“The Digital Rupee (e₹) in India: A Review of CBDC Research and Policy Literature”

Gupta Aman Shobhnath
Assistant Professor,
Department of Law, VNSGU
Email:- amangupta200220@gmail.com
ORCID – 0009-0000-0025-9520

Dr. Dhruv Rohitkumar Gangadwala
Assistant Professor,
SPB English medium college of commerce.
Email:- dhruv.gangadwala@spbcommerce.ac.in

Abstract:

Central Bank Digital Currencies (CBDCs) are a major development in contemporary monetary systems, and several nations are investigating how they might improve payment efficiency and financial inclusion. To improve current payment systems, the Reserve Bank of India launched the Digital Rupee as a state-backed digital currency. With a focus on the Digital Rupee, this paper offers a narrative review of CBDC research and policy literature in India. By combining opinions from international organisations, regulatory bodies, and scholarly literature, the report investigates the conceptualisation of CBDC, the goals and design of the Digital Rupee, potential advantages, difficulties, and hazards, as well as public awareness and acceptability. The research covers legal and technological concerns in great detail, but it does not fully examine behavioural elements like public awareness and regional differences in adoption. By identifying these shortcomings, especially with regard to public understanding and acceptability of the Digital Rupee throughout India, this study guides additional empirical research. It adds a cohesive, business-focused viewpoint to the growing corpus of CBDC research.

1. Introduction:

Global financial systems have been profoundly altered by the rapid spread of digital technology, particularly in the areas of money, payments, and banking services. Due to the growing use of electronic payments, mobile wallets, and online banking, many economies have seen a decrease in their reliance on physical cash during the previous ten years. Central banks now have serious worries about monetary sovereignty, financial stability, consumer protection, and regulatory control due to the rise of private cryptocurrencies and decentralised digital assets.

Issued and backed by the central bank the Central Bank Digital Currency is a digital version of a country's sovereign currency. Unlike private cryptocurrencies, Central Bank Digital Currencies (CBDCs) are accepted as legal money and are intended to preserve the stability, legitimacy, and trust that come with fiat money. Central Bank Digital Currency (CBDC) has been acknowledged by international organisations such as the International Monetary Fund (IMF) and the Bank for International Settlements (BIS) as a potential innovation that can strengthen the resilience of financial systems, increase financial inclusion, and improve payment efficiency. As a result, several countries are developing Central Bank Digital Currency (CBDC) at different phases, including pilot projects, theoretical study, and limited public use.

India is becoming a major player in the global digital payment business thanks to the quick spread of digital payment methods via platforms like the Unified Payments Interface (UPI), mobile banking, and card-based systems. The Reserve Bank of India (RBI) launched the Digital Rupee, India's Central Bank Digital Currency, to capitalise on this digital momentum. The Digital Rupee is intended to be a digital, safe, and independent form of legal tender that can live with both current electronic payment systems and physical currency. To assess the technological architecture, operational viability, and possible impact on the Indian financial system of retail CBDC (e₹-R) and wholesale CBDC (e₹-W), the RBI has started pilot programs.

The Digital Rupee is intended to serve a number of purposes. Key benefits include reduced currency maintenance costs, more efficient payment systems, faster and more secure transactions, and greater financial inclusion through central-bank-backed digital currency access. Additionally, the Digital Rupee affects cross-border payments, the transmission of monetary policy, and the financial sector's general structure. The establishment of a CBDC is a significant development with wide-ranging economic and social ramifications, given India's large population, varied socioeconomic circumstances, and varying levels of digital literacy.

Significant difficulties and concerns have also been raised by the Digital Rupee's implementation. In debates of academia and policy, data privacy, cybersecurity, operational hazards, legal frameworks, and public trust are important topics. The possible effects of CBDCs on commercial bank operations, payment procedures, and financial stability have been discussed by academics. Furthermore, public approval and understanding of CBDC are essential to its effective execution. The useful benefits of the Digital Rupee might not be fully utilised if users do not understand and trust it.

The material that is currently available on the Indian Digital Rupee is dispersed over a number of sources and frequently focuses on specific features alone. A comprehensive grasp of the existing academic and policy discourse surrounding the Digital Rupee is hampered by this fragmentation.

