
GEN Z'S DIGITAL PAYMENTS: DISRUPTIVE OR USEFUL FOR ONLINE SHOPPING IN SECURITY ASPECT

Bhavna Galhotra

Asst. Professor, Research Scholar, Computer science dept. Amity University

Aman Jatain

Asst. Professor, Computer science dept. Amity University

Shalini Bhaskar Bajaj

Professor & Head, Computer science dept. Amity University

Vivek Jaglan

Professor& Dean Research, Graphics Era University, Dehradun

Abstract

The way that businesses operate has been significantly altered by the Internet. In many of its incarnations, e-commerce makes use of technology to connect users and facilitate transactions. The fact that e-commerce transactions are anticipated to increase in all retail establishments over the coming years provides another perspective on how e-commerce is altering the business landscape. The number and scope of security concerns have grown as e-commerce has expanded quickly. The security of online transactions and payments affects the security of our computers, mobile devices, and all other systems that users interact with. Because of this, it's critical to provide trustworthy security that accommodates user needs and guards against Internet security issues. E-commerce user systems in One World must therefore be safe and secure to use. Why is security so crucial to e-commerce? E-commerce, which is the buying and selling of products and services through the Internet, will be the obvious response. This is a business problem because the customer must provide both his and her identity and credit card information in order to purchase the matching product online. Therefore, it is crucial that electronic commerce protects the user now, including the products the user has ordered as well as their credit card information. Otherwise, a third party with access to them could cause the user to suffer financial, social, or other harm. That is why this essay will be organized as follows: the first section, whose purpose is to discover why security in e-commerce important, will come after the introduction. The second section will concentrate on e-commerce security challenges. Today generation has also evolved in doing the transactions online for all the minimum amounts, also buying the goods and services using m commerce or e commerce by doing UPI payments or the online payments

Keywords—Digital Payments, Electronic commerce, Online Shopping, Digital Platforms

I. INTRODUCTION

The manner that people do online business nowadays has changed because to the Internet. As a result, e-commerce utilizes its technology to foster interpersonal relationships and streamline corporate operations. [1] Today's e-commerce transactions are more susceptible

to online risks and dangers than previous commercial transactions were. It can be challenging to adhere to e-commerce system security safeguards at times because Internet technology is advancing faster with every transaction. Security issues with electronic commerce and online payments still exist, despite the fact that sophisticated technologies can at least attempt to help alleviate these kinds of issues. Security concerns have grown in scope and scale with the rapid expansion of e-commerce. In e-commerce transactions, security has always been a top priority. However, brand-new issues have already emerged, namely the hazards to consumers' privacy, which have recently emerged as the top risk. [2]

The ways in which media firms set their prices and audience access, as well as how products are distributed, have all been significantly altered by digitization. Because it makes up for the decline in print income and the inadequate increase in digital advertising revenues, in several countries digital subscription revenue is poised to replace digital advertising as the primary revenue source for newspapers. Online newspapers' issue is not the modest size of the digital advertising market, but rather the reality that they are little participants in a market dominated by huge publishers. Additionally, the geographically constrained market for online local news presents a barrier to the subscription-based approach. [3]. With an advancement in the technology and availability everyone find it easy to buy the products online, post covid19 the grocery shopping is also becoming so common that the Gen Z don't want to visit anywhere for buying groceries even, Also with the help of the applications like Zepto and Blinkit anything can be available at home with in few minutes. Transactions and cash replacements are done with the online payments applications like UPI transactions, Phonepe or Paytm

The Indian economy is primarily cash-driven. India's strategy for digital finance is based on four pillars:

- (i) providing digital fiscal structures as a social good;
- (ii) encouraging private innovation by granting licenses for such structures;
- (iii) creating equal opportunities for all through the regulatory framework; and
- (iv) Authorizing individuals through a data-exchange infrastructure that requires their consent. [4]

Authors conducted a thorough investigation into the Unified Payment Interface, the technology used, and the value that UPI adds in relation to the current digital payment systems. The study makes an effort to understand UPI's technological architecture, transactional procedures, and security mechanisms, which can aid in the development of creative business solutions. Financial inclusion is not a one-dimensional process that can be finished immediately; rather, it is a process that is finished once other dimensions, such as financial penetration and access to and usage of financial services, have been achieved.

