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IMPACT OF RBI'S DIGITAL CURRENCY (CBDC) ON FINANCIAL INCLUSION AND CASHLESS ECONOMY

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ABSTRACT

The introduction of the Reserve Bank of India's Digital Rupee (Central Bank Digital Currency - CBDC) marks a pivotal shift in India's financial ecosystem, aiming to strengthen financial inclusion and accelerate the transition to a cashless economy. This study investigates the conceptual framework, design, and operational features of the Digital Rupee while critically examining the challenges and risks associated with its implementation. Adopting a descriptive and exploratory research design, the study collected primary data through surveys and supplemented it with secondary sources such as RBI reports, scholarly articles, and global case studies. The analysis reveals that although 72% of respondents are aware of CBDC, only 14.67% have a comprehensive understanding of its functionality. Awareness is mainly driven by news and social media, while trust in CBDC's safety remains moderate, with a mean perception score of 3.20 out of 5.

Key challenges identified include limited digital literacy, fear of cyber threats, data privacy concerns, and technological dependency, particularly in rural and underbanked regions. Despite these barriers, the Digital Rupee holds substantial potential to bridge financial access gaps, reduce reliance on cash, and offer a secure, government-backed alternative to existing digital payment platforms. The study recommends targeted awareness campaigns, strong cybersecurity frameworks, legal safeguards, and inclusive access strategies to ensure the effective adoption of CBDC. These findings provide crucial insights for policymakers and financial institutions working towards a digitally inclusive and resilient Indian economy.

KEYWORDS: Central Bank Digital Currency (CBDC), Digital Rupee, Reserve Bank of India (RBI), Cashless Economy, Payment Systems.

INTRODUCTION

In recent years, the global financial landscape has witnessed a paradigm shift with the advent of Central Bank Digital Currencies (CBDCs), aiming to redefine the way money is created, distributed, and transacted. In India, the Reserve Bank of India (RBI) launched the Digital Rupee (e₹) as a form of CBDC to complement the existing payment systems and to enhance the efficiency, transparency, and inclusiveness of the monetary framework. This initiative marks a significant milestone in India's journey towards a digital and cashless economy.

The Indian economy, with its vast population, diverse demographics, and evolving fintech ecosystem, presents both opportunities and challenges for the implementation of CBDC. While platforms like UPI, mobile wallets, and net banking have revolutionized digital payments, a significant portion of the population—particularly in rural and remote areas—still lacks access to formal banking services. In this context, the RBI's Digital Rupee has the potential to play a transformative role by facilitating low-cost, secure, and inclusive financial transactions.

This research paper explores the impact of RBI's CBDC on enhancing financial inclusion and accelerating the shift towards a cashless economy. It investigates whether CBDC can bridge existing gaps in financial access, promote digital literacy, and reduce the dependency on cash, while also addressing the concerns related to privacy, infrastructure, and user adoption. The study also evaluates the broader implications of CBDC in supporting India's vision of a digitally empowered society and knowledge economy.

REVIEW OF LITERATURE:

The concept of Central Bank Digital Currency (CBDC) has gained global traction in the last decade, with several countries exploring or piloting their versions of digital currency to modernize payment systems, reduce reliance on physical cash, and enhance financial inclusion.

I- Global Perspective on CBDC: According to the Bank for International Settlements (BIS, 2020), over 80% of central banks globally were actively researching or experimenting with CBDCs. Countries like China (e-CNY), Nigeria (eNaira), and the Bahamas (Sand Dollar) have already launched digital currencies to address issues ranging from transaction efficiency to financial access in remote areas. These global efforts provide useful benchmarks for India's CBDC roadmap.

II- CBDC and Financial Inclusion:

- **Narula & Sandhya (2022)** argue that CBDC has the potential to improve financial inclusion by providing a digital payment mechanism that doesn't require a bank account or high-end smartphones. They highlight that if implemented with offline functionality, CBDC can reach underserved populations in rural and semi-urban areas.

