

 DLResearch

The State of Digital Assets in Europe

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CHAPTER 1

Economic Impact

John Schindler

Secretary General

Financial Stability Board (FSB)



■ **How does the FSB assess the impact of crypto asset volatility on global financial stability, and what are the threshold levels of concern that could trigger further regulatory responses?**

In our view, financial stability risks from crypto asset markets appear limited at this moment. Crypto asset market capitalisation remains a small portion of global financial system assets, though it has rebounded in recent months.

While interconnectedness within the crypto asset ecosystem remains high, linkages with core financial markets and institutions are still limited; crypto assets are not widely used in critical financial services (including payments) on which the real economy depends, and decentralised finance (DeFi) remains a niche market segment.

It is difficult to specify threshold levels of concern that could trigger further regulatory responses. However, financial stability challenges could arise if the crypto asset ecosystem were to grow in size or if its integration with the financial system and the real economy were to increase, e.g. through stablecoin reserves or exposure linkages with financial institutions and investors.

Thus, it is very important to monitor developments in crypto asset markets and its interlinkages with the core financial system.

Can you discuss the principle of ‘same activity, same risk, same regulation’ and how the FSB ensures that its regulatory framework remains ‘technology-neutral’, yet effective?

The principle of ‘same activity, same risk, same regulation’ means that any crypto asset activities seeking to perform an equivalent economic function to one in the traditional financial system are subject to the same or equivalent regulation, irrespective of the way crypto asset activities are conducted or the way these activities are marketed.

Simply put, when crypto asset activities present economic features and associated risks that are not different from those in traditional finance activities, similar regulations should apply.

‘Technology-neutral’ means that the recommendations focus on addressing the financial stability risks associated with activities, regardless of the underlying technology used. This is also consistent with the ‘same activity, same risk, same regulation’ principle.

Technology should not be used as an argument that crypto asset activities are different. Our framework conveys a clear message that they should be consistently regulated.

One caveat is that ‘technology-neutral’ does not mean ‘technology-blind’. Some technologies may lead to higher risks and need higher regulatory intensity. The decisive factor in considering the regulation is the risk associated with the technology.

[What gaps in the current regulatory framework has the FSB identified, and what new standards or guidance are anticipated to address these gaps?](#)

Many crypto asset activities are still operating in non-compliance with applicable regulations in some jurisdictions and are outside the regulatory perimeter in some others. The failure of FTX and some other crypto asset intermediaries highlighted these issues.

FSB recommendations establish a global regulatory baseline. It is critical that jurisdictions globally implement them fully and consistently, to limit fragmentation and regulatory arbitrage. This includes in jurisdictions that are outside the FSB’s membership; crypto assets are borderless in nature, requiring strong and consistent jurisdictional regulatory, supervisory, and enforcement practices.

The FSB will, alongside the standard-setting bodies and other international agencies, take steps to promote and monitor the effective implementation in jurisdictions beyond the FSB’s membership, including engaging with jurisdictions with material crypto asset activities to reduce the scope for regulatory arbitrage.

Depending on the domestic legal framework, jurisdictional authorities may apply and enforce existing requirements and laws, as well as develop new or additional regulatory

approaches. The FSB recommendations are intended to stay high-level so that they can be integrated into jurisdictional frameworks.

FSB members have a responsibility to lead by example and implement the recommendations in a full and timely manner. The FSB has already agreed to monitor and report on implementation progress by end-2025.

The FSB will continue to facilitate discussions and information sharing amongst FSB members where such coordination supports an effective collective supervisory response to developments in crypto asset markets.

We are also considering additional steps, including through our Regional Consultative Groups, to promote understanding – and ensure consistent implementation – of our recommendations across jurisdictions.

[How do the FSB’s recommendations for multifunction crypto asset intermediaries \(MCIs\) bridge existing information gaps?](#)

We published “The Financial Stability Implications of Multifunction Crypto Asset Intermediaries” report in late-November 2023. This report addresses the evolving role of MCIs in the global financial system, detailing their operations, governance challenges, and their implications for financial stability and regulatory compliance.

The report includes some policy considerations, focusing on addressing risks stemming from combinations of functions, ensuring proper governance, and enhancing cross-border cooperation and information sharing. It also points out the need for consideration of ways to fill information gaps, potentially through enhancing disclosures and regulatory reporting.

Recommendation 9 of the FSB's high-level recommendations for crypto asset markets and activities includes specific expectations for authorities that oversee MCIs, including recommendations for transparent governance and organisational arrangements, considerations for authorities to regulate the combination of functions, and the management of conflicts of interest.

In addition, in light of the lessons learned from recent failures of crypto asset service providers, the FSB strengthened both sets of high-level recommendations in three areas:

Safeguarding of client assets. The high-level recommendations have been strengthened by stating that authorities should require that crypto asset service providers maintain adequate safeguarding of customer assets and protect ownership rights, including in insolvency.

Conflicts of interest. The FSB has strengthened the high-level recommendations by stating that authorities should have in place requirements to address the risks associated with conflicts of interest.

Cross-border cooperation. The FSB's high-level recommendations have been strengthened on information sharing, including about the level of compliance of activities spanning multiple jurisdictions, especially those in jurisdictions that have not implemented international standards.

Laurent Benayoun

CEO

Acheron Trading



■ In a 2022 blog post, Acheron said that it expects long term market health to improve through consolidation and purging of weaker market makers. How has the crypto market making landscape evolved since the collapse of FTX?

In every bull market, greed leads to careless risk taking. When markets stop performing, losses on risky bets accumulate, exposing conflicts of interest, excessive leverage, market manipulation, and other harmful practices. Ultimately, entities taking excessive risk in the bull market get into trouble when they have poor risk management practices. Their failure further exacerbates the bear market effects. Acheron has always placed emphasis on risk management and remaining a going concern through all periods of the business cycle.

Traditional markets experienced a surge in retail trading during the meme stock bubble event of January 2021. In the wake of the event, conflicts of interest were highlighted among prominent market makers and a series of market reforms were proposed by the SEC to improve market maker transparency. As the crypto market experiences its own “memestock” event cycles, with various dog and frog-inspired tokens skyrocketing to billion-dollar market caps, how does the role of crypto market makers and the exchanges listing these coins compare?

Memestocks and memecoins do not have much to do with one another, at least from what I can see. Indeed, there are significant structural differences between tradfi and crypto markets. In traditional markets, memestocks are still stocks from real businesses. Trading could be interrupted at the broker’s discretion due to funding/clearing house constraints. Institutions could be shorting massively, which could lead to a short squeeze. Ultra High-Frequency Trading leads to payment for order flow being ultra important for market makers (MMs). None of this really applies to memecoins.

In crypto, MMs bring a special asset to market, implying a different premarket modelling. Shorting is limited, and institutions are not shorting massively given risk management practices and knowing what volatility is like in crypto anyways. True collocation is rare: we’re talking virtual private networks at most. Exchanges witness sporadic yet significant volume and price action on these markets. Exchanges also act as a broker, matching engine, and clearing house, all at once.

How does Acheron navigate the ethical considerations and potential conflicts of interest in market-making practices, such as shorting client tokens?

Externally, we provide a portal for all clients, even for what would be considered “arms-length relationships”, such as those in the loan and call option model. The portal provides real-time metrics - instead of backward-looking reports - such as liquidity, number of orders, market share, fill volume, and more.

Internally, we have established a very strict trading policy for all team members and their families. This trading policy includes blackout periods, approval and supervision of trades by compliance, and prohibits all forms of market malpractices, such as insider trading.

You’ve stated that Acheron is willing to forego profits in its mission for combating the negative perception of market makers, by acting in good faith and providing transparency. What strategies does Acheron advocate for to ensure sustainability and integrity of market-making activities?

Parasitic MMs take a probabilistic approach: 95% of markets trade below listing price 180 days after primary listing. Their playbook is simple: short sell as much as possible from the loan granted by the issuer, forcing selling pressure to exceed buying pressure, killing momentum and price discovery. This creates a self-fulfilling prophecy of downward price movements, allowing parasitic MMs to repurchase tokens sold initially for an immaterial amount and pocketing the difference. This playbook is profoundly nefarious to all market participants: issuers (witness poor price performance), investors (have to wait for vesting unlocks to sell an asset going down in value), and the community of initial buyers (often suffering the largest losses).

Acheron’s symbiotic approach involves a fully automated delta-hedging long gamma strategy. In other words, Acheron locks the value of call options initially and profits from volatility.

Automated Market Makers like Curve and Uniswap have been a cornerstone of DeFi and have played a large role in the growth of the industry. How should PMMs and DMMs adapt their strategies to remain competitive in an increasingly decentralised landscape?

AMMs are commonly mistaken for competitors to MMs, when in fact they provide additional hedging venues and generally contribute to making markets more efficient in their own way. MMs simply develop new strategies, representing interesting research and technical challenges.

As trading flows continue to shift to the advantage of DEXs, as it already has, DEXs will attract regulatory scrutiny, especially when it comes to Know Your Customer (KYC) and Anti-Money Laundering (AML) regulation. Enforcement action on decentralized services is already underway.

How would the introduction of hybrid exchanges (DEXs that incorporate features of CEX platform e.g. limit order books) change market makers’ participation in crypto markets?

MMs must continually adapt, as they always have. For instance, Acheron Trading has integrated some of these hybrid exchanges (for example one featuring a CLOB, a fast matching engine, and on-chain settlement layer). Acheron Trading has also been a major liquidity provider for such venues. Again, this presents an interesting research/technical challenge, and is consistent with the earlier observation regarding the absence of strict dominance of DEXs over CEXs.

What role do you foresee AI playing in market making, for example detecting and preventing market manipulation tactics?

While Machine Learning (ML) can certainly assist in pattern recognition, financial markets, in general, are notorious for their significant noise, and crypto markets specifically may lack sufficient data to prevent or mitigate overfitting. I am uncertain about the extent to which AI is used in trading funds, but it may streamline the efforts of government agencies and their service providers in efficiently tracing illicit activity on-chain.

Only the future will tell what the viable applications of these technologies will be.

With the ongoing advancements in quantum computing and increasing possibility of large quantum mining operations, how real is the risk of a 51% attack on the Bitcoin network?

If quantum advantage is achieved in unstructured searches, then the 51% threat could become very real if the network fails to adapt. That said, it may not make sense to attempt to do so from a game theoretic perspective, as the entire network would lose its value instantly. Also, it is challenging to gauge how close we realistically are to achieving quantum advantage, as some problems in the field are undermined, despite advances. After all, BTC is a technology solution that needs to evolve with time to retain its value, unlike gold or other forms of money.

Elisabeth Noble

Senior Policy Advisor

European Banking Authority (EBA)



How has the demographic landscape of crypto users evolved in recent years?

There is no unified metric to assess precisely who the users are. However, as a general view, the demographic landscape has evolved in step with the broadening use cases for crypto assets and increasing, albeit still limited, integration of crypto assets in commerce and finance.

In the early years, many crypto assets were issued as an alternative means of raising funds, i.e. as speculative investments. These primarily appealed to investors with a high-risk appetite. Unfortunately, some retail consumers were exposed to losses due to a misleading or incomplete information about the risks involved and, in some cases, fraudulent activity.

However, as the underlying technologies have shown promise, in more recent years a wider range of use cases has emerged. Some crypto assets are still being positioned to market as investments, while others are being structured in a manner that facilitates use as a means of exchange; aiming to maintain a stable value by reference to a specific currency or asset. Some crypto assets are also being positioned as collectables or as reward or utility tokens. Accordingly, a broader range of users can be observed. Additionally, although limited, we see increased institutional experimentation with the technologies in the context of asset tokenisation and settlement.

What can/should be done to onboard those who are reluctant to switch to digital-only payment systems?

The European Banking Authority (EBA) adopts a technology-neutral approach in the performance of its policy and other functions. Accordingly, we do not advocate for digital-only payment methods. Indeed, from a financial inclusion perspective, it is important that consumers continue to have a range of payment options available, including physical cash.

Consumers should have the information they need to make informed choices and should receive a high standard of consumer protection regardless of the payment option selected.

In light of these objectives, and recognising that some crypto assets may be increasingly positioned as a means of payment, in 2019 the EBA issued advice to the European Commission on the need for regulatory changes to better protect consumers.

The changes brought about by the subsequent EU Markets in Crypto Assets (MiCA) Regulation will help consumers understand better crypto asset suitability as a means of investment or payment and embed higher standards of consumer protection.

[How have comprehensive regulatory frameworks like MiCA and the involvement of EU agencies like the EBA and European Securities and Markets Authority \(ESMA\) helped or hindered mainstream cryptocurrency adoption?](#)

MiCA creates a holistic regime for the issuance of crypto assets, including bespoke regimes for the so-called stablecoins in the form of asset-referenced tokens (ARTs) and electronic money tokens (EMTs), and crypto asset services. The regime for ARTs and EMTs will apply from end-June 2024, and the remaining provisions from end-2024. The largest ARTs and, where issued by electronic money institutions, EMT, will be supervised directly by the EBA.

A range of requirements are established that better protect consumers and investors, for instance via the requirements for comprehensive white papers, redemption and reserve requirements for ARTs and EMTs, and requirements for sound governance and effective risk management. These safeguards will help instil confidence.

Moreover, the harmonisation achieved by MiCA will ensure that, regardless of where issuers or operators are located, when issuing or offering crypto assets to the public in the EU or carrying out crypto asset services, a common set of rules applies. This removes an important barrier to scaling across the EU.

Importantly MiCA, coupled with other regulatory changes, including the EU's new AML package, and the BCBS standard on the prudential treatment of banks' exposures to crypto assets, provides certainty as to supervisory

expectations – addressing an inadvertent barrier to adoption. With these elements, we can expect MiCA to facilitate responsible innovation, including in the area of payments.

The EBA will continue to remain vigilant as to potential emerging risks from activities falling outside the scope of MiCA and will, alongside our sister agency ESMA, report to the European Commission on decentralised finance and staking and lending activities.

Overview

Benefitting from pent-up demand for new investment products and ongoing efforts to regulate the sector, Europe's digital assets industry has grown fast in recent years.

At the global level, the digital assets industry has faced notable challenges since 2022, as high-profile company meltdowns and a barrage of enforcement actions left stakeholders battered and demoralised. Europe, however, has been better insulated from the damage, and the growing pains now appear to be paying off.

Investment volumes and user numbers are rising, and the advent of exchange-traded products (ETPs) – a counterpart to America's spot exchange-traded funds (ETFs) – has been a boon to the European market.

The rebound accelerated during the first half of 2024, and segments such as the tokenisation of real-world assets (RWA) continue to hold particularly high potential for future expansion. A growing cohort of young European investors is also supporting near-term prospects – the younger generation is far less risk-averse than previously believed.

At the same time, the European Union's (EU) landmark digital assets legislation, Markets in Crypto Assets (MiCA) is expected to underscore consumer protection, paving the way for sustainable, long-term industry development despite some near-term growing pains.

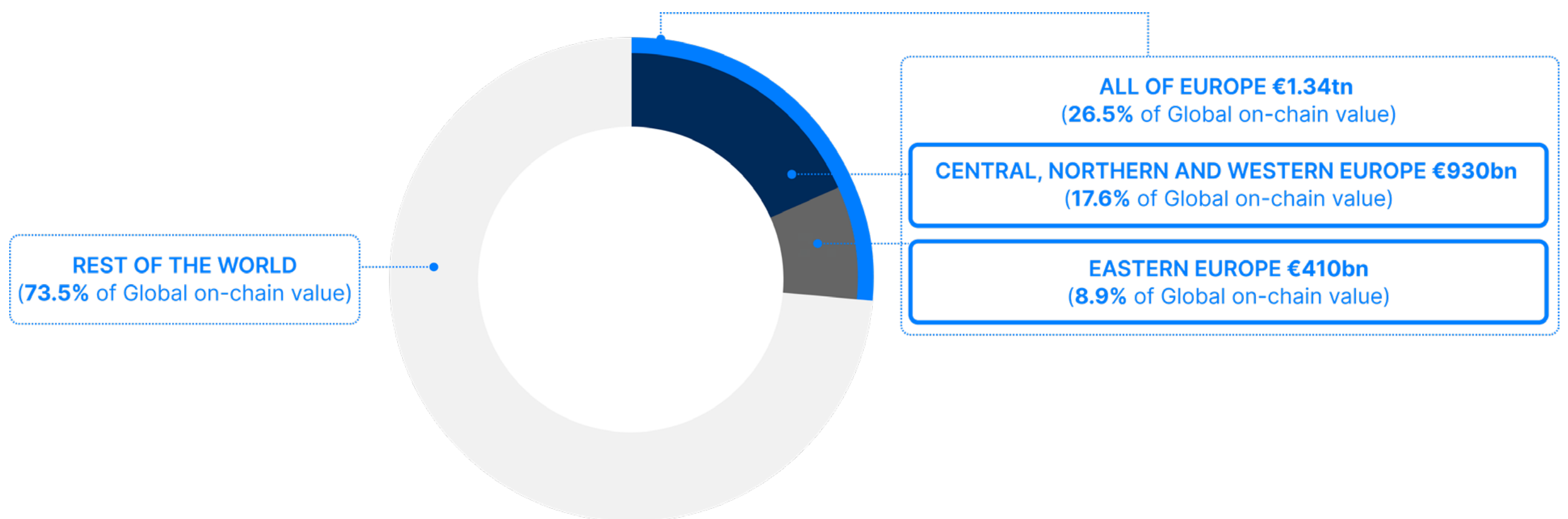
Market Dynamics

Europe's digital assets market is relatively small in terms of user size, but a large and relatively wealthy population of increasingly risk-tolerant investors means it has plenty of room to grow.

American research firm Chainalysis [reports](#) that there were 31m cryptocurrency users in Europe in 2023, making the continent the world's third-largest market behind Asia (263m users) and North America (38m users). In terms of market volumes, however, Europe punches well above its weight.

Chainalysis reports that central, northern, and western Europe accounted for 17.6% of global transaction volumes in the year to June 2023. With eastern Europe taken into account, Europe's share of total transaction volumes rises to 26.5% of total global volumes, or €1.34tn in the year to June 2023.

GRAPH 1. GLOBAL ON-CHAIN VALUE: CENTRAL/NORTHERN/WESTERN EUROPE AND EASTERN EUROPE



Source: Chainalysis

Chainalysis found that the UK was the largest single crypto market in Europe as of June 2023, with \$252.1m of trading volumes recorded between July 2022 and June 2023. The UK also ranked highest in Europe on Chainalysis' global crypto adoption index, at 14th place globally.

The UK slips to fourth place in terms of European countries where most people are putting their greatest share of wealth into cryptocurrencies, with Chainalysis reporting that Ukraine (see [Crypto in Conflict](#) chapter), Turkey, and Russia make the top three.