[5] In order to determine how financial inclusion is related to economic growth in India, researchers in this study looked at three key metrics of online payment networks and applications include the: use, diffusion, and user-friendliness for the users so that the

transactions are useful. The study's conclusions show a strong correlation between India's economic growth and the use dimension of financial inclusion. [6] According to the RBI's payment system indicators, total digital payment includes large value and retail credit transfers, debit transfers, card payments, and prepaid payment instruments but excludes mobile banking; meanwhile, digital payment infrastructure includes ATMs, POS terminals, credit and debit card distributions, and large value and retail credit transfers. Therefore, in this study, mobile banking and payment are used instead of digital payments. [7] Concerns about viral transmission from cash led to a rise in the use of digital payments during the Covid-19 outbreak. Interestingly, despite being large, the growth in the amount of money in circulation (M1) has the least impact on both real and nominal digital payments. This shows that India still favors cash transactions because people like to have some cash on hand in case of emergencies. Real and nominal digital payments are negatively impacted by mobile banking over the long term, indicating a replacement effect.

[8] In other words, as mobile banking and payments grow, the use of cards and other digital payment methods declines. [9] Additionally, although positive, the long-run coefficient estimates of digital infrastructure have a negative and large influence on nominal digital payments but have no effect on real digital payments. Online payment transactions involve a complex array of practical and analytical challenges, including service providers' technological prowess, commercial relationships, legal requirements, and security concerns like identification, authentication, and verification with coordination between parties with conflicting interests.[10]

II. Online Payment Systems

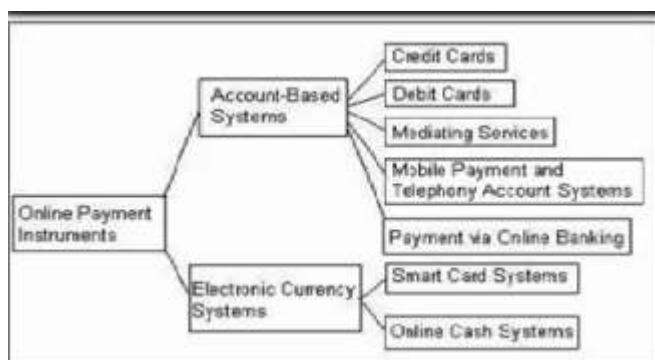


Figure 1 Online Digital Payments

There is no denying the Internet's explosive expansion and widespread use for business operations. However, the fundamental security protocols of the Internet today are prone to security breaches, particularly when it comes to online payment systems, which are crucial to the expansion of global e-commerce. [11] As a result, several online payment protocols, including Secure Electronic Transaction and The Secure Socket Layer, have been developed to guarantee the security of online transactions. Security and practicality are frequently traded off

while building online payment protocols. More and more users of online transactions experience fraud in one form or another.

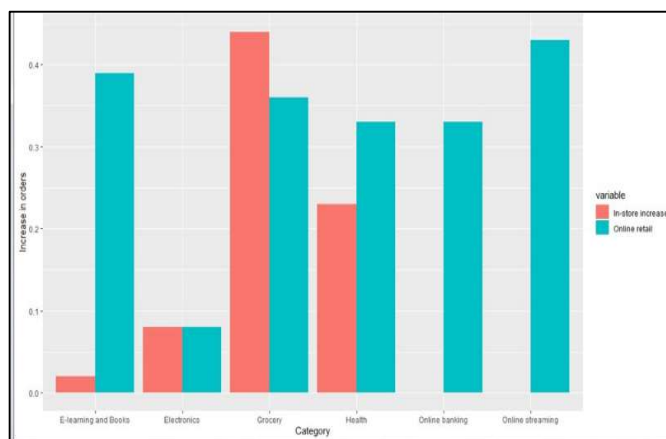


Figure 2 Usage of Digital Platforms In store and Online

Above diagram gives a clear picture about the usage of various digital platforms where the digital payments play a vital role. The digital platforms like E learning, Grocery, Health and others are considered to be the areas where the payments are done online using various applications

III. BACKGROUND STUDY

If e-commerce is to flourish in poor nations, it is necessary to protect participants' interests in the areas of authentication, confidentiality, replay attacks, and adaptability given Ghana's growing reputation for online fraud. This study examines a few online payment methods and creates a conceptual model of a protocol that requests live cardholder authentication. [3] When compared to other existing online payment protocols, this ensures security, convenience, cardholder authentication, and merchant verification. It is also simple to install without complexities. [11] The Cardholder, Issuer, Merchant, and Acquire are participants that are taken into account in this study.

