

# Unpacking Technology in Financial Services

December 2024



**Global Finance & Technology Network  
(GFTN)**

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# Unpacking AI in financial services

The Singapore FinTech Festival 2024 offered a wealth of insights into the evolving roles of AI and cloud and quantum computing in the financial sector.

AI complements its human users; it does not replace them. Meanwhile, investment in AI is in its infancy. And the regulation of AI is a work in progress calling for collaborative efforts between regulators and creators. These jump out as salient views in a vibrant exchange of ideas.

“AI is not an autopilot. It's a co-pilot,” noted Shelley McKinley, Chief Legal Officer at GitHub, emphasizing the transformative impact of generative AI. She highlighted the widespread adoption of generative AI tools, with millions of users — including teachers, students, and open-source maintainers —

leveraging these technologies to enhance productivity. GitHub Copilot, for instance, has contributed to a 55% increase in task completion rates, underscoring its effectiveness in streamlining software development processes and boosting developer satisfaction.

On the same panel, Kfir Godrich, Chief Innovation Officer at BlackRock, the world's largest asset manager, addressed the nuanced role of AI in financial services. While AI has demonstrated clear value in areas like developer productivity and on the research side, Godrich noted that its potential on the investment side remains untapped. He observed that most current investments are directed toward training models, with the real value expected to emerge during the inference phase of AI deployment.

Godrich also pointed out that the finance industry is still approximately 20% away from achieving the reliable quantitative models needed to unlock significant value in investments. Until then, the focus remains on laying the groundwork, such as improving training mechanisms and exploring the economics of AI integration.



**Shelley McKinley**, Chief Legal Officer, GitHub



**Kfir Godrich**, Chief Innovation Officer, BlackRock

*“Up to 75% of developers report that they are happier in their jobs using GitHub Copilot. We have a 55% faster task completion with GitHub Copilot.”*

*“Just because you're using AI doesn't mean you throw out all of these decades of risk management that we've developed.”*

*“When you think about a regulatory environment, what you want to do is make sure you're not only providing safety and security and trustworthiness, but you're also promoting innovation so that people can benefit from AI.”*

*“We're not going to see value on the investment side until quantitative models are reliable to the standards of financial services.”*

*“The value currently, it's on research mostly. But the quant piece, it's to be seen.”*

*“We have to make sure we're using AI to help detect and protect against deepfakes. The open-source community plays a big role in that, in helping create software that will help actually detect and really move us forward.”*



**Mr. Chia Der Jiun**, Managing Director,  
Monetary Authority of Singapore

The Monetary Authority of Singapore (MAS) Managing Director, Chia Der Jiun, in a different panel shared how the MAS is navigating the challenges of regulating generative AI (GenAI) in the financial sector.

Rather than rushing to implement regulations, MAS is taking a collaborative approach with industry consortiums, such as Project MindForge, to build mutual understanding of the risks associated with GenAI. The focus is on understanding risks throughout the entire AI lifecycle, from data collection and governance to model development and deployment. Key risks such as explainability, accuracy, and prompt injection attacks have been identified.

The next steps involve developing governance best practices and publishing guidance on model risk management to ensure responsible and sustainable use of GenAI.

On a different panel, Minister Palanivel Thiaga Rajan from Tamil Nadu shared that AI will impact all industries immensely, similar to the impacts of previous waves of technology adoption. On a different note, Bill Deng, Founder and CEO of XTransfer, described AI as more powerful than anything else in the history.



**Dr Palanivel Thiaga Rajan**, Minister for Information Technology  
and Digital Services, Tamil Nadu, India

*"I believe AI will completely reinvent and reimagine every industry in every profession. If you look back to the past waves of technology disruption in the 70s, 80s, the PC, and then mobile in the early 2000s and then cloud and now we're talking about AI."*



