

by the high number of speculators, which is one of the characteristics of an immature market.

That factor has been amplified by the extent to which the media and politicians have focused on cryptocurrencies – most notably, bitcoin – that aren't asset-backed. Demand has been fuelled to a significant degree by gamification and social media influencers, who have also shown how volatile valuations can be, says Rachel Waggott, head of regulatory affairs at Innovate Finance. "It is these cryptocurrencies that regulators have focused on in terms of stability," she says. "As their values grow, so do fears of a corrective market adjustment that could create a wider economic shock."

The perceived threat should, in theory, diminish as the market matures and becomes better understood by investors and authorities. It's not unusual for innovation in new asset classes and financial instruments to cause consternation among regulators. The evolution of digital assets is still at a relatively early stage.

"What normally follows, as general understanding of such instruments improves, is that regulators become increasingly at ease and focus on consumer protection and minimising abuse of the system," says Heidi Pease, head of investment products at Wave Financial, a digital asset investment manager.

Several other issues link crypto assets directly or indirectly to financial stability. Most recently, the Russian invasion of Ukraine has further highlighted the problems in fully understanding what the rise of crypto means for global finance and security. There have been signs that cryptocurrencies including bitcoin are being used in Russia as an alternative to traditional finance, potentially undermining the impact of economic sanctions.

Similarly, the FSB and other bodies have noted that the pseudonymous nature of cryptocurrencies (crypto wallets can be held in fake names) makes them a popular way of laundering the proceeds of crime. Crypto criminals held \$11bn-worth of crypto assets by the end of 2021, up from \$3bn the previous year, according to Chainalysis.

Meanwhile, the issue of consumer protection becomes ever more important as the growth in popularity

of crypto assets increases the market's exposure to the real economy. The FCA estimated in 2021 that nearly 80% of UK adults had heard of cryptocurrencies and about 2.3 million Britons owned some form of crypto asset. At the same time, it found that the level of understanding of the market among consumers was declining, which suggested that many people were investing in assets they knew little about.

The task of ensuring the effective oversight of crypto assets markets is complicated by a lack of clarity as to what exactly needs regulating and who should be responsible for doing it. It's no surprise, given the vast array of assets under the crypto umbrella, that the task of regulating them falls to a similarly dizzying range of organisations.

Crypto is not alone in this respect. Fintech companies, for instance, must deal with a variety of UK regulators and quasi-regulators, including the FCA, the Prudential Regulation Authority (PRA), the Payment Systems Regulator and various government departments.

"There is a tendency to lack a coherent national strategy across these bodies," Pease says. "A joined-up approach is needed. It requires clear direction from HM Treasury and a cohesive approach from the Bank of England, the PRA, the FCA and HM Revenue & Customs."

The effectiveness of national approaches is further undermined by the fluid cross-border, cross-sector nature of crypto assets, with the contrasting approaches of different regulatory authorities adding to this fragmentation.

Rufus Round, CEO of digital asset broker GlobalBlock, notes that such jurisdictions, including Gibraltar and Switzerland, were quick to set up dedicated regulatory bodies.

"They have had protections and regulations in place for some time now, allowing many crypto asset companies to comply with stringent money-laundering rules," he says.

Similarly, the new Dubai Virtual Assets Regulatory Authority will have oversight of the sale of virtual assets and tokens, as well as responsibility for regulation and authorising virtual asset service providers.

Elsewhere, though, the picture is different, as global authorities are operating at varying speeds. In the EU, the proposed markets in crypto assets bill (MiCA) – which aims to tighten regulation to achieve a more uniform approach on the Continent – is proceeding slowly but surely, with potential to form the basis of a global approach.

Mica focuses mainly on different types of stablecoins (digital currencies linked to assets such as the dollar, the euro and gold) and cryptocurrency exchanges. A proposal to ban energy-intensive "proof-of-work" digital currencies such as bitcoin because of their ecological impact was removed from the bill in March, albeit with potential for it to be restored.

