



The Future of Payments in India: An Analysis of Digital Rupee and UPI

Kanchan Vyas

Maharani Kishori Devi Girls School. CBSC BOARD, BIKANER, India.

*Corresponding author Email: kanchanvyas1980@gmail.com

Abstract: The Reserve Bank of India's digital rupee (₹) and the Unified Payments Interface (UPI) are transforming the future of payments in India. In our research study, researcher adopted a qualitative method to understand existing literature on the topic. Official and non-official websites were analyzed for information. The study relied on secondary data only, as there was limited prior research in this area. This study analyzes the impact and potential of the digital rupee and UPI in the Indian financial landscape. The digital rupee, launched on December 1, 2022, offers many advantages over traditional paper currency, including security, accessibility, and government backing. The study also highlights potential drawbacks such as disruption to the banking system and security concerns. On the other hand, UPI is a platform for facilitating banking transactions, different from the digital rupee. The integration of the digital rupee with existing payment systems such as UPI and IMPS is expected to increase financial inclusion and reduce transaction costs. The study answers key research questions and concludes that the digital rupee and UPI have the potential to play a significant role in the future of payments in India.

Key words: Digital Rupee, UPI, financial inclusion, transaction costs, future of payments.

1. INTRODUCTION

The Reserve Bank of India will issue the Digital Rupee (₹) or eINR as a central bank digital currency. It is a tokenized digital version of the Indian Rupee (RBI) [2]. It differs from cryptocurrencies in that it is government-backed and regulated by the RBI [1]. The Reserve Bank of India (RBI) has announced the beginning of a pilot programme for the Digital Rupee (₹ or eINR). On 1 November 2022, the first pilot for the Digital Rupee - Wholesale segment (e-W) will begin [3]. The retail digital rupee will be introduced on 1 December 2022 [7] [8]. The Digital Rupee was recommended in January 2017 and is anticipated to be introduced in the fiscal year 2022–23 [2]. The experiment will initially encompass four cities: Mumbai, New Delhi, Bengaluru, and Bhubaneswar [6], where customers and merchants will be able to conduct transactions with the digital rupee. The RBI has issued instructions for using the digital rupee [7]. The RBI e-Rupee does not require users to have a bank account [3]. The Digital Rupee is applicable for payments, transfers, and other financial transactions [5]. The launch of the Digital Rupee is a significant step towards modernizing India's financial transactions and making them safer and more efficient [5]. Objective of the Study: The objective of this study is to analyze the impact and potential of the Digital Rupee and UPI in the future of payments in India. Research Questions:

1. What are the key features and advantages of the Digital Rupee in comparison to traditional paper currency and cryptocurrencies?
2. How does the Digital Rupee differ from the Unified Payments Interface (UPI)?
3. What are the potential drawbacks and challenges of the Digital Rupee system?
4. How will the integration of the Digital Rupee with existing payment systems impact the financial transactions in India?
5. What are the possible implications of the Digital Rupee on financial inclusion and reducing transaction costs?

For the purpose of our research study, a qualitative method was adopted to gain a deeper understanding of existing literature on the topic. In order to gather information, various official and non-official websites were analyzed and reviewed. The study relied solely on the secondary data available and no primary data was collected through additional research or experimentation. This was due to the lack of substantial research conducted in this area prior to this study.

2. FEATURES, ADVANTAGES & DISADVANTAGES DIGITAL RUPEE IN INDIA

The Reserve Bank of India (RBI) is going to produce a tokenized digital form of the Indian Rupee called the Digital Rupee (₹), also known as eINR. This digital currency will serve the role of a central bank digital currency [2]. Transactions will be through a digital wallet offered by the participating banks, and stored on mobile phones and devices [9]. It is touted as safer than

cryptocurrencies due to its central bank backing [1]. When used for transactions, it goes from one eRupee wallet to another [10]. The Digital Rupee, or e-Rupee, has the advantages of being a flexible legal tender, being simple to convert into cash and commercial bank money, and having cheap transaction costs. [11]. The Reserve Bank of India (RBI) is going to produce a tokenized digital version of the Indian Rupee called the Digital Rupee (e₹), also known as eINR. This digital currency will serve the role of a central bank digital currency (CBDC) [2]. It is equivalent to paper currency and offers the same trust, safety, and settlement finality [1]. The RBI's Concept Note explains that the objectives of issuing a CBDC in India are to provide an additional option for using money, increase financial inclusion, reduce transaction costs, and improve efficiency [12]. The Digital Rupee is different from cryptocurrency in that it is issued by the RBI and backed by the government. It also has more stringent regulations than cryptocurrency [1]. Additionally, it will be integrated with existing payment systems such as UPI and IMPS [9], making it easier for users to access.