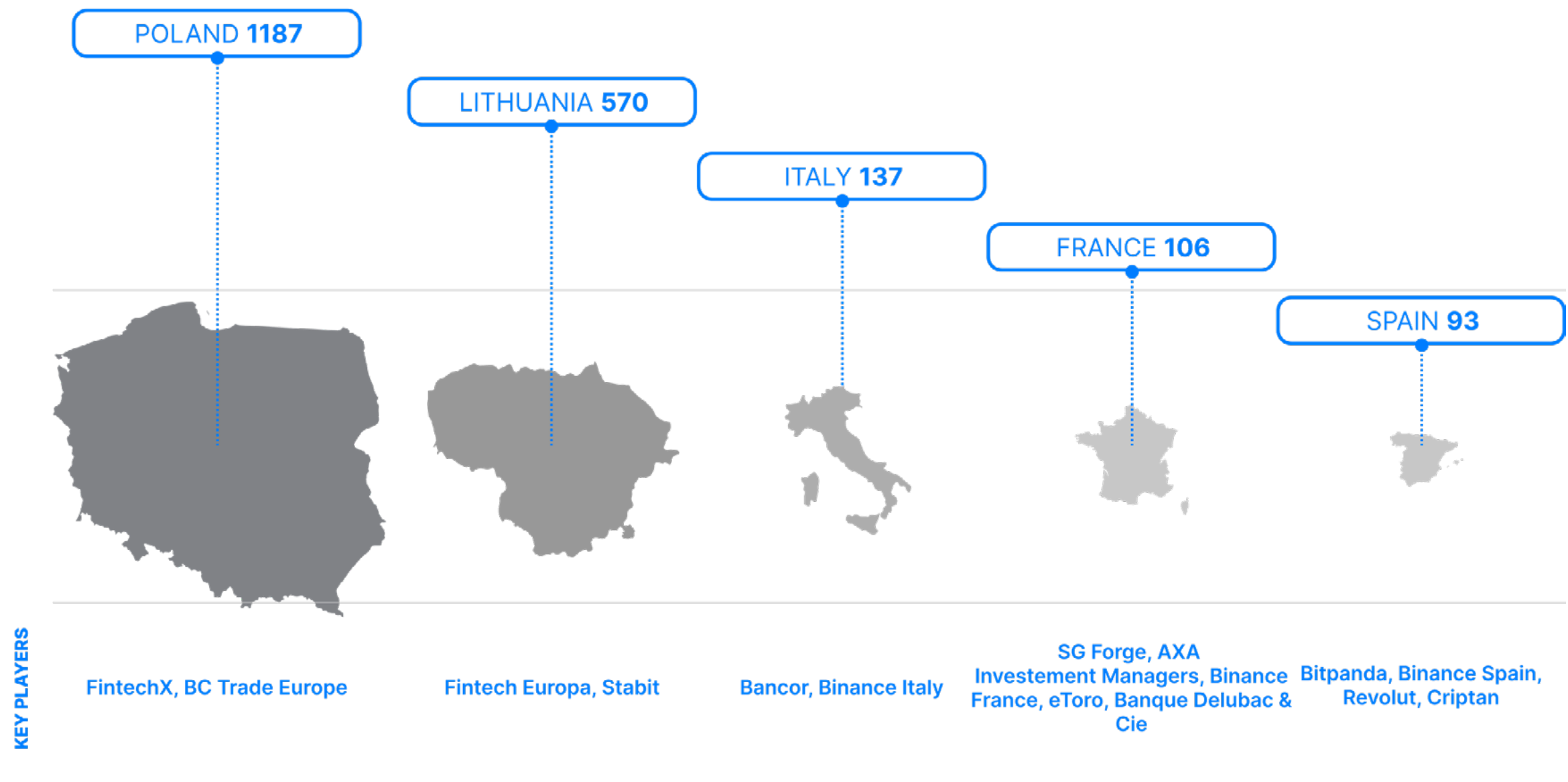
A growing base of users, combined with upcoming implementation of the world's most comprehensive digital asset regulatory regime, MiCA (see [Regulation](#) chapter), has seen many companies flock to establish operations in Europe.

According to the [DL News Crypto Tracker](#), there were 11,597 crypto entities registered across EU at the end of 2023, with more than 1000 companies registering in the EU over the course of the year.

This figure does not include Czechia, with 9372 virtual asset service providers (VASPs) registered, since the figures have not been updated since 2022, and since 83% of registered entities are individuals, not businesses.

Excluding Czechia, Poland topped the list with 1187 VASPs, followed by Lithuania (570), Italy (137), and France (106).

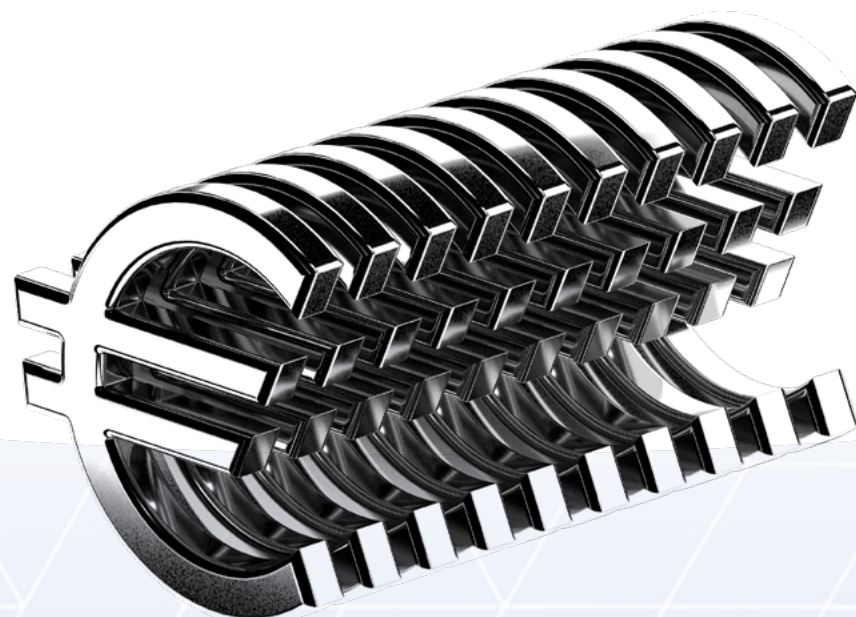
GRAPH 2. NUMBER OF CRYPTO COMPANIES PER COUNTRY, MAIN ACTORS



Source: DL News

Despite the rise of VASP registrants in Europe, just five exchanges accounted for 97% of euro-denominated crypto volume, according to Kaiko. Bitcoin (BTC) was the preferred asset for European traders in 2023, accounting for €32bn of trade volume. Ethereum's token, ETH, came in second with €13.2bn, and Ripple third with €8.7bn traded.

Europe led the digital assets industry in terms of employment creation, according to a 2023 report published by [research firm CoinCub](#), with Germany ranking top globally (22,472 jobs) followed by France (17,693 jobs), Poland (12,086 jobs), the Netherlands (10,279 jobs), and Spain (6843 jobs).



Risk and Reward

The European Securities and Market Authority (ESMA) [reported in April 2024](#) that 55% of global trading volume is executed on exchanges that are licensed in Europe, although it noted that most of these transactions occur outside of Europe.

This may explain why European investors have been relatively well-insulated from recent tumult in the market.

The global cryptocurrency industry faced a series of major challenges in 2022 after the collapse of several high-profile companies, including FTX and Terra/Luna, erased \$1.35tn (€1.26tn) of market capitalisation.

GRAPH 3. MARKET CAP, JANUARY 2022 TO JANUARY 2023



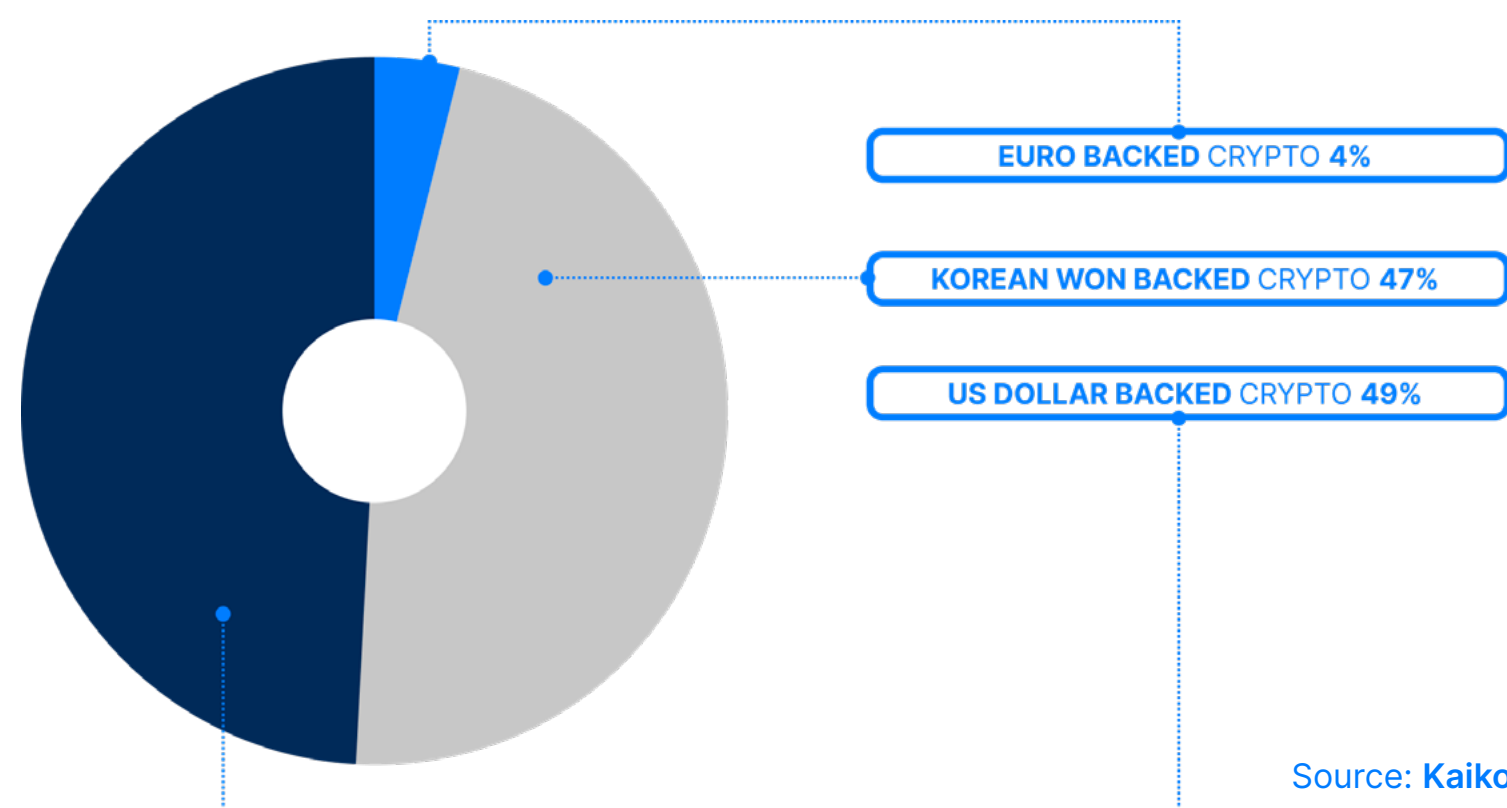
Source: CoinMarketCap

In Europe, however, the impact was less severe than in other markets, including the US. For example, while the fall of Bahamas-based FTX wiped \$200bn from the global digital assets market in November 2022, the exchange's sole European entity was based in Cyprus.

The entity, FTX EU, had approximately 1m registered users, but less than 10% of those were based in the EU, [according](#) to Steffen Kern, head of risk analysis and chief economist at the European Securities Market Authority (ESMA). Shortly after FTX EU's licence was suspended by the Cyprus Securities and Exchange Commission, FTX EU [began refunding](#) its affected European users.

ESMA reports that global cryptocurrency markets remain dominated by the US dollar and South Korean won as key on- and off-ramps for traders, with the euro playing a relatively minor role in these activities.

GRAPH 4. CRYPTO TOTAL MARKET SHARE, JANUARY 2024

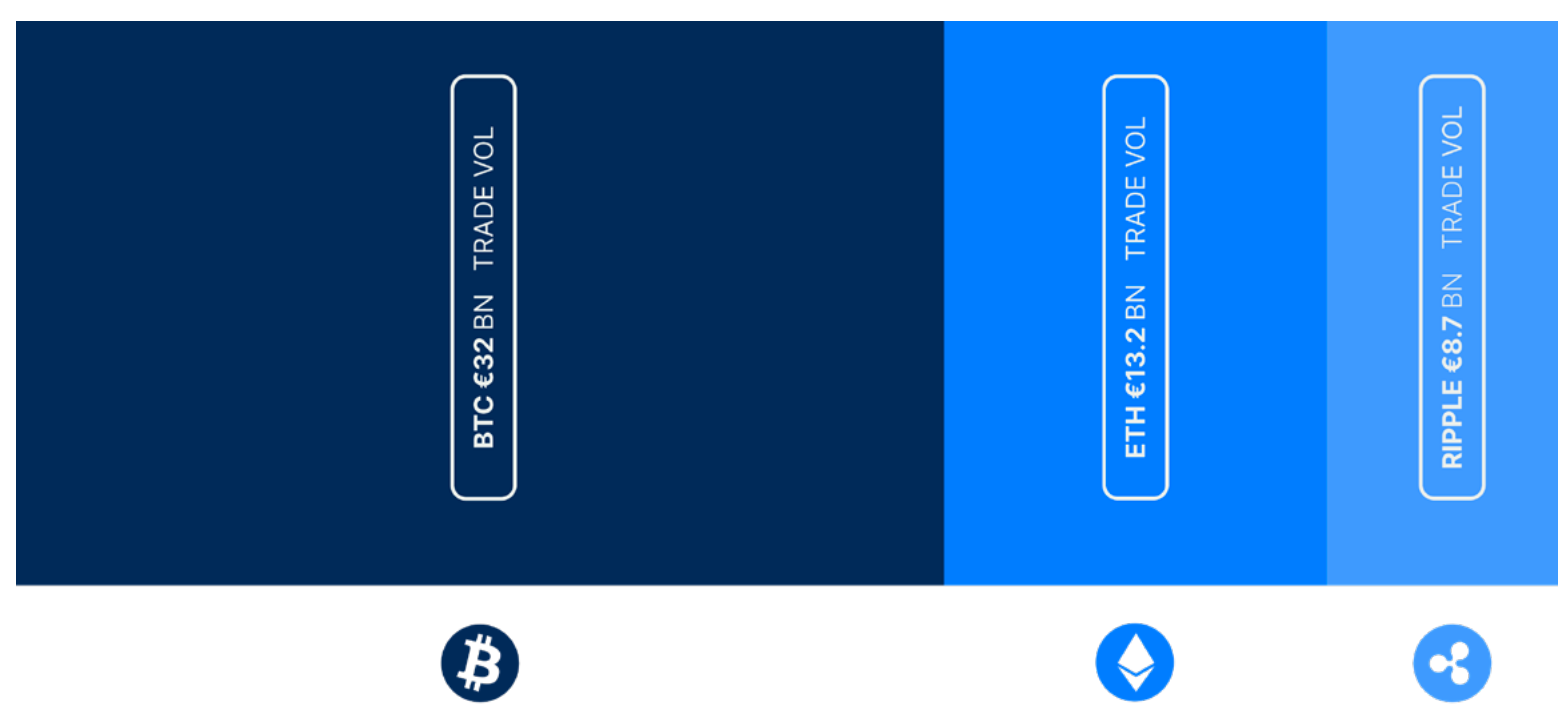


“We are keen to understand vulnerabilities within the crypto asset system, for example the complexities of unbacked crypto assets, stablecoins, and DeFi, and transmission channels through which shocks in crypto asset markets could spill over to the wider financial system.”

— John Schindler, Secretary General, Financial Stability Board

Euro-denominated crypto trading volume increased 200% to €16bn from September to December 2023, according to a January 2024 [report](#) by crypto data research company Kaiko. But this is still a drop in the bucket, accounting for just 4% of the total market, while US dollar- and Korean won-backed cryptocurrencies hold a 49% and 47% market share, respectively.

GRAPH 5. PREFERRED ASSETS FOR EUROPEAN TRADERS IN 2023



Source: Kaiko

Lower levels of euro-denominated activity do not necessarily translate to less digital asset market activity in Europe. They do, however, dovetail the view of the Swiss-based Financial Stability Board (FSB) on systemic risks posed by crypto.

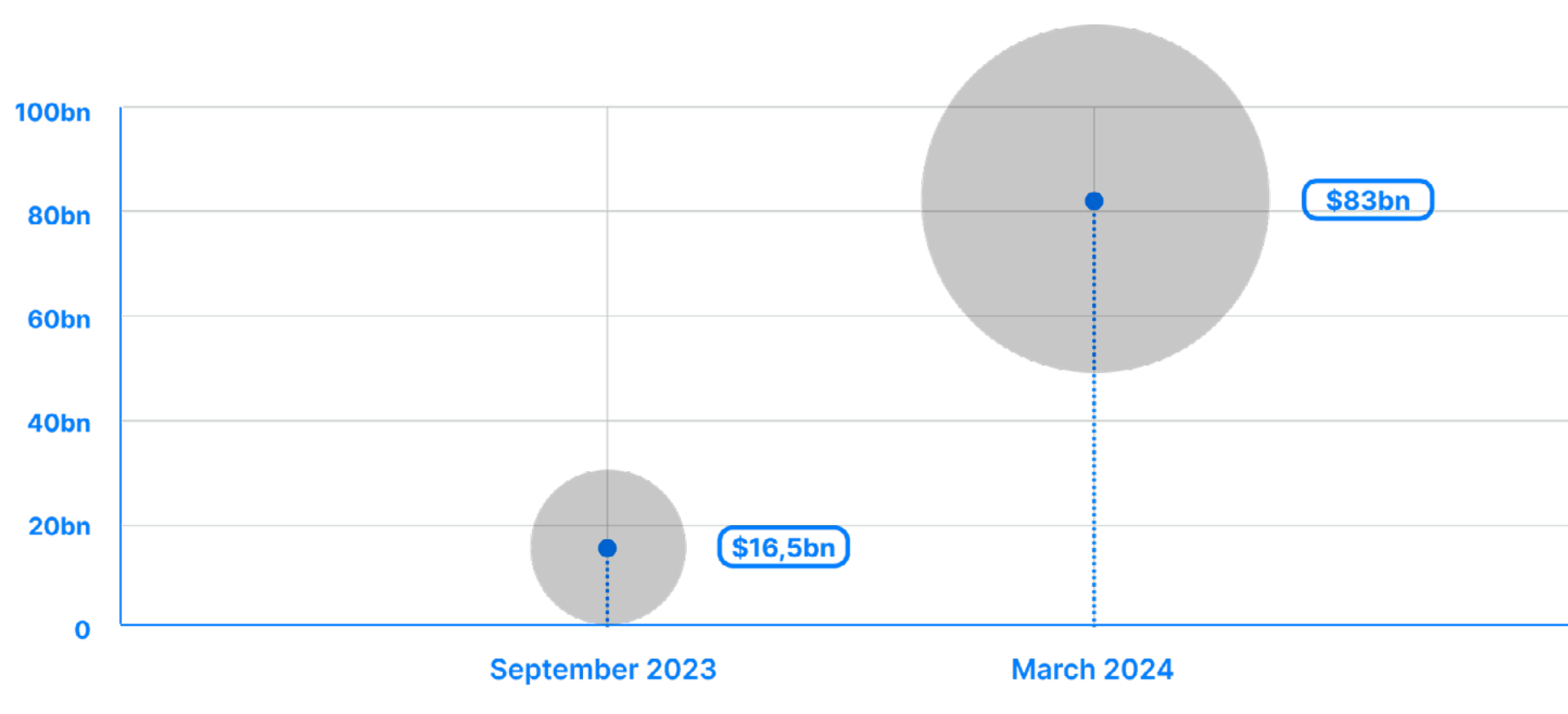
According to FSB secretary-general John Schindler, cryptocurrencies do not pose a systemic risk to the European, or indeed global financial system – though the board continues to monitor the situation.