Due to the continuing pilot phase of the Digital Rupee and the lack of empirical evidence, a review of the literature is especially important at this point. A comprehensive analysis of scholarly and policy literature can identify recurring themes, common conclusions, points of agreement, and unresolved problems with the Digital Rupee. Additionally, this study makes it easier to identify research gaps that may direct future empirical investigations and policy initiatives.

This study assesses the literature on digital currency issued by Indian central banks, with a focus on the Digital Rupee. In order to fully understand the idea, goals, benefits, difficulties, and new issues surrounding the Digital Rupee, this study will examine recent scholarly and policy literature. The study organises the literature topically in order to highlight important ideas and points of contention on India's CBDC project. The analysis points out shortcomings in earlier research, especially with regard to public knowledge and acceptance, which are still not sufficiently explored in the Indian context.

By offering a thorough and well-organised evaluation of research on the Digital Rupee in India, this literature study adds to the expanding conversation on CBDC. In addition to providing a conceptual framework for future empirical study, the article is an invaluable tool for stakeholders, academics, and policymakers who want to understand the implications of Central Bank Digital Currency inside the Indian financial system.

This essay examines important institutional and scholarly studies on central bank digital currency. To clarify the idea, goals, benefits, challenges, and public acceptability of the Digital Rupee in India, a thorough examination of important contributions from the BIS, RBI, IMF, and a number of academic researchers has been carried out.

Objective of the research

1. To examine and gather the latest academic and policy research on India's Central Bank Digital Currency, with a focus on the Digital Rupee in particular.
2. To pinpoint significant gaps in the literature, particularly with public acceptance, regional viewpoints, and knowledge of the Digital Rupee in India.

2. METHODS

2.1 Research Methodology

To evaluate earlier academic and policy-related studies on India's Central Bank Digital Currency, with a focus on the Digital Rupee, this study uses a narrative literature review methodology. Without relying on statistical or bibliometric methods, In order to facilitate a comprehensive synthesis and understanding of numerous sources, including academic papers and institutional reports, this work employs a narrative review methodology.

As a review paper, the study does not collect primary data through surveys, interviews, or questionnaires; instead, it only uses secondary data. In order to identify important topics, prevailing viewpoints, and research gaps on the Digital Rupee in commerce and policy, the methodology places a strong emphasis on a critical analysis, organising, and synthesis of the body of current literature. Incorporating conceptual discussions, policy judgements, and

empirical evidence from previous research is made more flexible by the narrative review approach. This approach is widely used in business and economics research, especially in developing fields like digital currency where regulatory frameworks are always changing and empirical evidence is always expanding.

In order to identify common themes, areas of convergence, and shortcomings in the present literature surrounding the Digital Rupee in India, the study looks at and evaluates a number of important studies.

2.2 Search Strategy and Inclusion Criteria

To find relevant literature on Central Bank Digital Currency and the Digital Rupee, a systematic search approach was used. Peer-reviewed articles, working papers, and official policy documents from prestigious organisations like (RBI), (BIS), and (IMF) were the sources of secondary data. Academic databases and official university websites made the content accessible. Keywords like (CBDC), (e₹), digital currency in India, and CBDC awareness were used in the search. The evaluation focuses on studies published between 2017 and 2025, a period of increased national and international focus on CBDC programs.

The review only included English-language items relevant to the Indian setting. Research that focused solely on private cryptocurrencies and ignored digital currencies issued by central banks was ignored. Before the chosen literature was included in the final review, its quality and relevance were evaluated. The evaluated material was guaranteed to be current, reliable, and directly related to the goals of the study thanks to this methodical search and selection process.

3. RESULTS

The important conclusions from the reviewed literature on Central Bank Digital Currency in India are summarised in this section. The data is arranged thematically in this narrative review to represent the main issues discussed in earlier scholarly and policy studies on the Digital Rupee.

The findings in this section constitute a synthesis of at least four to five major contributions in the existing literature since they are based on a study of important institutional reports and academic research.

3.1 Concept and Evolution of Central Bank Digital Currency

The reviewed literature indicates that the conceptual description of Central Bank Digital Currency as a digital version of sovereign money produced by the central bank is widely recognised. A Central Bank Digital Currency (CBDC) is digital central bank money that can

coexist with physical currency and commercial bank deposits, enhancing the efficiency and inventiveness of payment systems, according to the Bank for International Settlements (BIS, 2020). CBDCs are designed to maintain public trust in sovereign currencies in the face of growing digitisation, according to the BIS (2020).