- **Ghosh & Bandyopadhyay (2021)** emphasize that digital currency, backed by the central bank, can reduce transaction costs, build trust among unbanked populations, and complement government schemes like PMJDY, thereby deepening financial penetration.

III- Digital Economy and Cashless Transactions:

- **Sharma & Gupta (2020)** discuss India's rapid shift towards digital payments, particularly after demonetization and the introduction of platforms like UPI. However, they point out that despite these efforts, cash continues to dominate, especially in informal sectors. CBDC, in their view, can offer a reliable and traceable alternative to cash, especially for micro-payments and government transfers.
- **RBI (2022)** in its Concept Note on the Digital Rupee outlines multiple benefits of CBDC such as increased operational efficiency in payments, lower currency management costs, and promoting innovation in cross-border payments. It also suggests that CBDC can serve as a risk-free digital payment instrument for users.

IV- Challenges in CBDC Implementation:

- **Kumar & Mehta (2023)** highlight key barriers in the adoption of CBDC, including technological infrastructure gaps, low digital literacy, privacy concerns, and the threat of cybercrime. They suggest that without strong regulatory frameworks and awareness campaigns, the benefits of CBDC may not fully reach the intended beneficiaries.

V- Comparative Case Studies:

- A study by **IMF (2022)** compared the implementation of digital currencies in Nigeria and the Bahamas. The findings indicate that success depends largely on user trust, ease of use, and integration with existing financial services. Lessons from these countries could guide India in improving adoption and outreach strategies.

Research GAP:

While global and national studies have highlighted the potential benefits and challenges of CBDC, there is limited empirical research focusing specifically on **India's Digital Rupee** and its **dual impact** on *financial inclusion* and the *cashless economy*. This study seeks to fill this gap by analyzing real-world user perspectives, infrastructure readiness, and the socioeconomic implications of CBDC in India.

Objective of the study:

1. To study the concept, design, and features of RBI's Digital Rupee (CBDC).
2. To examine challenges and risks associated with CBDC adoption in India.

Research Methodology:

I- Research Design: This study adopts a descriptive and exploratory research design. The descriptive aspect is used to understand the features, structure, and framework of the Digital Rupee (CBDC) as introduced by the Reserve Bank of India, while the exploratory component investigates the perceived challenges, risks, and barriers to CBDC adoption in the Indian context.

II- Data Collection Method:

III- Scope of the Study: The study focuses on the Indian digital economy, particularly the initial phases of RBI's Digital Rupee implementation. It considers diverse viewpoints from both experts and laypersons to provide a holistic understanding of the topic.

IV- Limitations of the Study:

- CBDC being a new concept in India, public awareness may still be evolving, impacting response accuracy.
- The study relies on available secondary sources, which may undergo changes as RBI's CBDC project evolves.

Data Analysis and Interpretation:

Objective 1: To study the concept, design, and features of RBI's Digital Rupee (CBDC)

Table-1
Awareness of RBI's Digital Currency (CBDC)

Response	No. of Respondents	Percentage (%)
Yes	108	72.00
No	42	28.00
Total	150	100.00

Source: Questionnaire

Interpretation: The data presented in Table-1 reveals that out of 150 respondents, a significant majority-72%-are aware of the Reserve Bank of India's Digital Currency (CBDC), while 28% remain unaware. This indicates a relatively high level of awareness among the public, which may be attributed to increased media coverage, public discourse, and government initiatives highlighting the launch of the Digital Rupee. However, the remaining 28% who are still unaware represent a considerable portion that needs to be targeted through awareness and literacy programs. For the successful adoption of CBDC in India, it is crucial that knowledge reaches all sections of society, especially rural and semi-urban populations who are more likely to benefit from financial inclusion initiatives.