“We are keen to understand vulnerabilities within the crypto asset system, for example the complexities of unbacked crypto assets, stablecoins, and DeFi, and transmission channels through which shocks in crypto asset markets could spill over to the wider financial system,” Schindler told DL Research.

“This could include, but is not limited to, links between crypto asset markets and the core financial system such as financial institutions’ exposure to crypto assets, the composition of reserve assets of major stablecoins, and emerging investment products such as spot bitcoin exchange-traded products.”

Looking ahead, the upcoming implementation of MiCA legislation will further underscore both financial industry stability and consumer protection – although MiCA has been criticised as overly-burdensome for crypto firms operating in the EU, it is also expected to help Europe’s digital assets industry maintain a steadier and more stable long-term growth path (see [Regulation](#) chapter).

GRAPH 6. CRYPTO TRADING VOLUMES, COMPARISON SEPTEMBER 2023 AND MARCH 2024



Source: CoinMarketCap

Recent Recovery

After a long and bitter crypto winter, the global digital asset market began to turn around in 2023, as two major narratives emerged over the course of the year.

The first was a series of enforcement actions against several previously lauded crypto industry CEOs, including FTX's Sam Bankman-Fried, Celsius Network's Alex Mashinsky, and Binance's Changpeng Zhao, all of whom [were charged](#) with a variety of financial crimes. Bankman-Fried and Zhao were both serving prison sentences in the US at the time of publication.

The second involved anticipation of regulatory approval for spot Bitcoin (BTC) ETFs in the US, which was ultimately granted in January 2024 by the US Securities and Exchange Commission (SEC). Approval for an Ethereum (ETH) ETF followed in May 2024.

The global market has been buoyant in the months since: crypto trading volumes rose from a low of \$16.5bn in September 2023 to \$83bn in March 2024, according to crypto data site CoinMarketCap, while total market capitalisation rose by 20% in May 2024 alone to reach \$2.4tn, [according to CCData Insight](#).

The price of BTC and ETH rose 180% and 140%, respectively, over the same period, with BTC reaching an all-time intraday high of \$73,127 in March 2024. As of late June 2024, BTC prices hovered around \$64,000, while ETH prices were around \$3500.

This has helped bring investors back to the market, including in Europe.

European Demographics

A common stereotype of European investors is that they are older, more conservative, and far more risk averse than their American counterparts.

For example: a [DL News report](#) from January 2024 found that ETPs, which behave like ETFs, were already available in the European market when the US Bitcoin ETF was approved. However, the report noted that the top five ETPs added up to a fund size of just \$2.6bn. In comparison, Bloomberg Intelligence expected \$4bn of Bitcoin spot ETF inflows on the first day of trading alone.

According to one expert quoted in the *DL News* report, Europeans were less enthusiastic about Bitcoin ETFs because their retirement strategies anticipate a far higher level of government support

than American retirement strategies. But higher pensions in Europe also translate into lower salaries, which is making Europeans more likely to gamble.

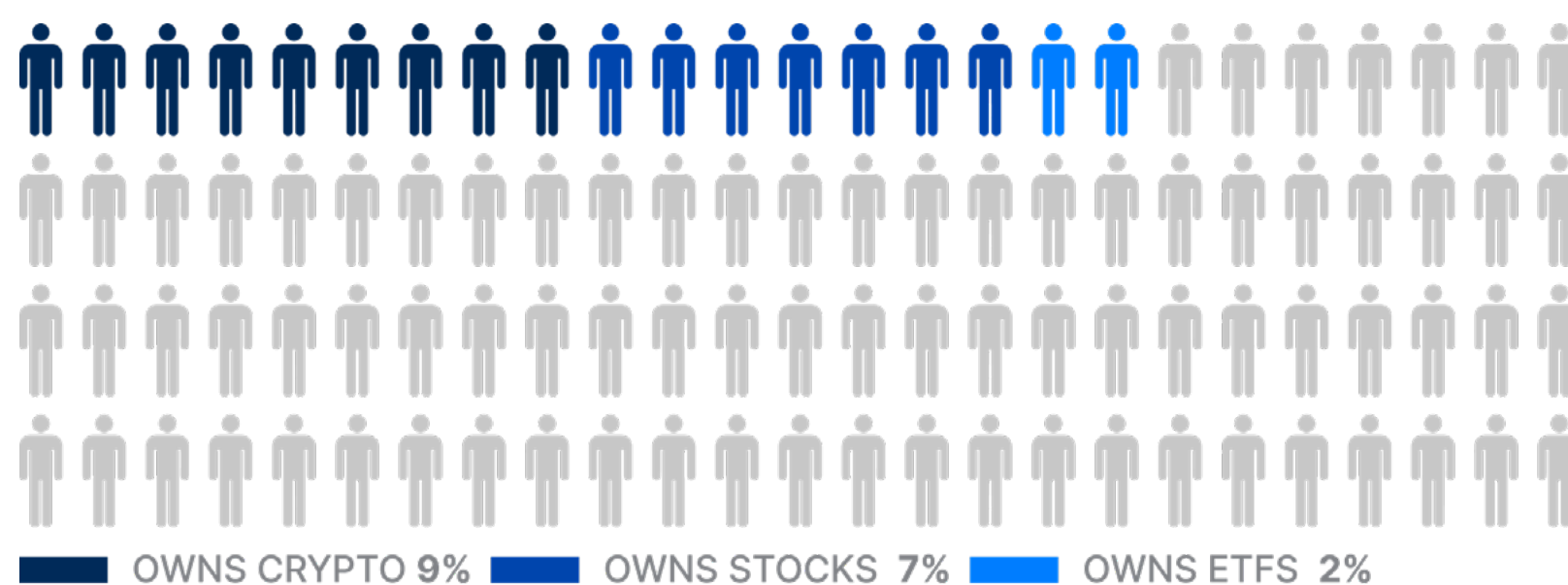
[...] recent surveys of European digital assets investors reveal that they are young, like to gamble, and have a relatively high risk appetite. Their numbers are also growing steadily.

Indeed, recent surveys of European digital assets investors reveal that they are young, like to gamble, and have a relatively high risk appetite. Their numbers are also growing steadily.

The UK's Financial Conduct Authority (FCA), for example, [reported](#) in June 2023 that 4.9m UK adults, or 9% of the country's adult population, held crypto assets, up from 2.3m or 4.4% in 2021. An estimated 91% of UK adults had heard of crypto assets as of August 2022, according to the FCA, an increase from 78% in 2021 and 42% in 2019.

As of February 2022, roughly 10% of the UK population was estimated to hold or have held some form of crypto asset, with [Forbes reporting](#) that 82% of this population still held crypto assets as of May 2024. An estimated 76% of crypto users in the UK are less than 45 years old, according to the FCA, while 69% are male.

GRAPH 7. CRYPTO OWNERS IN FRENCH POPULATION



Source: Autorité des Marchés Financiers (AMF)

The majority of FCA survey respondents purchased BTC and ETH as their preferred cryptocurrency, and a vast majority, 79%, said they purchased crypto using their disposable income, while 19% used long-term savings or investments, and 6% used credit facilities. The average size of crypto users' holdings in the UK was £1357 (€1595), according to the FCA.

In France, 66% of new retail investors said they planned to hold their digital assets for less than 10 years to increase the profitability and diversity of their assets, indicating a rising desire for higher, quicker returns despite the potential risks.

France is hot on the UK's heels: the French Autorité des marchés financiers (AMF) recently published a [report](#) which found that in 2023, 9% of the French population owned cryptocurrencies: more than those who own stocks (7%) and ETFs (2%). Like the FCA, the AMF reported that a majority of new investors, 56%, were less than 35 years old, and 64% of investors were men.

In France, 66% of new retail investors said they planned to hold their digital assets for less than 10 years to increase the profitability and diversity of their assets, indicating a rising desire for higher, quicker returns despite the potential risks.

The same trend is playing out in Germany, where a [May 2023 report](#) by crypto exchange KuCoin, found that 49% of crypto investors in Germany believe cryptocurrency can help them realise their wealth accumulation plans.

KuCoin also found that 22% of crypto investors in Germany view it as a way to get rich overnight. As is the case in France and the UK, this demographic is also young – 51% are between 26 and 39 years, old – and male (63% of total respondents).

GRAPH 8. DEVELOPMENT OF ASSETS UNDER MANAGEMENT (LAST 12 MONTHS, \$bn)



Source: ETFbook

A growing appetite for crypto products is playing out in the European ETP market as well: Contrary to expert predictions, European crypto ETP holdings surged by 46% during the first half of the year. Crypto ETP assets under management amounted to €11.7bn as of late June 2024, according to data platform, [ETFbook](#), compared to €8bn in early January 2024.

The trend is set to continue, both globally and in Europe. In March 2024, [research](#) by London-based investment manager Nickel Digital Asset Management revealed that 63% of institutional investors surveyed rank cryptocurrencies among their top-five assets over the next five years, trumping US equities (60%), European investment-grade debt (55%), and gold (12%).

Nickel reports that while just one-quarter of respondents have greater than 1.5% of their assets allocated to the digital asset sector, almost 88% estimate they will have 2% or more of their assets in the sector within three years, while 30% forecast that their portfolios will have a share of digital assets greater than 3%.

Growth Potential

One segment with high potential for future growth in Europe is real world assets (RWA). The digital tokenisation of RWA and traditional markets is expected to be a global driving force for the adoption of cryptocurrencies. Astute Analytica provides detailed growth projections and market forecasts through 2032 for the European tokenisation markets in an [April 2024 report](#).

The report found that Europe accounted for 25% of the global tokenisation market in 2023, worth €743m. This market is expected to record a compound annual growth rate (CAGR) of 18.9% to hit \$3.7bn (€3.5bn) by 2032, aided by MiCA and Europe's progress in digital asset lawmaking (see [Regulation](#) chapter).

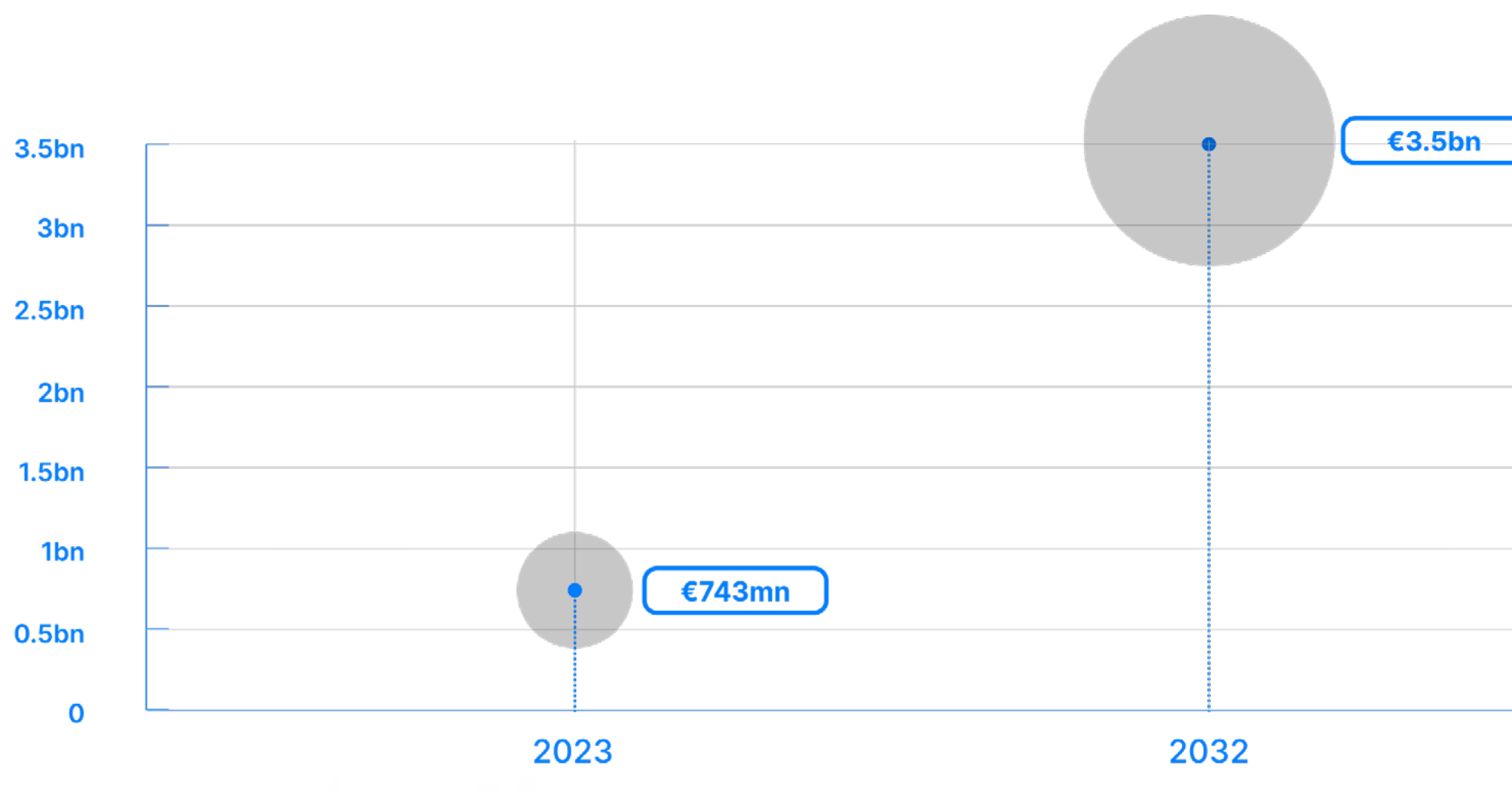
Interestingly, the report found that eastern Europe is emerging as an unexpected leader in the continent's digital tokenisation market, with an 87% market share. The region has injected billions of euros into tokenisation efforts accounting for over €2.5bn, and more than half of eastern European fintech professionals believe that digital tokenisation will revolutionise traditional banking and finance systems within the next five years.

Real estate holds particularly high potential for tokenisation in Europe. The tokenisation of real estate in major European cities including Paris, Berlin, and Madrid amounted to approximately €150m in 2023, a 30% y-o-y increase. Half of real estate professionals in Europe believe that tokenisation will solve some of the industry's toughest challenges, such as the high barrier to entry for small investors, according to the Astute Analytica report.

Outside of real estate, the banking, financial services, and insurance sector accounts for 20% of Europe's digital tokenisation market, with France and Germany reporting an exponential rise in mobile banking users.

Given the EU's investment industry is valued at a collective €20tn, according to [November 2023 figures](#) reported by the University of Luxembourg and Italy's Bocconi University, tokenised investment funds also hold high potential for future growth.

GRAPH 9. 18.9% EXPECTED COMPOUND ANNUAL GROWTH RATE (CAGR)



Source: Astute Analytica

At your service

Another high-potential segment outside of tokenisation is in digital asset service provision. Given the strong growth prospects for the European market, and the fact that digital asset service provision falls within MiCA's purview (see [Regulation](#) chapter), areas like custody provision could see strong future growth in Europe.

Indeed, a July 2023 report in Forbes found that European banks were [outperforming](#) their American counterparts in terms of crypto custody provision. Major players in the industry including Deutsche Bank, Crédit Agricole, BNP Paribas, and DZ Bank, made considerable progress after announcing plans to offer digital asset custody services.

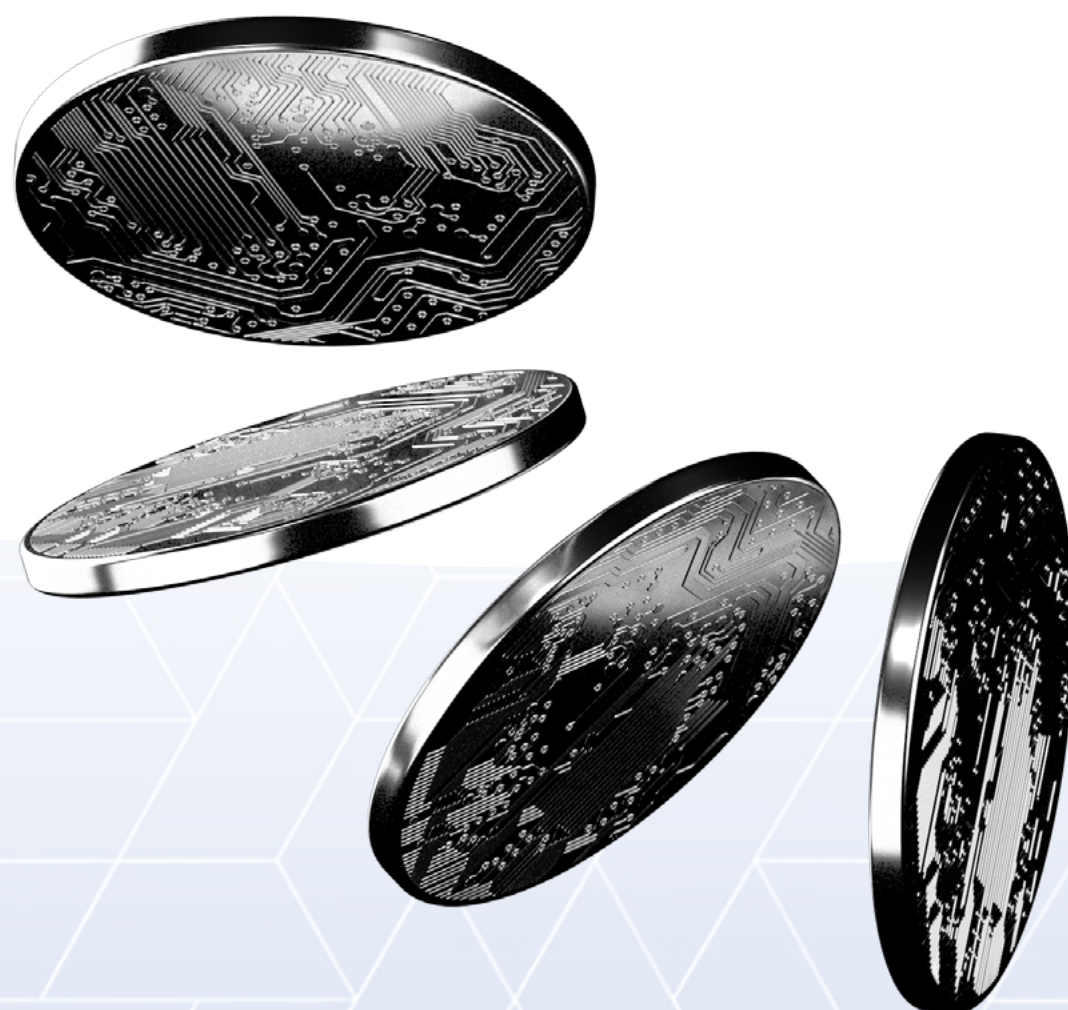
Some banks, such as BNP Paribas, are turning to partnerships with blockchain and cryptocurrency companies to develop a new line of crypto-friendly services. Germany's largest federal bank, Landesbank Baden-Württemberg, has also [announced plans](#) to offer crypto custody services for institutional and corporate clients in the second half of 2024 (see [Innovation](#) chapter).

