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GLOBAL FINTECH FEST

Reimagining global financial services and payments with emerging technologies

October 2025

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Executive summary

This paper examines how rapid adoption of technology is transforming global finance. It discusses data as a factor of production and how financial services are becoming instant, borderless and deeply personalised.

It also highlights the business impact of emerging technologies, ranging from real-time digital payments and open banking to central bank digital currencies, unified lending frameworks and AI-driven security. The analysis moves beyond individual innovation to demonstrate how blockchain, quantum computing, AI for cybersecurity and Web3 are converging to create next-generation financial models and autonomous, hyper-personalised services. It further explores the rapid rise of integrated finance, where financial services are seamlessly incorporated into everyday platforms; advances in vibe-based coding, the expansion of decentralised finance (DeFi) ecosystems that eliminate traditional intermediaries; and AI-driven wealth management solutions that deliver data-backed investment strategies tailored to each user.

The paper also lists strategic imperatives for institutions and how forward-looking organisations can harness these technologies while addressing critical challenges such as cybersecurity threats and ethical dilemmas.

The penultimate section of the report underscores the need for balanced, responsible adoption of technology to ensure that AI and allied technologies become enablers for the financial services sector.

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Foreword

The financial world is undergoing an extraordinary transformation in which innovation, technology and human ingenuity are converging to create a resilient and more inclusive financial ecosystem.

To the readers, this paper is more than a collection of insights – it is a journey into the future of finance. This paper reviews how decentralised ecosystems can expand financial access, how intelligent and thoughtful automation can unlock greater efficiency and how trust-driven frameworks can ensure resilience and transparency. Though unprecedented challenges such as the regulation of AI and concerns related to data privacy and future of work remain, opportunities related to building sustainable business models, reimagining and shaping the future of commerce and driving greater financial inclusion also seems promising. The paper explores various perspectives of technological adoption of finance and provides an overview of how these use cases can be applied to derive meaningful impact.

We hope that this work inspires dialogue, sparks new collaborations and equips leaders, policymakers and innovators to embrace this moment of rapid change with confidence.

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PwC India

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Introduction

The global financial system is undergoing a profound transformation as the motive behind the adoption of cutting-edge technologies shifts from enhancing services to redefining them. Innovations such as AI, blockchain, quantum computing, AI for cybersecurity and Web3 are changing the ways value is generated, exchanged and protected.

Table 1: An overview of technological solutions' adoption across the globe

Country	Tech adoption 1
India	Unified payments interface, Open Network for Digital Commerce, AI mission, DPI and Digital Rupee (e₹)
USA	Genius Act, America's Al action plan, FedNow
China	Digital Yuan (e- CNY), Al Plus Initiative
UAE	Digital Dirham, UAE National strategy for Al
Brazil	PIX system, National Al plan (PBIA)
Singapore	DeFi Sandbox (Project Guardian), Project Orchid, NAIS 2.0
Australia	Consumer data right, AFSL (Australian Financial services license)
Nigeria	eNaira (Nigerian CBDC), Blockchain network Nigeria

Source: PwC analysis

What was merely a siloed infrastructure once is becoming intelligent, interconnected and adaptive. At the heart of this transformation, lies a powerful convergence layer, a digital foundation made from a combination of AI, decentralised protocols, cyber resilience and quantum processing that creates financial services that are secure, scalable and personalised. Institutions that embrace this convergence will unlock efficiency, inclusion and greater security, while those which continue with old, legacy systems risk falling behind.

The focus of banking innovation over the last decade has been on digitisation and migrating physical experiences into digital channels. This included online banking, paperless onboarding, mobile apps and chatbots. These digital-first banks still rely on manual decision-making, static workflows and legacy middleware underneath.

The next leap in technological innovation in financial services is AI-native banking where AI – particularly GenAI and large language models (LLMs) – is embedded into a bank's foundational architecture. This is not an overlay but a core redesign in which every product, process and platform is built to learn, predict, generate and adapt autonomously.