According to Ghosh (2021), the growth of CBDC is directly related to the increasing use of digital payment systems and the growing influence of private cryptocurrencies, both of which endanger financial stability and monetary sovereignty. According to the research, many central banks are beginning to view CBDC as a policy response to these trends, particularly in emerging markets (Ghosh, 2021; IMF, 2021).

The Reserve Bank of India's Digital Rupee is seen in Indian literature as a measured attempt to modernise monetary and payment systems while retaining regulatory control over currency issuance (RBI, 2021). Research indicates that India's robust digital payment infrastructure has produced ideal conditions for the progressive implementation of Central Bank Digital Currency (RBI, 2021; IMF, 2021).

3.2 Objectives and Design of the Digital Rupee

The goals and structure of the Digital Rupee are mainly outlined in the Reserve Bank of India's policy documents (RBI, 2021). The Digital Rupee is envisioned by the RBI as a sovereign digital currency with legal tender status that would coexist with existing digital payment systems and physical cash. By providing a dependable digital alternative to cash, the RBI hopes to improve the effectiveness and security of the payment system (RBI, 2021).

According to the RBI (2021), the Digital Rupee aims to increase financial inclusion by providing more access to digital money guaranteed by central banks while reducing the costs associated with printing, transporting, and managing physical currency. According to the policy statement, CBDC can improve monetary policy transmission and bolster the financial system's general resilience (RBI, 2021; Kumari & Khanna, 2022).

This view is supported by Kumari and Khanna (2022), who contend that the Digital Rupee's design represents an effort to strike a balance between financial stability and innovation. According to their study, a well-thought-out CBDC might endure with commercial bank deposits while causing the least amount of harm to financial intermediation. In a similar vein, Ghosh (2021) emphasises that the objectives of CBDC in developing nations like India are intimately linked to fostering payment efficiency while preserving monetary sovereignty in an increasingly digital environment.

The literature claims that the RBI has carefully and methodically applied design features, starting with experimental initiatives (RBI, 2021; BIS Innovation Hub, 2022). To meet

different transactional demands in the economy, the Digital Rupee is divided into retail (e₹-R) and wholesale (e₹-W) versions (RBI, 2021). According to studies, the Digital Rupee's successful integration into India's current payment infrastructure depends on design components like security, privacy, interoperability, and scalability (BIS Innovation Hub, 2022; RBI, 2021). Overall, the examined literature views the goals and design of the Digital Rupee as a calibrated policy tool intended to promote innovation in digital payments while maintaining financial stability and public confidence in the monetary system (RBI, 2021; Kumari & Khanna, 2022).

3.3 Benefits and Opportunities of the Digital Rupee

The reviewed literature outlines various probable benefits and prospects linked with India's adoption of the Digital Rupee. The International Monetary Fund (IMF, 2021) states that Central Bank Digital Currency can increase payment system efficiency by making transactions faster, safer, and more cost-effective.

From a broader economic viewpoint, the IMF (2021) states that CBDCs have the potential to increase financial inclusion by enabling access to central bank-backed digital money, particularly for those who are underserved by traditional banking institutions (IMF, 2021). According to the research, CBDC can improve public financial management by increasing the effectiveness of government payments and transfers (IMF, 2021).

According to their findings, implementing CBDC can result in smoother settlement processes and more transaction transparency, which may have a beneficial influence on company activity and financial system efficiency (Kumari & Khanna, 2022).

Furthermore, Kumari and Khanna (2022) argue that the Digital Rupee could help to cut operational costs related with currency management, such as the printing and distribution of physical banknotes (RBI, 2021; IMF, 2021). From a commercial standpoint, these advantages suggest potential gains in market efficiency, payment reliability, and overall economic governance (Patel, 2022).

Overall, the researched literature presents the Digital Rupee's benefits and potential as involving more than just technology innovation. However, the studies imply that the accomplishment of these benefits is strongly dependant on good execution, legal clarity, and public acceptance of the Digital Rupee (BIS Innovation Hub, 2022; Patel, 2022; Sharma, 2024).

3.4 Challenges and Risks Associated with the Digital Rupee

The researched literature indicates a number of challenges and hazards to its proper implementation. According to Patel (2022), the most crucial worries about CBDC are data privacy and cybersecurity. The report believes that because the Digital Rupee involves the

digital storage and transportation of value, it may be subject to cyber dangers if suitable technological precautions are not adopted. Such hazards may harm public trust and impede implementation (Patel, 2022).