Outlook

Although the European digital asset market is smaller than that of the US or Asia, Europe is punching above its weight in terms of trading volumes, employment, and digital asset adoption. European digital asset investors are less risk-averse and more eager to embrace cryptocurrencies than ever before, and the cohort of new investors is benefitting from a return to growth after several painful years of loss and scandal. With the bulk of MiCA set to be implemented in December 2024, the industry is well-positioned for a long period of stable, sustainable growth.

This is reflected in mid-term growth projections: Revenue in the European digital assets market is forecast to record a CAGR of 8.6% from 2024-28, resulting in a projected total amount of €26.7bn by 2028, according to business intelligence platform Statista Markets Insight.

Given the combination of regulatory advancements, market recoveries, and burgeoning interest from both retail and institutional investors, the economic outlook for Europe's digital assets industry remains broadly optimistic.



 DLResearch

The State of Digital Assets in Europe

CHAPTER 2

Regulation

Laura Navaratnam

UK Policy Lead

Crypto Council for Innovation



What are some challenges that UK financial institutions might face in meeting Markets in Crypto assets (MiCA) requirements?

The EU is considerably further ahead on regulating crypto assets - via MiCA - than in the UK. While finalised stablecoin legislation has been repeatedly promised by the second quarter of 2024, implementation is unlikely to be applicable until late-2025; when equivalent stablecoins in the EU would already have been regulated for 18 months.

The challenge for UK firms is therefore largely centred around uncertainty and managing gaps that may exist between the existing EU requirements, which provide a comprehensive, arguably prescriptive approach, and the UK requirements which, once finalised, are likely to be more principles based.

How does the stance of UK regulators differ from that of the US Securities and Exchange Commission regarding what constitutes a security?

The UK regulatory system is fundamentally different to the one in the US, the latter of which has a highly federated system of multiple regulators, all with different mandates and remits in terms of financial activities. Overlay that with the regulatory system that are different in each of the 50 states and it is not surprising that when complex, cross-cutting investments and activities, such as those associated with crypto assets arise, they do not fit neatly into the existing, predominantly traditional finance system.

However, the UK has a far more streamlined regulatory system. All financial institutions are regulated by the Financial Conduct Authority, with certain larger systemic organisations also regulated by the UK's central bank, the Bank of England.

While both approaches have upsides and downsides, it does mean that the question of whether a digital asset token is a security or not is less relevant in a UK context, as it does not directly influence who regulates it. Further, the UK system focuses on regulated activities as well as specified investments, again making the technical definition of something as a security or otherwise less of a primary driving factor when contemplating perimeter issues.

Why are UK and European regulators avoiding an American-style 'regulate by enforcement' approach?

The UK's differing enforcement approach is also part of the reason why it is not as 'enforcement-led' as the US regulators are perceived to be. The UK regulators also have extensive supervision divisions which monitor firms

inside and outside the perimeter to ensure compliance with rules, and there are many tools in place to ensure corrections can be made quickly and effectively, reducing the need for a single, high-profile legal case.

A supervisory lead approach places less pressure on enforcement. An enforcement-led approach isn't generally considered lax, as in many cases it could be considered more punitive than a supervisory-led approach. However, neither approach should be done at the expense of policy.

The regulations governing crypto assets need to be clear, proportionate and consistent for firms; and firms who deliberately attempt to obfuscate the requirements should be penalised accordingly. However, if sufficient time is not spent on the overarching framework at the outset, then issues which should be a matter of legal fact become a matter of speculative opinion. This erodes trust in the ecosystem and will only result in poorer outcomes for markets and consumers alike.

Robert Kopitsch

Secretary-General

Blockchain for Europe



■ **Blockchain for Europe advocates for clear and consistent definitions across EU regulations. What further clarifications do you believe are needed for the successful implementation of Markets in Crypto assets (MiCA) legislation?**

While MiCA's level 1 text has been finalised, there are still a number of important clarifications that need to be made in the so-called Level 2 legislation, meaning those delegated acts and guidelines that clarify the interpretation of the level 1 text. For example, some important clarifications are needed on the issue of euro-denominated stablecoins and the thresholds imposed on those. The same is true when it comes to clarifying what is meant in MiCA with "fully decentralised". Probably the most important clarification, focuses on providing a clear understanding of whether a digital asset should be considered a financial instrument or a crypto asset captured by MiCA. This is a critical issue

as the definition of what a financial instrument varies between EU Member States, and so their interpretation of which assets should be considered as such might also vary.

The financial instrument clarification will be difficult to disentangle, as a common definition at the European level for financial instruments does not currently exist. The closer we are to the implementation date, the more reasonable it is to expect that the solution to this issue will likely have an effect on tokenisation. Politically speaking, we are not yet at the stage of recognising the fact that we need a common European definition for a financial instrument, especially if regulators are serious about creating a Capital Markets Union, similar to a common European Single Market. In the US, for example, in a very competitive jurisdiction, reducing fragmentation always has been the top priority.

There are similar questions regarding non-fungible tokens (NFTs) and the way these should be classified, which return to the same question, namely, 'where do we draw the line?' There are some big questions regarding MiCA, and with the deadline for feedback on the expected level 2 legislation now past, at the end of April, there should soon be feedback regarding the key details of the expected implementation.

How do the definitions for "significant" asset-referenced tokens (ARTs) align with the practical realities of the digital asset market, and what adjustments could be made?

An asset-referenced token can be issued to refer to nearly anything but a single FIAT currency. That for example could be a commodity like gold or a basket of currencies, commodities, or crypto assets. It is not 100% clear yet how

that will play out over the next couple of years, because in theory, this will touch upon the whole tokenisation process and again, lead to the question, 'where is the line drawn between financial instruments and ARTs?' I believe this will be one of the most interesting debates in the near future. Future market developments will include Crypto asset Service Providers (CASPs) and the way in which they will be able to grow worldwide. The obvious answer is by offering shares and other financial instruments. So there will be a transition from MiCA-regulated CASPs to MiFID/MiFIR-regulated MTFs.

Concerning "classic stablecoins", or as we call them at EU level, electronic money tokens (EMTs), they do not have a great deal of business opportunities surrounding them once the MiCA framework is live, because you cannot place any interest rates on EMTs nor play around with the reserves. Consequently, there are currently no business models for EMTs that allow their issuers to remain profitable, unless they are selling the data they generate. Ultimately, stablecoin issuers will need to find ways to monetise their services and the threat is that there is not a great deal of take-off at EU level. Resolving this issue will be a key element of determining what is relevant for the market, while also looking at it from a broader business perspective. Not to mention what happens with the Digital Euro.

[Considering the potentially excessive compliance burdens on CASPs, how does Blockchain for Europe propose to balance regulatory oversight with fostering innovation in the digital assets sector?](#)

CASPs have a much leaner framework than traditional trading venues. However, for companies to become CASPs and to grow, they ultimately will have to become multilateral trading facilities (MTFs), apply for MiFID licences, to reach the necessary level of "regulatory maturity". Ultimately, there will be a conversation about

how difficult the licensing process is for CASPs - at present, it can take 12-18 months, and is also a costly service. Nonetheless, the upside is still large and many will go for a CASP license. On the other hand, once you are an MTF and have seamless business operations in place, you own a very profitable business.

Additionally, the innovation in this space may be exhausted in a much more mature and conservative market because such markets are, by definition, centralised. That being said, there are certain compliance burdens that CASPs recognise, and others that they do not, because innovation in the digital assets sector is an ongoing process. Therefore, it is paramount to keep the dialogue with regulators open and constructive. Only then the full potential of the technology and its benefits – both from a business and regulatory perspective – can be achieved.

Regulation

Europe is at the forefront of global efforts to regulate the digital assets industry, with the European Union's (EU) Markets in Crypto assets Regulation (MiCA) standing as one of the most comprehensive and advanced efforts so far. When the bulk of it comes into effect at the end of this year, MiCA will act as unified digital assets legislation covering a 500m-strong market.

MiCA has won praise for differentiating the digital assets industry, most notably stablecoins, from the traditional financial sector – unlike regulators in the US. It has also faced criticism for uncertainty regarding the definition of terms such as “electronic money tokens” and “decentralised services.”

Some stakeholders have warned that the regulation is too burdensome, and risks driving investment out of the bloc, but many expect that the regulation will bring much-needed clarity to a sector that has often been characterised as the Wild West of Finance.

Keen to compete with the EU post-Brexit, the UK has also moved to regulate digital assets with 2023's updated Financial Market Services Act (FSMA), which includes crypto assets for the first time. Official, detailed digital asset rules have been delayed, however, and will likely be delayed further as a result of July's snap elections. The July vote is expected to bring a new party – one that may be less sympathetic to the industry – into power, dampening the outlook for digital asset growth in the UK.

MiCA

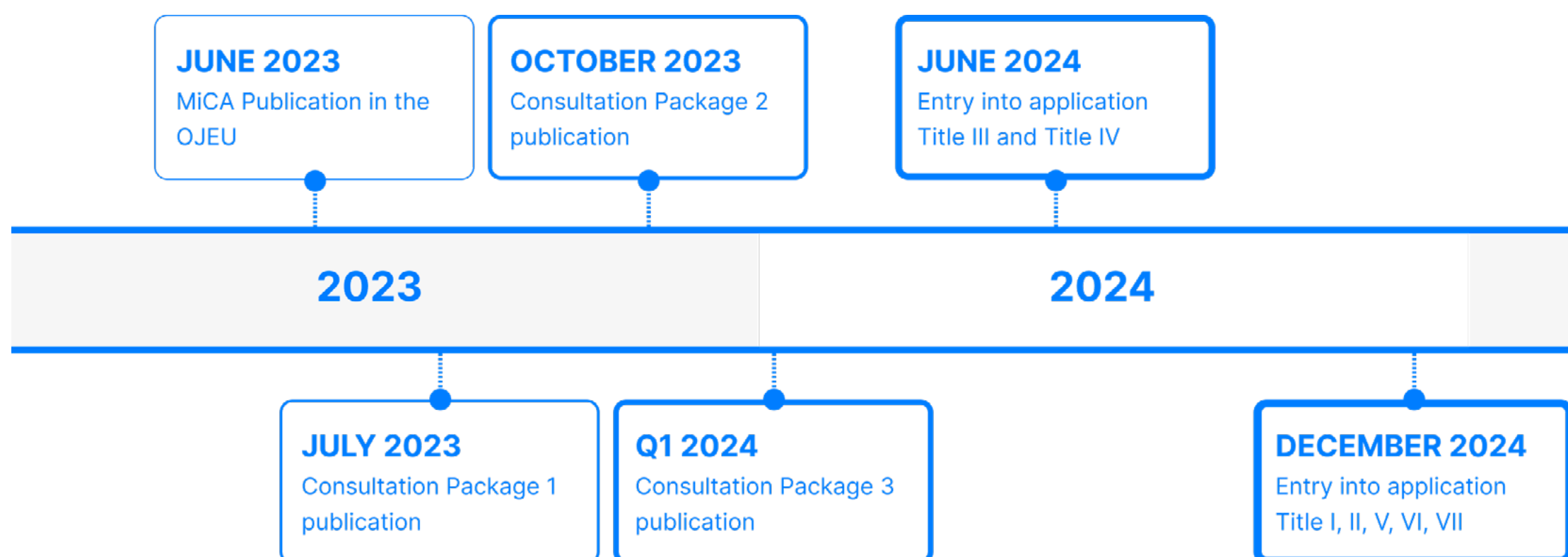
MiCA marks a significant milestone in the regulation of digital assets within the European Union. [Initially proposed](#) by the European Commission in September 2020 as part of the [Digital Finance Package](#), MiCA aims to provide clarity and legal certainty to the crypto asset market.

Years of intense debate followed, until the European Council [approved MiCA in May 2023](#). As law firm [Baker McKenzie wrote at the time](#), “MiCA brings a substantial change to the EU regulatory landscape, creating a harmonised regime in terms of issuance and the provision of services in relation to crypto assets, consistent with the international reach of this technology.”

The regulation [entered into force](#) in June 2023, although the bulk of its provisions will not apply until December 30, 2024. The European Securities and Markets Authority (ESMA) drafted most of the legislation, with input from the EU, although national governments are responsible for enforcing MiCA.

In France, for example, the financial regulator, Autorité des marchés financiers and banking authority, the Autorité de contrôle prudentiel et de résolution will collectively supervise the digital assets industry using MiCA's provisions. Germany's Federal Financial Supervisory Authority (BaFin) will act as MiCA's enforcer in Germany. [In other countries](#), including Slovakia and Hungary, the task falls to central banks.

GRAPH 10. MARKETS IN CRYPTO ASSETS REGULATION, MiCA



Source: ESMA

MiCA's primary objectives are to protect investors and consumers, foster innovation, and ensure market integrity by providing common definitions and rules for digital assets. It sets the bar for companies seeking to do business within the bloc, with a comprehensive list of requirements registered businesses must meet in order to gain a licence to operate in the EU.

By establishing a comprehensive regulatory framework, MiCA addresses the risks associated with digital assets while promoting a robust and transparent market. The bloc's approach also streamlines regulations across its 500m-strong single market, one of the world's wealthiest and most valuable. This should, in theory, underpin confidence in the market and attract viable, transparent, and legal investment into the sector.



Initial reception

MiCA has been welcomed by many in the industry because it clearly defines crypto assets, including stablecoins. In a June 2024 [research paper](#), Bocconi University law professor Francesco Paolo Patti offered praise because “European legislation has now established a modern and comprehensive framework that may set a benchmark for global regulatory approaches. Of note is the decision to develop a distinct regulatory regime, separate from traditional financial law. This approach reflects an understanding of the unique characteristics of blockchain technology and the importance of facilitating its growth without imposing undue restrictions.”

Patti contrasted this favourably with the US, where “the legal system often applies existing securities laws to token offerings. While this approach is based on well-established legal principles, it does not always fully account for the novel aspects and potential of digital tokens.”

MiCA’s own scope is less well-defined, however, and the regulation has also faced criticism for being overly burdensome to some segments of the market.

Stablecoins are a key focus of MiCA, with the regulation providing definitions for asset-referenced tokens (ARTs), e-money tokens (EMTs), and utility tokens.

ARTs are crypto assets that reference multiple assets, including fiat currencies, commodities, or other crypto assets, to stabilise their value. EMTs are defined as digital assets that reference a single fiat currency and function similarly to electronic money.

Utility tokens, meanwhile, are defined as digital assets that provide access to a specific application or service provided by the issuer. This is a more nebulous concept, which has led to some confusion.

MiCA was originally drafted [in response](#) to Meta CEO Mark Zuckerberg’s 2019 announcement that Facebook planned to launch a digital currency called Libra, later renamed Diem. It stands to reason, [noted commentator Ryan King](#), that a huge amount of the legislation would be devoted to stablecoins.

But while King praised MiCA for its straightforward and “well spelled-out” definitions of EMTs and ARTs, he called into question the rules for utility tokens.

“In their rush to place regulations on EMTs/ARTs, the EU seems to have left very little in terms of specific rules for utility tokens.”

— Ryan King, digital assets commentator

“In their rush to place regulations on EMTs/ARTs, the EU seems to have left very little in terms of specific rules for utility tokens. We know at present that a licence will not be required to issue a utility token, unlike an EMT/ART. But beyond that, MiCA requires issuers of utility tokens to follow many of the same burdensome rules, such as whitepaper writing and issuing to National Competent Authorities,” he wrote.

Defend and protect

King was referring to MiCA requirements for stablecoin issuers and crypto asset service providers (CASPs). Under MiCA, the former must adhere to strict requirements which include holding enough reserve assets to cover the value of issued tokens and guaranteeing redemption rights for token holders.

Furthermore, stablecoin issuers must publish detailed white papers disclosing relevant information about reserve assets, redemption mechanisms, and the stablecoin’s operational framework.

CASP, meanwhile, is a broader category comprising exchanges, wallet providers, and service providers for these companies. Crucially, [Recital 22](#) of MiCA states that if crypto asset services are provided in a fully decentralised manner, without any intermediary, they fall beyond its scope.

CASPs that do fall under MiCA’s scope must obtain authorisation from their relevant national regulatory authorities to operate within the EU, in addition to meeting strict capital requirements, implementing robust security measures, and maintaining transparent operational procedures.

Consumer protection measures enshrined in MiCA include a cooling down period in which consumers have the right to withdraw from purchasing crypto assets, as well as requirements that all marketing material provides fair, clear, and accurate information to potential investors.

CASPs must also undergo regular audits, complete compliance reporting, and adhere to stringent anti-money laundering (AML) and counter-terrorist financing (CTF) regulations. Due diligence and know-your-customer (KYC) procedures are mandatory for CASPs onboarding new users. Providers must also monitor transactions and report suspicious activity.

To bolster the regulatory framework, the EU also [established](#) the Anti Money Laundering Authority (AMLA) in January 2024. [AMLA](#) introduces new standards and guidelines to enhance existing rules, specifically targeting the digital asset sector. Under AMLA, CASPs must perform rigorous customer due diligence, ensuring the continuous monitoring of verified identities and the reporting of suspicious transactions.

Non-compliant CASPs face penalties of up to 10% of their previous annual turnover, or €10m, whichever is higher. AMLA will oversee 40 high-risk financial institutions by 2026, [according](#) to a February 2024 report in *DL News*. Smaller crypto companies, while not directly under AMLA's purview, will be supervised by domestic financial intelligence units.

Challenges

Although these stringent conditions have won praise as a viable effort to prevent bad actors from committing crimes, the regulation has also faced strong criticism for being too onerous, too complex, and for failing to provide clear guidance in some segments.

For example, an [April 2024 report in DL News](#) found that EMTs had been defined twice in MiCA – once as a type of crypto asset, and once as equivalent to digital cash or electronic money itself. Bitstamp, one of the largest crypto exchanges in the industry, warned that it had “mitigating plans in place to delist coins if issuers are not regulated by June 30,” according to the report. Bitstamp was acquired by American firm Robinhood in early June 2024.



An added challenge to stablecoin growth in the EU is that financial institutions handling electronic money fall under more burdensome regulations for payment services than CASPs do. Mark Foster, EU policy lead at the lobby group Crypto Council for Innovation, echoed Bitstamp's concerns, warning that onerous rules would push firms to seek other jurisdictions.

