

FinTech Innovations for India @100: Shaping the Future of India's Financial Landscape

**Address by Shri Shaktikanta Das,
Governor, Reserve Bank of India**

at the Global Fintech Fest, August 28, 2024, Mumbai

I am very happy to participate in the 5th edition of the Global Fintech Fest (GFF). I would like to congratulate the organisers – NPCI, PCI and FCC¹ – for bringing together diverse stakeholders from the FinTech ecosystem including FinTech innovators and companies, banks, NBFCs, regulators and others for this year's GFF. This event has grown into a much awaited fixture in the calendar of not just the Fintech industry but also the broader technology ecosystem.

2. The GFF represents a true melting pot of ideas, where innovative concepts and diverse perspectives come together with potential to shape the digital future of our financial sector. It also provides a unique opportunity to align our goals and strategies, to ensure that the FinTech ecosystem continues to grow dynamically and sustainably.

3. India is now a fast-growing economic powerhouse with an increasingly tech-savvy population. India's financial sector has witnessed a remarkable transformation, driven among other factors by the FinTech sector. Publicly available information² places the number of FinTechs founded in India at approximately eleven thousand (11,000). The sector has received investments of about US\$ 6 billion in the last two years alone.

¹ NPCI – National Payments Corporation of India; PCI – Payments Council of India; FCC – Fintech Convergence Council.

² Traxcn database, Feed Report - FinTech - India - Apr 2024

4. In my address today, I propose to highlight three major aspects: (i) setting the priorities for India@100; (ii) technologies for the future; and (iii) the regulatory architecture for FinTechs.

I. Setting the priorities for India@100

5. I would like to begin by quoting Mahatma Gandhi, who had said: "*The future depends on what we do in the present*". Therefore, as we proceed in our journey towards the centenary of India's independence in 2047, it would be essential to reflect and imagine the future of our financial landscape, its requirements, and the technologies that will shape it.

6. This journey will be marked by dynamic shifts in technology, regulation, geopolitics and societal expectations. The financial sector is experiencing rapid digitalisation and innovation. While all of us strive to enhance financial inclusion, optimise digital payments and harness emerging technologies like blockchain and artificial intelligence, we also confront the inherent unpredictability and interconnectedness of the global financial system. In this environment, developing a mindset that anticipates disruption and embraces change with prudence, becomes very important. Financial institutions and FinTech startups alike must, therefore, adapt swiftly, leveraging agile strategies and robust frameworks to capitalise on the new opportunities while mitigating the connected risks.

7. It is up to the stakeholders in India's financial ecosystem – banks, non-banks, fintechs, regulators and the government - to foster innovation with resilience. While the FinTech ecosystem is ushering in the much-needed personalisation and contextualisation of finance for consumers, the context needs to be broadened to build

a financial system that serves the broader society. To achieve these, I wish to propose the following five policy priorities for the future of India's financial system.

Priority 1: Digital Financial Inclusion

8. As a policy priority, financial inclusion should ensure that everyone has appropriate access to financial services. The Reserve Bank's Financial Inclusion Index, which measures the level of financial inclusion, rose to 64.2 in March 2024 from 53.9 in March 2021. As a country, we have succeeded in ensuring banking access to every village within a 5 km radius or hamlet of 500 households in hilly areas. 530 million Jan Dhan bank accounts³ have been opened under a national mission, of which 66 per cent accounts have been opened in rural/semiurban centres and 55 per cent with women beneficiaries⁴.

9. While significant strides have been made in expanding financial inclusion, the evolving landscape demands a shift towards Digital Financial Inclusion⁵ (DFI) i.e. promoting secure and digitally enabled financial services and products for the financially excluded and underserved population. Digital Financial Inclusion has the unique advantages of scalability and cost-effectiveness. Accordingly, the next two decades will predominantly be about leveraging technology to deliver accessible and tailored financial services that meet diverse needs.

10. In the pursuit of Digital Financial Inclusion, FinTechs may strive to offer innovative and accessible financial services, bridging gaps in traditional banking with digital payment solutions, microloans, and affordable insurance. They can enable

³ These accounts refer to the savings bank deposit accounts opened under the Jan Dhan Yojana (Scheme) of the Government of India.

⁴ <https://pmjdy.gov.in/account> (data as of August 14, 2024)

⁵ Definition adopted from G20 Financial Inclusion Action Plan (FIAP) for 2024-2026

seamless access to financial services in remote areas through mobile banking apps, digital wallets and online lending platforms, with superior and safe customer experience. The use of data analytics and AI could further enable personalised and efficient financial solutions.

