T Rabi Sankar: Transformational technologies and banking - key issues

Keynote address by Mr T Rabi Sankar, Deputy Governor of the Reserve Bank of India, at the 12th SBI Banking and Economics Conclave, Mumbai, 7 November 2025.

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Shri Setty, Chairman, SBI, Shri Amara, MD, SBI, distinguished leaders and members of the financial fraternity. It gives me immense pleasure to be a part of what feels like, and perhaps is, the nerve centre of the Indian financial system.

The theme of the Conclave 'India's Quest for Self-Reliance in a Fragmented World Order', makes this event particularly timely and critical. The comfortable assumptions of the post-Cold War era of globalisation are fading as we are seeing a re-emergence of protectionist tendencies and re-shoring of critical supply chains. Economies and societies are struggling to adjust not just to the rapid pace of change of technology, but also as the fundamental nature of technology itself is undergoing a paradigm shift. Technology has always been a catalyst for improving efficiency in delivering financial products, but now it has become the very foundation upon which the future of financial intermediation rests.

Technology and Banks

Today I want to dwell on a theme that reverberates in the current era of disruptions and fast-paced changes, the *role of technology in banking*. Every aspect of finance, from payments and credit to savings, investments, regulation and supervision, is already being redefined through technology.

With powerful technologies like artificial intelligence (AI) and quantum computing already under way, our challenge is how to embrace them with wisdom and purpose, and ensure that technological evolution is secure, inclusive, resilient, and future-ready.

India's experience in digitisation shows that countries who harness technology with foresight and responsibility will not only adapt to change but shape it. Our uniquely successful model of leveraging Digital Public Infrastructures (DPIs) like Aadhaar or UPI has not only positioned India as a leading example of digitisation, but also it has set an example for other countries to follow. For transformational change, it is not enough that technology is ubiquitous, it should also be foundational.

Lessons from India's Digital Journey

If we look back today, we can see that India's banking system has passed through two-and-a-half decades of innovations in payment technology – starting from ATM networking and moving through a gamut of retail and wholesale digital payment instruments like RTGS, NEFT and IMPS to the game-changing UPI and continuing on to experimenting with digital currency. The journey has been gradual yet, transformational. What are the main lessons that we can glean from this experience that has placed India as a leading example of payments innovation?

a. The very first thing to note is that virtually all of these initiatives came from the public sector, whether it is the ATM Switch, or NEFT/RTGS or UPI or, moving slightly away from the financial sector, the Aadhaar. Even the initiatives to set up key institutions – IDRBT, NPCI, IFTAS, and more recently, RBIH – were all public sector initiatives.

b. The second aspect is that all of these initiatives were by way of creating infrastructures, specifically digital public infrastructures. They were situated in what can be termed a public goods space; they were priced like public goods – minimal charges or free; they were accessible by all, like public goods.

c. Thirdly, these DPIs were made available as a foundational layer for technology firms to create innovation. This gave the Indian approach a uniquely public-private cooperation character, an approach that resulted in the best of both worlds - while the public sector focuses on what it does best – create public infrastructure, the private sector focuses on where it has clear competitive advantage - innovation.

d. Fourthly, open access to DPIs led to a rise of new fintech players such as payment aggregators, PPI issuers, third-party app providers, etc, bringing agility, innovation, and particularly scale. DPI has thus contributed to the growth of the fintech sector itself.

e. Finally, there is a general realisation that the new fintech players, mainly because they had no legacy systems that tied them down, were far more nimble and innovative than incumbent banks. While this did not undermine the role of banks as such, it exposed the Achilles heel of the banking system – that banks could be vulnerable to strong inertia in adapting to new technology. This leads me to the basic theme of my talk – the nature of the challenges new technology poses for banks.

Banks and new Fintechs

Let me first explain the vulnerability by using the context of UPI. UPI is essentially a payment instrument that transfers funds from one bank account to another (it can also use wallets, but that is a negligible part of the volume, so we will ignore it for this purpose). All UPI transactions are therefore payment transactions made through banks. Yet when we talk of UPI, the first entity that comes to mind is not a bank but a non-bank UPI app. It is well recognized that these fintech entities have taken UPI to where it is today, and that but for them UPI would not have been able to reach the nooks and corners of the country. Acquisition of customers and their payments data, was enough of an incentive for these app providers to extend these services even in the absence of any revenue. It is also important to appreciate that these FinTechs had certain basic advantages -

a. Technology edge – Fintechs are more agile as they have no legacy IT systems, enabling them to use technology that is more conducive to scale up, integrate and upgrade. Banks, with their core banking systems find it difficult to modernise and upgrade.

b. Data advantage - Fintechs can access wider, larger and more comprehensive data sources (for example across multiple banks and spending channels).

c. Cost advantage – With asset light balance sheets, no physical branches and very little due diligence requirements (KYS, AML/CFT etc), these fintechs incur a lot less cost than banks.