**Bill Deng**, Founder & Chief Executive Officer, Xtransfer

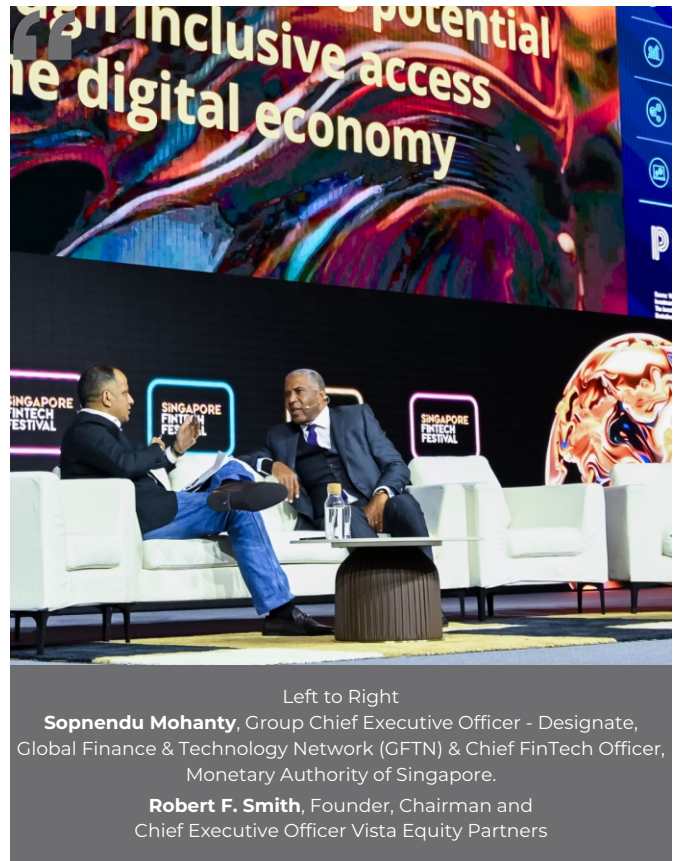
*"AI is far more powerful than anything we have seen in History."*

# An investor's perspective about generative AI

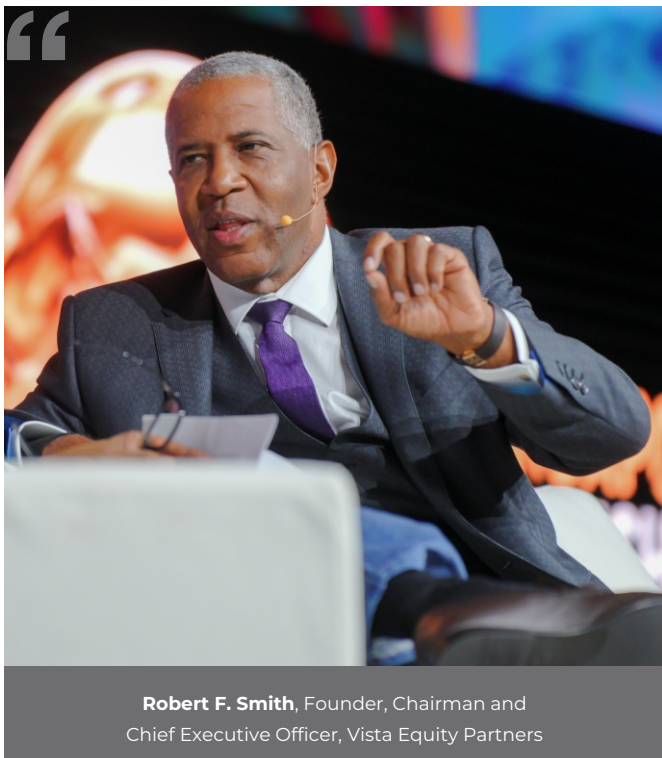
Robert F. Smith, a renowned investor in transformative enterprise software companies, shared his distinctive approach to investment strategies. A key highlight was the rigorous hiring methodology employed by his companies, which involves a meticulous process to secure top-tier talent.

Addressing the impact of GenAI, Smith underscored its transformative potential on jobs globally. He advocated for a forward-thinking approach to workforce management, suggesting that companies reskill employees, such as those in call centres, to leverage GenAI for enhanced productivity rather than replacing them.

Smith emphasised the critical importance of embracing GenAI, cautioning that countries failing to adopt and adapt to this technology risk significant economic setbacks.



Left to Right  
**Sopnendu Mohanty**, Group Chief Executive Officer - Designate, Global Finance & Technology Network (GFTN) & Chief FinTech Officer, Monetary Authority of Singapore.  
**Robert F. Smith**, Founder, Chairman and Chief Executive Officer Vista Equity Partners



**Robert F. Smith**, Founder, Chairman and Chief Executive Officer, Vista Equity Partners

## Personal Philosophy of Robert F. Smith:

1. "You are enough to change the condition of yourself or the community that you're from."
2. "Discover the joy of figuring things out."
3. "Love is all that matters."