Overall, the Digital Rupee offers many advantages over traditional paper currency. It is more secure for payment and settlement as it is a direct liability of the Central Bank [11], and its integration with existing payment systems makes it more accessible. Furthermore, its issuance by the RBI ensures that it is regulated and backed by the government. The digital rupee (e₹ or einr) is India's accepted version of cryptocurrencies, which is touted as being safer than other forms of digital currency [1]. Because it is fungible legal currency, holders are not required to have a bank account. [9]. The e-rupee system has the potential to be more inclusionary than other forms of digital currency, but its success hinges on its digital infrastructure [13]. However, there are some drawbacks to the digital rupee system. These include disruption to the banking system when interest rates are low [14], and potential risks associated with issuing a central bank digital currency (CBDC) [12]. Additionally, there may be security concerns related to the storage and transfer of digital rupees.

3. DIGITAL RUPEE VS UPI/CRYPTOCURRENCY

The Reserve Bank of India's digital rupee (e₹) and the Unified Payments Interface (UPI) are two different payment systems. The main difference between them is that the e₹ is a digital form of paper money, while UPI is a platform to facilitate banking transactions [15][16][17][18]. The e₹ is a legal tender issued by the central bank in digital form, akin to sovereign paper currency [18]. It is designed to be anonymous, just like cash payments [19]. On the other hand, UPI payments are made from a handle and all transactions can be traced back to the sender [19]. Additionally, UPI allows for instant transfers between two bank accounts without having to enter account details or IFSC codes [16]. Overall, both systems have their own advantages and disadvantages. The e₹ provides anonymity and convenience for users, while UPI offers more security and traceability. While bitcoin is a decentralised digital currency that uses encryption and has no central authority to control its balances and ledgers, digital rupee is the electronic version of currency issued by the central bank. [11][20]. Digital rupee uses a private blockchain, while cryptos operate on a public blockchain [20][21]. Digital rupee cannot be treated as an investment like cryptos [21][22].

4. TYPES OF RBI DIGITAL RUPEE, RISK FACED AND CHALLENGES IN IMPLEMENTATION OF DIGITAL RUPEE BY RBI

The Reserve Bank of India (RBI) is going to introduce two distinct varieties of the digital rupee: the Digital Rupee for Wholesale, or (e₹-W), will be used for interbank settlements between financial institutions, and the Digital Rupee for Retail, or (e₹-R), will be used for consumer and commercial transactions [21][7][4]. The digital rupee is the official digital currency of India and the country's central bank. It is India's version of cryptocurrencies and is widely acknowledged. [1][6].

The risks of Indian digital rupee (e₹-R and e₹-W) include the need for a robust legal framework to back the issuance of e₹ as another form of currency [11], as well as trust, safety, and settlement finality guaranteed by the RBI [7][1][23][5].

The challenges in implementation of digital rupee (e₹-R and e₹-W) by the Reserve Bank of India (RBI) include technological challenges such as creating new opportunities and lessening the burden of handling, printing, and distributing physical currency [24], as well as ensuring that the CBDC is exchangeable one-to-one at par with the fiat currency [25] and creating an additional option to use money without competing with cryptocurrency [1][26].

Indian Economy: The impact of Indian digital rupee (e₹-R and e₹-W) on the Indian economy is expected to be positive, with the potential to revolutionize the Fintech sector [27], provide an additional option to use money without competing with cryptocurrency [12], and enable customers and merchants to make payments digitally [6]. However, there are also risks associated with the implementation of CBDCs, such as the potential for private currencies to compete with e₹-R [23][7].

Indian Consumer: The introduction of Indian digital rupee (e₹-R and e₹-W) is expected to benefit Indian consumers by providing them with an additional option to use money without competing with cryptocurrency [12], enabling customers and merchants to make payments digitally [28][6], and allowing them to access the digital rupee through the RBI's Digital Rupee platform [7]. However, there are also risks connected with the implementation of CBDCs, such as the potential for private currencies to compete with e₹-R [23].