The Bank for International Settlements Innovation Hub (BIS Innovation Hub, 2022) supports this approach by underlining the significance of operational resilience and system security for central banks putting CBDC into practice. CBDC systems must be scalable, reliable, and able to manage high transaction volumes without failing, according to the BIS Innovation Hub (2022). Additionally, the paper cautions that the financial sector may encounter operational disruptions due to weak risk management frameworks (BIS Innovation Hub, 2022).

Das and Ghosh (2022) note that the introduction of CBDC may have an influence on the conventional banking industry from the aspect of the financial system. According to their research, CBDC may impair commercial banks' deposit mobilisation and liquidity management if it is not correctly structured. They do point out, nevertheless, that these threats can be reduced with the correct design elements and legislative safeguards (Das & Ghosh, 2022).

Furthermore, Ghosh (2021) thinks that one of the basic difficulties facing developing economies is still legal and regulatory ambiguity. The study highlights the importance of specific legal frameworks that clarify the status, application, and liability of CBDC transactions. Customers and financial institutions might be reluctant to embrace the Digital Rupee in the absence of such clarity (Ghosh, 2021).

In general, the examined literature regards the risks and obstacles connected with the Digital Rupee as substantial but manageable. The majority of studies concur that in order to resolve these issues and guarantee the long-term stability of the financial system, a cautious, phased deployment strategy backed by strict regulatory oversight and a strong technology infrastructure is necessary (BIS Innovation Hub, 2022; RBI, 2021; Patel, 2022).

3.5 Public Awareness and Acceptance of the Digital Rupee

India is primarily contingent on public knowledge and acceptance of the Digital Rupee. Reddy and Mehta (2023) observe that despite the extensive use of digital payment systems throughout the nation, the general public's knowledge and comprehension of CBDC as a unique sort of digital currency is still weak. According to their investigation, there are conceptual clarity gaps as many people confuse the Digital Rupee with present digital payment systems.

In a similar vein, Sharma (2024) reveals that although there is a high level of familiarity with digital transactions, there is comparably little in-depth grasp of the goals, operations, and advantages of the Digital Rupee. The study demonstrates how acceptability of CBDC is greatly influenced by perceived system security, simplicity of usage, and public confidence in the

central bank. Sharma (2024) goes on to argue that in order to enhance acceptance, awareness campaigns and region-specific communication methods are important.

According to their research, people who are more financially and digitally knowledgeable are more likely to think the Digital Rupee is reliable and advantageous. This suggests that behavioural and educational components are just as critical from a commercial standpoint as technology preparedness.

Furthermore, Ghosh (2021) underlines that public acceptability of CBDC in developing nations like India is closely connected with trust in regulatory authorities and transparency about data protection. According to the study, users may be deterred from using CBDC if clear and transparent precautions are not provided due to concerns about privacy and transaction monitoring. According to the examined literature, the success of the Digital Rupee is mostly determined by public knowledge and acceptability (Reddy & Mehta, 2023; Sharma, 2024). The studies continuously reveal that the practical benefits of CBDC may not be completely realised without appropriate user awareness, trust, and comprehension, even as legislative and technology frameworks are crucial (Ghosh, 2021; Reddy & Mehta, 2023; Sharma, 2024). This thematic finding underscores the need for specific awareness campaigns and additional empirical study on regional and demographic disparities in Digital Rupee acceptability (Reddy & Mehta, 2023; Sharma, 2024).

4. DISCUSSION

In the context of Central Bank Digital Currency in India, this part summarises the findings from the theme results and evaluates their larger implications for theory, policy, and practice. The Discussion includes concepts from various themes to build a coherent picture of the Digital Rupee and its likely effects on the Indian financial system, in contrast to the Results section, which gives findings according to themes.

4.1 Cross-Theme Synthesis

All of the theme findings point to the Digital Rupee as a key improvement in India's payment and money systems. CBDC is conceptualised as a sovereign digital form of money meant to coexist with cash and current digital payment systems, according to the researched literature. This mutual agreement underlines that the Digital Rupee is meant to augment existing systems by improving security and efficiency rather than to entirely replace them.