Figure 1: The role of technology in driving business impact

Source: PwC analysis

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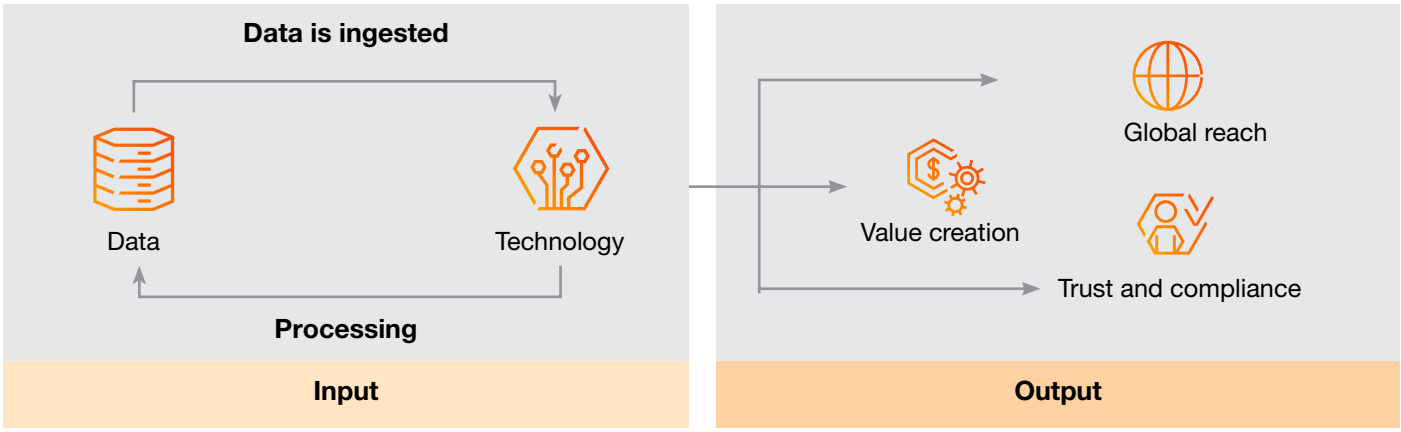
Transformative trends in finance

Digital data as a factor of production

Figure 2: Digital data as a factor of production



Source: PwC analysis

The financial world once relied on gold-filled vaults and handwritten ledgers. Now, the 'vault' is a digital server and the ledger is a string of codes. Alongside capital and labour, data and technology have become the drivers of production in global finance, transforming how value is generated, choices are made and services are delivered.

Data is an important raw material of the new financial ecosystem and is generated with every tap on a banking app, swipe of a card or market movements. On its own, data is inert; however, when processed through advanced technologies such as AI models, blockchain networks and cloud servers, it can be transformed into real-time fraud alerts, personalised loan offers or trades executed in milliseconds.

These dynamics generate a self-reinforcing pinwheel. Data powers technology to a large extent. As adoption of technology increases, it generates more enriched data and insights which in turn are used to create better user experiences and better value for deploying the technology. However, with this opportunity comes challenges such as biased algorithms, complex regulatory landscapes and privacy concerns. AI and emerging technologies have highlighted the importance of data, its quality and availability.