Table-2
Understanding of CBDC Features

Understanding Level	No. of Respondents	Percentage (%)
Very well	22	14.67
Somewhat	65	43.33
Heard but not understood	38	25.33
Not at all	25	16.67
Total	150	100.00

Source: Questionnaire

Interpretation: The data in Table-2 highlights varying levels of public understanding regarding the features of the RBI’s Central Bank Digital Currency (CBDC). Only 14.67% of respondents reported a strong grasp of CBDC features, while the majority (43.33%) indicated only partial or basic understanding. Additionally, 25.33% of participants had heard of CBDC but did not understand it, and 16.67% were completely unaware of its features. This indicates a significant knowledge gap despite growing awareness of CBDC’s existence. The findings suggest the urgent need for targeted educational initiatives and public outreach campaigns to enhance comprehension of the Digital Rupee’s structure, functionality, and its distinction from other digital payment systems such as UPI and mobile wallets.

Table-3
Source of CBDC Information

Source of Awareness	No. of Respondents	Percentage (%)
News Media	50	33.33
Social media	45	30.00
Banking Channels	28	18.67
Friends/Peers	15	10.00
Government Websites	12	8.00
Total (Multiple Response)	-	-

Source: Questionnaire

Interpretation: Table-3 highlights the primary sources through which respondents became aware of the RBI’s Digital Currency (CBDC). A significant portion, 33.33%, cited news media as their main source of information, followed closely by social media at 30%. Banking channels such as banks or financial institutions contributed to awareness for 18.67% of respondents, while personal networks like friends or peers accounted for 10%. Notably, only 8% received information from official government websites. This indicates that informal and mass communication platforms play a larger role in disseminating CBDC-related information than institutional or official sources. The findings

emphasize the need for the RBI and government bodies to strengthen direct communication and outreach through credible, official, and educational channels to improve public understanding.

Objective 2: To examine challenges and risks associated with CBDC adoption in India

Table-4
Perceived Challenges in CBDC Adoption

Challenge Type	No. of Respondents	Percentage (%)
Lack of awareness	95	63.33
Technical barriers	70	46.67
Smartphone dependency	58	38.67
Fear of cybercrime	80	53.33
Trust in digital currency	45	30.00

Source: Questionnaire

Interpretation: The data indicates that the most significant challenge in the adoption of CBDC is **lack of awareness**, reported by 63.33% of respondents. This reflects a pressing need for public education and outreach on the Digital Rupee. Additionally, **fear of cybercrime** (53.33%) and **technical barriers** (46.67%) highlight concerns about the security and infrastructure required to support CBDC usage. **Smartphone dependency** was cited by 38.67% of respondents, pointing to a digital divide, especially in rural areas. Lastly, only 30% of respondents expressed **trust in digital currency**, underlining the importance of building public confidence through secure, transparent, and user-friendly CBDC platforms.

Table-5
Perceived Risks Associated with CBDC

Risk Category	No. of Respondents	Percentage (%)
Data privacy concerns	85	56.67
Government surveillance	60	40.00
Loss of money due to hacks	90	60.00
Confusion with UPI/wallets	45	30.00
None	12	8.00

Source: Questionnaire

Interpretation: The data indicates that the most significant perceived risks of CBDC adoption among respondents are **loss of money due to hacks** (60%) and **data privacy concerns** (56.67%), highlighting strong apprehension about digital security and user protection. **Government surveillance** is also a concern for 40% of respondents, suggesting worries about excessive state control and lack of transaction anonymity. Additionally, **30%** of users reported confusion between

CBDC and existing digital payment tools like UPI and wallets, reflecting a need for better communication and public education. Only **8%** reported no perceived risk, indicating widespread concern that must be addressed to ensure broader adoption and trust in CBDC.

Table-6
Likert Scale – CBDC is Safe to Use

Response Option	Score	No. of Respondents	Weighted Score
Strongly Agree	5	25	125
Agree	4	35	140
Neutral	3	50	150
Disagree	2	25	50
Strongly Disagree	1	15	15
Total	-	150	480

Source: Questionnaire

Mean Score:

$$480/150 = 3.20$$

Interpretation: The analysis of respondents’ perception regarding the safety of the Digital Rupee (CBDC) shows a mean score of **3.20 out of 5**, indicating a **neutral to slightly positive** attitude toward its security. While **40%** of respondents agreed or strongly agreed that CBDC is safe, a significant portion (**33.33%**) remained neutral, and **26.67%** expressed disagreement. This reflects a cautious mindset among the public, where confidence in CBDC’s safety is still developing. The results suggest that while some trust has been established, stronger efforts are needed from authorities to build widespread confidence through robust security frameworks and transparent communication.