*"In 2023, we had 2.3 million people apply for jobs at our companies. We own 86 enterprise software companies, half a billion users of our software companies, operating in 180 countries; 2.3 million people applied for jobs, we tested 489,000 people to get a hiring pool of 60,000 to hire 15,000."*

*"You need to maintain and have sovereignty and dominion over the data and the workflows."*

*"97% of software companies are private. And as a result of that, the only way you gain access to those companies that will ultimately capture the vast majority of the benefit is going through the private market. So, there's a unique investment dynamic."*

*"100% of our companies have some form of Gen AI code assist code development where we're seeing productivity, but from an individual basis between 10% and 40% by developer and across the portfolio about 10%."*

*"You drive capital into that enabled infrastructure. So, it is as an enablement platform to me, the most effective philanthropic activity, as you are abling people to become their best selves, and I call that liberating the human spirit."*

On a separate note, security was a major theme. Notably, there are multiple proponents of AI helping in fraud prevention. Dimitrios Dosis of Mastercard highlighted AI's increasing role in fraud prevention. He noted that in 2023, Mastercard saved US\$30 billion by using AI fraud prevention.



**Dr Dimitrios Dosis**, President, Eastern Europe, Middle East and Africa, Mastercard

*"Last year our (Mastercard) company using AI fraud prevention has saved 30 billion dollars in fraud. This is happening every day, so we need, as an industry, to be behind it."*

## Decoding cloud

An interesting field around transformative technologies has been the cloud. In a panel on Tencent's journey, key insights revealed that being 'cloud-native' is the key to making real, efficient infrastructure.

Dawson Tong of Tencent emphasised that Tencent's ability to scale stems from leveraging the latest technologies and building its infrastructure using a commercialised version of standardised open-source software. He described the cloud as the foundational computing platform that enables innovation across domains such as AI, blockchain, tokenization, and beyond. Tong also reaffirmed Tencent's commitment to investing in AI, both domestically in China and globally.



**Dawson Tong**, Senior Executive Vice President & Chief Executive Officer, Cloud and Smart Industries Group, Tencent

*"Cloud usually means that it's the infrastructure that includes private cloud, public cloud, distributed resources on the edge, when you look at all your computing resources holistically, the operating system for managing it is what I think cloud should be."*

*"Using commoditised hardware and standardised open-source software has significantly reduced the cost of running financial services."*

*"AI applications depend on cloud infrastructure for scalability and computational power. Cloud is the backbone of innovation."*

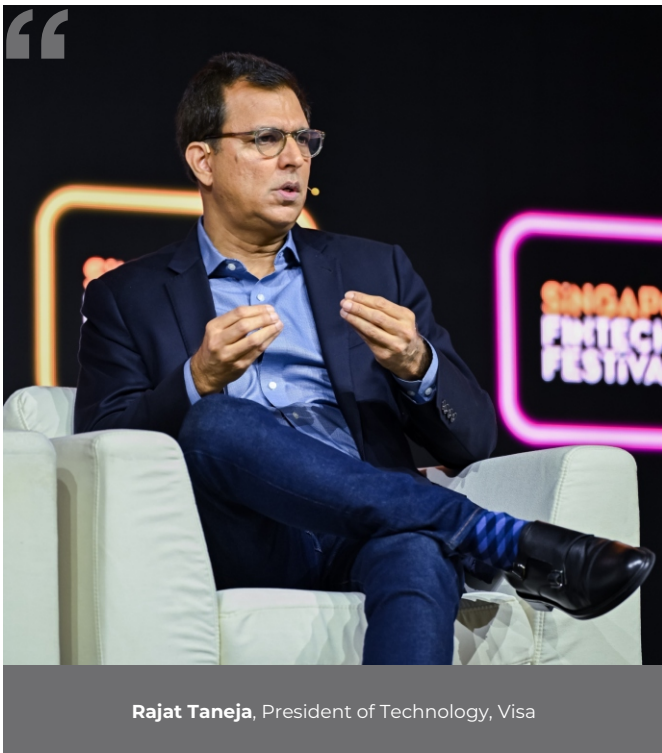
*"Quantum technology is not a general-purpose computing platform, so it is not going to replace what we have today on cloud. It will challenge us to think about security differently."*

*"The financial sector needs a unified cloud platform for security, compliance, and resilience, moving away from costly legacy systems."*

# The next tech frontier: Quantum computing

Among other emerging technologies, the most confusing is probably Quantum Technologies.

