

**AI-ENABLED SOUNDBOX TECHNOLOGY AND ITS IMPACT ON
FINANCIAL INCLUSION OF SMALL RETAILERS IN NANDURBAR****Sangramsing Narshi Padvi¹, Swapnil Vitthalprasad Mishra²**¹ *Research Scholar, Faculty of Commerce, NTVSS G.T. Patil College, Nandurbar.*Email: Sangramsing222@gmail.com² *Head and Research Guide, Faculty of Commerce, NTVSS G.T. Patil College, Nandurbar.***Abstract**

AI-voice alerts in Soundbox have reduced the fear of fraud in digital transactions and increased their trust in the technological system. This technology has brought transparency in transaction records and has increased the use of digital ledgers instead of handwritten accounts. Most importantly, the transaction data generated by Soundbox is becoming a strong basis for obtaining loans from banks, thus facilitating financial inclusion of small traders even without collateral. Overall, the study shows that Soundbox is becoming an important 'business decision-making tool' for business planning and decision-making, rather than just a payment tool.

Keywords: Soundbox, Artificial Intelligence and Financial Inclusion.**► Corresponding Author: Sangramsing Narshi Padvi****1. Introduction****Digital Revolution and Indian Economy: An Overview**

The 21st century is the century of information technology, today information technology is being used everywhere. The Indian economy is the fifth largest economy in the world⁽¹⁾. Today, due to the influence of the Internet, the entire world has become a market. Nowadays, every country is prioritizing digitalization of their economy. In India too, the government is focusing on increasing digitalization in every sector⁽²⁾. Along with other important sectors of the economy, the number of people using digital payments is also growing significantly⁽²⁾.

In 2016, India demonetized Rs 500 and Rs 1000 notes. At that time, the number of people using traditional currency in the market was much higher than today. Earlier, people used to have more money in cash. These notes were suddenly removed from circulation, which created a huge shortage of currency in the market⁽³⁾. People in the country were using digital payments on a large scale as an alternative to cash. It must be admitted that the Covid-19 pandemic played a significant role in popularizing digital payment systems and spreading awareness about these systems among the masses. When the Covid-19 pandemic broke out in 2019, the use of traditional currency created a risk of infection. At that time, people took the help of digital payment systems to protect themselves from infection. Demonetization and the COVID-19 pandemic, two significant events, have led to a significant increase in the number of users of digital payment systems⁽³⁾. NPCI and Reserve Bank of India have launched the UPI payment system to promote digital payments. This payment system has been developed to make the country's economy digital and cashless⁽⁴⁾. UPI is becoming very popular among customers as it is very easy to use, fast and convenient⁽⁴⁾.

Small Retailers and Digital Challenges

Retailers are known as the backbone of a country's economy, they work to deliver goods produced by manufacturers to the consumer⁽⁵⁾. Before the launch of the UPI payment system, cash payment systems were the most widely used payment systems by these merchants, but after NPCI launched the UPI facility, retailers started accepting payments through digital payment systems to some extent⁽⁴⁾. This digital payment system removed many of the problems encountered in the cash payment system, but in the initial period, merchants also faced problems with the UPI payment system such as lack of technical knowledge, internet uncertainty, and fear of fraud⁽⁶⁾⁽⁷⁾. It was observed that many times, customers were defrauding merchants by showing a message that the payment was completed⁽⁷⁾. Also, sometimes, due to network-related issues, the message that the money was being deducted would arrive late, so customers had to wait until the message arrived. Therefore, many merchants were not willing to use the UPI payment system. To overcome this problem, fintech companies have created a small device called 'Soundbox'. This device announces in a human voice that money has been received and also tells the amount received through this device⁽⁸⁾. This eliminates the need for merchants to repeatedly check their mobile phones. This audio confirmation has created transparency and trust in transactions between customers and merchants⁽⁸⁾.

Artificial Intelligence (AI) in Soundbox and its Importance

Although Soundbox provides instructions through a human voice, there is a powerful artificial intelligence system working behind this process⁽⁸⁾. India is known as a country of diversity. Different states in India use different languages. Companies like Paytm, PhonePe and iServe provide Soundbox services. Soundbox can provide services in almost all languages including Hindi, English, Hinglish, Marathi, Tamil, Telugu, Kannada, Bengali, Gujarati, Punjabi, Malayalam and Odia⁽⁹⁾. For this, advanced algorithms called Natural Language Processing (NLP) are used⁽⁹⁾. Today, thousands of UPI transactions are made every second, but which message to send to which device is planned by a cloud system called edge computing⁽¹⁰⁾.