The Digital Rupee is primarily considered as a policy-driven innovation intended to promote payment efficiency, minimize currency management costs, and enhance financial inclusion, according to the synthesis of themes on objectives, design, and advantages. These

goals are in line with India's bigger initiatives in the digital economy. However, research reveals that careful design decisions notably those pertaining to security, privacy, and interoperability are vital to the successful implementation of these advantages.

It is obvious that technology resilience and legal clarity are essential facilitators of CBDC adoption when compared to the hurdles and dangers identified in the literature. Studies consistently raise concerns about cybersecurity, data privacy, and the influence on the banking industry, demonstrating that risk management is just as vital to the Digital Rupee's adoption as innovation.

The literature continually underlines that user knowledge, trust, and digital literacy are essential elements in determining adoption, even though policy frameworks and technology infrastructure serve as the foundation of the Digital Rupee. The disparity between the extensive use of digital payments and the ignorance of CBDC suggests that behavioural and perceptual challenges have not received enough attention in the literature.

4.2 Theoretical and Policy Implications

From a theoretical approach, the results of this review support the argument that CBDC should be explored as a behavioural and institutional phenomenon in addition to a technological innovation, adding to the burgeoning body of research on digital money. In order to explain CBDC uptake, the synthesis highlights the application of notions involving consumer behaviour, trust in financial institutions, and technology acceptability. This indicates that economic, behavioural, and institutional characteristics should be incorporated into future theoretical models of digital currency.

From a policy standpoint, the discourse stresses how vital it is to implement CBDC in a balanced manner. In order to win over the public, policymakers must address privacy, cybersecurity, and financial stability issues despite the Digital Rupee's apparent operational and economic advantages. The report stresses that clear communication and public awareness campaigns will be key to driving adoption especially in a country as diverse as India.

Focused outreach and education initiatives may be essential to ensuring the Digital Rupee is widely accepted given the recognised gaps in knowledge and understanding. The gap between technological capability and actual utilisation may be closed with the aid of such solutions.

Overall, the conversation highlights how public perception, technology infrastructure, and policy design all play a role in the success of the Digital Rupee. This section emphasises the need for a thorough approach to CBDC research and policymaking in India by incorporating concepts from several industries.

5. CONCLUSION

This study provides a comprehensive overview of the Digital Rupee's concept, objectives, benefits, challenges, and awareness-related factors by synthesising studies conducted by international institutions, Indian regulatory bodies, and academic academics.

5.1 Key Findings

The conceptual basis of CBDC as a sovereign digital currency issued by the central bank that is intended to coexist with actual cash and current digital payment systems is widely accepted in the literature, according to the research. Policy documents and academic research consistently say that the Digital Rupee is primarily designed to increase payment efficiency, cut currency administration costs, promote financial inclusion, and boost monetary policy transmission.

The data also reveal that the Digital Rupee has several economic and operational advantages, such as quicker transactions, better transparency, and a lesser reliance on money. At the same time, the literature identifies substantial challenges in cybersecurity, data privacy, legal frameworks, and the probable influence on the banking industry. Most studies believe that these concerns can be avoided with a cautious, phased adoption plan backed by robust regulatory supervision.

A significant lesson from the study is the importance of public awareness and acceptability in deciding the success of the Digital Rupee. While digital payment usage is ubiquitous in India, knowledge and grasp of CBDC as a distinct kind of money are still poor. Digital literacy, trust in the central bank, perceived security, and clarity of communication are all often recognized as major adoption drivers.

5.2 Research Gaps and Future Research Directions

The study reveals a number of critical research gaps despite the rising body of literature on the Digital Rupee. There is limited empirical data on public awareness, perception, and behavioural intentions about the Digital Rupee, and the majority of current research is conceptual and policy-driven. Furthermore, the bulk of research use a national-level viewpoint, ignoring regional and demographic variances in CBDC adoption readiness and awareness.

Therefore, future research should concentrate on empirical and region-specific studies that look at public acceptance and knowledge of the Digital Rupee, especially in expanding and semi-urban areas. Research on how trust, digital literacy, and demography affect adoption behaviour would be valuable for practitioners and policymakers alike.

Overall, this analysis provides a methodical synthesis of the research on the Digital Rupee and indicates critical areas that require further investigation to assist well-informed policymaking and successful Central Bank Digital Currency implementation in India.

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