Findings:

- A significant majority (72%) of respondents were aware of the RBI’s Digital Rupee; however, only 14.67% had a clear and detailed understanding of its design and features. This indicates that while public interest in CBDC is increasing, knowledge about its actual working remains shallow.
- Most respondents reported learning about CBDC through **news media (33.33%)** and **social media (30%)**, while fewer received information from formal channels like banks (18.67%) or official government websites (8%). This shows a need for more structured and formal communication by authorities.
- A considerable number of respondents were unclear about the distinction between CBDC and digital wallets like UPI or Paytm, reflecting the need for awareness campaigns that explain how CBDC is different in terms of centralization, legal tender status, and architecture.

- The most significant barrier to CBDC adoption, reported by 63.33% of respondents, is a lack of awareness and understanding, particularly among individuals from rural and semi-urban areas.
- Around **60% of respondents** expressed concern over the risk of hacking and loss of digital currency, while **56.67%** feared loss of privacy or misuse of personal data. This shows that security concerns are a major factor limiting adoption.
- Over 38% of respondents cited **smartphone dependency** as a barrier to CBDC usage, particularly among older adults, rural populations, and economically weaker sections. This points to a digital gap that must be addressed through inclusive technology access.
- The average Likert scale score for the statement “CBDC is safe to use” was **3.20** (out of 5), indicating a **neutral to slightly positive** trust level. Many respondents are still undecided or skeptical about the security infrastructure of the Digital Rupee.
- About 40% of participants mentioned **government surveillance** as a potential issue, fearing that every transaction might be monitored. This finding reflects deeper concerns around privacy, control, and data autonomy.

Recommendation:

- **Targeted Awareness Campaigns** should be initiated by the Reserve Bank of India and the Ministry of Finance using television, radio, local newspapers, and regional languages to explain the **features, benefits, and usage** of the Digital Rupee.
- Promote the use of **low-end devices and USSD-based access methods** to include financially and digitally excluded populations.
- RBI and other regulatory bodies must prioritize **cybersecurity protocols and encryption standards** to ensure transaction safety and build user trust.
- Introduce **incentives such as cashback, discounts, or tax benefits** for early adopters or for using CBDC in small-value retail transactions.
- A **well-defined legal and regulatory framework** must be formulated addressing liability, consumer protection, and grievance redressal in case of technical failures, frauds, or disputes.

CONCLUSION:

The introduction of the Central Bank Digital Currency (CBDC), popularly known as the Digital Rupee, marks a transformative step in India’s journey toward a digitally empowered economy. This study aimed to explore the concept, design, and features of RBI’s Digital Rupee, and to examine the challenges and risks associated with its adoption in the Indian context. The findings reveal that while awareness of CBDC is steadily growing, in-depth understanding of its functionality, legal status, and

differences from existing digital payment systems remains limited among the general public.

The study also highlights critical challenges that could potentially hinder the widespread adoption of CBDC. These include lack of digital literacy, fear of cybersecurity threats, concerns about data privacy, and technological constraints in rural and underserved areas. Moreover, public trust in the security and usability of CBDC is still moderate, suggesting that adoption will require strategic efforts from both policymakers and financial institutions.

To ensure successful integration of CBDC into the Indian financial system, it is essential to implement robust awareness campaigns, invest in secure digital infrastructure, and develop inclusive policies. CBDC holds the potential to significantly enhance financial inclusion by offering a government-backed, low-cost, and secure digital alternative to cash, especially for the unbanked and underbanked populations. Furthermore, its integration into daily financial transactions can accelerate the shift toward a cashless economy.

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