Fintech company Paytm launched its AI Soundbox in October 2025, This is India's first AI Soundbox⁽¹¹⁾. With the advent of the AI Sound Box, this device is no longer limited to just telling you how much money has been received, but also acts as a digital manager for the business⁽¹¹⁾⁽¹²⁾. The businessmen can interact with this sound box just like an AI bot. Traders can take help from this device for the development of their business. AI Soundbox can analyze daily purchase and sale transactions, ask many business-related questions like how much was sold in a day, in which period was there less sales, in which period was there more sales, and get answers to those questions⁽¹¹⁾⁽¹²⁾.

Financial Inclusion

Financial inclusion means connecting the poorest people in society to mainstream financial services⁽¹³⁾. For the overall development of any country, it is necessary to connect the people of that country with the banking system⁽¹³⁾. The Indian government is also trying to do the same, for which the Pradhan Mantri Jan Dhan Yojana was launched in 2014⁽¹⁴⁾. Through this scheme, people who did not have a bank account were given the facility to open an account with 0 balance, and with the help of this scheme, numerous people had also opened accounts⁽¹⁴⁾. In today's era of information technology dominance, simply having a bank account is not enough; digital literacy has also become essential. Soundbox has brought two benefits to business owners; one is that it helps remove barriers to digital literacy. For traders who cannot use smartphones or who cannot read, the 'voice' of the Soundbox has become the biggest support. and the other is that it makes financial transactions easier to obtain from banks as they are digitally recorded⁽¹⁵⁾. Traditional

banks ask for collateral or proof of income when lending to small traders. Soundbox creates a 'digital footprint' of the trader⁽¹⁵⁾. AI models determine the creditworthiness of the trader based on these transactions and help them get 'collateral-free' loans. This is the main attraction of this research—how a small device is connecting the poorest of the poor traders to the banking system. Today, soundbox technology is rapidly spreading from metropolitan areas to rural areas. However, a scientific analysis is needed to determine the exact impact it has had on the mindset of rural traders and their economic progress. The revolution brought about by soundbox is worth studying, especially in tribal and semi-urban areas like Nandurbar and North Maharashtra, where literacy rates and availability of banking facilities are challenging.

2. Background of Study

Transition of the financial system in India

According to the 2011 census, 68% of India's total population lives in rural areas. Before the launch of the UPI payment system, the history of the Indian financial system was predominantly based on cash transactions. In urban areas, IPMS, RTGS, debit-credit cards and other digital payment systems were used to some extent, but in rural areas, traditional cash was used exclusively. But this picture changed in April 2016 after NPCL and Reserve Bank of India launched UPI payment system to promote digital payments⁽¹⁶⁾⁽⁶⁾⁽⁷⁾. This payment system has been developed to make the country's economy digital and cashless. UPI is becoming a favorite among customers as it is very easy to use, fast and convenient. Two important events, namely demonetization and the COVID-19 pandemic, have led to a significant increase in the number of users of digital payment systems. In 2016, India demonetized Rs 500 and Rs 1000 notes⁽³⁾. The sudden withdrawal of these notes created a huge currency shortage in the market⁽³⁾. Digital payments were widely used by the people of the country as an alternative to cash. When the COVID-19 pandemic broke out in 2019, the use of traditional currency posed a risk of infection⁽³⁾. People also resorted to digital payment systems at that time to protect themselves from infection⁽³⁾.

The problem of small business mentality and trust

The retail sector in India is one of the top ten retail markets in the world. The retail sector is growing rapidly, and the turnover in this sector is increasing significantly, which is also generating new employment opportunities in this sector⁽¹⁷⁾. Although the number of organized retail businesses in India is increasing, the proportion of unorganized retail businesses in the total retail sector in the country is much higher than the organized sector⁽¹⁷⁾. When 'QR Code' technology came along, the biggest challenge faced by these merchants was 'Real-time Verification'. There was sometimes a delay in receiving the bank's message after the transaction was completed, and many technologically advanced customers were using fake payment apps to deceive merchants by showing a fake screenshot of 'payment successful'⁽¹⁸⁾. Additionally, it was inconvenient for the merchant to pull out their mobile phone and check each transaction during rush hour. For these reasons, despite the availability of the technology, many merchants were hesitant to accept digital payments. They needed a tool that would ensure transactions without human intervention.

