, blockchain, cloud, and other digital advancements, given that customers will be offered highly personalised services, transactions will be processed in real time, and financial systems will be safeguarded from hackers. AI makes customer relations satisfying as well as blockchain for international transactions safe. Furthermore, it will make it possible to include fintech clients as channels for service delivery that enhance service delivery by delivering integrated solutions. Nevertheless, it is possible also to mention certain difficulties. So, the transition to a modernised legacy system is often a tremendous challenge and entails multiple expenses to warrant input and integrate the data for the use of AI technology. Infosec threats are still very relevant despite a higher level of connectivity to banking sys, with cyber attackers becoming more imaginative in their attempts. Also, human relationships with online technologies make digitisation more challenging, especially in areas like trust and regulation. However, when executed correctly, these challenges help various banks remain operationally efficient, satisfy clients and gain a competitive edge in today's evolving financial industry. Finally, the alterations in banking through technology will remain a work in progress based mostly on how institutions can build on the technology revolution to improve customer relationships and meet regulatory requirements.

### III. METHODOLOGY

#### *A. Research Design*

An exploratory research design is appropriate to apply when it comes to analysing the effects of COVID-19 on e-commerce digital transactions as it explains why and how COVID-19 affected them in banking institutions. This design enables the researchers to explore the root causes of the observed shifts in consumers' behaviour and the banking sector, for example, turning to digital banking services [18]. As such, explanatory research can help researchers establish the correlation between the pandemic and the changes in digital transactions to see how the banking industry remained relevant and the problems encountered by the organisations. It also provides insights about what changes are observed and how they occur, thus providing recommendations for change in digital systems.

#### *B. Data Collection*

Data collection for this topic was secondary and encompassed qualitative and quantitative approaches. The information obtained in the papers consists of theoretical frameworks and case studies of COVID-19's influence on e-commerce digital transactions in banking institutions from

Scholar, ScienceDirect, and JSTOR databases [2]. On the other hand, Quantitative data was collected on charts, market studies and statistics analysis. These quantitative sources were used to determine the trend and fluctuation of transactions and broaden understanding of banking during the pandemic [9]. By integrating these approaches, the researchers were able to examine such concerns about possible patterns and evaluate the overall impact of the pandemic on banking systems.

### *C. Case Studies/Examples*

#### ***Case Study 1: Impact of COVID-19 on Digital Payments in India***

The COVID-19 condition in India has changed the digital payments industry. The UPI and BHIM transactions reduced relatively, and by the end of April 2020, the values reached 30% in Rs has been reduced compared to January 2020. Nonetheless, recovery is observed in the Sq. As the lockdown measures spread, face-to-face payments shrunk, but online payments declined. By June 2020, UPI transactions were observed to have risen considerably due to businesses opening up and people's preference for UPI over cash [1]. For instance, there were increased volumes through predicate universal payment interfaces arising from the growth of contactless payments. This transition was backed by government policies and the growth of digital payment systems like the National Payment Corporation of India (NPCI) that drove UPI and some other platforms.

#### ***Case Study 2: E-Banking Adoption in Aligarh District, India***

A cross-sectional study conducted in Aligarh District, Uttar Pradesh, showed how e-banking has been helpful during the pandemic. There has been a rise in electronic banking services because more clients prefer to undertake transactions through electronic means due to reduced contact. A significant portion, 91%, of respondents highlighted the concerns of visiting banks with the COVID-19 risk, hence boosting the digitisation of banking. Other notable benefits comprised synchronal fund transfers (88%) and convenient billing payments (86%) [4]. In this case, by analysing demographical factors such as age and education on e-banking, the study established that such services' perceived reliability and security affect customer satisfaction. This change might signal a long-term digital change in the banking sector.