"Both the US and the EU financial regulators have already signalled that legislation to regulate crypto in the coming years will focus mostly on exchanges and stablecoins," observes Mikkel Mørch, executive



director at ARK36, a crypto-digital asset hedge fund. "For example, by providing strict guidelines defining the entities that can issue stablecoins, as well as rules on how these cryptocurrencies should be pegged to the underlying assets, regulators will be able to greatly limit the risks mentioned by the FSB."

While the UK's strategy largely aligns with that of the EU, the US has several agencies taking different approaches to the challenge. The Securities and Exchange Commission, for instance, is concerned that the crypto assets it considers to be securities should be subject to robust regulation. By contrast, the Department of the Treasury is more interested in ensuring financial stability and combating crimes such as money-laundering.

Again, progress here is slow but steady. President Biden recently signed an executive order on digital assets that requires the relevant agencies to examine the regulatory landscape for crypto.

Pease believes that "many major markets believe that 'many major – is proceeding slowly but surely, with potential to form the basis of a global approach."

"Japan, seen as relatively friendly towards crypto, recognises bitcoin and other digital currencies as legal tender. But it has responded to concerns about the potentially nefarious use of stablecoins with proposals to introduce a registration system for intermediaries providing crypto asset trading services.

China, by contrast, takes a much stricter approach. Cryptocurrencies aren't considered legal tender here.



The 24-hour trading volume of the world's three largest crypto exchanges on 21 March 2022

CoinMarketCap, 2022



80% of retail, grocery and luxury goods merchants are willing to accept cryptocurrencies

LinkedIn, 2022

Last year Beijing banned all virtual currency trading and speculation, tagging crypto-related business as "illegal financial activities".

The lack of coordination across borders creates potential for regulatory arbitrage, as crypto businesses are able to exploit differences between regimes, according to Round. "Poorly led regulatory regimes are seeing incumbents move operations to more proactive jurisdictions, maintaining their bases wherever they go, should frameworks change or catch up," he says.

The contrast in global approaches illustrates the difficulty of striking a balance between promoting innovation and managing the risks posed by crypto as an asset class.

"The regulatory focus has tended to be on managing risks associated with speculative cryptocurrencies, rather than on enabling innovation

in payments and in capital markets," according to Waggott.

A more balanced approach, she says, would feature better consumer protection in speculative crypto markets, a framework for stablecoins that provides consumer and market trust, and a central bank digital currency that complements a vibrant stablecoin market.

An obvious starting point from a stability perspective is protection against money-laundering. "This means tracing the source of capital and ensuring that sanctioned capital doesn't get introduced back into the financial system via crypto," Pease says.

Similarly, there are calls for minimum technology standards to ensure operational resilience, reducing the risk of system failures. But any threat posed by crypto assets to international financial stability will best be mitigated by greater cross-border coordination.

"Since the 2007-08 crisis, international coordination for financial stability has been central to banking regulation," Henderson says. "Crypto regulation is a natural extension of this and the signs are positive – albeit that, as has been the case historically with financial crises, a crypto crisis may be difficult to detect."

Regulators are not alone in struggling to keep abreast of innovations in this fast-moving market. While some are seeking to embrace digital innovation in general, others are taking a much stricter, reactionary line. But, as the entwinement of crypto and traditional financial systems continues, and the potential ramifications for financial stability worsen, the fragmentation of global and national oversight will become ever more exposed. ●

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Commercial feature

# Solving the ever-growing need for computing power

How decentralised blockchain network solutions are powering the metaverse and the future of technology



Technology is moving faster than ever in today's increasingly digitally interconnected world. One of the biggest enablers of this is artificial intelligence and machine learning.

This cutting-edge technology is driving the development of a host of new applications that run on blockchain and use smart contracts such as decentralised finance (DeFi). Blockchain alone has already been widely adopted in a range of industries, from banking and financial services to healthcare, with a growing number of uses.