These advantages were large, and it can be reasonably argued that banks were unfairly disadvantaged (higher regulatory burden, frictions of KYC process and AML checks). In a competitive market, banks would have recovered their higher costs from the fintechs, but then, adoption of new technology would probably have suffered. But even without these disadvantages, it would be reasonable to assume that banks just did not foresee the potential in UPI that the FinTechs did. Part of the explanation lies in the very nature of banks.

Banks are special entities, unlike any other business. They have an important socioeconomic role, that of creating money. Because of this role, banks are licensed and closely regulated and supervised. This arrangement works to the benefit of banks, because entry is not free and there is some degree of underwriting by the State. It also has a disadvantage that banks have to bear the cost of regulation, both financially and in terms of the obligation to follow prudential processes. One corollary of this somewhat protected environment within which banks operate is that their innovation edge is blunted. This is probably the reason banks did not fully appreciate the potential benefits of UPI, as keenly as the fintech players did.

If this indeed is true, it is time the banking system thought hard and deep about the challenges from the transformational technology changes we are living through. Technologies like artificial intelligence, blockchain, quantum and digital currencies, will shape the next decade of financial transformation. These technologies pose challenges that are fundamental to banks.

a. Most money in modern economies is bank money. Creating money through extending credit is the most basic function of a bank. The advent of digital currencies is now providing an alternative. We can no longer assume that banks would always remain because who else would create money, that is the lifeblood of modern economies. The risks from private digital currencies to banks appears existential, yet not well understood or debated globally. Even with CBDCs, which become a necessary bulwark against private digital currencies, banking business is likely to change significantly, and these impacts need to be understood by banks. It is not just the responsibility of a central bank, the issuer.

b. Banks are the core intermediaries in financial markets. Every financial transaction, whether or not it requires other types of intermediaries (e.g., brokers or market-makers) would always require a bank to authenticate the payment leg. This is something only a bank could do. With the blockchain technology, this could well change. The basic function of a blockchain is to authenticate financial transactions

in the absence of a trusted intermediary. It is now possible that banks may not be required to authenticate payments, substantially impacting their role as intermediaries.

Apart from these fundamental challenges, new technology poses various other risks to the roles that banks traditionally play. For instance, digital currencies can provide a superior alternative to banks in cross-border payments. Quantum computing, though nascent, could one day revolutionise encryption, risk modelling, and portfolio optimisation. AI can interpret blockchain data; CBDC can embed smart contracts; IoT devices can trigger automated financial settlements. Together, they signal a shift from a system of intermediated finance to one of intelligent interconnections.

The risks emanating from these technological shifts need to be recognized and understood. True, at this stage these risks are more conceptual than actual, yet at the very least they can eat into the exclusive domain of banks. Banks, therefore need to be prepared well to meet these challenges and maintain their central role in monetary transmission and financial stability.

While by now banks have a fairly good understanding of how to approach technology adoption, I would only reiterate a few aspects that need to be kept in mind with respect to adopting the new transformational technologies.

a. Banks have inherent strengths - credibility, balance sheet depth and customer base. Technology asymmetry tends to dilute these benefits. The ability to leverage these strengths would depend on the agility and speed with which banks modernize their systems and reimagine their business processes.

b. The nature of technology change facing banks is different. Many technology changes are no longer incremental, they are re-architectural. Platform technologies effectively enable nonbanks to come into the banks' domain. Distributed ledgers undermine the traditional institutional guarantees that banks provided. Therefore, competitiveness may no longer depend as much on balance sheet strength but on data capability and technology flexibility.

c. Since banks are structurally vulnerable because of their monolithic IT systems and high fixed costs arising from branch network and compliance costs, incremental digitisation is unlikely to be enough to keep them competitive.

In this context, what can be the strategic imperatives for banks to prepare for transformative technologies? Modernising core infrastructure to make it less monolithic and rigid is one such imperative if banks have to compete with the fintech ecosystem. Adopting a platform orientation and API based collaboration with fintechs is another. Perhaps the most important requirement is reengineering the culture of innovation within banks and creating incentives for learning and skill upgradation from within. Human expertise to innovate, govern, and responsibly deploy technology remains the differentiator in a digital world. Institutions must cultivate deep digital and data skills at all levels, ensuring teams are equipped to navigate complexity and seize opportunities.

Equally importantly, banks need to treat fintechs as partners in innovation and create a mutually beneficial or symbiotic strategic partnerships with them. The objective should be to benefit from the agility of fintechs without compromising prudential discipline.

Concluding thoughts

As we reflect on the transformative absorption of technology in finance, one truth is unmistakable i.e., while technology is inevitable, its direction is intentional. The choices banks make today will shape not only the architecture of their IT systems but the experience, inclusion, and trust of millions of citizens tomorrow. As technology is rewriting the very DNA of finance, the preparedness of banks will determine whether they lead this transformation or are led by it. Institutions that adopt technology strategically, embed strong governance principles, develop human capital, and collaborate across the ecosystem will not only navigate change but will shape it.