The Indian payment system is now in the acceptance stage after completing the issuance step. The use of digital payments mostly depends on supply side elements like robust demand for digital payments and demand side factors like growing bank account numbers and resilient digital infrastructure. The quantity of digital transactions is still limited, as is the digital infrastructure, but mobile transactions are growing quickly. Thus, financial knowledge is crucial to boosting the acceptability of digital payments. People need to be informed about the advantages and risks of using digital payments, as well as how to manage their bank accounts. Secondly, digital payment methods should be available for all government services, fees, utilities, tolls, etc. Thirdly, permitting minor cash withdrawals from POS/QR. [10]

They demonstrate that over the long term, national income and shocks like demonetization and

COVID-19 both become the primary determinants influencing the viability of digital payments in terms of value and volume. Mobile banking and payments might not boost the use of digital payments like cards and others, showing that they are not a replacement for them. The viability of digital payments is also not shown to depend significantly on digital infrastructure. Last but not least, the expansion of bank accounts, a proxy for financial inclusion, does not always result in the durability of digital payments. [10]

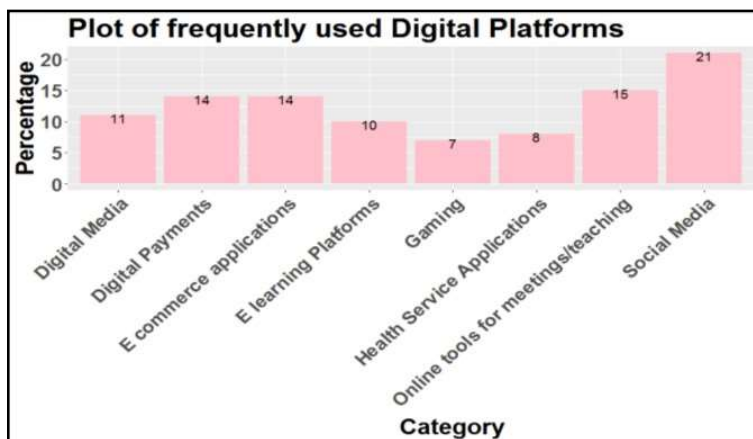


Figure 3 Plot of Frequently used Digital Payments for Online Shopping

Secure and quick electronic payments are necessary as long as there are users on the internet. More recently, consumers' fear of the risk of virus transmission and government directives to increase the number of non-cash payments have combined to reduce the amount of cash used as a form of payment. The pandemic has also accelerated the digitalization of payments and altered the general perception of e-payment systems. In addition to bit coin and other crypto currencies, stable coins were also released at the same time by business organizations in the private sector. [6]

Public authorities, notably central banks, have been forced to search for other options, such as releasing new public central digital currencies, as a result of the collapse of cash and the growth of new private digital currencies. [7]

Central banks all over the world believe that launching a central bank digital currency is increasingly likely in order to boost the supply of payment services and give the public an alternative money delivery option as a result of changing payment preferences. The Eurozone is not an exception to this rule when it comes to introducing and testing its digital currency, the euro. The big questions are whether the Eurozone is technically and legally prepared to deploy this sort of currency and whether consumers will choose the digital euro as the new means of payment. Central banks all over the world believe that launching a central bank digital currency is increasingly likely in order to boost the supply of payment services and give the public an alternative money delivery option as a result of changing payment preferences.[4]