The rise of soundbox technology and the entry of AI

In the latter half of 2019, leading fintech companies launched a device called 'Soundbox'⁽¹⁸⁾. This device is not just a Bluetooth speaker but an advanced form of the 'Internet of Things'⁽¹⁸⁾. The main reason for the success of this device is the 'Artificial Intelligence' it contains⁽¹¹⁾⁽¹²⁾. In Soundbox, AI was mainly used for 'speech synthesis'. This transformed transaction information from text to 'voice'. This 'voice' proved to be a trusted witness, especially for less literate traders in rural India.

AI enabled the device to communicate in various Indian languages, thereby removing the language barrier⁽¹¹⁾⁽¹²⁾.

Financial Inclusion and Digital Footprint

Financial inclusion is not just about opening bank accounts, but also about having easy access to modern financial services. Digital literacy has become a necessity for consumers and businesses. Due to the use of cash, traders did not have proof of their income, which made it difficult for them to get loans from financial institutions, but after the introduction of the UPI payment system, especially after the use of Soundbox, traders can use their transaction records as proof of income. Every transaction made through Soundbox is recorded on a cloud server. Banks and fintech companies now analyze these transaction data using AI algorithms. What is the average daily sales of a merchant? How regular is he? Based on this, his 'credit score' is created. This has made it possible for merchants to get small business loans just from Soundbox's transaction records, even without collateral.

Considering the economic situation in one of the poorest districts of Maharashtra like Nandurbar, the use of soundboxes is widespread in major cities of the state, but in Nandurbar districts, where the economy is largely based on agriculture and the proportion of small traders is high, it is necessary to study the impact of this technology.

3. Literature Review

1. Deb, A. S. United Payments Interface (UPI): How Indian Consumers are choosing their Payment Application Services Anurag Chanda MBA Student, Bharathidasan Institute Management, Tiruchirappalli. *isme. in. isme.* In 2016, India banned Rs 500 and Rs 1000 notes, creating a currency shortage in the market. People who relied on cash turned to digital payments. Later, the COVID-19 pandemic of 2019 accelerated this trend—people again resorted to digital payments to avoid infection. Demonetization and the pandemic led to a dramatic increase in the number of digital payment users.

2. Chaudhary, S. (2022). Digital Payments in India. *International Journal of Innovative Science and Research Technology*, 1060-1065, Businesses have customers who pay both cash and digitally. Digital payments have made business convenient, secure, and low-risk—transactions are faster, money is deposited directly into bank accounts, and there is less need to maintain cash collections.

3. Ghosh, G. (2021). Adoption of digital payment system by consumer: a review of literature. *International Journal of Creative Research Thoughts*, 9(2), 2320-2882, Technological changes (such as mobile facilities, 4G/5G networks, cheap data) are increasing mobile and internet usage, which is driving the country towards digitalization. With the spread of modern technology in every sector, the use of digital payments has also increased rapidly—transactions are faster, time-saving. Consumers and sellers are giving priority to this, which is giving a boost to the 'Digital India' scheme and making the economy cashless.

4. Statement of Problem

Although UPI has led to a massive uptake of digital payments in India, it was a major challenge for 'Small Retailers' and 'Pheriwale' to ensure that transactions were completed. Simply inserting a QR code did not prove the transparency of the transaction, because, due to lack of technical literacy and lack of time, the merchant could not check his own phone frequently, and there was a fear of financial fraud due to fake screenshots of the transaction and failure of the transaction due to technical reasons.

While Soundbox technology has been used as a tool to increase digital financial literacy to address cash shortages, the key question is whether it is actually helping traders to become financially inclusive and grow their businesses. Also, there is no solid scientific analysis yet on the exact impact of this AI-based tool on the mindset of traders in rural and semi-urban areas.