“This is a global industry, with still relatively limited rules and regulations at global level. Whilst many jurisdictions are seeking to develop their own regimes, potential divergences lead to unlevel playing fields, arbitrage, and a lack of interoperability. Having to design different systems, products, and services to abide by diverging geographical specific rules increases costs for end-users and complicates matters technically,” Foster told DL Research.

Confusion and complexity have led some in the industry to reject the notion of regulation entirely. In June 2024, for example, Ledger's global head of policy, Seth Hertlein, [criticised MiCA](#) for strangling innovation in the EU, and warned that the bloc will lose the battle for Web3 dominance if it does not take a more hands-off approach (see [Innovation](#) chapter).

Grey area: Centralised vs Decentralised

Grey areas are also a cause for concern, most notably because MiCA applies only to centralised and partially decentralised services. The definition of “partially decentralised” is problematic for many segments of the industry, for example automated market makers (AMM).

In decentralised finance, liquidity pools allow users to trade assets. They contain a pair of assets, for example Ethereum's ETH and the stablecoin Tether's USDT.

AMM protocols dynamically compute the prices of assets in liquidity pools, adjusting prices based on a pre-set ratio. The adjustments are automated and based on a mathematical formula. Investors, or liquidity providers, contribute assets to liquidity pools. In exchange, they earn a portion of fees collected from investors trading against the pool. Earnings are proportional to the amount invested.

Lexology highlighted the problem with AMMs and MiCA in a [September 2023 analysis](#). AMM protocols normally operate in a “fully decentralised environment,” meaning they fall outside the scope of MiCA. But MiCA applies to crypto asset services that are partly performed in a decentralised manner.

According to the research firm, “The exact criteria triggering the application of MiCA in case of ‘partial’ centralisation of the services ... remain less defined, leaving room for regulatory interpretation.”

Some AMMs trade crypto assets that qualify as financial instruments, with a central order book or, crucially, matching orders under other trading models. These would qualify as multilateral trading systems under separate EU regulations, the [Markets in Financial Instruments Directive](#), or MiFID II.

Furthermore, AMMs’ lack of a clearly identified operator and reliance on self-executing pieces of code raises more questions.

As Marcel Thiess, a European regulatory compliance consultant detailed in a [January 2024 analysis](#), AMMs are required to publicly disclose specific pre-trade information, including the mathematical equation used to determine the price and quantity of crypto assets liquidity pools. Also required: “any further information and parameters that determine the price at which a specific order would be executed.”

Thiess warned, however, that “it is currently unclear what other information ... should be provided to enable market participants to determine the price of assets offered in the liquidity pool.”



Across the channel

In the UK, the latest [FSMA](#) was [enacted](#) in June 2023, replacing previous iterations of the act dating back to 2000. A key aspect of FSMA 2023 is its inclusion of digital and crypto assets for the first time.

Drafted by the UK Treasury, FSMA applies to most activities related to digital assets within the UK, including issuance, trading, custody, and advisory services. The Financial Conduct Authority (FCA), the UK's financial regulator, is responsible for [issuing licences](#) to compliant cryptoasset firms, ensuring that these platforms operate within a regulated framework.

Under the act, crypto assets are defined as digital representation of value or rights secured by cryptography, capable of being transferred, stored, or traded electronically, including through technologies like blockchain.

FSMA defines stablecoins as digital settlement assets. Issuers must obtain authorisation from the FCA and adhere to operational, transparency, and reserve asset requirements. The Treasury is empowered to amend this definition in the future, allowing for regulatory flexibility in response to technological and market developments.

Controversially, the Treasury has stated that FCA authorisation will be required for any person, legal or natural, who is providing services regulated by FSMA “in or to” the UK. As law firm Simmons & Simmons [explained in October 2023](#), “This is broader than the position in relation a lot of traditional finance, and obviously brings all crypto asset service providers within scope of the UK regime to the extent that they have a customer based in the UK.”

Falling behind

FSMA is important because the UK is in fierce competition with the EU to attract and retain financial services investment post-Brexit. But the country has been slower than the EU to implement its proposed regulations.

This might explain the recent decline in digital asset investment in the UK: [the FCA's crypto asset firm registry](#) shows that 233 out of 344 crypto asset companies have withdrawn their applications to operate in the UK since 2020. In contrast, more than 1000 companies registered as virtual asset service providers, another term for CASPs, in the EU last year (see [Economic Impact](#) chapter).

The Crypto Council for Innovation estimates the UK is at least 18 months behind the EU in terms of regulation (see Q&A section), and detailed regulations for the digital assets industry under FSMA have yet to be made official. Originally [scheduled for release in early 2024](#), the regulations were delayed until June or July 2024, [according to a report in CoinDesk](#). But upcoming elections have further dampened the outlook.

As [DL News reported in June 2024](#), the UK's snap national elections have thrown the timeline into doubt once more, with a delay of at least six months expected after the July 4 vote.

The outlet further reported that the Labour Party, which is widely expected to win, is unlikely to be a major proponent of cryptocurrencies – though Rachel Reeves, a top contender to become Chancellor of the Exchequer, has spoken favourably about tokenisation and central bank digital currencies.

GRAPH 11. RECENT DECLINE IN DIGITAL ASSET INVESTMENT IN THE UK



Source: FCA Crypto Asset Firm Registry

High stakes

One area where the UK could gain a competitive advantage against the EU is in staking. A notable oversight of MiCA is that it does not provide specific regulations for staking services.

As highlighted by [the law firm Plesner](#), liquid staking tokens in the EU could be considered debt instruments, and would therefore fall under the purview of MiFID II:

“The staked tokens are comparable to the original purchase price of a bond. The ‘staking yield’ received by the original holder of the token is comparable to the interest payment and return of the staked token is comparable to the repayment of principal. The secondary trading and ‘use’ of the liquid staking token have many similarities with the secondary market for bonds in either trading, lending or use as collateral,” wrote the firm in a March 2024 analysis.

The UK appears to view staking differently, and in October 2023, the Treasury proposed defining staking as a process where a given amount of crypto assets are locked up, or staked, on chain, in order to activate validator nodes and achieve consensus on the network's current state. Simmons & Simmons described the Treasury's confirmation that staking would generally be considered a technical function, rather than a financial services activity, as "helpful."

Switzerland is already leading the way in terms of staking. The Swiss Financial Market Supervisory Authority (FINMA) [has provided explicit guidance](#), stating that staking service providers do not require a banking licence, provided they meet specific operational and security conditions.

Outlook

MiCA and FSMA both represent a significant step towards standardising the regulatory landscape across Europe. Their arrival bodes well for the future of digital asset development in Europe, with the EU in particular standing to benefit from being a first mover in regulating the sector.

Both jurisdictions will face challenges, and overregulation runs the risk of driving businesses to establish operations in unregulated jurisdictions. But lack of regulatory certainty appears to be the bigger challenge, at least when comparing the number of businesses abandoning efforts for regulatory approval in the UK, versus the number of new digital asset service providers that set up shop in the EU last year.

Zooming out, a more significant challenge to European regulatory dominance could come in the form of the US election cycle, with both American political parties now moving to make concessions to the digital assets industry in an effort to woo voters.

Should the US adopt a more favourable position towards the digital assets industry, companies that have flocked to Europe may reverse course and rush to establish operations across the Atlantic. Efficient implementation of clear, fair standards will be essential for Europe in the near and medium term.

 DLResearch

The State of Digital Assets in Europe

CHAPTER 3

Innovation

Mark Foster

EU Policy Lead

Crypto Council for Innovation



What are the most significant regulatory challenges facing Europe's digital assets industry?

The EU has been at the forefront of developing a legislative and regulatory regime for digital assets. For example, the legal certainty and accompanying passporting rights which will be available when the EU's landmark Markets in Crypto assets (MiCA) legislation becomes applicable is very much welcomed by the industry.

This contrasts with the legal vacuum in the US currently being filled with a patchwork approach at the state level and further opacity stemming from the regulation by the US Securities and Exchange Commission by enforcement.

However, the detailed secondary legislation remains a work-in-progress in Europe. If those rules prove to be too prescriptive or burdensome, that will have a chilling effect on the EU's nascent ecosystem development, driving firms elsewhere or offshore.

A good example is the unfortunate cap on non-euro denominated stablecoins included in MiCA, which, in practice, will be extremely difficult to comply for market operators and equally difficult to enforce for EU authorities. It also needlessly places an arbitrary ceiling on the overall size of the market.

Other regulatory challenges of note include long, and often divergent licensing processes across and between EU member states' national competent authorities and even something as basic as accessing banking services, as banks worry about regulators' perceptions of them having crypto firms as clients.

What effects could a tokenised real-world asset (RWA) market have on traditional markets and legacy companies in Europe?

I have noticed an ever-increasing interest in, and presence at, digital asset conferences in Europe from TradFi actors of late, with tokenisation the primary element of focus for traditional markets. Banks and financial market infrastructure (FMI), in particular, seem to be investing heavily.

For banks, tokenisation brings opportunities in terms of leveraging their deposit bases and freeing up liquidity, as well as balance sheet and treasury management. Deep and broad established client relations also provide a ready-made customer base for investment products, asset, and wealth management services. Established

supervisory relationships also puts traditional actors in a more favourable position.

For FMs, the biggest advantages in embracing distributed ledger technology (DLT) and RWA listing comes via improvements over legacy, non-DLT systems such as instant settlement, increased transparency and improvements in trading and execution.

Which sectors could benefit the most from a decentralised network of physical infrastructure (DePIN)?

Sectors that traditionally require enormous upfront investments (financially and physically), that are operationally complex geographically—characteristics that have, up until now, created moats for entrenched monopolies—are ripe to be disrupted by DePIN. Utilities, data centres, and telecommunications are some examples.

Other sectors that could benefit include those with a high level of demand for a physical resource that is not efficiently fulfilled by the corresponding supply chain.

The supply of GPU computer hardware is a good example. There is currently a huge demand for GPU chips due to their importance in supporting AI processing. DePIN is proliferating in other areas as well, such as wireless networks, file storage, and energy supply systems.

What challenges are currently hindering DePINs from reaching their maximum potential, and what steps can be taken to mitigate these challenges?

DePINs have a wealth of potential benefits in terms of more direct (and therefore private) control for citizens over their own data and resources. Of course, one of the main challenges of such disintermediated disruption is the traditional, intermediated financial system, which, let's not forget, is a powerful political lobby given the job and

wealth creation (and tax contributions!) these firms make.

Another challenge, as I see it, is managing risks around illicit actors who may try to exploit access to DePIN. This is not an insurmountable problem but does require openness and dialogue on the part of the public authorities.

It also requires an appreciation on the part of the private sector to accept some friction, oversight, and liability to offer the comfort policymakers need to ensure the technology is actually constraining rather than being perceived as facilitating financial flows to illicit finance activities.

Dimitrios Psarrakis

Co-founder ValueVerse
Member, Board of Directors,
Global Blockchain Business Council



What regulatory challenges and technical challenges do real-world asset crypto companies in Europe face, with respect to the tokenisation of financial assets?

I believe there are three major challenges: First is the difficulty to form solid business cases informed by good economics. The promise of blockchain is already well-evidenced and companies' innovation departments are enthusiastic about the prospects.

However, the CEOs and the boards of directors do not make decisions based on the enthusiasm of the innovation departments. They need cost-benefit analyses and clear calculation of the effect of risks on the balance sheet. Not one company is doing this, and as long as there is not a clear path between the blockchain project and business case, the transition from proof-of-concept to proof-of-value will not be easy.

The second problem is the level of understanding around

the operational efficiency and resilience of different blockchain options. There is a constellation of blockchain protocols and technology options, as well as people pushing for the adoption of their solution. However, there is not a clear, independent, and trustworthy player to make an informed analysis of the different options for businesses to link those options with their idiosyncratic business and operational models.

The third challenge is the regulatory aspect that impacts each jurisdiction differently. There are already major jurisdictions who adopted a clear regime, like the EU, but other major players, including the US and UK, are still developing their solutions. This regulatory uncertainty prevents businesses from taking technological risks before a solid legal framework is in place.

How are crypto companies adjusting their operations and compliance strategies in response to the Markets in Crypto assets (MiCA) Regulation?

MiCA has only been recently adopted. The regulation is expected to be accompanied by a text of 500-600 pages called 'Regulatory and Technical Standards'. This is the manual that will show how businesses, and the supervisory authorities, will implement MiCA.

Some parts of the technical standards are already out, including those for issuers of electronic money tokens and asset-referenced tokens, in preparation for June 30, when MiCA comes into force for the stablecoins of Title 3 and 4. The rest will be published later, but prior to December 30, 2024. Businesses are already building their solutions based on the wealth of information they have collected, but significant questions still need to be answered.

What significant changes regarding consumer protection and market stability does MiCA bring?

Investor and consumer protection in the case of MiCA is very straightforward. People get a clear understanding about the regulated crypto assets and the responsibilities of the service providers. They also understand how the supervisory authorities implement the prudential part of the regulation.

In a nutshell, MiCA provides a clear set of legal clarifications about the nature of the tokens and the services, the risks associated with them, the payment structures of their investments and the path of how to leave through the redemption process. It is very important to stress, however, that the regulation does not substitute the responsibility of the investors to perform their own due diligence.

What effects could a broader tokenised financial assets market have on traditional markets and legacy companies involved?

From a financial economics point of view, tokenisation can be affected by moving down the long-run cost curve of an asset and shifting the demand curve to the right by generating network effects. This expands the “value space” of an asset.

A major breakthrough is the creation of information sensitive, or “smart assets”. A bank or financial institution needs to have information-sensitive assets and a blend of tokenisation with smart contracts, oracles, and Machine Learning to generate those smart assets. On the liability side of the balance sheet, you can use exactly the same technological blend to control the information flow of financial liabilities.

At a practical level, tokenisation of assets brings us to a new era of asset and liability management, where the banker can control the “smart-ness” of the assets and the dumb-ness of liabilities.

Furthermore, liquidity improvements, the reduction of market frictions, and the gradual transformation of book policies that move from bid and ask to liquidity pools, is expected to affect the value of illiquid assets.

I always use three numbers to make this point precise: 36, 120, 56. These are trillions of dollars. The first, \$36 tn in illiquid private equity, the second, \$120 tn is illiquid private debt and the third, \$56 tn is illiquid real assets, real estate, and commodities. These are the first candidates for tokenisation.

The expectation is that in the ensuing decade, assets will be of two kinds: on-chain and off-chain, and that the owners of off-chain assets will be forced to sell and trade them at a discount.

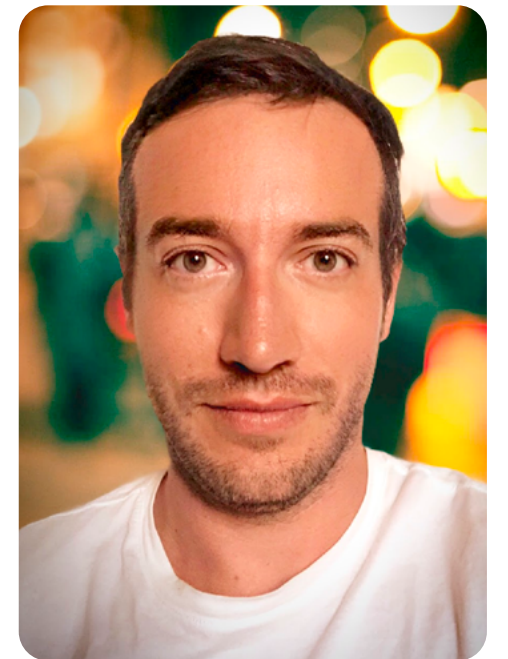
Lamine Brahim

Co-founder,
Managing Partner
Taurus SA



JP Aumasson

Co-founder,
Chief Security Officer
Taurus SA



■ How are Swiss-based crypto firms preparing for the Markets in Crypto assets (MiCA) Regulation, and what challenges might they encounter as a non-EU member state?

Lamine Brahim: MiCA may make serving EU-domiciled clients more cumbersome, including on a reverse-solicitation approach. Swiss-based firms with international ambition are setting up subsidiaries in the EU.

Taurus has been approved to open its regulated marketplace tokenisation platform, TDX Marketplace, to retail investors. What were the key challenges the company overcame to secure approval from the Swiss Financial Market Supervisory Authority?

LB: Since Taurus's inception in April 2018, it has been focusing on building a robust organisation with institutional-grade technology, and processes. The challenges were multi-dimensional, and the bar was very high.

To name a few: we had to show to the regulator and our auditor that Taurus is ready from a technological and security standpoint, compliance, and anti-money laundering standpoint, and finally from an investor protection perspective.

Tokenised real-world assets (RWAs) represent a novel financial paradigm. How is Taurus educating retail investors about the potential of this product?

LB: By working with reputable companies and investing a lot in education. When we collaborate with issuers that are tokenising assets, we typically co-create dedicated communications such as webinars, written FAQs and live Q&As with their end-user communities.

This has proven to be very efficient, as it is critical to explain the benefits and risks of tokenisation, as well as the main differences between tokenised RWA and initial coin offerings.

What blockchain innovations is Taurus using or developing to enhance the security and efficiency of tokenised RWAs?

JP Aumasson: Taurus invests a significant amount of time and resources defining and improving tokenisation standards, in collaboration with our peers at the Capital Markets and Technology Association, where I chair the technology committee. Several standards in the areas of tokenisation, smart contracts, and custody were published and are used on a daily basis by the Swiss financial industry at large.

At a company R&D level, our team is at the forefront of two innovations in that space. First, regarding blockchain interoperability: we've created and open-sourced smart contract software that uses state-of-the-art bridge technology to send a token from a blockchain A to blockchain B at minimal cost.

Second, with respect to privacy, if you tokenise an asset today on a public blockchain, anyone in the world can see when a token is transferred, including the sender address, recipient address, and amount.

We want to resolve that privacy problem by creating private security tokens, leveraging zero-knowledge proof systems. With such a system, we can protect the privacy of RWA holders while retaining all the compliance guarantees.

[What are Taurus's expansion plans for the TDX Marketplace? Who is the next target demographic beyond retail investors?](#)

LB: Indeed, retail, professional, and institutional investors can now access and trade the full spectrum of digital securities accepted on TDX in a secure and compliant manner. We are working with some of our technology clients (mainly banks) to allow them to tokenise and distribute some of their deals through TDX. Some groundbreaking transactions are being worked out as we speak.

In parallel, we continue investing in the product to create the best user experience as well as broadening our offering with high-quality issuers across different asset classes: equity, debt, funds, and structured products. A new mobile app is also coming in 2024.

Innovation

Though it lacks the tech billionaires and headline-grabbing deals of the US and Asia, Europe has quietly risen to become a significant hub for innovation in cryptocurrencies, tokenisation, and blockchain technology.

Digital asset innovation in Europe is underpinned by a surge in entrepreneurial activity and considerable financial backing, with investment and deals slowly recovering after a challenging crypto winter. The tokenisation of real world assets (RWA), in particular, holds high potential for future growth.