Indian Banking Sector: The introduction of Indian digital rupee (e₹-R and e₹-W) is expected to have a positive impact on the Indian banking sector by providing an additional option for customers to use money without competing with cryptocurrency [7][1], enabling customers and merchants to make payments digitally [5], and allowing them to access the digital rupee through the RBI's Digital Rupee platform [12]. As part of the pilot research, the viability of the entire process of producing digital rupees, dispersing them, and using them in retail will be assessed. [6].

5. DISCUSSION

The Digital Rupee (₹) or eINR, launched by the Reserve Bank of India (RBI), is a major step towards the future of digital payments in India. As a central bank digital currency (CBDC), it offers several key features and advantages over traditional paper currency and cryptocurrencies. The RBI has issued guidelines on how to use the digital rupee, which will be stored in digital wallets offered by participating banks and accessible through mobile devices. One of the major advantages of the digital rupee is its safety, being a direct liability of the central bank. Additionally, the e-rupee system has the potential to be more inclusionary than other forms of digital currency, providing an additional option for financial transactions. The RBI's Concept Note highlights the key objectives of issuing the CBDC, including increasing financial inclusion, reducing transaction costs, and improving efficiency. However, there are also some potential drawbacks to the e-rupee system. The digital infrastructure must be robust to ensure success, and there are security concerns related to the storage and transfer of digital rupees. Additionally, there may be risks associated with issuing a CBDC, such as disruption to the banking system when interest rates are low. The digital rupee and the Unified Payments Interface (UPI) are two different payment systems in India. The main difference between them is that the ₹ is a digital form of paper money, while UPI is a platform to facilitate banking transactions. The ₹ is designed to be anonymous, just like cash, while UPI transactions can be linked to bank accounts and provide a higher level of transparency. The need for Indian digital rupee (₹-R and ₹-W) is to provide an additional option for customers to use money without competing with cryptocurrency [1], enable customers and merchants to make payments digitally [7][5], and allow them to access the digital rupee through the RBI's Digital Rupee platform [2]. The robustness of the entire process of creating digital rupees, distributing them, and using them in retail will also be evaluated as part of the pilot study. [4]

6. CONCLUSION

The launch of the Digital Rupee in India represents a major milestone in the country's journey towards a more secure, efficient, and inclusive financial system. The RBI's issuance of a central bank digital currency (CBDC) provides a new option for conducting transactions and has the potential to increase financial inclusion, reduce transaction costs, and improve efficiency. The Digital Rupee has several advantages over traditional paper currency and crypto currencies, including its central bank backing, stringent regulations, and integration with existing payment systems such as UPI. However, there are also some challenges associated with the issuance of a CBDC, including disruptions to the banking system, security concerns, and potential risks. The success of the digital rupee system will depend on the development of its digital infrastructure and the ability of the RBI to address these challenges. In conclusion, the Digital Rupee has the potential to transform the future of payments in India and to provide new opportunities for financial transactions. It is important for stakeholders, including the RBI, participating banks, and users, to work together to ensure the success of the digital rupee and to promote its widespread adoption. **Implication on Banking Sector and the Consumers:** Banks and customers in India could anticipate to experience major effects from the launch of the Digital Rupee and UPI. The adoption of the Digital Rupee and UPI by banks has the potential to upset the established banking system. Consumers may choose digital transactions over traditional banking methods due to the digital rupee's accessibility and ease of use, which could change how banks function and engage with their clients. To connect with the digital rupee and UPI, banks may need to change their procedures and systems, which could result in higher expenses. On the other hand, the integration of the digital rupee and UPI with the current payment systems may open up new potential for banks to increase financial inclusion and their customer base. In order to generate additional revenue streams, banks may be able to provide new services and products associated with the digital rupee and UPI. The implementation of the digital rupee and UPI is anticipated to benefit customers in a number of ways, including increased financial inclusion, enhanced transaction security and accessibility, and decreased transaction costs. Consumers will have additional alternatives for making digital payments and completing financial transactions thanks to the digital rupee and UPI, potentially reducing the need for cash and in-person banking activities. Additionally, it is anticipated that the digital rupee and UPI will be integrated with the current payment systems to make it simpler for customers to access and use financial services, potentially boosting their financial empowerment and financial literacy. Overall, the effects of the Digital Rupee and UPI on India's financial and consumer industries are complicated and multifaceted, and it will probably take some time for all of these effects to materialise. However, these innovations have a lot of potential for success, and it is probable that they will have a big impact on how payments are made in India in the future. **Suggestions:**

1. The RBI and the government should focus on expanding the digital infrastructure and increasing awareness about the Digital Rupee among users. This will help increase financial inclusion and ensure the success of the Digital Rupee.
2. The security measures used to protect the Digital Rupee should be regularly reviewed and updated to keep pace with the changing threat landscape.
3. The RBI could consider incentivizing merchants to accept the Digital Rupee, such as through lower transaction fees compared to traditional payment methods.
4. The government and the RBI could consider partnering with tech companies to provide a seamless experience for users, including through the development of a mobile application.
5. The RBI could consider collaborating with other central banks to share best practices and knowledge on digital currencies, particularly regarding their implementation and regulation.
6. The RBI and the government should conduct thorough research and risk assessments to ensure the success and stability of the Digital Rupee.