Priority 2: Digital Public Infrastructure (DPI)

11. The second key policy priority would be to further deepen Digital Public Infrastructure (DPI). DPI which encompasses frameworks like Digital Identity (Aadhaar), universal fast retail payments (UPI) and targeted payment solutions like platform for bill payments, will enhance the efficacy of the financial system in general. They would be key tools to promote interoperability, transparency and cost effectiveness.

12. New DPIs could address emerging challenges such as frauds, cyber threats, data privacy and other concerns. They could also support the integration of advanced technologies like blockchain and AI to enhance security and efficiency in financial services. Continuous innovation is crucial in harnessing technological advancements and maintaining a competitive edge in the global financial landscape.

13. One significant initiative in this direction is the Reserve Bank's pilot on Unified Lending Interface (ULI), earlier known as Public Tech Platform for Frictionless Credit (PTPFC). ULI aims to enable lending institutions to offer frictionless, end-to-end digital credit by leveraging consent based data and related services. There are about 50 such types of data services on the platform Apart from Banks and NBFCs, we are now focusing on inclusion of other lenders like cooperative credit institutions through the NABARD. A full-scale launch of ULI will be done in due course. As I said two days ago

in another event, the ‘New Trinity’ of JAM⁶-UPI-ULI will mark a revolutionary step forward in India’s DPI journey.⁷

Priority 3: Consumer Protection and Cyber Security

14. Ensuring robust consumer protection is crucial for upholding trust in the financial system. As consumers are increasingly relying on digital financial services, their expectations for personalised, efficient and seamless experience are also growing. Alongside traditional risks such as mis-selling and fraud, new manifestations of consumer risks such as data privacy and security breaches have emerged with the advent of new technologies. Leveraging technology for real-time monitoring and ensuring regulatory compliance will be essential to address these challenges effectively.

15. The Digital Personal Data Protection (DPDP) Act, 2023 is a cornerstone in India's consumer protection landscape. It marks a significant shift towards safeguarding personal data. This Act enshrines the principles of data minimisation and purpose limitation to ensure that organisations collect only necessary information and use it solely for specified purposes for the required period of time. It empowers individuals with the right to access, correct, and erase their data, thus giving consumers greater control over their personal information. The Act incentivises businesses to adopt robust data protection measures, which will ultimately enhance trust in digital transactions.

⁶ JAM stands for the integration of Jan Dhan bank accounts, Aadhaar biometric identification, and Mobile numbers. This framework is designed to promote financial inclusion in India by enabling direct benefit transfers, improving access to banking services, and leveraging digital identity for seamless service delivery.

⁷ [Inaugural Address by Shri Shaktikanta Das, Governor, Reserve Bank of India at the RBI@90 Global Conference on “Digital Public Infrastructure and Emerging Technologies”, August 26, 2024, Bengaluru](#)

16. Dark patterns such as misleading buttons, hidden charges, and forced continuity, have become big concerns in the digital marketplace. The Guidelines for Prevention and Regulation of Dark Patterns, 2023 issued by Government of India is an important step to protect consumers from unfair application of technology in businesses. These guidelines aim to identify, prohibit, and penalise restrictive and misleading practices, so that consumers can make informed choices.

17. On their part, banks and FinTech NBFCs are expected to adopt a customer-centric approach; implement robust security measures; offer transparent financial products; and adopt fair lending practices. Algorithmic decisions need to be fair and unbiased and treat the customers equitably. Minimising technology risks requires investing in resilient IT infrastructure and continuous monitoring to protect against cyber threats and technical failures. By embracing these principles, businesses can enhance consumer trust, foster long-term relationships, contribute to a more secure and reliable financial ecosystem, and ensure their own long term viability.

18. Beyond these steps, cybersecurity emerges as a critical pillar in safeguarding India's digital financial ecosystem from a systemic stability perspective. As financial transactions increasingly migrate online, the threat landscape is expanding exponentially. Investing in state-of-the-art technologies such as AI-driven threat detection, analysis and mitigation, along with clear focus on improving human resource capabilities are necessary to bolster resilience of information systems. Promoting cybersecurity awareness among consumers and employees alike are essential steps towards building a secure digital economy.

19. As a regulator, I have to emphasise these aspects on behalf of the Reserve Bank while, at the same time, reiterating our continued commitment to promote innovation.