Public support for innovation is also strong at the European Union (EU) level. Billions of euros are being funneled into blockchain development, RWA tokenisation, and, controversially, the digital euro. These investments are not only reshaping the European digital assets landscape, but are also setting new global standards in technology and financial services.

Innovation Investing

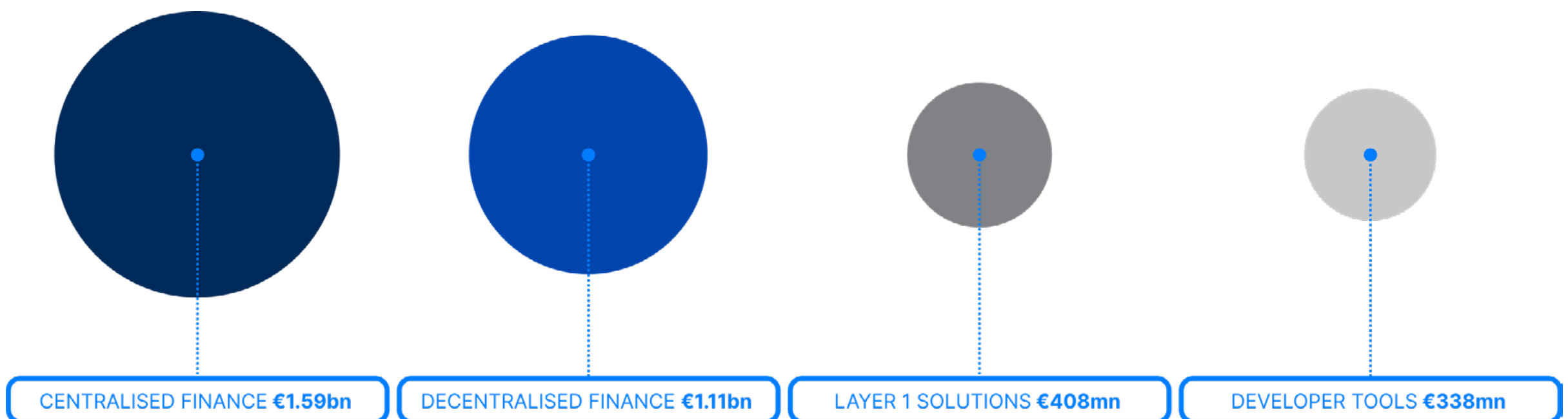
Europe's digital assets industry is smaller than that of the US or Asia (see Economic Impact chapter), although the continent has positioned itself as a rising hub for digital asset and blockchain innovation, with investment gradually recovering after a challenging couple years.

[In a March 2023 report](#), crypto investment firm RockawayX found that global VC funding for the digital assets industry reached €29bn in 2022, with €5.3bn invested in Europe – a record level for the continent, at nearly 20% of total global funding.

Projects offering financial products and services received the majority of investments, totaling €2.7bn. Centralised finance (CeFi) attracted €1.59bn, while decentralised finance (DeFi) projects garnered €1.11bn. Blockchain infrastructure investments amounted to €1.67bn, with Layer 1 solutions and developer tools receiving €408m and €338m, respectively.

European VCs are closely following their US counterparts, contributing 32% of European startup investment capital, compared to the US's 40%, according to the report.

GRAPH 12. FINANCIAL PRODUCTS, FINANCIAL SERVICES AND BLOCKCHAIN INFRASTRUCTURE INVESTMENTS

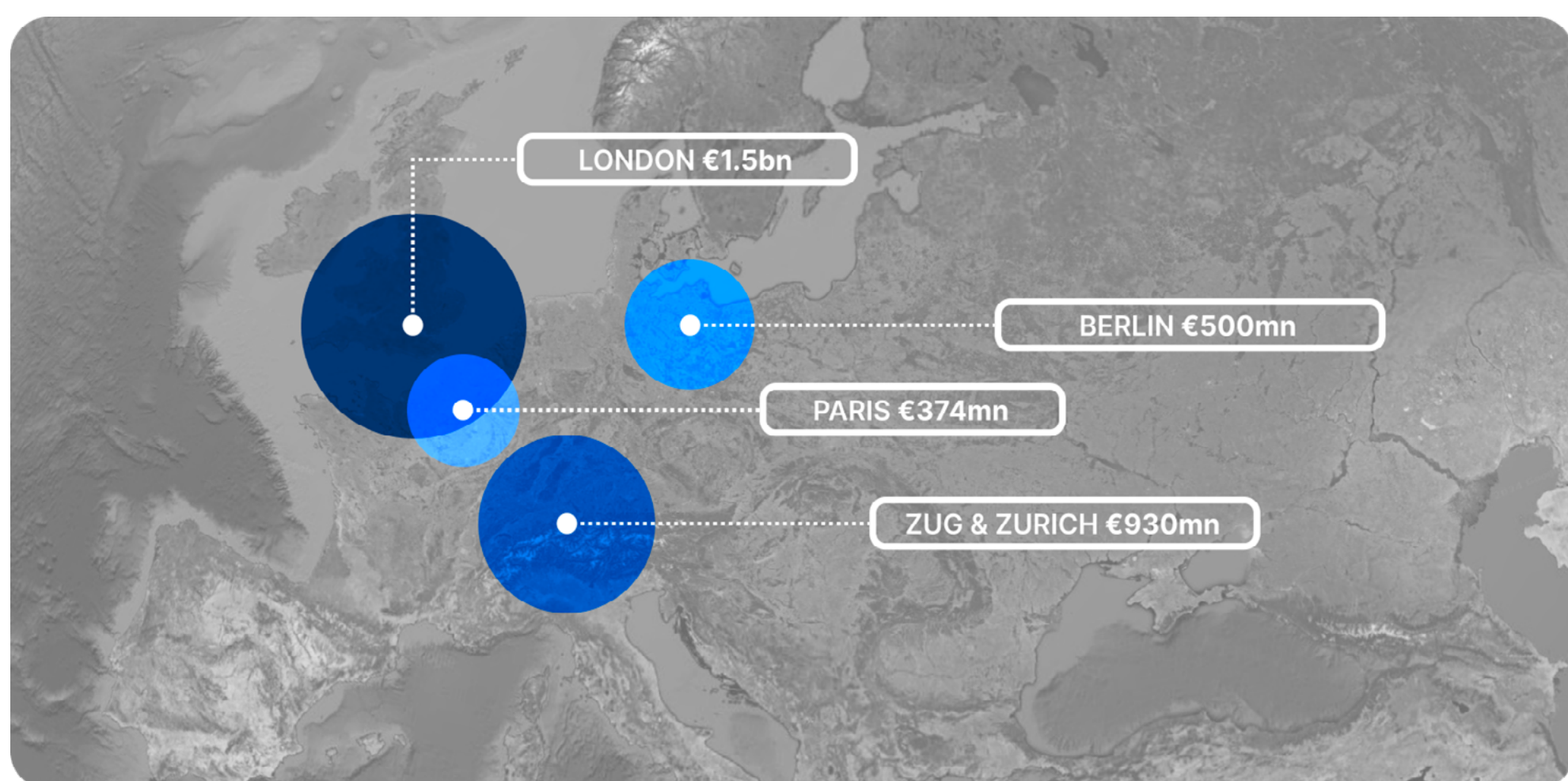


Source: RockawayX

The UK was a dominant force in European digital asset innovation in 2022, with RockawayX reporting that London-based firms led with €1.5bn in investments, followed by firms in Zug and Zurich, collectively known as Crypto Valley, with €930m. Berlin and Paris pledged €500m and €374m, respectively, although Paris experienced a significant 67% drop in funding.

2023 was a challenging year for the entire tech sector, and digital assets were particularly hard hit. [According to Crunchbase](#), overall funding for European startups fell from €80bn in 2022 to €48bn in 2023, driven by cuts in late-stage funding.

GRAPH 13. MAIN FORCES IN EUROPEAN DIGITAL ASSET INNOVATION



Source: RockawayX

Although technology funding increased slightly from €4.2bn to €4.7bn, indicating a continued digital transformation within European companies, the digital assets sector suffered a major slump.

[Galaxy Digital reported](#) that the global digital assets industry recorded just \$10bn of deals in 2023, from more than \$30bn in 2022. Of this, nearly 40% involved a US-based crypto start-up, according to the company. Using RockawayX estimates of European digital asset VC market share, Europe would have accounted for less than €2bn of deals in 2023 – a y-o-y decrease of more than 60%.

[The industry has shown signs of recovery in recent months](#), however, with VCs closing 36 European blockchain company funding rounds in Q1 2024, against just 16 in Q4 2023. Total funding for the sector hit \$302m in Q1 2024, against \$294m the previous quarter, according to Dealroom.

Public investment is also supporting innovation efforts in the EU.

Public Support

Through strategic funding and regulatory initiatives, the EU is positioning itself as a leader in digital asset innovation.

The European Commission [launched its blockchain strategy relatively early](#), in 2018, emphasising environmental sustainability, data protection, digital identity, cybersecurity, and interoperability. One main goal of the strategy is establishing a “gold standard” for blockchain technology across the continent, underscoring ongoing EU efforts to regulate the sector.

To achieve this goal, the [European Blockchain Services Infrastructure](#) (EBSI) launched in 2021. The EBSI aims to create new infrastructure for cross-border transfers of digital assets, in addition to establishing use cases between EU member states. In the same year, the European Central Bank (ECB) began investigating central bank digital currency (CBDC) development.

The EU has also highlighted investment and partnerships with the private sector to advance its digital assets innovation goals. For example, in a 2019 research paper, [“Blockchain Now and Tomorrow,”](#) the European Commission identified a narrow investment gap between blockchain startups in the EU and those in other regions, including the US and China.

Between 2009 and 2018, US companies received the most investment at €4.4bn, followed by Europe with €2.9bn, and China with €2.8bn. This gap was relatively narrow because Europe was a hotbed for Initial Coin Offerings during the mid-to-late 2010s, accounting for 60% of the region’s blockchain industry financing.

However, the investment gap for artificial intelligence (AI) in the EU was significantly larger. The US led AI investments with €14bn to €21bn, followed by Asia with €7bn to €11bn, while the EU lagged behind with only €2.7bn to €3.7bn.

To address this, the European Commission developed an AI and blockchain investment fund to provide equity investments in AI and blockchain-focused startups and small-to-medium enterprises. During phase one (2020 to 2021), investments totaled between €400m to €500m. Phase two, running from 2021 to 2027, aims to scale the fund from €1bn to €2bn.

Several additional initiatives fund the EU's blockchain strategy, including the Horizon Europe programme for research and innovation, the [Digital Europe Programme](#), and the CHAISE Project for blockchain skills development (see [Education](#) chapter).

The Horizon 2020 program, which preceded Horizon Europe, also provided approximately €180m in grants for blockchain innovation between 2016 and 2019. As of March 2023, European blockchain project funding totaled €348m, according to the [EU Blockchain Observatory and Forum](#).

More recently, the European Commission launched the [Tokenise Europe 2025 initiative](#), in partnership with the Association of German Banks, in February 2023. The initiative aims to promote adoption of RWA tokenisation, a segment with extremely high potential for future growth in Europe (see below).

More than 20 private firms have joined the initiative, including BBVA, Commerzbank, Deutsche Bank, Santander, Daimler Trucks, Renault, and Repsol. In a 2023 survey, the initiative found that two-thirds of European businesses believe tokenisation is relevant to their organisation.

Major efforts are also underway to invest in the development of a CBDC, the digital euro, though this has led to some controversy.

GRAPH 14. INCREASE OF AI AND BLOCKCHAIN-FOCUSED STARTUPS INVESTMENT FUNDS BY EUROPEAN COMMISSION



Source: European Commission

CBDC Controversy

In January 2024, the European Central Bank (ECB) made headlines with the announcement that it will invest more than €1.2bn to support CBDC development.

The bank plans to pay private sector partners to build an app for the digital euro, create offline payment solutions, and manage fraud, according to a [report in DL News](#). Offline payments will receive the largest share of investment, at €662m, followed by risk and fraud management, at €237m.

However, the ECB raised eyebrows when it simultaneously announced that it was “not making a commitment to launch any of the development work listed,” prompting some commentators to question why it would invest so much in a project that may never come to fruition.

“Many consumers want to avoid a Big Brother scenario where the central bank would be able to digitally track their spending with CBDCs.”

It was the latest of several controversies facing CBDC development in Europe. Many in the digital asset industry view CBDCs as anathema to a core tenet of crypto, that is, privacy. As *DL News* highlighted, “Many consumers want to avoid a Big Brother scenario where the central bank would be able to digitally track their spending with CBDCs.”

Others have expressed concerns over whether a CBDC is wanted or needed, given recent high-profile failures in Nigeria and Japan.

Nonetheless, the ECB’s foray into the digital assets industry is a positive sign for an institution that continues to view the digital assets industry with suspicion – most recently in a February 2024 blog post where it described Bitcoin as a “failure.” Bitcoin prices rose from around €47,400 on the date of the blog’s publication, to hover around €65,000 as of mid-June – a gain of nearly 40%.



GRAPH 15. BITCOIN PRICES FROM FEBRUARY TO MID JUNE (GAIN OF NEARLY 40%)



Source: Google Finance

Digital Assets IRL

Beyond CBDC and cross-border payments, tokenisation of real world assets (RWA) hold considerable potential for future growth in Europe – and could become the most valuable use-case for the digital assets industry on the continent.

Europe's tokenisation market is expected to [grow to €3.7bn \(€3.4bn\) by 2032](#), according to an April 2024 report by Astute Analytica, with growth driven by activity in sectors including real estate, banking, financial services, insurance, and retail and e-commerce sectors.

The research firm reported that Europe accounted for 25% of the global tokenisation market as of 2022. Perhaps more interestingly, Astute Analytica cited the EU's sweeping legislative package, Markets in Crypto Assets Regulation (MiCA), as a major catalyst for growth since it prioritises innovation, consumer protection, and financial stability (see [Regulation](#) chapter).

"A focus on stablecoins, transparency requirements via whitepapers, and strong consumer protections within MiCA illustrate how the regulation seeks to create a space where both responsible businesses and the everyday investor can thrive," wrote the company.

Others have been more critical of MiCA's potential impact on innovation. After American firm Robinhood announced plans to acquire the European digital asset platform Bitstamp in June 2024, Seth Hertlein, Ledger's global head of policy, attributed the deal to MiCA and criticised the regulation for strangling innovation in Europe.

“In the end,” Hertlein wrote, “MiCA (together with its regulatory constellation) will be yet another millstone the EU hung around its own neck. When it comes to global competitiveness, overregulating is the surest way to lose, and no one is better at it than the EU.”

Despite this gloomy forecast, European efforts to tokenize assets including securities and real estate are already well underway, though they have received little fanfare.

Assetera GmbH became the [first regulated trading platform](#) in the EU for digital securities in March 2022, after receiving a license from the Austrian Financial Markets Authority.

The EU followed suit with a sandbox project, the Distributed [Ledger Technology \(DLT\) Pilot Programme](#) in March 2023. The programme aims to develop a legal framework for trading and settling transactions in crypto assets that qualify as financial instruments on a blockchain. This programme includes a multilateral trading facility and a trading and settlement system.

One participant in the DLT Pilot Programme is asset tokenization firm Securitize, which issued RWA tokens representing [Spanish real estate equity](#) in July 2023, under the supervision of Spain’s securities regulator, the Comisión Nacional del Mercado de Valores. Securitize is the first to release a tokenised security under this pilot.

The pilot is slated to run for three years, though initial reactions have been lukewarm, with just four applicants recorded so far. In an April 2024 project update, the European Securities and Markets Authority (ESMA) explained that the low turnout is partly due to a lack of settlement rails, a challenge that a digital euro could address.

Other challenges include the complexity of business models, ambiguity regarding self-custodial wallets, and a low capital threshold of €500m.



Elsewhere in Europe

But European tokenisation innovation is not limited to the EU.

The Swiss-based Bank for International Settlements (BIS) – the central bank of central banks – unveiled plans for “[Project Agora](#),” in April 2024. This project aims to use smart contracts to expedite services provided by central banks for global financial institutions.

Project Agora seeks to maintain the central bank’s intermediary role by tokenising central bank money (as a wholesale CBDC) and commercial bank deposits to facilitate cross-border payments.

The BIS aims to improve global financial systems’ integration by tokenising money, and by unifying clearing, settlement, and messaging into blockchain ledgers, significantly reducing settlement times and delays.

Participants in Project Agora include the Bank of England, the New York Federal Reserve, the Banque de France, and central banks from Switzerland, Japan, South Korea, and Mexico.

Growing recognition of the potential for RWAs in Europe has also sparked intense interest from the private sector.

In the UK, HSBC made headlines in December 2023 when it launched tokenised physical gold trading on its single-dealer platform, moving ownership records of physical gold onto a distributed ledger.

This followed the [November 2022 launch of the Orion platform](#), a DLT-based bond tokenisation service. When Orion was first unveiled, HSBC announced that the European Investment Bank was considering using it to issue a GBP-tokenised bond under Luxembourg law.

Next up for the bank is a non-crypto digital asset custody service, slated to go live before 2025. The service will be launched in partnership with Swiss digital asset firm Metaco, allowing institutional clients to store DLT tokens representing traditional finance assets, [according to a November 2023 Reuters report](#).

Swiss-based crypto platform [Taurus SA](#), meanwhile, became the first retail tokenised securities trading platform in Europe, after receiving approval from the Swiss Financial Market Supervisory Authority (FINMA) in January 2023.

Founded in 2018 by former executives from Google, IBM, and Bloomberg, Taurus is also a digital infrastructure provider for banks and other financial institutions. [Companies now using Taurus' exchange](#), TDX, include the Investis stock-listed real estate Group, la Mobilière, Qoqa, SCCF Structured Commodity & Corporate Finance, Swissroc real estate Group, and Teylor.

Smart contract software company Digital Asset is also creating an interoperable blockchain network for financial institutions called the Canton Network.

In May 2023, Canton launched a [pilot programme](#) with 30 participating firms, including Goldman Sachs, BNP Paribas, and the Deutsche Börse Group. The Canton Network is a private network hosting dozens of applications for asset tokenization, fund registry, securities lending, and more.

The programme [wrapped](#) up in March 2024, after successfully executing over 350 simulated transactions via the Canton Network Testnet.

Outlook

Through substantial investments and strategic initiatives, Europe is making steady progress towards shaping the future of digital asset development.

The EU's commitment to establishing a gold standard for blockchain technology underscores the importance of creating a secure, sustainable, and interoperable digital infrastructure. Initiatives such as the Horizon Europe program and MiCA could play a pivotal in driving research, development, and investor confidence in this burgeoning field.

VC investment is gradually recovering after an extremely challenging downturn, and private sector investment in high-potential segments including RWA tokenisation bodes well for future growth.

The scale of investment, both public and private, in digital assets and blockchain development in Europe is both impressive and indicative of an oft-overlooked forward-thinking approach. It may get less attention than other, larger markets, but Europe's digital assets industry is quietly advancing a robust, sustainable innovation agenda.

 DLResearch

The State of Digital Assets in Europe

CHAPTER 4

Education

Roman Beck

Head, European Blockchain Center

Full Professor

IT University of Copenhagen



■ How have blockchain education courses and programmes offered by accredited universities evolved recently?