Objectives of the Study

To examine the impact of Soundbox's AI-based 'Voice Alert' feature on merchant trust.

To evaluate the impact of the use of Soundbox on the 'financial inclusion' of traders..

Hypothesis

The following hypotheses have been formulated in accordance with the research objectives:

H0 The AI-based 'Voice Alert' feature in Soundbox has no impact on merchants' trust in digital transactions.

H1 Soundbox's 'Voice Alert' feature has reduced merchants' fear of fraud and increased their confidence in digital transactions.

H0 There is no positive relationship between the use of soundbox technology and the financial inclusion of small traders.

H2 The use of Soundbox technology has significantly increased financial inclusion and access to credit for small traders.

5. Research Methodology

This research is descriptive in nature and studies the impact of AI-enabled sound box technology on the financial inclusion of small retailers through digital literacy.

Data collection

Both primary and secondary sources have been used to collect information.

Primary data

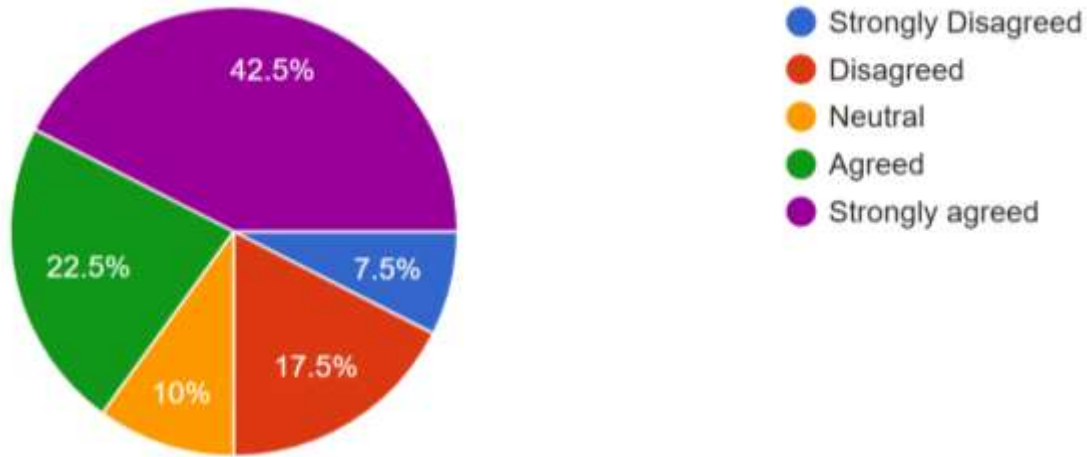
To collect primary data, 40 small retail customers using AI-enabled soundboxes in Nandurbar district were randomly selected. A secure questionnaire was filled out by these retailers. The questionnaire asked questions related to the research.

Secondary data

Various research papers and websites have been used to collect secondary information.