Priority 4: Sustainable Finance

20. Long-term economic stability needs prioritisation of sustainable growth and environmental preservation. India's commitment to environmental preservation is enshrined in Article 48-A⁸ of the Constitution of India. From a financial sector perspective, we have taken steps for ensuring sustainability with recent initiatives of the Reserve Bank like *Sovereign Green Bonds framework of India (2022)* and the *Framework for acceptance of Green Deposits (2023)*. These frameworks are expected to play an important role in financing green projects, incentivising sustainable practices and lowering societal costs of development.

21. Despite their benefits, green bond and green deposit frameworks face several challenges. They include scalability, as the market for green bonds needs to expand significantly to attract larger issuances and diverse set of investors. Ensuring authenticity and impact of green projects, financed through these frameworks, requires robust monitoring and reporting mechanisms. Technology can play a pivotal role in overcoming these challenges. Blockchain technology, for instance, can enhance transparency and traceability in green bond issuances and provide immutable records of project impacts. Artificial intelligence (AI) and big data analytics would enable banks and investors to assess environmental risks and opportunities associated with green investments. Fintech innovations such as digital platforms for trading green bonds

⁸ The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.

and impact measurement tools can streamline processes and attract a broader investor base.

22. Looking ahead, over the next two decades, FinTechs will be instrumental in driving the progress in transition finance, climate finance and nature-based solutions. Strengthening regulatory frameworks, enhancing investor awareness and fostering public-private partnerships will be critical. By harnessing the transformative power of technology and promoting innovation in sustainable finance, India can accelerate its transition towards a resilient and low-carbon economy. We have to put our heads together to achieve sustainable growth and environmental stewardship for the future generations.

Priority 5: Global Integration and Cooperation

23. India has engaged actively in international fora and bilateral agreements to foster economic cooperation. Going forward, strengthening financial infrastructure, including cross-border payment systems, will be key focus areas. India, with its tech talent and evolved fintech ecosystem, holds the potential to serve as a global hub for digital innovation and fintech startups. Building and strengthening strategic partnerships, reinforcing our commitment to international cooperation, developing institutions of excellence in the areas of technology and innovation across a wide spectrum of areas, including financial services, would give the right impetus for our journey towards 2047.

24. Based on the encouraging response we have received from several jurisdictions, we are now focusing on making the UPI and RuPay truly global. The deployment of UPI-like infrastructure in foreign jurisdictions, facilitating QR code-based payment acceptance through UPI apps at international merchant locations, and

interlinking UPI with Fast Payment Systems (FPS) of other countries for cross-border remittances are on top of our agenda. Notable progress in this direction has already been made in countries like Bhutan, Nepal, Sri Lanka, Singapore, the UAE, Mauritius, Namibia, Peru, France and a few other countries.⁹ These endeavours underscore collaborative efforts for adoption of India's initiatives across the globe. I would like to compliment the NPCI and my colleagues in the Reserve Bank for what has been achieved so far, but we must resolve to do more in this national endeavour.

25. India's CBDC, which is in pilot stage, is another example of possible international co-operation. We are now utilising features like programmability to provide credit or government assistance to landless tenant farmers and carbon credits to farmers through CBDC. While we have successfully demonstrated the interoperability of CBDC with retail fast payment systems like UPI, we continue to gain from our experimentation on off-line solutions. As we make progress, we would be happy to co-operate with other nations in their CBDC efforts.

II. Technologies for the future

26. Looking towards the future of India's financial landscape, the integration of cutting-edge technologies promises transformative advancements across various facets of our life. Artificial Intelligence and Machine Learning (AI/ML) are poised to revolutionise financial services in unprecedented ways. AI algorithms are already being deployed for fraud detection. Machine learning models are increasingly being employed in credit scoring, leveraging predictive analytics to assess creditworthiness,

⁹ Notable developments include UPI QR code acceptance in Bhutan, France, Mauritius, Singapore, Sri Lanka, Nepal, and UAE. Similarly, RuPay card acceptance spans Nepal, Bhutan, Singapore, Mauritius, and UAE, with cards from these countries also accepted in India. The integration of UPI with FPS in Singapore for peer-to-peer remittances and agreements with regulators in UAE, Nepal, Namibia, and Peru for deploying UPI-like solutions signify the progress made so far in obtaining global financial connectivity.

and expand access to credit. AI-driven chatbots and virtual assistants are steadily enhancing customer service experiences by providing personalised recommendations, resolving queries promptly, and improving overall satisfaction. As AI and ML capabilities continue to evolve, their potential applications in regulatory compliance, investment advisory services, and algorithmic trading are expected to further redefine the financial landscape.