Then there is the metaverse, a virtual reality where users can interact, play online games and experience new and different activities. It's fuelled by cryptocurrency and non-fungible tokens (NFTs), which are used to buy digital assets ranging from gaming cards to art and real estate.

However, for users to experience this new technology seamlessly, a huge amount of computational power is needed. Yet, there is also a surplus of hardware that is unused 60% of the time.

But there is a solution. Blockchain expert Cudos is set to launch the mainnet independent blockchain running its own network with its own technology and protocol of a new interoperable Layer 1 blockchain network in the coming months, which brings together all of these worlds of DeFi, NFTs and online gaming. It will be easy to use, affordable, fully transparent and secure.

When completed, the new solution will run using its own native Cudos token and will power WEB3 projects with decentralised cloud-based solutions. Ultimately, it will provide a fully

scalable, sustainable and interconnected network for developers, validators and entrepreneurs.

By matching up the ever-growing demand for and supply of high-performance computing power, the network will enable individuals and entities with surplus capacity to get paid for providing computing power, which then gets put into a large global, central pool. This will allow users who, for example, may be running a rendering job or a machine learning algorithm, to access the power they need to perform their work much cheaper than hyper-scale centralised providers.

"We have seen that the nature of the functionality in other blockchains has been limited by the computational power available," says Matt Hawkins, founder and CEO of Cudos. "For example, many DeFi and NFT products, such as generative NFTs, have had to be stored off-chain, but because of our more advanced capabilities, we're able to do everything more effectively on-chain."

Another problem is the high gas fees users have to pay for the computing power required to process and validate transactions on the Ethereum blockchain. This is due to the huge energy consumption used in mining under Ethereum's existing proof-of-work mechanism.

However, the more efficient delegated proof-of-stake model Cudos employs will offer lower gas fees compared to other Layer 1 networks. That's because the new model will allow it to process thousands of transactions per second.

Another challenge is that while many blockchain solutions have been

established to support smart contracts, they are still in their relative infancy in terms of capability. That means users are limited in the number of applications they can adopt them for.

But with the Cudos solution, the platform will leverage its computing network to enable more complex smart contracts to be built and run than can currently be done on popular platforms such as Ethereum. It will also use the Rust programming language, which is easier to use for those who aren't so familiar with blockchain.

Cudos has been developing its new network over the last 12 months.

During that time, it has been using several testnets (an alternative blockchain used for testing) by incentivising various stakeholders, including its community of developers, validators and delegators. Tasks include deploying smart contracts, using Cosmos' Gravity Bridge, minting and transferring NFTs.

The process has involved various moving components, including all of the validators coming online at the same time and migrating their tokens from ERC-20 Ethereum tokens to the native chain. As the backbone of the blockchain, Cudos provides security for validator deposits, and enables slashing and governance voting. Once all dependency tasks, including security patching and its phase four testnet, have been completed, it will be ready to go live.

The company plans to launch the mainnet later in the year. It will add additional functionality as the product develops over time. "Initially, we want to provide developers, validators and token holders with a fully decentralised network solution," says Hawkins. "But we'll be looking to add more meat to the bones as it develops in the future in terms of how they will be able to interface with it."

Cudos' blockchain is built on Cosmos, an ecosystem of interconnected apps and services. Its inter-blockchain communication

protocol enables the transfer of tokens, assets, NFTs and data to and from other blockchains.

Focused on reducing entry barriers for developers to build decentralised apps, its blockchain is designed to enable them to add to its limitless network. Its decentralised cloud infrastructure is distributed among millions of people globally to facilitate this.

This decentralised cloud computing solution called Cudo Compute allows for peer-to-peer sharing of computing resources across the world. This prevents the need for hyper-scale data centres and utilises idle computing power, which may otherwise become environmentally damaging e-waste.

If technology continues to evolve at its current breakneck speed, blockchain networks such as Cudos will have a crucial role. Meeting the ever-growing need for computing power is only the start in a 'metaverse' of new and exciting opportunities.

For more information about Cudos' new blockchain network solution visit [cudos.org](https://cudos.org)



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