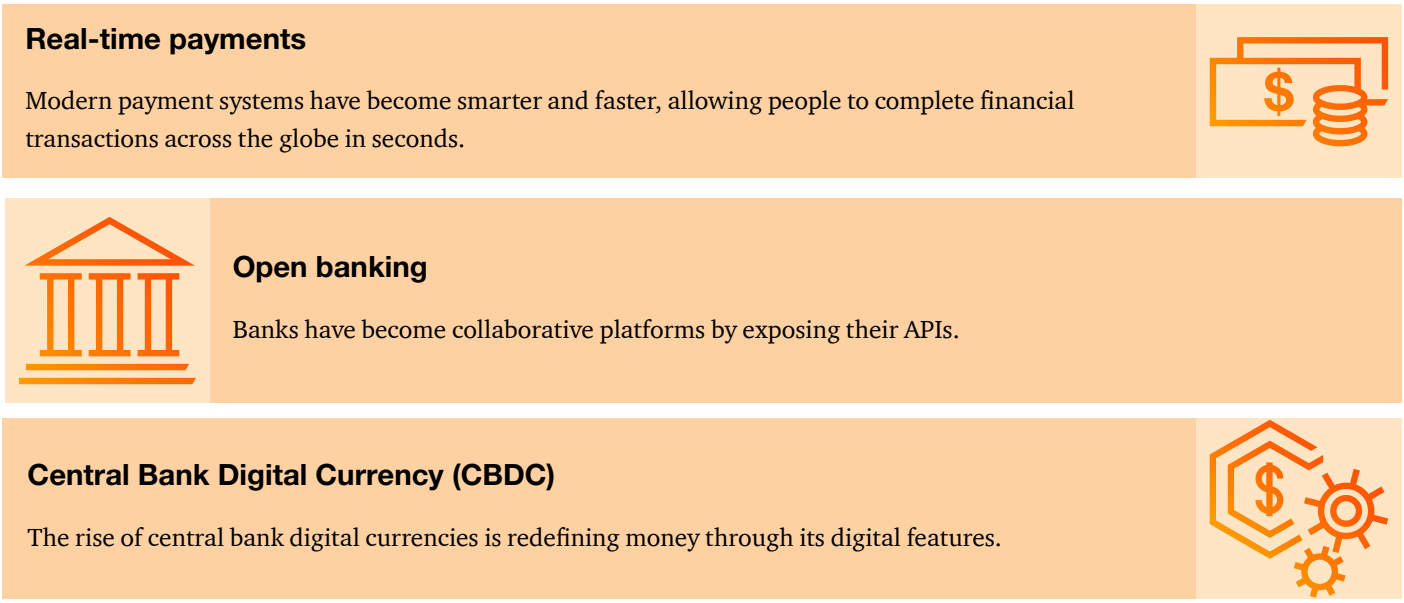
Though financial institutions can create high impact use cases within robust agile frameworks which prioritise responsible AI, they continue to struggle with fragmented, unstructured data, limiting automation and innovation. Therefore, they must improve existing data quality and analytics to implement and leverage the technology responsibly. A well-planned, structured implementation is crucial to minimise internal barriers and regulate identity access and data management.

That digital infrastructure and by extension the underlying data are treated at par with the other factors of production like land, labour, capital and entrepreneurship can be seen in the case of India where Digital Public Infrastructure was named as a factor of production in the Union Budget 2025 and the G20 Summit placed digital access as a core economic driver.[1,2] Similarly, China has formally recognised data as a factor of production in its policies, with a focus on strengthening digital infrastructure to speed up efficient data sharing.[3]

1. https://economictimes.indiatimes.com/tech/technology/budget-2024-indias-dpi-new-factor-of-production-says-fm/articleshow/107325169.cms?from=mdr
2. https://www3.weforum.org/docs/The_G20_Digital_Agenda_2023.pdf
3. https://english.cnipa.gov.cn/art/2025/1/2/art_2975_197022.html

New trends in finance

Figure 3: Aspects of new-age banking



Source: PwC analysis

The financial world is redefining how money moves across channels. Something that took days and multiple intermediaries now takes mere minutes as transactions are conducted seamlessly across channels.

Open banking has completely changed how we interact with money. Bank accounts are no longer closed-off spaces. Rather, they can talk securely to budgeting tools, credit services and even with robot advisors. With application programming interfaces (APIs), financial information can be transferred where the user chooses. It is not something locked inside a banking portal. Money has been turned into an ecosystem, designed around our goals.

CBDC

As banks adopt digital technology, governments are also taking notice with many jurisdictions exploring CBDCs. More than just digital versions of cash, they are trackable, programmable and instantaneous, helping governments distribute benefits efficiently and bring increasingly more people into the financial ecosystem. Globally, multi CBDC corridors and wholesale pilots demonstrate swift settlement across borders and asset classes. The destination is a multi rail world where CBDCs, deposit tokens and fiat backed stablecoins co-exist. The anchor of trust remains central bank money, with programmability layered on top.