27. Simultaneously, we should also fully understand the risks posed by AI and facilitate calibrated and responsible adoption. Players in the financial sector, Central banks and governments should facilitate the development of trustworthy AI, keeping in mind the concerns surrounding data privacy, explainability, accountability and transparency. What can be a desirable model for governing technologies like AI, may perhaps be a key issue for discussion among the experts assembled here.

28. The Internet of Things (IoT) represents another frontier of opportunity for the financial sector. IoT devices, embedded with sensors and connectivity capabilities, are reshaping the payments ecosystem by enabling seamless transactions through connected devices, such as wearables and smart appliances. Further, IoT-driven data analytics offer insurers real-time insights into policyholders' behaviour and risk profiles. They can facilitate personalised insurance offerings and dynamic pricing models. IoT-enabled devices in supply chain finance and asset tracking have the capacity to streamline operations, enhance transparency, and mitigate risks. As IoT adoption grows, collaboration between fintech innovators and IoT developers will be crucial to harnessing its full potential.

29. Quantum Computing holds great promise as a game-changing technology with profound implications for cryptography, financial modelling and risk management. Its

potential to perform complex calculations at great speed and scale, poses both opportunities and challenges. In cryptography, quantum-resistant algorithms are being developed to safeguard sensitive financial data from quantum-enabled cyber threats. In financial modelling, quantum computing's ability to process vast amounts of data and simulate complex scenarios promises to revolutionise portfolio optimisation, trading strategies and risk assessment. Moreover, quantum computing's potential to solve optimisation problems could enhance real-time decision-making processes and improve predictive analytics in risk management.

30. As these future technologies continue to evolve, their integration into India's financial ecosystem will require strategic investments in research and development, collaboration across sectors, and proactive regulatory frameworks to ensure ethical deployment and mitigation of potential risks. The Reserve Bank is fully conscious of all these issues and giving due attention to these areas.

III. Regulatory Architecture

31. Finally, let me touch upon the regulatory approach for the fintech Sector. Sustainable and orderly development of the fintech sector requires an appropriate balance between innovation and prudence. Our endeavour is to carefully craft regulations to achieve this delicate balance, while simultaneously ensuring trust, security, accessibility, risk management and competition.

32. In this context, I would like to mention that several regulatory guidelines have been issued in the recent past after wide ranging consultations with stakeholders. These include the [‘Guidelines on Digital Lending’ \(September 2022\)](#) ; [‘Master Direction on Outsourcing of Information Technology Services’ \(April 2023\)](#) ; and [‘Master](#)

[Directions on Cyber Resilience and Digital Payment Security Controls for non-bank Payment System Operators' \(July 2024\).](#)

33. A preferred approach for achieving balance between innovation and prudent regulation involves self-regulation within the fintech sector. Self-Regulatory Organisations (SROs), comprising industry participants and having a good understanding of the sector's unique challenges and opportunities, would be in a position to give appropriate suggestions to the Regulators on regulations that are both practical and effective. The announcement of a framework for recognition of Self-Regulatory Organisations for FinTech (SRO-FT) by the Reserve Bank marks a pivotal step forward in this direction. It may be recalled that in last year's GFF, I had announced our desire to see at least one FinTech Sector SRO taking shape by GFF, 2024. I am happy to announce that of the three industry bodies/entities who have applied for recognition as SRO, the Reserve Bank has granted recognition to one entity. Of the remaining two applications, one application has been returned with a provision for resubmission after meeting certain requirements. The third application is under examination. Through regular consultations, feedback mechanisms and policy dialogues, the SROs would facilitate open communication and enable fintechs to stay informed about regulatory expectations and priorities. Just to illustrate the depth of our engagement with fintechs over the past one year, I would like to mention that the officials and teams from various departments of the Reserve Bank have engaged in about 750 interactions bilaterally and held about 50 structured meetings with fintech players. I reiterate our commitment to fostering a dynamic Fintech sector.

Conclusion

34. The journey towards India@100 is filled with immense potential and opportunities. The transformative power of FinTech innovations, coupled with our

commitment to financial inclusion, sustainability and consumer protection, sets a robust foundation for the future. The seamless integration of emerging technologies will further redefine the financial landscape. Let us embrace this dynamic era with a collective vision and collaborative spirit to ensure that India's financial ecosystem, not only meets the aspirations of our people, but also sets a global benchmark for innovation and growth.

Thank you. Namaskar.