References

- [1]. <https://www.forbes.com/advisor/in/investing/digital-currency-in-india/>
- [2]. https://en.wikipedia.org/wiki/Digital_rupee

- [3]. <https://economictimes.indiatimes.com/wealth/save/digital-rupee-do-you-need-a-bank-account-to-send-rbi-e-rupee/articleshow/96444341.cms>
- [4]. <https://cleartax.in/s/how-to-buy-and-use-digital-rupee-in-india>
- [5]. <https://www.hindustantimes.com/opinion/digital-rupee-can-transform-india-s-financial-transactions-101671588227755.html>
- [6]. <https://indianexpress.com/article/explained/explained-economics/digital-rupee-pilot-project-launching-on-december-1-what-is-it-and-how-will-it-work-8296610/>
- [7]. <https://economictimes.indiatimes.com/wealth/save/what-is-rbi-digital-rupee-important-features-how-it-is-different-from-cryptocurrency/articleshow/95875376.cms>
- [8]. <https://www.ndtv.com/business/reserve-bank-of-india-digital-currency-e-rupee-rbi-to-launch-retail-digital-rupee-on-december-1-on-pilot-basis-3563017>
- [9]. <https://indianexpress.com/article/explained/explained-economics/e-rupee-india-digital-currency-explained-8301325/>
- [10]. <https://stableinvestor.com/2023/01/digital-rupee-e-rupee-india.html>
- [11]. <https://news.cleartax.in/how-to-buy-and-use-digital-rupee-in-india/8697/>
- [12]. <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1218>
- [13]. <https://www.valueresearchonline.com/stories/51932/advantages-and-disadvantages-of-e-rupee>
- [14]. https://hoit.uk/cryptocurrency/digital-dosh/?utm_source=rss&utm_medium=rss&utm_campaign=digital-dosh
- [15]. <https://timesofindia.indiatimes.com/business/faqs/banking-faqs/how-is-digital-rupee-different-from-upi/articleshow/96683930.cms>
- [16]. <https://www.hindustantimes.com/business/explained-how-reserve-bank-s-e-rupee-is-different-from-upi-101670865768043.html>
- [17]. <https://www.moneycontrol.com/news/business/how-e-rupee-is-different-from-upi-rbi-governor-explains-9664491.html>
- [18]. <https://www.businesstoday.in/latest/economy/story/cbdc-vs-upi-what-differences-did-rbi-governor-shaktikanta-das-note-about-erupee-355564-2022-12-07>
- [19]. <https://pwpblog.wpengine.com/difference-between-digital-rupee-and-upi-ft/>
- [20]. <https://www.entrepreneur.com/en-in/news-and-trends/how-different-is-the-digital-rupee-from-cryptocurrency/440183>
- [21]. <https://www.businesstoday.in/personal-finance/news/story/how-is-rbis-digital-rupee-different-from-cryptocurrency-354887-2022-12-01>
- [22]. <https://www.jagranjosh.com/general-knowledge/differences-between-digital-rupee-and-cryptocurrency-1667473292-1>
- [23]. <https://frontline.thehindu.com/economy/digital-rupee-not-the-magic-bullet-central-government-is-hoping-for/article66281161.ece>
- [24]. <https://news.abplive.com/business/crypto/experts-explain-benefits-and-technological-challenges-of-rbi-digital-rupee-1567032>
- [25]. <https://economictimes.indiatimes.com/wealth/save/how-rbis-central-bank-digital-currency-digital-rupee-will-work-how-e-rupee-is-different-from-digital-money/articleshow/94705498.cms>
- [26]. <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1882883>
- [27]. <https://www.idfcfirstbank.com/finfirst-blogs/finance/digital-rupee-impact-on-indian-economy>
- [28]. <https://techcrunch.com/2023/02/02/india-retail-reliance-cbdc-digital-rupee-stores/>