### *D. Evaluation Metrics*

Metric	Description	Measurement Criteria
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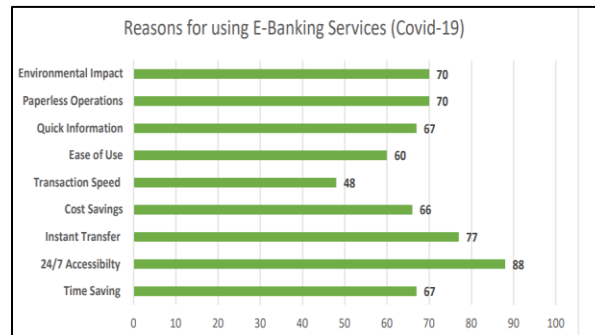
Transaction Volume	Measures the increase or decrease in digital transaction frequency during COVID-19.	Percentage change in digital transaction volume pre- and post-pandemic.
Customer Adoption Rate	Evaluate the rate at which customers adopt digital banking services.	Number of new digital banking users during the pandemic.
Cybersecurity Incidents	Tracks the number of cybersecurity threats or breaches during the pandemic.	Number of reported cyber-attacks and fraud cases.
Operational Efficiency	Assesses the effectiveness of digital transformation in banking processes.	Reduction in transaction processing time and operational costs.

**Table 1: Evaluation Metrics**

(Source: Self-created)

## IV. RESULTS

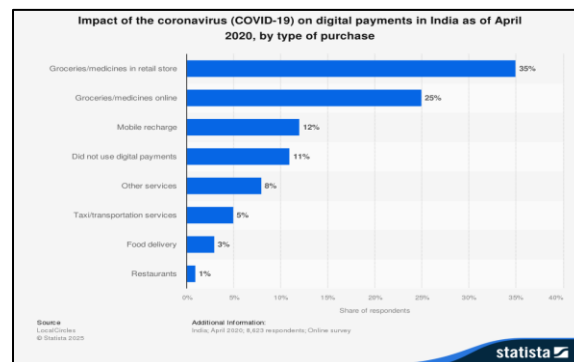
### A. Data Presentation



**Figure: Reasons for using E-Banking Services Covid-19**

[4]

As shown in the above figure, general research on the factors prompting using E-Banking services has been provided below. The study shows that 24/7 banking is the most significant provision because 88% of the participants recognise it. Other concerns that seem to have a fairly significant influence include Instant Transfer (77 per cent), Environmental Impact and Paperless Operation (70 per cent), Quick Information and Time Saving (67 per cent), Cost Savings (66 per cent), Ease of Use (60 per cent), and Transaction Speed (48 per cent).



**Figure: Impact of the coronavirus (COVID-19) on digital payments**

[5]

A survey was conducted among Indians regarding the effects of the coronavirus (COVID-19) and its result in locking down most used digital platforms to purchase groceries, medicines, etc. This has been the case for retail stores compared to online shopping stores above with more percentage as shown below. Indian Prime Minister Narendra Modi initiated a complete nationwide lockdown



on March 25th 2020, which made it the largest shutdown in the world, affecting 1.3 billion people and extending until May 3rd, 2020.

### *B. Findings*

It shows the huge growth in the usage of the various applications used for payment as they are contactless and quite convenient to use. Other advancements popular nowadays involve wireless wallets such as Apple Pay or Google Pay to pay without needing to hand over any cash physically. Some developments include Contactless payments using Near Field Communication (NFC), which has also emerged and proved secure and easy. This is due to people's inclination towards using technology-based services, especially in the aftermath of the pandemic, since contactless is preferred to minimise the spread of the virus. So, such methods are gradually replacing the conventional use of the cash.

### *C. Case Study Outcomes*

Case Study	Outcome
Impact of COVID-19 on Digital Payments in India	Increased UPI transactions after an initial decline, supported by government policies promoting cashless payments [8].
E-Banking Adoption in Aligarh District and Global Banking Trends	91% of respondents preferred digital transactions due to COVID-19 risks, increasing electronic banking adoption. Enhanced digital infrastructure and cybersecurity measures to support the growing volume of digital transactions.

**Table 2: Case Study Outcomes**

(Source: Self-created)

*D. Comparative Analysis of Literature Review*

Author	Focus	Key Findings	Literature Gap
[13]	Digital payments during COVID-19	Significant increase in digital transactions.	Limited focus on long-term customer behaviour.
[14]	E-banking in Aligarh during COVID-19	Increased adoption due to health concerns.	Lacks data on post-pandemic customer retention.
[15]	Digital Payments in India	Preference for contactless payments post-lockdown.	No assessment of regulatory challenges.
[16]	Bank response to digital transformation	Shift to virtual operations and advanced security.	Insufficient exploration of rural digital adoption.