Digital Rupee (e₹) is RBI's blockchain-based central bank digital currency (CBDC), launched in 2022. It comes in both wholesale and retail forms and works like digital cash. One important change ties all of these developments together – finance is becoming more customer-centric, connected and faster.

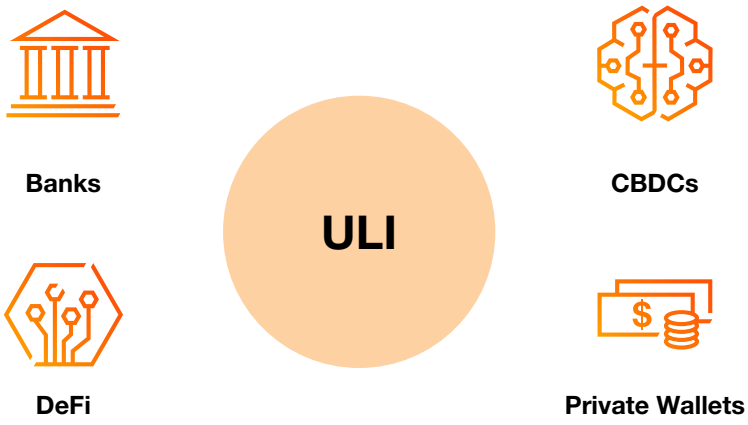
Many counties are exploring central bank digital currencies to transform the way money and payments work. India has made significant advances in its digital rupee pilots, aiming for secure, programmable and inclusive digital transactions. The Reserve Bank of India is testing retail and wholesale models, experimenting with offline transfers and links to emerging networks to improve financial access and payment efficiency. Globally, CBDC projects are also transforming cross-border payments. Some initiatives also enable direct settlements between central banks, bypassing traditional intermediaries, which cuts costs and delays. Together, these efforts signal a future of faster and smarter deliveries with seamless payments within the domestic market as well as across borders.

Figure 4: Benefits of CBDC

Source: PwC (2024) Newsletter. India's Digital Currency Frontier: Envisioning the Future of CBDC.

Unified lending interface (ULI)

Figure 5: ULI ecosystem



ULI is a common credit rail that links CBDCs, DeFi platforms, deposit tokens and wallets. By replacing today's siloed ledgers with a standardised common language, ULI enables instant, programmable and trusted borderless transactions. ULI acts as the credit layer, embedded in platforms, enforcing consent and disbursing credit programmatically on happening of pre-defined events.

At its full capacity, ULI can become the internet of value – an unseen architecture that powers embedded finance, smart contracts and AI-powered ecosystems, while establishing a more inclusive, resilient and transparent global financial setting.

Digital lending meets payments

Digital lending, powered by real-time payments and embedded finance is gaining popularity worldwide. Many platforms across countries, including UPI in India, are developing platforms to facilitate quick access to credit for small to medium-sized enterprises (SMEs) and individuals. Emerging models such as mobile money-based lending and buy now, pay later (BNPL) are redefining borrowing with future growth driven by AI risk models and international operability.

Figure 6: Next-gen financial models

The need arises	Implicit financial offer	Invisible banking in action	Request completed
Customer raises a request for a credit, payment or insurance.	Credit or EMI is embedded at point of need.	Digital infrastructure of the bank processes the transaction while relevant checks are completed in real time.	The transaction is complete.

Source: PwC analysis

Integrated finance

When needed, users tend to switch between apps and platforms to perform different tasks, such as making payments, applying for loans or having access to credit. This causes delays and drop-offs. With integrated finance, financial services are available within shopping, health and travel apps among others. Financial services appears at the right moment – while making bookings, during emergency situations and while making purchases. Today, platforms are the new banks as they are becoming financial gateways, replacing traditional banking methods. Integrated finance is shifting from a simple add-on feature to a foundational infrastructure. What began as anAPI to permit shoppers to access credit card information at checkout has grown into a strategic approach to capital control.