Digitalization is the acceptance and usage of digital and mobile technologies, which goes beyond simply purchasing them and acquiring the necessary skills to use them. Digitalization

may have an impact on organizational performance due to these changes in organizational strategy, business operations, organizational learning and knowledge, and the entire socio-technical system. [5] Even while mobile and digital technologies are widely employed in every other industry in India, the retail sector as a whole, especially in these little retail establishments and their supply networks, has been sluggish to adopt them. Despite the fact that many retailers desire to employ technology to better understand consumer goals and communicate information inside stores, few really do so because it takes time for the benefits of technology adoption. Contrarily, consumers have been ready to embrace digital technology because they believe that doing so will enable them to increase their income. [12]

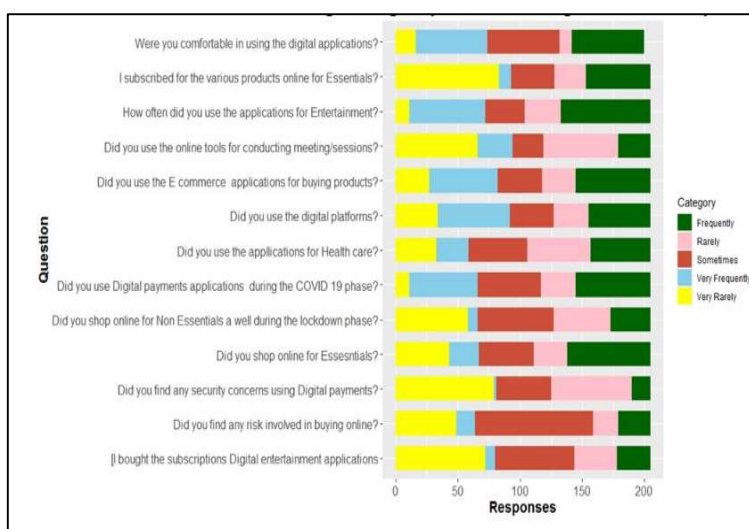


Figure 4 Usage of digital platforms during the lockdown phases

IV. METHODOLOGY

This study is carried out to analyze the impact of digital payments on various online buying and selling platforms be it e commerce or m commerce. The methodology adopted to conduct the analysis is explained in this section. The results in this research are analyzed using the R tool. An environment and language for statistical computing and graphics is called R. This study uses R, which is an integrated suite of software facilities for data manipulation, calculation, and graphical display. It is an object-oriented language and environment where objects, whether they be a single number, data set, or model output, are kept within an R session or workspace. A broad, cohesive, integrated set of intermediate tools for data analysis, as well as graphic data analysis tools, make up this efficient data processing and storage facility.

R has been utilized in this study to carry out the analysis and extract the results from the dataset under consideration. The dataset has been filtered in accordance with the numerous study-related factors. To achieve the desired analytical findings, several data frames have been built for each set of parameter taken. In this work, graph visualization has been employed to compare various discrete categories. Various stacked bar graphs have been created using the ggplot2 and

reshape2 libraries and inbuilt function for better visualization of the result.

The dataset for the analysis was gathered by conducting an online survey using Google forms. 200 replies were received, of which 95 were submitted by women and 105 by men. In addition, data from a range of age groups has been gathered for better analysis. The survey's age groups taken into consideration were less than 20, between 20, and 30, between 31 and 45, and over 45. The basis for this analysis's completion was a number of parameters. The information was gathered using a Google form, taking into account factors like gender, age, the most popular digital platforms, and difficulties encountered while purchasing necessities online, if purchasing a safe was influenced by the products that were ordered, and other factors. The attitude and trust of the people changed post COVID 19 where the situation changed because of the lockdown and people supported to buy online goods and also the services by paying digitally. The trust was also carried with the time where now a days everyone is dependent on the online transactions. The authors were able to determine the requirement for digital platforms in response to the usage and trust of buying goods online using digital money.

Some of them are as follows:

Parameter	Explanation
P1	Digital payments preferred.
P2	Products ordered more frequently using Digital Payments
P3	Usage of digital payment platform
P4	Performance of digital payments platforms
P5	Usefulness of digital payments platforms
P6	Attitude towards using digital payments platforms
P7	Satisfaction Factors of users using Digital Payments
P8	Security concerns for the users
P9	Intention to use E-commerce and paying online
P10	Categories of products ordered using digital payments

Table 1: Dataset of the users using Digital Payments for online shopping using different platforms

Above mentioned parameters have been analyzed to find out that how the digital platforms have evolved with the usage of the digital payments by GEN Z and primarily our study on how the E commerce platforms are being used for buying and selling of essentials or non-essential

commodities using online payment platforms.