Rajat Taneja, President of Technology at Visa, described quantum computing as a transformative advancement rooted in quantum mechanics, unlike classical computing, which is based on classical physics. While classical computers process information using binary bits (zeros or ones), quantum computers leverage quantum bits, or qubits, which can exist in multiple states simultaneously. This unique property enables quantum computers to achieve “exponential parallelism and computational power, making them capable of solving complex problems at an unprecedented scale.” Taneja emphasised the immense potential of quantum technology, calling it one of the “most exciting innovations on the horizon”.

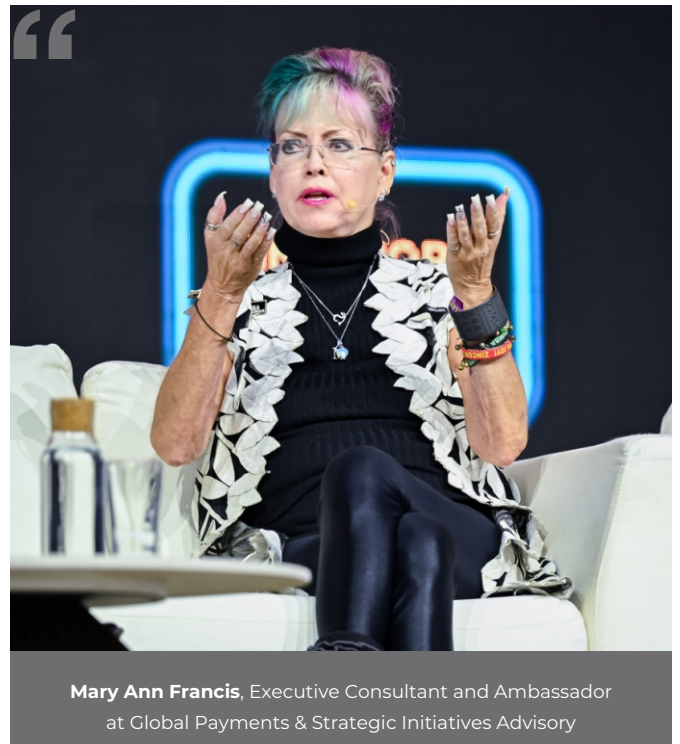


*“It (quantum computing) allows us to have exponential parallelism in the computing power. So, if there was a system with  $n$  qubits, it would have the ability to be in  $2^n$  to the power of  $n$  simultaneous states.”*

Fraud detection, a critical challenge for financial institutions, exemplifies a “classic edge detection problem,” as Colin Bell from HSBC noted. It involves distinguishing legitimate

transactions from fraudulent ones within vast datasets. Traditional algorithms, though sophisticated, face limitations due to the dynamic nature of variables such as customer behaviour, transaction history, and contextual factors. Bell also highlighted a shift by applying quantum algorithms to enhance this process. He shared that HSBC leverages quantum technology’s unique mathematical foundation in linear algebra for enhancing fraud detection, which significantly improved efficiency and customer experience. He mentioned a particularly exciting breakthrough lies in compressing quantum algorithms to run on classical infrastructure like Graphics Processing Units (GPUs). This hybrid approach enables organisations to harness the benefits of quantum algorithms without waiting for widespread quantum hardware adoption, marking a pivotal step in real-world applicability and efficiency in fraud detection systems.

Mary Ann Francis, Executive Consultant and Ambassador, Global Payments and Strategic Initiatives Advisory identified fraud detection and risk management have emerged as critical priorities for financial institutions, driven by the increasing demands of real-time payments and instant money movements. Francis emphasises the importance of not only detecting and reporting fraud swiftly but also integrating these capabilities into broader financial services like treasury and liquidity management. By leveraging advanced analytics and predictive AI, banks can transition from reactive fraud prevention to proactive financial strategy.



*“Get together, have a plan so that you can go together and support each other right help these guys get the budget they need to invest and then go to your customers and say it could be a market differentiator.”*

Speaking of opportunities and threats of quantum computing, Bell notes the dual nature of quantum computing, offering vast potential alongside significant risks, demands a balanced approach to innovation and defence. Organisations are investing heavily in post-quantum cryptographic solutions to mitigate the risk of encryption vulnerabilities highlighted by Shor's algorithm. Several projects showcase the practical advances, such as applying post-quantum algorithms to tokenized assets and leveraging quantum key distribution for secure financial transactions. These defence-oriented efforts currently dominate investments, and they lay a critical foundation for leveraging quantum opportunities responsibly.