Figure 7: Integrated finance's application across sectors

E-commerce

- Shift in NBFC license from partner-based lending to direct lending
- Control targeting, underwriting, disbursement, collections
- Keeps full interest income – no sharing with banks/ NBFCs

AgriTech

- Tailored for **farmers.**
- Combines l**ending + subsidy tracking + crop insurance**
- Single digital platform = **domain-specific embedded finance**

Rural FinTech

- Targets **Tier 2/3 and rural India**.
- Offers low-cost, multilingual financial services.
- Uses retailers and micro-entrepreneurs as distribution partners.

Telecom

- Uses KYC and billing data to offer loans, FDs, credit cards.
- Embedded in Vi app via APIs
- No banking license needed for micro-loans

DeFi: DeFi platforms where technology organisations bring together various participants without banks as intermediaries have grown from what was once an experiment into a mature financial ecosystem. Because it is built on smart contracts, DeFi allows users to trade, lend, earn yields and borrow. Traditional assets are digitally tokenised, enhancing overall liquidity and accessibility. Data feeds provide real time information to the blockchain networks, which powers decentralised insurance, credit evaluation and digital identity applications, creating a transparent, borderless financial ecosystem, entirely driven by code.

AI as enabler for cybersecurity and biometric security: According to **PwC's 27th Annual Global CEO Survey**, close to three-fourths of the CEOs recognised the increase of cybersecurity risks associated with the use of GenAI within their companies.[4] With rising digitalisation, cyber-risks are also increasing making it difficult to mitigate risks. AI for cybersecurity helps institutions detect and neutralise these risks using autonomous machine learning.

Financial services firms leverage AI for real-time anomaly detection and response as biometric authentication – fingerprints, facial scans, and voice recognition – is becoming standard for uninterrupted and secure access. Payment providers are piloting biometric payments, blending safety with convenience.

Autonomous finance: This represents a fundamental shift in banking, which is moving beyond simple automation to systems that reason, perceive, decide and act independently. Autonomous finance promptly and continuously reacts to customer needs, market conditions and regulatory updates in real time without human assistance. This marks a transition from mere workflow automation to goal-oriented autonomy. From user-triggered actions to system-led decisions, from scripted rules to context-aware learned behaviour.

This also demonstrates how operating models are evolving from human-centric workflows to AI-driven orchestration. In such a scenario, AI risk management requires live model validation and dynamic skill switching along with governance shifts from static policies to adaptive, real-time controls.

Vibe code banking: Traditional banking system was mainly driven by paper forms with high dependence on organised inputs, dropdowns and multiple steps to perform even basic tasks. Modern users expect less paperwork along with instant results, contextual interaction and natural language processing. New-age apps can address this gap.

These apps can be developed through purpose-led control, where a developer can express the needs of the applications and AI agents can interpret the context and execute the tasks using modular, composable services. The desired changes are described to the LLM through a chat-based interface. Thus, the process of code review and code generation is defined by the LLM. This process is known as vibe coding where apps can be developed with the assistance of AI agents for quick development and rollout.

AI-driven wealth management and hyper-personalisation: AI-driven, hyper-personalised products are revolutionising the industry, making financial services more scalable and inclusive. Contemporary platforms utilise AI to customise financial advice by life stage, objectives and market dynamics. Robot advisors optimise portfolios by analysing vast datasets, lowering costs and boosting returns. AI chatbots deliver real-time, customised recommendations, making financial planning accessible across demographics.

Every interaction further trains the system, enabling the development of increasingly intelligent and adaptive wealth strategies.

Web3 and smart contracts: The rise of programmable finance has created a non-centralised web where users can maintain control over their data and assets. This allows applications and smart contracts to automate processes such as compliance, trading without intermediaries and lending. Major players in the market are deploying tools (Web3) for tokenised crypto custody and asset management. Smart contracts integrate compliance and audit directly into code, which simplifies operations and reduces dependency on centralised oversight.

An Indian conglomerate's financial services arm is leveraging AI and allied technologies to offer banking and investing services, bots to track and financial services, where customer reach and service is prioritised by the underlying technology. The organisation can connect to customers through its telecom network and retail chains which also enables them to cross sell their financial services.