**Table 3: Comparative Analysis of Literature Review**

(Source: Self-created)

## V. DISCUSSION

### *A. Interpretation of Results*

Regarding the objective findings, it is evident that the COVID-19 pandemic played a huge role in increasing e-commerce digital transactions within banking institutions. The use of digital or cashless services in financial management and transactions was widely adopted caused of health issues and travel limitations. This shift marked the significance of technology and showed that the technologically equipped institutions managed well. Additionally, the advancement in digital payments benefitted customers since they received more convenience when making payments; however, it opened new threats in cybersecurity. These observations show that the trend towards digitisation is likely to continue in the long term, which means that digital banking would be the main channel of delivering services. Collectively, the findings emphasised novelty and sound security measures to maintain customer confidence and business effectiveness in the post-COVID-19 phase.

### *B. Practical Implications*

The findings of this study propose major lessons for banking organisations about the key issues they need to address to strengthen their digital competencies. First, because of the increased threats, banks must invest in secure payment mechanism forms [20]. Secondly, the application of high technologies like artificial intelligence and the utilisation of blockchain technologies have positive effects on increasing the effectiveness of transactions and making the customer's experience more satisfying [17]. The study also provides reasons why banks should focus on developing an awareness campaign to promote high usage of these services based on the results obtained from the survey and dedicate time and resources to increase digital literacy in these regions. Moreover, obligatory authorities need to work on how to support innovation and prevent critical consequences for consumers.

### *C. Challenges and Limitations*

In as much as there are several benefits of digital transformation in banking institutions, there are also various challenges and limitations. One regards cybersecurity as the higher flow of transactions generates interest from various cybercriminals. Converting the earlier traditional systems to the current digital solutions is also a great financial and operational challenge [7]. This is because rural populations and the older population of the emerging markets are not digitally

literate and have inadequate means of internet connection. Last but not least, the issue of compliance can also be seen as ambitiously complex, given that banks have to address the guidelines and standards of data protection as well as the digital payments legislation. This research is also limited because this employing source uses secondary data, which might not reflect recent changes within the industry [21]. More research can be conducted to study the long-term effects of the behaviours of customers as well as innovations after the pandemic.

#### *D. Recommendations*

In response to the challenges and opportunities that are occasioned by the development of this field, the following recommendations are presented. Banks should be advised to call for regular auditing and embrace appropriate technologies for authentic encryption services to protect their online transactions. The findings show that engaging customers with the necessary training will solve the issue of digital illiteracy and enhance e-banking. Additionally, engaging with the fintech firms can be beneficial since it assists in enhancing the supply of services and the efficiency of the operations [3]. New account generation should also employ flexible digital trends that the consumers and changes in fiscal policies may adopt. The government, therefore, has to set out strategic principles to promote digital innovation and use while protecting consumers [10]. Lastly, more attention should be paid to dynamics sources that would provide up-to-date information regarding the trends continuously playing out in the digital environment regarding the indicated criteria to foster continuous change strategies for digital implementation.

## **VI. CONCLUSION AND FUTURE WORK**

The COVID-19 pandemic increased the number of transactions in banking institutions going digital, highlighting the significance of sound structures supporting digital transactions and securing policies to prevent cyber threats. This was an advantage to the customers as it made accessing various products and services through the internet easier. Still, these came with a major disadvantage, such as the possibility of cybercrimes and lack of enough digital literacy. This research argues that more efforts must be made to ensure ongoing innovation suitable for banks since their operations must continue running efficiently and consumers' needs constantly change. Therefore, there is a need for future research on the longer-term effects that come with the transformation on banking institutions and customers' behaviour. Analysing the real-time data will allow a forecast of new trends and modifications in the regulations. There are also possibilities for

further research about cybersecurity frameworks, including the contribution of fintech partnerships to improving digital payments and consumers.

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