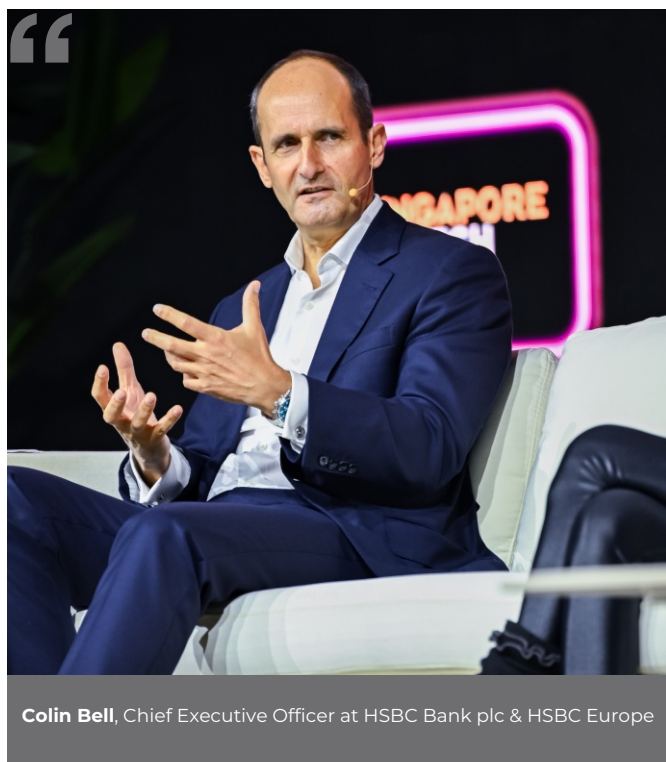
## The big question: When is it (quantum computing) going to become reality?

While predictions often point to a horizon of three to five years, significant technological challenges remain, particularly in creating stable logical qubits and reducing error rates. Despite these hurdles, the consensus is clear, Bell mentioned: organisations cannot afford to wait for quantum computing to fully mature.

Ultimately, the "when" is less about pinpointing an exact date and more about readiness. Organisations must embrace the journey now, positioning themselves to capitalise on quantum's potential — whether it materialises in five, ten, or twenty years.



"I don't think it is going to be in the next few years as a big step function, but it'll keep evolving much like AI. So, AI is a good analogy. We had predictive AI and it went along and kept improving and deep neural nets and kept becoming more complex and doing more and more for the world for decades. And then suddenly in a step function change in 2017 came a new paper that allowed you to create transformers and then in the last five, six years, it has just taken off. And I think the same thing will happen here. It'll go slow as universities and big companies and startups invest in it. And then there'll be a step function change as it suddenly starts living up to the promise. - I think the intersection between where the qubits of quality are, the qubits are going, error correction, and then AI."



*"Because of this ability for a quantum computer to be able to model every possible state, because it can hold more information in a qubit than you can in a classical bit, you can solve these complex problems with lots of variables without this exponential increase in solution testing, and therefore they're incredibly efficient at solving complex multivariable problems."*

*"The investment dollars today are focused more on the defense than the opportunities (of quantum computing) and I think that's right given the critical importance of protecting customers data."*



Dowson Tong clarified that quantum technology will not replace existing cloud infrastructure but raised concerns about the “harvest now, decrypt later” risk, highlighting the need for proactive security measures in a post-quantum world.

For resilience and flexibility, Tong advocated for a “multi-cloud strategy” complemented by private cloud deployments, particularly for financial institutions that face stringent compliance requirements.



**Sopnendu Mohanty**, Group Chief Executive Officer - Designate, Global Finance & Technology Network (GFTN) & Chief FinTech Officer, Monetary Authority of Singapore.

**Dowson Tong**, Senior Executive Vice President & Chief Executive Officer, Cloud and Smart Industries Group Tencent

To conclude, the Singapore FinTech Festival 2024 provided a remarkable platform to examine the convergence of technology and financial services. From the widespread adoption of GenAI tools such as GitHub Copilot to the transformative potential of quantum computing, the event highlighted the opportunities and challenges shaping the industry's future.

Central themes such as responsible AI regulation, multi-cloud strategies, and the evolving role of quantum technologies underscore the importance of collaboration and innovation. Leaders across sectors emphasised the need to balance technological progress with robust risk management to ensure sustainable and equitable advancements.

Looking ahead, the insights shared at SFF 2024 are not merely reflections of current trends but essential principles for navigating an increasingly complex technological landscape. The readiness of the financial sector to embrace these changes will shape its ability to harness innovation while maintaining trust and resilience.