4. https://www.pwc.com/gx/en/ceo-survey/2024/download/27th-ceo-survey.pdf

Strategic imperatives for financial institutions

To stay competitive, financial institutions must accept and embrace the convergence of technologies. This convergence requires integrated technologies (AI, quantum computing, blockchain, Web3 and cybersecurity) into a cohesive solutions architecture.

Developing intelligent technological infrastructure for financial institutions

Finance is undergoing a profound shift, with technology no longer limited to a supporting role; instead, it is transforming the finance industry.

AI is emerging as an important enabler in contemporary finance as it is capable of processing enormous data sets while continuously learning and making smarter decisions. Robot advisors bring personalised portfolios to AI, which can detect fraud in milliseconds. Customer service is being transformed, with AI-powered chatbots offering round-the-clock assistance in nearly every language.

Data privacy and security is crucial as large amount of sensitive data is being generated and transferred across systems everyday. Connectivity across new technologies and evolving technologies creates a larger attack surface that needs protection across data and infrastructure.

Quantum computing is also emerging as a promising technology for analysing risk, simulating financial scenarios and even securing data. Many major players are experimenting with quantum algorithms for portfolio optimisation and risk modelling. However, the immense power of quantum also poses a risk to the current encryption standards, fuelling a growing focus on quantum resistant cryptography.

Blockchain and distributed ledger technology (DLT) are more than just buzzwords but are integral for the technological transformation of the financial services sector. Blockchain eliminates intermediaries, enabling transactions to occur directly, securely and quickly. Cross-border payments, which used to take days, now can be settle in seconds at a minimal cost. The entire financial ecosystem is being rewired with smart contracts – self-executing agreements that trigger automatically when certain predefined conditions are met, allowing everything to happen immediately without manual interventions.

DeFi offers an alternative to traditional banking, allowing users to lend, borrow and trade assets directly through digital wallets. This creates a more accessible, open and continuous financial system that operates throughout the day without the limitations of conventional banking methods.

Figure 8 : Technology convergence stack

Layer	Purpose
AI layer	Language-driven intelligence and automation for reasoning and decision-making
Cyber security layer	Predictive defence, anomaly detection and adversarial threat management
Quantum layer	Optimisation, simulation and encryption use cases at a massive scale
Web3 layer	Programmable assets, decentralised identity and tokenised financial logic

Source: PwC analysis

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Risks, challenges and opportunities

Risks and challenges

Digital payments rely on an intricate technological infrastructure. A single misconfigured API or cloud vulnerability while incorporating new products or technologies could lead to major risks including cybersecurity threats, data privacy breaches, operational disruption as well as trust and reputational risks. These risks can directly impact financial stability leading to customer dissatisfaction, significant compliance penalties and widespread market disruption.

Global compliance and regulations vary across regions making it difficult for organisations that are expanding their business internationally. Meanwhile, fast-evolving technologies like AI, DeFi and blockchain are advancing far more quickly than traditional regulatory frameworks can adapt.

As new technologies bring in new risks, organisations must strike a balance between swift deployment of technology and building responsible, ethical technological solutions. Regulations and clearly defined roles ensure that the solutions are ethically developed with unbiased models and transparent algorithms.

Though emerging technologies usher speed and innovation, they also increase systemic risks, ethical concerns and regulatory gaps which could disrupt stability and trust in financial services.

Since its advent, the argument remains that AI is inherently uncontrollable no matter how many explicit instructions, human values and delegations it is designed with. The growing demand of technology-led solutions also increases the amount of energy which will be consumed to implement these solutions. Therefore, concerns related to environment emerge and must be taken into account while implementing the technology. AI also remains a new technology which needs continuous monitoring and governance to ensure that it doesn't lead to any detrimental impact.

Models trained on skewed historical data can lead to biased output. Since trust is the bedrock of financial services, any data breachor bias is critical and could lead to tremendous financial and reputational loss. For example, models trained on biased datacould lead to denying loans to people who are eligible. Such instances should be avoided through constant monitoring and ensuring that the data is updated and reviewed at regular intervals. Therefore, audits to remove biases from AI training data, models and the output of the models is necessary to ensure that financial services are distributed in a holistic and unbiased manner.