At the European Blockchain Center, the courses and programmes we started teaching were primarily technical education units in PhD seminars, or hackathons where prototypes were developed back in 2016. In doing so, we were able to illustrate the potential of the technology.

Over time, the European Blockchain Center developed courses for IT and non-IT decision-makers at the executive level, PhD courses for computer scientists, and courses for researchers with a business administration or information systems background. Thus, we established a two-semester-long specialisation in our master's

programme at the IT University of Copenhagen with a focus on blockchain economics.

While the offerings in 2016 had to explain the basics, today we have to focus not only on new forms and incarnations of distributed ledger technology (DLT) systems, such as decentralised autonomous organisations (DAOs), web3, or metaverse, but also discuss wallets, oracles, decentralised exchanges, staking-as-a-service, DAO-as-a-service, zero-knowledge proofs (ZKPs) and others, as well as the economic models of those providing such services. Needless to say, the field has broadened significantly.

Our mission as a university is not only to educate students about the technical and economic details, but also to help them develop a decentralised mindset, to develop decentralised business models, and to create decentralised dynamic capabilities. I believe this is the main difference between good blockchain courses at university level, and also excellent, but differently oriented courses provided by industry.

What kind of impact are à la carte programmes having on those interested in a career in DLT or digital assets?

The European Blockchain Center will roll out an online Blockchain Master Class course, where participants can learn about blockchain technology and economic basics. The course will serve as an entry to—if you will—à la carte courses on ZKP, wallets, and so on. In doing so, we assure that all participants are on the same level. The entry course will be a self-guided online course which will allow participants to receive a university certificate when completed.

The subsequently offered, specialised courses are small network online courses to allow for an intensive discourse

on cutting-edge topics, which will result in a university certificate. Naturally, a lot of interest comes from the financial services industry, which is why these courses will also comprise deep dives in tokenisation and digital assets. Former students from our programmes became senior economists at leading blockchain media houses, went to DLT protocol providers as developers or business consultants, or now work for on-ledger data analytics companies. Several students have started their own businesses and have become successful entrepreneurs. We like to believe that our education somewhat contributed to their national and international success.

Where is the future of blockchain education headed?

Blockchain is already on par with AI or cloud computing, a technology and application enabler that enjoys mainstream recognition, with more or less developed programmes at almost all universities. On a technical level, in computer science, we will see a deeper focus on mathematical proofs, the development of benchmark tests, courses on bridges and interoperability, and tokens and their features, just to mention a few areas. In information systems we will see courses that focus on new economic models of decentralised value creation and capture, with emphasis on capture. Overall, courses will be less focused on technical details, but on the potential of semi- or fully autonomous transaction systems based on DLT for new products and services.

Education

Digital asset education is a growing industry in Europe, and demand for certain specialisations is rising quickly, particularly as the graduate job market becomes increasingly competitive.

A core component of blockchain technology, cryptocurrencies, and digital assets in general is a strong DIY ethos. This is evidenced in the education segment with the rising use of open source blockchain data platforms and growing availability of massive open online courses (MOOC).

The private sector, meanwhile, has taken a leading role in education efforts, with tech giants and crypto-centric firms collaborating with universities and industry leaders to configure comprehensive blockchain curricula.

However, universities across the continent are also moving to capitalise on employment trends driven by EU government-sponsored digital skills initiatives and partnerships with leading digital asset companies. These efforts should help meet a growing talent shortfall in areas including blockchain engineering, business management, and cybersecurity.

Crypto curricula

When Bitcoin and Ethereum started grabbing headlines in the early 2010s, educational resources were limited. At the time, teachings focused on the very basics of the industry, for example “What is the blockchain?” or “What is Bitcoin?”

“Personally, I would enrol in a certificate programme at a university, as the probability is high that the institute and brand will stick around for the next couple of decades, which might not be the case for some of the private companies offering courses.”

— Roman Beck, professor at IT University Copenhagen

In Europe, blockchain and cryptocurrency courses were part of PhD seminars and hackathons focusing on technical aspects like mathematical proofs and cryptography. As the sector has grown and matured, however, higher education institutions are increasingly incorporating digital asset and blockchain-related fields of study into their curriculums.

“Personally, I would enrol in a certificate programme at a university, as the probability is high that the institute and brand will stick around for the next couple of decades, which might not be the case for

some of the private companies offering courses,” Roman Beck, professor at the IT University (ITU) Copenhagen and head of the European Blockchain Center, told DL Research.

The University of Nicosia (UNIC), for example, has introduced a handful of blockchain- and crypto-related courses, including MOOCs.

Its programme offerings include a Master of Science in [Blockchain and Digital Currency](#), a Master of Computer Science with a [concentration in blockchain](#), and a Master of Science in [Metaverse](#), as well as certificate qualifications for blockchain financial analysts, blockchain business analysts, blockchain developers, and blockchain regulators.

UNIC was one of the first universities to recognise the potential of blockchain technology, launching some of these offerings as early as 2013.

In Denmark, Beck has spearheaded ITU’s programmes in [Blockchain Economics](#) and [Cryptographic Computation](#) courses, which are taught in the Master’s in [Digital Innovation and Management](#) and Master in [Computer Science](#) programmes.

Elsewhere, Scotland’s University of Sterling developed their [MSc Financial Technology](#) curriculum, which covers blockchain, digital currencies, and other crypto-adjacent topics, with assistance from banking giants including HSBC and JPMorgan.

In Spain, an online-only [Master of Blockchain, Smart Contracts, and Cryptoeconomics](#) teaches Universidad de Alcalá students the economic, social, and legal perspectives of decentralised finance and the greater crypto economy.

And in 2022, the Ludwig Maximilian University of Munich (LUM) established the [Institute for Financial Innovation and Technology](#), where students explore topics such as high-frequency trading, financial data science, and cryptocurrencies while enrolled in LUM’s blockchain-infused [Bachelor](#) and [Master](#) courses.

The European Business School (EBS) in Paris has also incorporated a blockchain curricula into its [Master of Business Administration programme](#). It also offers a three-month postgraduate diploma in artificial intelligence and blockchain.

In the UK, top institutions are also inching towards more comprehensive digital asset-related offerings. Oxford University’s Saïd Business School, for example, [offers a Blockchain Strategy Programme](#). Cambridge University’s Master of Philosophy in Science programme, meanwhile, [offers courses on blockchain and distributed ledger technology](#).

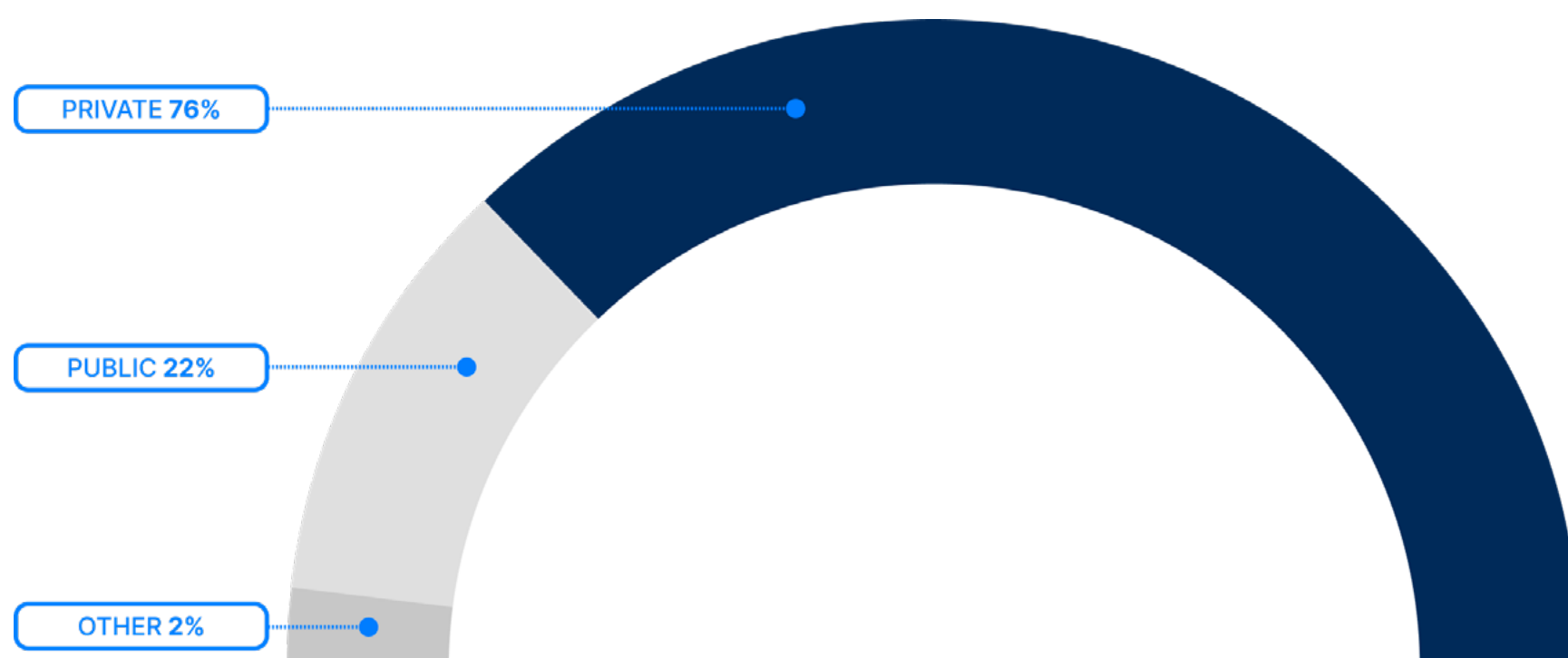
Private sector efforts

Developing post-secondary programmes covering the digital assets industry is challenging, because the industry evolves and grows so quickly. Post-secondary programmes can lag behind industry practices; by the time a course is introduced at a university, its topics may already be obsolete.

This lag has helped smaller academies and the private sector to become a leading provider of digital asset and blockchain education in Europe.

The private sector dominates current blockchain education and training initiatives, according to Blockchain Skills for Europe, with more than 75% of its 255 listed programmes offered by private academies and corporate trainers.

GRAPH 16. PRIVATE SECTOR IN CURRENT BLOCKCHAIN EDUCATION AND TRAINING INITIATIVES



Source: Blockchain Skills for Europe

The extensive array of options can be overwhelming, presenting a challenge for new students to find an appropriate, first-rate course.

“The market has numerous providers of online or hybrid courses which makes it difficult for an outsider to assess the quality of the courses and programmes,” Beck told DL Research.

Partnerships between blue chip corporations and post-secondary institutions could be a green flag, as these offerings are often tailored to real-world gaps in the job market.

For example, IBM has partnered with both ITU and the University of Antwerp to launch blockchain courses tailored to its hiring needs. It has also launched the Skills Academy across fifteen European

countries, providing training programmes and certifications in blockchain technology, as part of its [Digital Skills Playbook for the EU](#).

In partnership with institutions including the University College London and the University of Warsaw, the Skills Academy developed a curriculum emphasising real-world applications like supply chain management and financial services.

IBM's digital credentials are recognised industry-wide, helping students plan for an IBM-specific career in blockchain and fill skill gaps across the European labour market. Candidates are identified early through its [P-TECH programme](#), which offers high school students a direct path to blockchain-related degrees and careers.

Consensys, a blockchain software technology company known for its popular MetaMask cryptocurrency wallet, is also helping advance blockchain education across Europe.

Consensys has partnered with the University of Basel and University of Cambridge to assist with blockchain education efforts. The [Consensys Academy](#), its in-house educational platform, also offers various specialised programmes. The Bootcamp is an intensive programme designed to equip developers with in-depth knowledge of blockchain and Ethereum development.



The [On-Demand course](#) provides flexible, self-paced learning options, while the [Essentials](#) course offers a foundational understanding of blockchain technology tailored to a broad audience.

Consensys also runs the [Consensys Fellowship](#), a programme connecting Ethereum's entrepreneurial and developer ecosystem. The collective hosts hackathons and workshops across Europe while providing resources, mentorships, and funding to participants to accelerate their projects.

Public push

The EU is also getting involved in assessing the digital assets job market and supporting educational programmes for the future workforce. Its most comprehensive initiative to address challenges in blockchain education and skill demand launched in November 2020 as part of the European Blockchain Strategy.

[Blockchain Skills for Europe \(CHAISE\)](#) was created and co-funded by the European Commission's ERASMUS+ programme and a consortium of European and global blockchain leaders. It aims to develop a "future-proof" strategic approach to blockchain education in Europe.

CHAISE has also created a public education skills strategy complemented by private training providers and vocational education and training programmes.

DIY

Historically, the crypto- and decentralised finance (DeFi)- native community has educated itself on blockchain, cryptocurrency, and DeFi topics. Community members openly share data and research across platforms including Discord, Telegram, and X (formerly Twitter). In the place of lengthy campus-based programmes and formal qualifications, they prefer self-paced learning initiatives through industry leaders and the private sector.

Some private sector companies have helped support this trend. Founded in 2018 in Oslo, Dune Analytics made waves in DIY data analysis by enabling the community to create tailored charts and graphs on its platform. Dune also offers detailed guides and tutorials, helping prominent DeFi companies including Optimism and Polygon study on-chain insights and grow their ecosystems.

Students seeking a more structured learning environment have turned to massive open online courses, or MOOCs. These offer a wide range of courses, often free or at a minimal cost, allowing anyone with an internet connection to participate.



Leading MOOC providers such as [Coursera](#), [edX](#), and [Udacity](#) offer a range of blockchain courses. Some have even collaborated with European higher education institutions to provide educational courses on blockchain and digital assets.

For instance, INSEAD, a France-based non-profit school, offers a self-paced [Blockchain Revolution Specialisation](#) course in collaboration with Coursera. The course teaches the basics of blockchain over two months, requiring ten hours of study per week.

While this path won't result in university credit, students can post the shareable certificate they receive upon completing the course on their LinkedIn profile. To date, more than 37,000 students have enrolled in the INSEAD course.

At the EU level, CHAISE's [Mastering Blockchain and Distributed Ledger Technology](#) is a free online course available on the MOOC platform Thinkific.

Supply and demand

With enrolment in digital assets education rising, the job market is becoming more competitive. The recent crypto winter saw more than 13,400 job cuts in the global crypto industry in 2022 alone, according to layoffs tracker [Layoffs.fyi](#). Recovery is underway in 2024, but the next generation of digital asset jobseekers will be competing in a much larger talent pool.

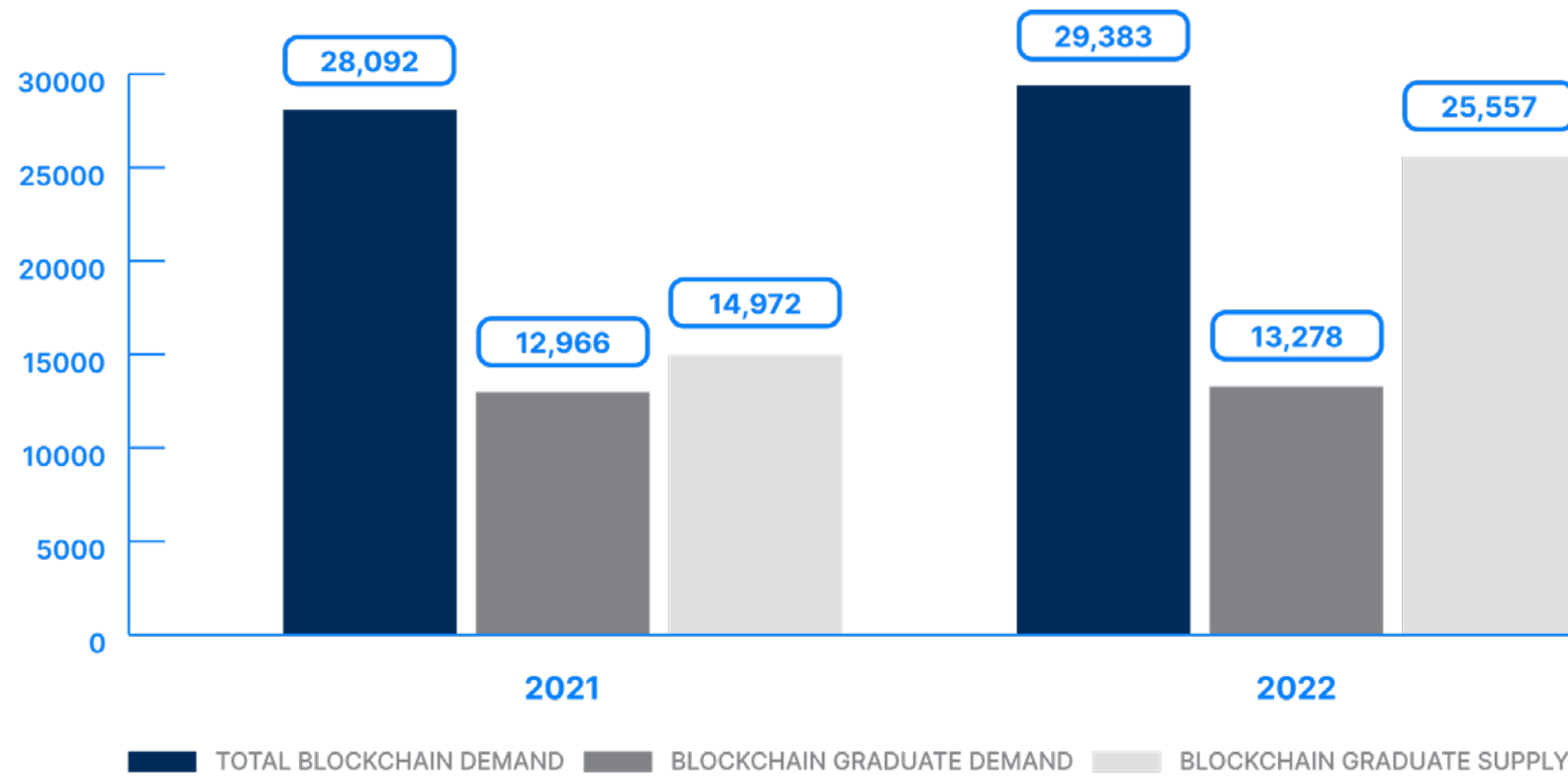
According to a June 2023 [report](#) published by CHAISE and the Economic and Social Research Institute, entry-level jobseekers in the European digital assets industry may struggle to find work if recent trends continue.

The report estimated that 361,767 EU residents were employed in blockchain-related roles in 2021, though this is just a fraction (0.2%) of total employment. The sector is expected to add 30,000 new roles by 2026, notably in France (10,470) and Germany (3879).

CHAISE noted, however, that the supply of entry-level jobseekers, or "blockchain graduates," is outpacing demand.

The concept of a "blockchain graduate" is somewhat nebulous: CHAISE defines this demographic as both ICT graduates and any graduate with "blockchain exposure."