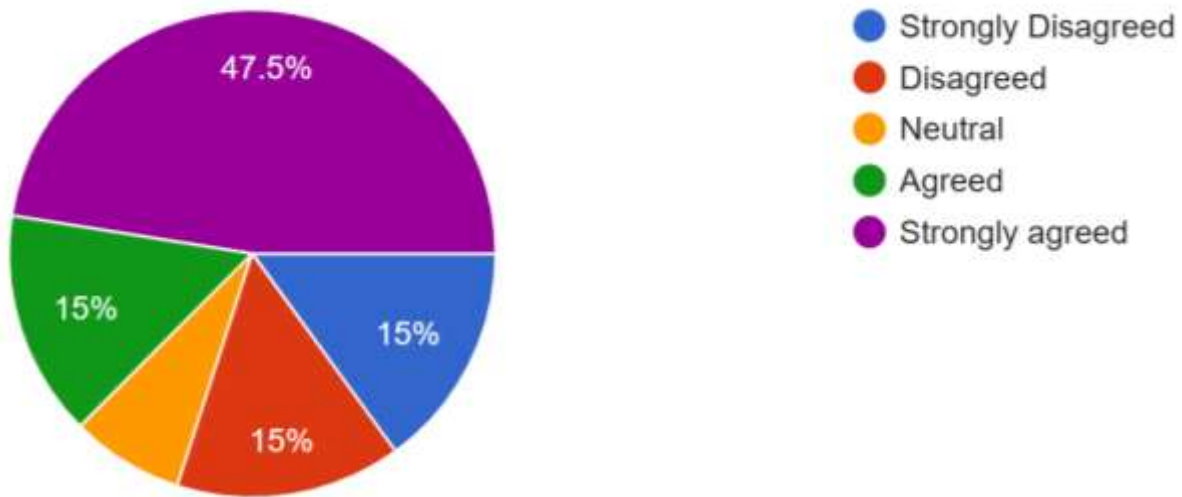
6. Data interpretation

Statement 1. This enabled sound box has reduced the incidence of fraud such as faked payment screenshots, spoofed apps and cloned devices.



Analyzing the 40 responses received to this question, 65% of merchants (42.5% strongly agree and 22.5% agree) agreed that UPI Soundbox has reduced fraud. 10% of respondents took a neutral stance. On the contrary, 25% of merchants (17.5% disagree and 7.5% strongly disagree) showed a negative trend. While the majority of the pie chart is positive, the 25% negative responses indicate that some merchants still feel the risk of technical errors or fraud. Overall, the majority's experience shows that this technology has been effective in preventing 'fake screenshots' and 'spoof apps'.

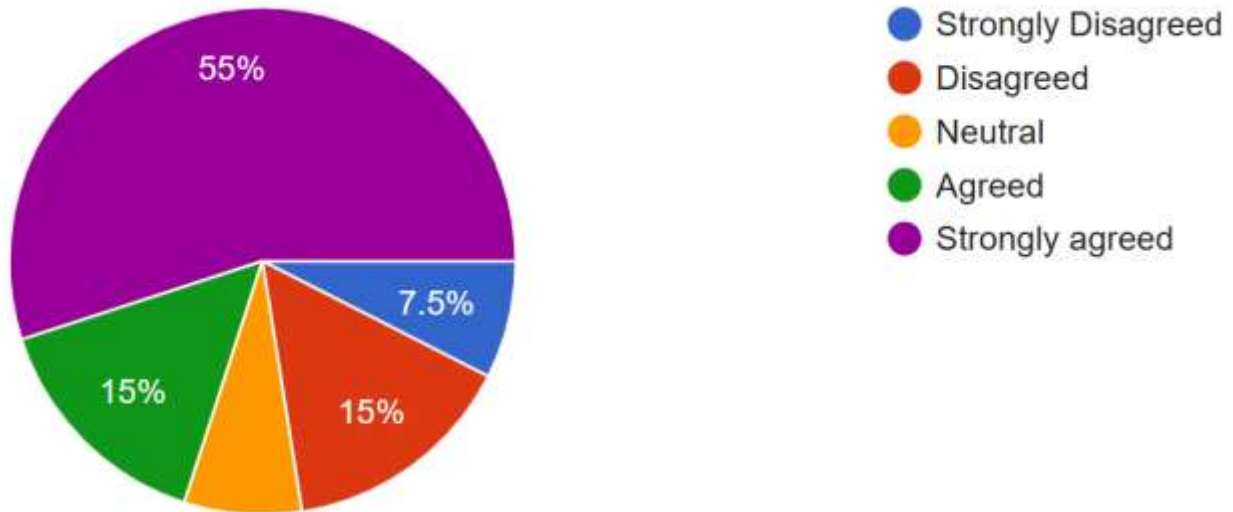
Statement 2. Getting loans from banks has become easier with the help of AI-enabled sound box transaction records.



Out of 40 responses to this question, 62.5% of traders (47.5% strongly agree and 15% agree) agreed that transaction records have made it easier to get loans. 7.5% of respondents are neutral. However, 30% of traders (15% disagree and 15% strongly disagree) have reported a negative experience in this regard. The positive trend in the pie chart indicates the success of the 'Data-based Credit' facility, while the 30% negative responses indicate that these facilities have not yet