While AI, blockchain, automation and data analytics are reshaping finance, they also carry inherent risks. Therefore, the focus of financial services institutions should shift from building fast to building fair and future-ready systems. Roles and responsibilities need to be clearly defined along with governance principles and regulations to ensure that technology is used for the benefit of the society.

Opportunities

If developed correctly, technology can build stronger financial ecosystems. Therefore, it is essential for firms to embed ethical frameworks into product design, organisational culture and governance. Companies must appoint AI ethics officers, run periodic tech impact assessments and provide ethical literacy programs to all employees. Some steps which organisations can take to leverage AI are:

1. **Training employees to focus on AI first:** Training employees on AI should be the first step with customised programmes that embed risk management as a core responsibility for every individual, enabling them to play an integral role in the digital transformation of the sector.

2. **Building a compliance layer to ensure trust:** Compliance must be reimagined and designed as a programmable, adaptive and embedded layer that continuously ensures alignment with legal, regulatory and ethical mandates. Just as banks have a core banking engine, they must also develop a compliance engine – a modular system that interprets, executes and explains policy adherence in real time. To derive optimal benefits of technological solutions, processes must be reimagined and data sources must be identified, made secure and continuously updated to ensure that data can be leveraged to create maximum business value.

3. **Leveraging technology:** Potential future innovations, solutions and products with emerging technologies as enablers will reshape not only financial services but enable economies as well. As AI enables machines to take decisions autonomously, organisations need to relook data ingestion and processing to ensure that the data is safe, used ethically and does not lead to any biases.

4. **Adopting a centralised approach:** Since technology is adopted across various functions of an organisation, it is essential to adopt a centralised approach to ensure that the AI tools are utilised optimally. Legacy tech stacks were costly to implement and cheaper to maintain, while the new tech stack tends to be relatively easier to implement, but costly to maintain.

5. **Impact of AI on software development lifecycle:** The software development lifecycle consists of three main activities – documentation, coding and testing. These activities are completed by various developers, analysts and quality teams. Since AI tools can assist these teams in automating routine tasks, they can focus on techno-functional roles.

Shaping tomorrow’s financial ecosystem

The world of finance is standing at an inflection point. By incorporating AI, GenAI and advanced analytics, distributed ledger technology and other emerging technologies into the core of banking and FinTech firms, PwC aims to enable organisations and institutions to look beyond transactions towards developing experiences that are smarter, safer, and more human-centred. Our team of specialists leverage technological solutions to assist our clients and help them in their digital transformation journey. By focusing on areas such as enterprise-wide AI deployment and orchestration, distributed ledger and Web3 solutions, we collaborate with organisation who wish to adopt digital solutions in the financial services sector and achieve breakthrough results.


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Conclusion

As financial services organisations are increasingly adopting technological solutions, data has become a critical asset to be preserved, optimised and used responsibly. Emerging trends in finance and banking, including integrated finance, invisible finance, vibe-coded delivery and AI-driven autonomous systems are fundamentally reshaping how financial services are developed, delivered and experienced.

Businesses are increasingly creating their own financial infrastructure, moving away from dependency on traditional intermediaries. Technology is also enabling complex financial decisions to be made seamlessly with minimal human supervision. The underlying tech stacks are continually evolving and adapting to user needs and regulatory expectations in real time.

However, transformation at this scale brings technical, ethical, regulatory and societal challenges such as increased energy requirements due to high compute power or the rise of technology's integration in operations across departments of the financial services sector. Therefore, the way forward for financial services involves striking a balance between automation and human oversight along with establishing regulatory guidelines and protocols to ensure the ethical use of emerging technologies. It requires building the future of finance through cross-industry collaboration and adopting an agile regulatory framework which adapts to the swift changes in technology.

The convergence of the new tech stack offers immense potential but only if we establish get the right guardrails – privacy, transparency, inclusion and accountability.

Financial institutions that embrace this dual responsibility – leveraging technology while upholding ethical regulatory practices – could not only lead the next chapter of global finance but also help in making the financial services sector more resilient and inclusive.

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