V. ANALYSIS AND RESULTS

R is used throughout the study to detect the different frequencies based on the data and determine which commodities were more commonly ordered utilizing digital payments. The increase in percentage of different product categories ordered in utilizing digital payment platforms from the e-commerce and m-commerce platforms in India is seen in figure 3 below. Using R, the plot below was produced. The plot primarily depicts the dramatic rise in electronic order volume, which accounts for 25% of all orders, followed by food and beverage orders at 21%. Gen Z is more or less involved in using the Digital payment platform for ordering the various products online using UPI and other online payment platforms

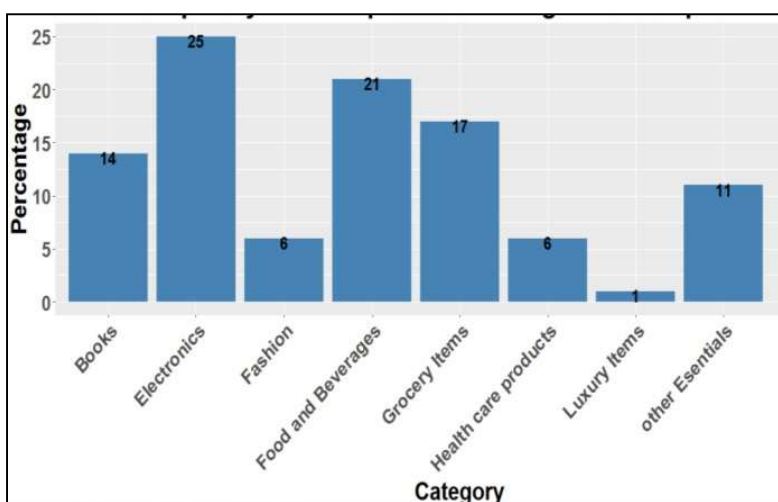


Figure 5: Plot of frequently ordered products using Digital Payments

A. Performance based on using digital platforms during COVID-19

Electronic platforms the graph during the lockdown phase displays the percentage of people who largely agreed with the suggestions concentrating on the features of the program, how user-friendly the UI is, and whether or not users were aware of the application and its purpose. Performance graphs demonstrate whether an application has achieved its goal and fulfilled the installation's purpose.

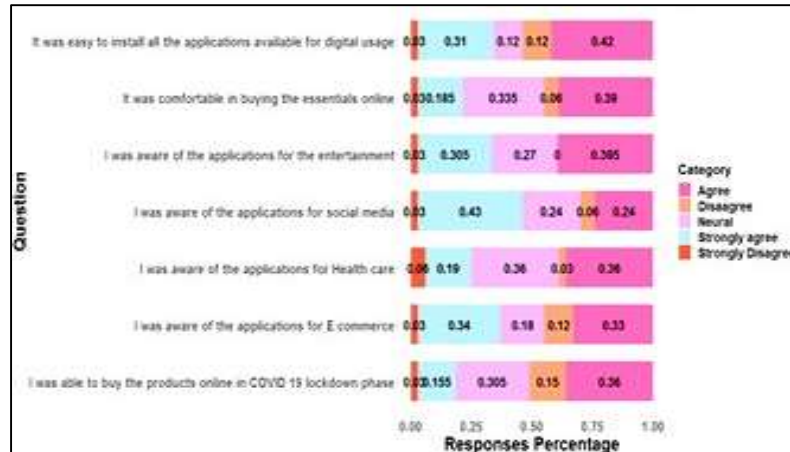


Figure 6: Performance based on using the digital platforms for buying and selling online.
B. Attitude towards using digital platforms during lockdown phase.