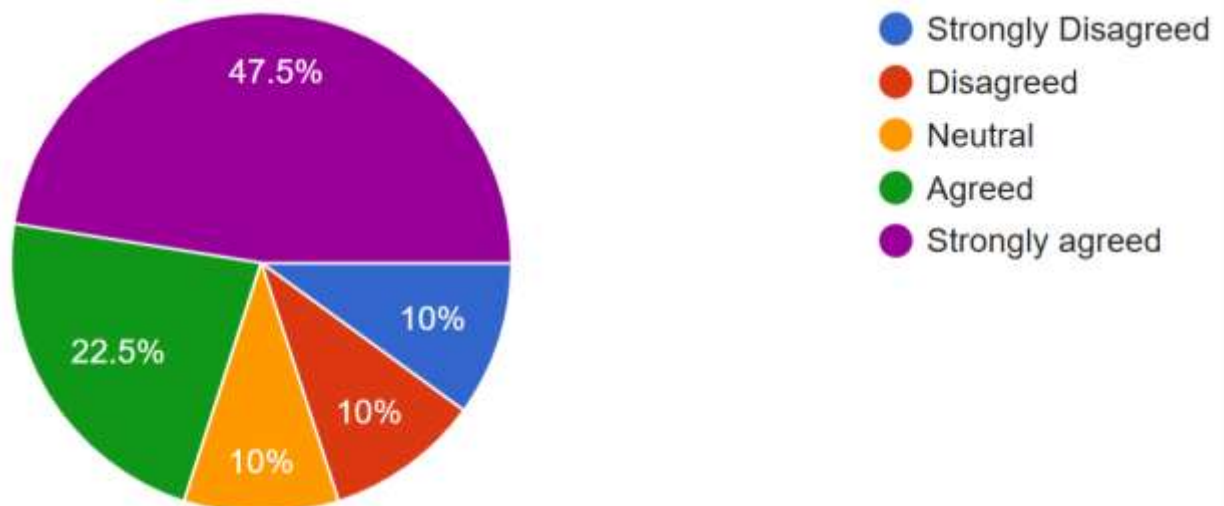
reached traders with low turnover. This finding highlights the need for a more structured use of this data at the banking level.

Statement 3. AI-enabled sound boxes have brought transparency to daily financial transactions.



Out of the 40 responses received to this question, a maximum of 70% of traders (55% strongly agree and 15% agree) agreed that Soundbox has increased transparency in business. 7.5% of respondents are neutral, while 22.5% of traders (15% disagree and 7.5% strongly disagree) stated that they do not see any significant difference in this regard. The largest portion of 'Strongly Agreed' in the pie chart proves that the audio alerts and digital ledger of Soundbox have made the transaction records clearer. The 70% positive responses indicate that 'Transparency' is the main benefit of this technology, which has increased traders' trust in technical transactions.

Statement 4. AI-enabled sound boxes have made it easier to analyze business financial transactions and plan for business growth.



On the question posed, 70% of the 40 merchants (47.5% strongly agree and 22.5% agree) agreed that Soundbox has made financial analysis and planning easier. 10% of the respondents are neutral, while 20% of the merchants (10% disagree and 10% strongly disagree) have shown a negative trend. The 70% positive responses in the pie chart prove that Soundbox is not just a payment tool but is becoming an important tool for business decision-making. The 20% negative responses indicate that there is still a need for data analysis guidance and advanced tools for small merchants.

Hypothesis Testing

Hypothesis 2: Digital security and business transparency

H0 The AI-based 'Voice Alert' feature in Soundbox has no impact on merchants' trust in digital transactions.

H1 Soundbox's 'Voice Alert' feature has reduced merchants' fear of fraud and increased their confidence in digital transactions.

65% of merchants reported that Soundbox reduced fraud, while 70% of merchants reported experiencing increased transparency in business. Since the percentage of positive responses was large, the alternative hypothesis was accepted.

Hypothesis 2: Financial inclusion and access to credit

H0 There is no positive relationship between the use of soundbox technology and the financial inclusion of small traders.

H2 The use of Soundbox technology has significantly increased financial inclusion and access to credit for small traders.

In the survey, 62.5% of traders agreed that digital transaction records have directly helped them in the process of obtaining loans. Since the majority vote is positive, the alternative hypothesis is accepted.

7. Conclusion

AI-enabled voice alerts have increased trust in digital transactions by curbing fraud such as 'fake screenshots' for 65% of merchants.

70% of merchants agree that Soundbox has made transaction records clearer, bringing transparency to the business.