# Key insights on digital assets

The exploration of digital assets and central bank digital currencies (CBDCs) at the Singapore FinTech Festival 2024 highlighted a pivotal moment in the evolution of global financial systems. Policymakers, industry leaders, and innovators shared diverse perspectives on wholesale and retail CBDC implementations. From interoperability and cross-border payments to financial inclusion and macro-financial stability, discussions underscored the intricate balance required to harness innovation while safeguarding trust and resilience. This report examines the insights and experiences of global leaders, offering an overview of the challenges and opportunities of CBDCs and digital assets.

## CBDC implementation: Policymakers' perspective

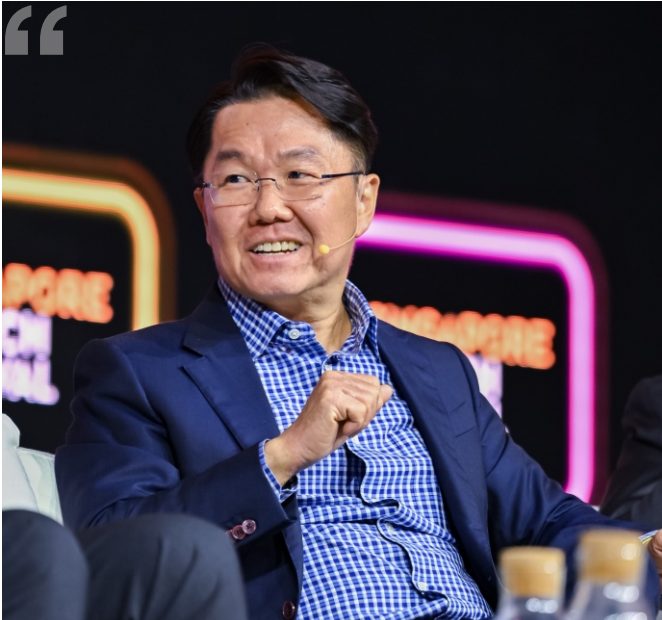
**The big question: How are central banks investigating wholesale versus retail CBDCs?**

Denis Beau, First Deputy Governor, Banque de France, highlighted that the Central Bank of France considers retail CBDCs a way to add digital bank notes to the menu of payment solutions available in the retail space.

Sing Cheong, Deputy Managing Director of the Monetary Authority of Singapore, focused on interoperability to shape the CBDC environment.

International Monetary Fund Deputy Managing Director, Bo Li, noted that no “one-size fits for all” for CBDCs. He also noted that it is highly dependent on countries' requirements and their respective approaches. He noted that the countries experimenting with CBDCs mainly use them in two areas: cross-border payments and settlement of tokenized assets.

The IMF looks at CBDCs from the perspective of macro-financial stability, including the stability of the international monetary system. This perspective occupies three levels, Li mentioned: The first, the most immediate, is the impact of the technology on the payment system and financial market infrastructure. The second is the intermediate level — how the technology will impact transaction costs and market liquidity. Finally, come the macro-financial variables such as capital flow or financial inclusion.



**Leong Sing Chiong**, Deputy Managing Director, Monetary Authority of Singapore

*"It is not easy to fire up the wholesale space, you can have alignment across different central banks. However, I would say two things — (the) wholesale space serves the wholesale markets, you need a time for industry use cases to develop and mature, but not just coming together as different types of use cases but being able to organise them in a way that can ultimately have a transformational impact on the industry. Key players must come together and agree the outcome that they want to drive toward, and work toward it, which has not yet happened."*



**Bo Li**, Deputy Managing Director, International Monetary Fund

"Retail CBDC adoption is slower and more limited than the market expected several years ago. Of course, that does not mean there is no interest. That does not mean eventually it can be successfully adopted. It only means that it may take longer than the market initially expected because central banks need to build trust, need to build a habit among the population, but also they need to incentivise the private sector to help distribute CBDC and also support the market to develop complementary applications. So, for retail, it may take longer, but for wholesale, we do see a broadening of interest in wholesale CBDCs."

## Cryptocurrencies

Dante Disparte, Chief Strategy Officer and Head of Global Policy at Circle highlighted the profound potential of digital asset transformation to address some of the world's most pressing socioeconomic challenges. In a world increasingly shaped by what the writer Thomas Friedman call "hot, flat, and crowded" dynamics, borderless digital currencies offer a lifeline for underserved communities, Disparte noted. He shared an example of Fernanda, an entrepreneur in Colombia who leveraged USD Coin (stablecoin) and a digital wallet to create economic opportunities, exemplifying how innovation can turn dire situations into thriving ecosystems.