According to this parameter, the author made an effort to ascertain the users' attitudes toward using the digital platforms for buying and selling goods and services using digital money. If they used the platform, did the application accomplish their goal, and did users gain anything from doing so. The authors have made an effort to learn about respondents' attitudes toward using platforms in figure 5, which is shown below. The writers were able to determine the future goals of the digital platforms with the aid of the attitude results since attitude demonstrates the users' engagement with the applications. [13]

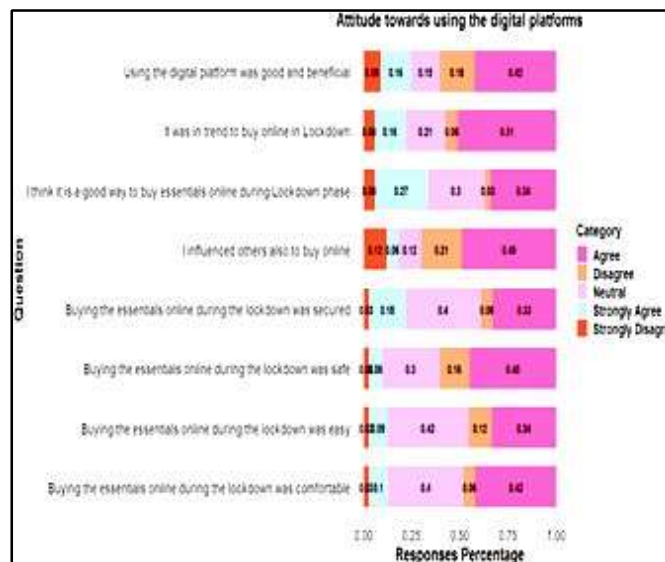


Figure 7: Attitude towards using the digital platforms

C. Satisfaction

When determining whether or not people were satisfied with digital platforms, satisfaction is a key factor. The satisfaction is for those who have used the online payment platforms. This study

reveals how satisfied users were with the use of the applications and how safe and user-friendly the applications are? This metric determines the areas that need improvement as well as the gaps. For instance, the data in the graph below demonstrate not only the grocery but healthcare is also one of the application that is common for buying using online payment platforms, demonstrating how people are now attempting to adapt to the digital era for a hassle-free lifestyle in which healthcare plays a crucial part.



Figure 8 Satisfaction factor by users

D. Security concerns using digital platforms

The Gen Z responded positive in relation to buy the products online using the digital platforms. This generation not only use the digital payment platform for buying or selling the products online but also use these platforms for offline shopping. Every other store is having a QR code or the various other platforms to buy the products using the digital payments as they are more secure and transparent. [14]



Figure 9 Pie-chart portraying safety using E-commerce.

E. Conclusion

The authors identified various reasons why Gen Z uses these apps so often. All applications have evolved due to repeated use of these applications. These generations use apps for convenience and security. After completing the survey, the authors were able to state that this generation believes in the ease of use of different platforms. All levels of online and offline shopping have moved from cash payment to QR code transfer. They believe in cashless transactions and 24/7 availability because all e-commerce and e-commerce applications are available 24/7 and can be accessed at any time and from anywhere if necessary. Precisely based on usage, GEN Z uses all resources based on requirements based on simplicity and availability.

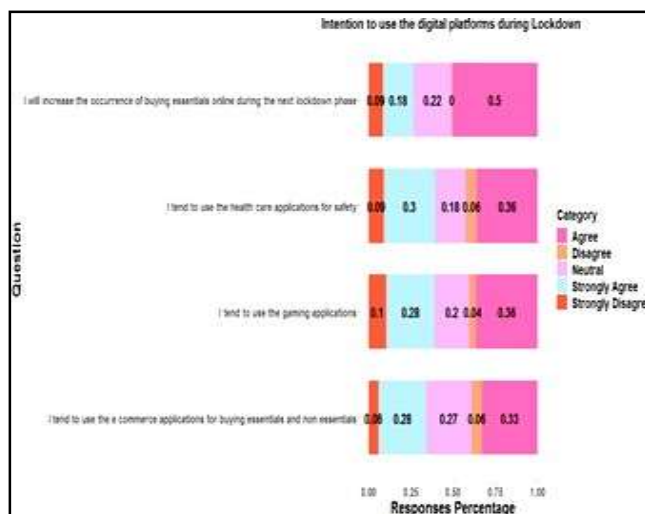


Figure 10 Intention to use the digital payment platforms.