Soundbox data is proving to be a powerful tool for 62.5% of merchants to get loans from banks, thereby empowering them financially.

70% of merchants are using this data for future financial planning; as a result, the device has evolved into a 'business decision-making tool'.

Suggestions

Banks should implement simpler and collateral-free loan schemes for small traders based on this digital data. Fintech companies should include more regional languages and advanced data reports by offering discounts on monthly rent.

8. References

1. <https://cleartax.in/s/world-gdp-ranking-list>
2. Ghosh, G. (2021). Adoption of digital payment system by consumer: a review of literature. International Journal of Creative Research Thoughts, 9(2), 2320-2882

3. Deb, A. S. United Payments Interface (UPI): How Indian Consumers are choosing their Payment Application Services Anurag Chanda MBA Student, Bharathidasan Institute Management, Tiruchirappalli. *isme. in. isme. In*
4. <https://www.npci.org.in/product/upi/about-upi>
5. Akhter, S., & Eqbal, I. (2012). Organized retailing in India-Challenges and Opportunities. *Zenith International Journal of Multidisciplinary Research*, 2(1), 281-291.
6. <https://medium.com/@aasthadubey07/the-primary-disadvantages-of-the-unified-payments-interface-upi-system-include-its-dependency-on-fc84ba03fa16>
7. <https://gridlines.io/blogs/how-fake-upi-payment-scams-really-work/>
8. <https://eazypaytech.com/upi-soundbox/>
9. <https://iserveu.in/soundbox/>
10. <https://www.bisinfotech.com/infibeam-launches-ccavenue-soundbox-for-offline-payments/#:~:text=The%20CCAvenue%20SoundBox%20%E2%80%93%20a%20tap,efficient%20transactions%20at%20retail%20outlets.&text=Contactless%20Payments:%20Integrated%20with%20tap,merchants%20and%20enhancing%20operational%20efficiency.>
11. https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://paytm.com/blog/artificial-intelligence/paytm-launches-indias-first-ai-soundbox-for-payments/&ved=2ahUKEwiokKT13IGTAxVRU_UHHXgSL18QFnoECCEQAQ&usg=AOvVaw29N15SXdMSzoiaBsKlhFVG
12. https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.moneycontrol.com/news/business/markets/paytm-launches-ai-soundbox-for-payments-at-global-fintech-fest-shares-rise-2-5-13601327.html&ved=2ahUKEwiokKT13IGTAxVRU_UHHXgSL18QFnoECFwQAQ&usg=AOvVaw1f5Yd6RRzeHs31Af7aLD4t
13. https://en.wikipedia.org/wiki/Financial_inclusion
14. https://www.pmjdy.gov.in/about#:~:text=The%20PMJDY%20also%20includes:%20*%20RuPay%20Debit,groups%20*%20All%20households%20in%20the%20country
15. <https://www.google.com/url?sa=i&source=web&rct=j&url=https://www.icici.bank.in/blogs/taxation/income-tax-rules-on-ewallet-and-upi%23:~:text%3DA%20the%20time%20of%20filing,let%20you%20earn%200cashback%20rewards.&ved=2ahUKEwiI4evI34GTaxW9aPUHHdWDNukQ1fkOegQICBA&opi=89978449&cd&psig=AOvVaw2WqqIjEl9NbEsT1dIAYGq7&ust=1772559157842000>
16. <https://www.quora.com/What-are-different-payment-modes-commonly-used-before-UPI-Is-bank-to-bank-money-transfer-possible-before-UPI-Is-UPI-an-alternative-for-net-banking>
17. Nagar-Haryana, Y. (2012). GROWTH AND CHALLENGES OF RETAIL INDUSTRY IN INDIA: AN ANALYSIS
18. <https://www.google.com/url?sa=i&source=web&rct=j&url=https://paytm.com/blog/payment-s/paytm-launches-paytm-card-soundbox-indias-first-soundbox-that-enables-card-payments/&ved=2ahUKEwiTIYCS6IGTAxWvkK8BHaO5CYEQ1fkOegYIAQgBEDc&opi=89978449&cd&psig=AOvVaw1C3aaTo55fzBASrS6TVqrf&ust=1772561458948000>