**Dante Disparte**, Chief Strategy Officer and Head of Global Policy, Circle

*"There's now a very serious political price for fighting crypto. It signals a shift for this entire ecosystem going forward."*

*"Crypto might not be right for everyone, but everyone's rights to participate in something for which they themselves choose to accept the risk, of technological novelty, behavioural novelty, and so on, should be protected"*



**Balaji Srinivasan**, Co-founder and Board Member, Coin Centre

*"Zero knowledge is to crypto what the transformer is to AI. It's a paradigm-shifting technology where encryption becomes programmable, enabling privacy and identity checks to coexist in harmony."*

*"Crypto is, ironically, the only thing that's not a scam. It's the part you can trust in a world where everything else is faked."*

A shift in crypto regulatory ambiguity to clarity has instilled confidence among investors and institutions, setting the stage for accelerated adoption and mainstream integration.



**Eric Anziani**, President and Chief Operating Officer, Crypto.com

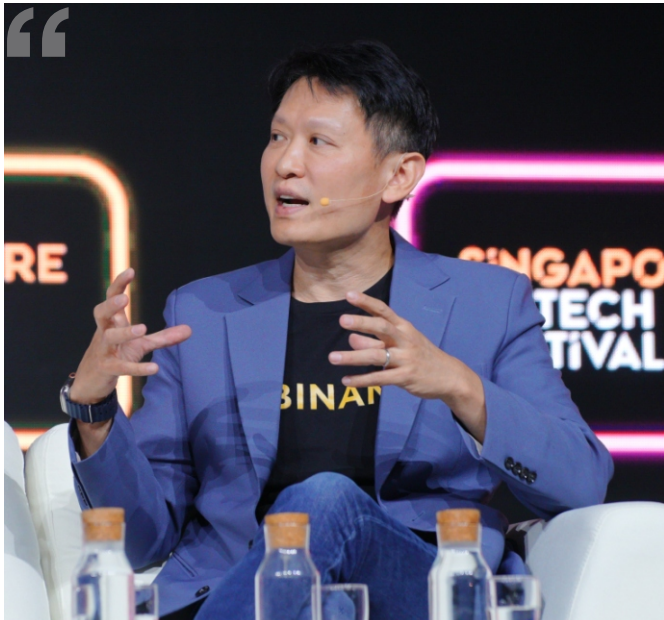
*"It started at the beginning of the year with the approval of the Bitcoin ETF, which I think was a very strong signal that something was changing in the US. Having larger asset managers like BlackRock, Fidelity, and Franklin Templeton going all-in into the space (crypto), followed by the Ethereum ETF approval, set a clear direction. Of course, the election marks the beginning of a new era. I'm very excited about one thing: Bitcoin potentially becoming a reserve currency for the US. If that happens, I think it will be a massive signal for central banks across the world and even corporations."*



**Monica Long**, President, Ripple

*"It started at the beginning of the year with the approval of the Bitcoin ETF, which I think was a very strong signal that something was changing in the US. Having larger asset managers like BlackRock, Fidelity, and Franklin Templeton going all-in into the space, followed by the Ethereum ETF approval, set a clear direction. Of course, the election marks the beginning of a new era. I'm very excited about one thing: Bitcoin potentially becoming a reserve currency for the US. If that happens, I think it will be a massive signal for central banks across the world and even corporations."*

*"Having a clear taxonomy, I mean, many places, Singapore, UK, others have clear taxonomies for how they're going to treat crypto assets gives us more predictability."*



**Richard Teng**, Chief Executive Officer, Binance

*"And if you look at the top 200 institutions, most of them have a crypto agenda — some have started allocation, the family offices have done it, and the endowments have started to do it. On our side, we have seen a 131% increase in institutional onboarding this year. The pace of adoption is very fast, and on our platform, we now have close to 240 million users globally. For the first 100 million users, it took us five years to onboard, the next 100 million took us roughly 26. Months and for the year-to-date this year, we have onboarded 60 million new users, so you can see it is coming through in a big way"*

*"Because crypto is a traceable technology, unlike fiat, it's much easier to trace. And we work with law enforcement agencies around the world to really fight all these frauds and scams. And this year alone, we (Binance) have helped our users recover 73 million worth of funds from all the fraudsters and the scammers."*