REFERENCE

- [1] v. bhavsar, "Sustainability of Digital Payments: Empirical Evidence from India," in *Investigating the Sustainability of Digital Payments in India*, Atlantis Press, 2022.
- [2] S. D. R. D. Abhipsa Pal, "Security in Mobile Payments:A Report on User Issues," IIM banglore, March 2017.
- [3] A. J. Bhavna Galhotra, "Security Concerns for Mobile based Digital Wallets with the use of IDS &IPS System," *Test engineering and Management*, 2020, vol. 83, no. 3, 2020.
- [4] A. J. S. B. B. V. J. Bhavna Galhotra, "Mobile Payments: Assessing the Threats, Challenges and Security Measures," in *5th International Conference on Electronics (IEEE)*, 2021.
- [5] A. D. Bhavna Galhotra, "Impact of COVID-19 on digital platforms and change in E-commerce shopping trends," in *2020 fourth international conference on I-SMAC*, 2020.
- [6] M. P. Bosamia, "Mobile Wallet Payments Recent Potential Threats and Vulnerabilities with its possible security Measures," in *IcSoftComp-2017*, Changa, India, 2017.

- [7] B. Galhotra, "Big Data: An opportunity and Challenge for M commerce," *2021 Fifth International Conference on I-SMAC*, 2021.
- [8] B. G. Muskan Puniya, "Digital Media & Technology - Fueling the Growth of E-Business for Women Entrepreneurs," *Proceedings of the International Conference on Innovative Computing & Communications (ICICC) 2020*, (March 29, 2020).
- [9] N. Miriyeva, "SECURITY IN ELECTRONIC COMMERCE AND ONLINE PAYMENTS.," in *16th Rome 2020 Conference Proceedings*, 2020.
- [10] B. G. devesh Lowe, "An Overview of pricing models for using cloud services with analysis on pay-per-use model," *IJET*, vol. 3, no. 12, pp. 248-254, 2018.
- [11] R. a. M. G. Singh, "Impact of digitalization on Indian rural banking customer: with reference to payment system," *Emerging Economy Studies-Sage Publication*, vol. 5, no. 1, pp. 31-41, 2019.
- [12] A. Takyi, "Enhancing Security of Online Payments: A Conceptual Model for a Robust E-Payment Protocol for E-Commerce," in *Communications in Computer and Information Science*, 2012.
- [13] N. Miriyeva, "European Payments in the Digital Age," *ELTE Law Journal*, no. <https://doi.org/10.54148/ELTELJ.2022.2.35>, pp. 35-60, 2023.
- [14] S. D. Aggarwal D., "A Study Of Consumer Perception Towards Mwallets," *INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH*, vol. 18, no. 11, pp. 2277-8616, NOVEMBER 2019.
- [15] D. P. K. S. Dr. Vandana Bhavsar, "Sustainability of Digital Payments: Empirical Evidence from India," in *roceedings of the 2nd International Conference on Sustainability and Equity (ICSE-2021)*, 2022.
- [16] R. G. H. W. P. Beadle, "A Review of Internet Payments Schemes," *Proceedings of ATNAC'96*, vol. 1, no. 1, pp. 1-6, 2018.
- [17] P. O. G. Augustine Takyi, "Enhancing Security of Online Payments: A Conceptual Model for a Robust E-Payment Protocol for E-Commerce," *Contemporary Research on E-business Technology and Strategy*, pp. 232-239, 2012.
- [18] D. (. R. M. Shettar, "Services And Applications Of Mobile Commerce In India," *An Empirical Study Journal of Research in Humanities and Social Science*, vol. 4, no. 11, pp. 94-100, 2016.
- [19] S. R. G. a. S. B. Regi, "Mobile Commerce in Modern Business Era," *International Journal of Current Research and Academic Review*, vol. 1, no. 4, pp. 96-102, 2013.
- [20] A. B.M and A. B.M, "Big data analytics for e commerce -its impact on value creation," *International Journal of advanced Research in Computer and Communication Engineering*, vol. 6, no. 3, pp. 181-188, 2017.
- [21] X. Zaho, "A study on the Application of Big Data Mining in E commerce," in *IEEE 4th International Conference oon Computer and communication*, 2019.