Charles Cascarilla, Co-founder and Chief Executive Officer of Paxos shared insights on stablecoins, highlighted their transformative potential in addressing a critical issue: financial inclusion for billions globally. The ambition of reaching a billion wallets — and potentially more—rests on the fundamental advantage of stablecoins: frictionless, 24/7 money movement that bypasses traditional banking barriers. With smartphone penetration outpacing bank account access, stablecoins offer a

viral, scalable solution for the unbanked and underbanked, who make up 30% – 40% of the world's population. Cascarilla notes that while stablecoins eliminate the need for legacy banking infrastructure, they do not sidestep regulatory essentials like know-your-customer and anti-money laundering compliance. Instead, these can be integrated seamlessly via on- and off-ramps, chain analysis, and institutional partnerships, fostering trust and scalability. However, he challenges the very term "stablecoin," arguing that its essence lies not in its name but in its ability to solve real-world problems, from cross-border payments to financial accessibility. Ultimately, Cascarilla envisions stablecoins as the "killer app" for global financial transformation — a bridge between cutting-edge technology and the timeless need for secure, efficient, and inclusive financial systems. Eric Anizani of Crypto.com corroborates Charles' statement, noting, "Remittances is key, and stablecoin will play a big role. With free transfer across 100 million users today at Crypto.com, it shows a great way to get adoption." Monica of Ripple shared another use case which is merchant payments for instance, "in Asia who are trying to accept payments from customers in Latin America, using a US dollar stablecoin is a really efficient way for them to accept payments or to even pay their suppliers."



**Sarah Breeden**, Deputy Governor, Bank of England

*"We mustn't let the benefits get ahead of the regulatory regime. The foundation of trust in money depends on ensuring that innovation aligns with strong regulatory requirements."*

Sarah Breedon, Deputy Governor of the Bank of England highlighted the evolving regulatory landscape surrounding digital currencies and distributed ledger technologies (DLT), emphasising the dual challenge of achieving global regulatory alignment while addressing unique technological attributes. In the UK, regulators have adopted an agile approach, exemplified by initiatives like the digital securities sandbox, which explores how DLT can achieve settlement finality — a cornerstone of the financial system. Additionally, the UK has proposed a stablecoin regime underpinned by central bank reserves to ensure the "singularity of money," where stablecoins maintain parity with traditional pounds across banknotes and deposits. These efforts demonstrate a proactive stance in balancing innovation with the need for robust regulatory frameworks.

In a different panel, Dr. Shashi Tharoor, speaking on the United States' (US) take on cryptocurrencies, emphasised that countries like Singapore and India are taking a fairly "cautious approach," due to the speculative nature of cryptocurrencies. This is in contrast to the US President-elect Donald Trump's stance: he has openly declared that he loves crypto, shooting cryptocurrencies value up after his win in the US elections.



**Dr. Shashi Tharoor**, Member of Parliament and Chairman of the Parliamentary Standing Committee on External Affairs Republic of India

*"He (Donald Trump) said he's going to deregulate, he's going to let people mine Bitcoin quite freely. He's going to be completely open on crypto. He even actually said, 'I love crypto,' which promptly drove crypto values up."*

## Conclusion

In conclusion, the Singapore FinTech Festival 2024 provided a dynamic platform to advance the dialogue on CBDCs and digital assets. While the potential of these technologies is immense, their successful implementation depends on collaboration, robust regulatory frameworks, and a nuanced understanding of diverse economic and technological contexts. Leaders emphasised that, although progress with retail CBDCs has been slower than anticipated, they hold significant promise for addressing financial inclusion and enhancing payment efficiency. Meanwhile, wholesale CBDCs are rapidly gaining momentum in cross-border payments and tokenised asset settlements.

As digital currencies continue to reshape the financial landscape, the overarching takeaway is clear: achieving widespread adoption is as much about fostering trust, alignment, and innovation as it is about technological progress. This global conversation heralds a new era of transformative opportunities for financial ecosystems worldwide.

Global Finance & Technology Network (GFTN) is a not-for-profit organisation established by the Monetary Authority of Singapore (MAS) in 2024 to harness technology and foster innovation for more efficient, resilient, and inclusive financial ecosystems through global partnerships. GFTN organises convening forums, offers advisory services on innovation ecosystems, provides access to transformative digital platforms, and invests in technology startups with the potential for growth and positive social impact through its venture fund.

For more information, visit [www.gftn.co](http://www.gftn.co)