GRAPH 17. COMPARING BLOCKCHAIN SKILLS FORECASTING RESULTS FROM 2021 TO 2026

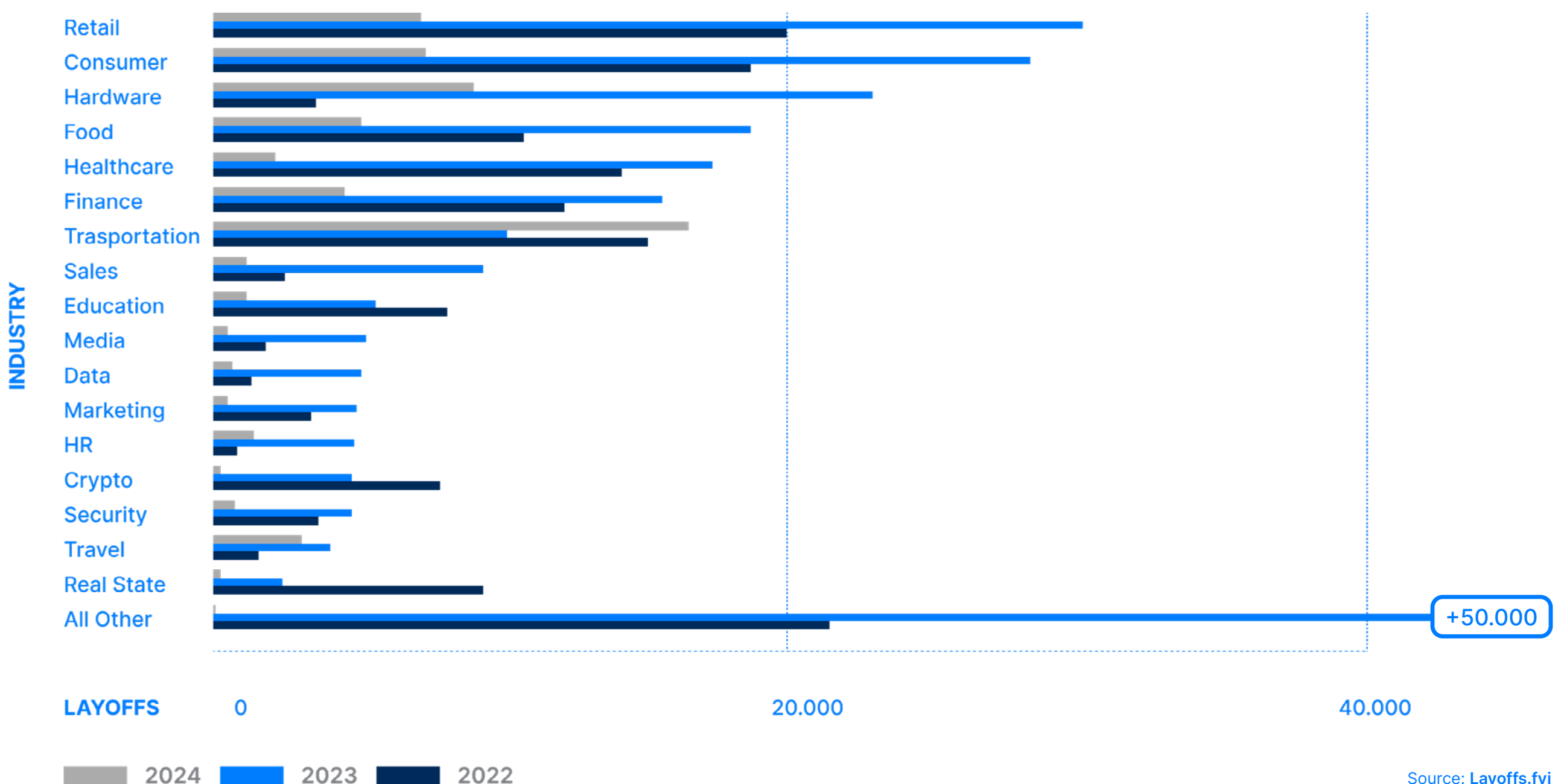


Source: CHAISE Annual Blockchain Skills Forecast

Nonetheless, the organisation reported 25,557 blockchain graduates in 2022, with just 13,278 new positions opening up in the same year.

Job market estimates vary considerably, however, and a [2023 Coincub report](#) found significantly different figures for Q4 2022 employment.

GRAPH 18. TECHS LAYOFFS BY INDUSTRY



Source: Layoffs.fyi

Germany, for example, ranked first for number of blockchain jobs in the Coincub report, with 22,472 positions – CHAISE reported 2249 positions in Germany. Third-place France had 17,693 blockchain jobs in the Coincub report, but CHAISE identified only 1587 blockchain-related roles. In total, Coincub reported 75,000 more jobs in Europe than CHAISE.

“We are in a bull market like we’ve never experienced before – there’s going to be so much work for us from a recruiting perspective.”

— Sam Wellalage, founder, WorkInCrypto.Global

More recent data paints an optimistic outlook. In a Q1 2024 report, for example, Blockchain Jobs Europe found a 10% increase in European blockchain job postings over the previous quarter. Sam Wellalage, founder of crypto recruitment firm WorkInCrypto.Global, [told DL News](#) in an April 2024 interview that the hiring spree has only just begun.

“We are in a bull market like we’ve never experienced before – there’s going to be so much work for us from a recruiting perspective,” he said.

Both crypto-native and traditional finance firms are shoring up their digital asset workforce, signalling renewed market optimism.

Ten of the largest crypto exchanges, including Binance, Coinbase, and Crypto.com, had more than 1200 job openings as of May 2024, according to [DL News](#). The posts ranged from technical positions, such as blockchain developers and cybersecurity experts, to marketing and customer service roles.

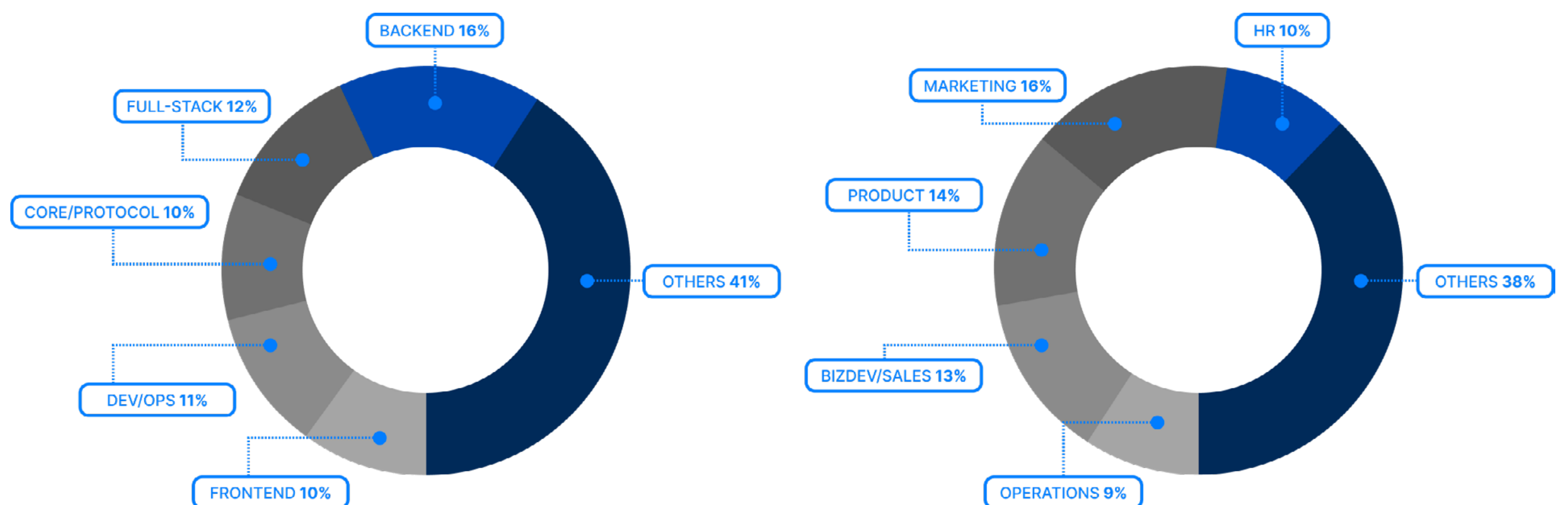


What's in demand?

Blockchain Jobs Europe reported highest demand for non-technical executive-level jobs, such as marketing professionals and product managers. The report also indicates a need for specialised backend developers to incorporate blockchain technology into existing systems.

Product interoperability and integrating blockchain into existing systems are becoming increasingly important, particularly in the EU's efforts to build a [pan-European blockchain](#) infrastructure (see [Innovation](#) chapter), according to [Blockchain Jobs Europe](#).

GRAPH 19. EUROPE HIGHEST DEMANDED JOBS FOR BLOCKCHAIN



Source: Blockchain Jobs Europe

Another segment with extremely high potential for future employment is cyber-security. Cyberattacks are on the rise, and demand for cyber-security professionals is growing fast in Europe.

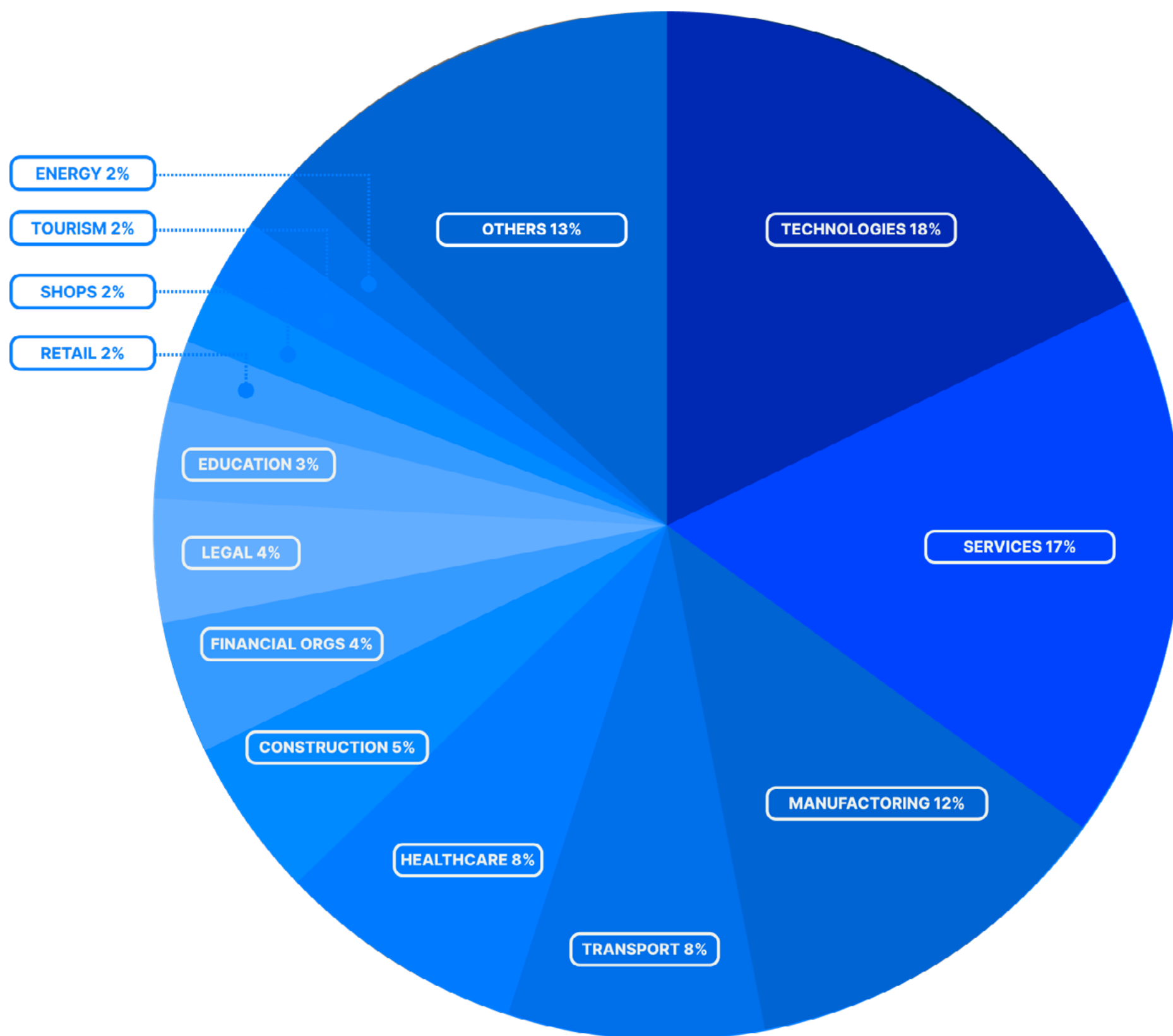
In May 2024, for example, the head of the European Union Agency for Cybersecurity (ENISA), Juhan Lepassaar, told the [Associated Press that cybersecurity](#) attacks doubled from Q4 2023 to Q1 2024.

The rise in digital attacks stems from Russia's invasion of Ukraine in February 2022, when most attempts were first made on Ukraine before expanding to EU countries.

Ransomware attacks are also increasing across the bloc. In an [October 2023 report](#), the European Digital SME Task Force discovered a 56 percent increase in ransomware campaigns from 2022 to

2023 across France, Germany, Italy, and Spain. European technology and services sectors were most affected, accounting for 18% and 17% of attacks, respectively.

GRAPH 20. ATTACKS BY SECTOR, EUROPE



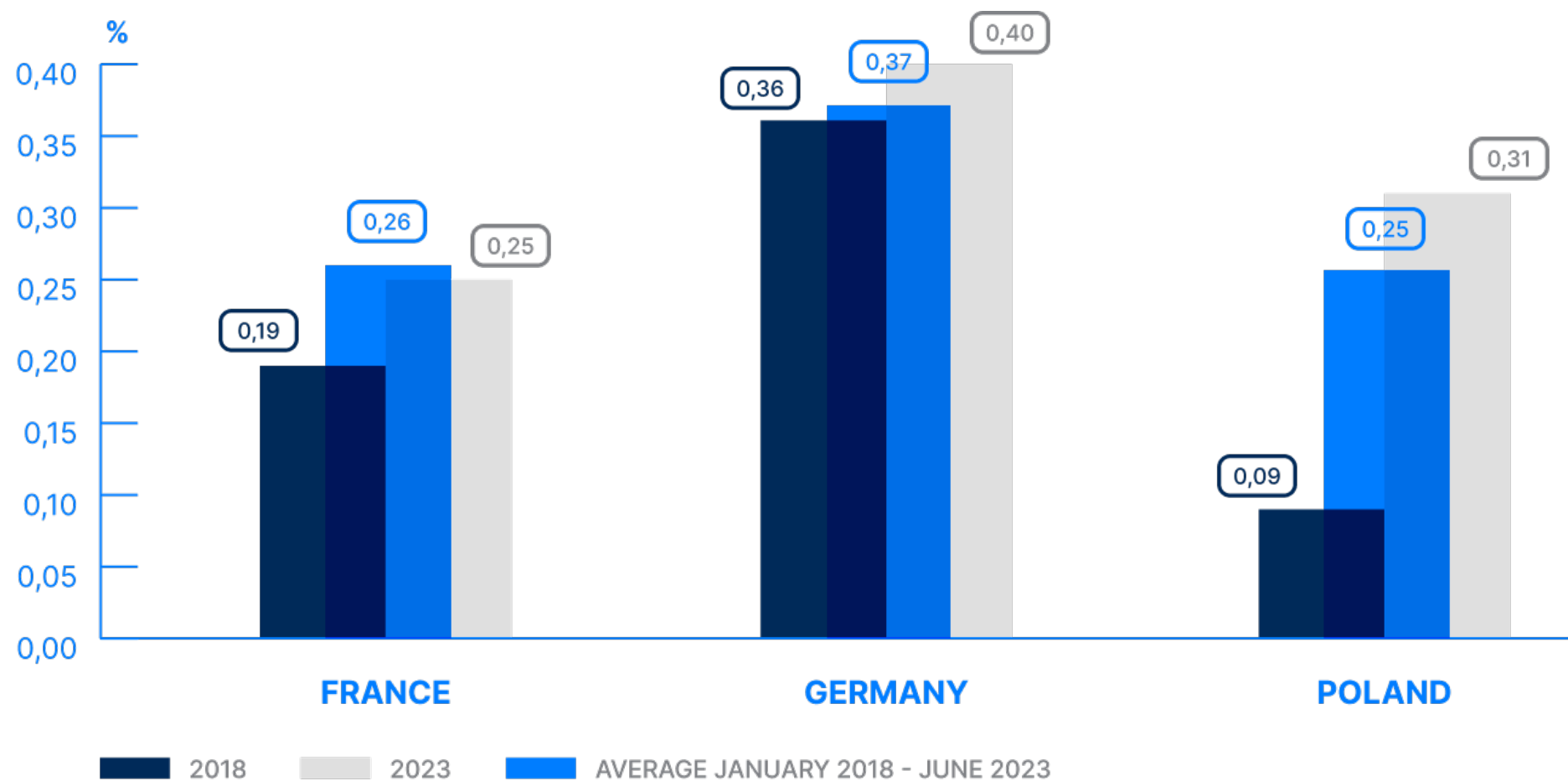
Source: European Digital SME Alliance

The cybersecurity shortfall

Europe's talent pool in the cybersecurity sphere is shallow. [A February 2024 report](#) by the Organisation for Economic Cooperation and Development (OCED) found that Europe is short some 300,000 cybersecurity professionals. Despite high employment levels related to these roles, demand continues to outgrow information technology and computer engineering positions.

The report analysed data from more than 80m online job postings in France, Germany, and Poland from January 2018 to June 2023. Demand increased for all three countries, notably in Poland, where job postings for cybersecurity experts have multiplied threefold since February 2020. Compared to other IT-related professions, cybersecurity job postings in France and Germany grew by 40% and 30%, respectively.

GRAPH 21. SHARE: CYBER SECURITY POSTS AS A PERCENTAGE OF TOTAL ONLINE JOB POSTINGS



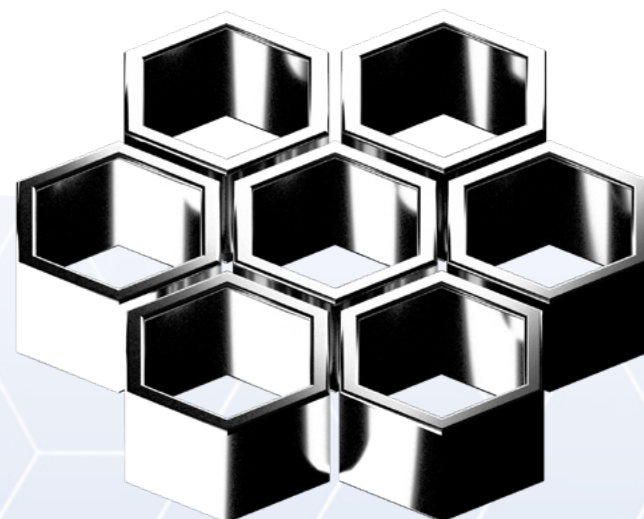
Source: OECD calculations based on Lightcast data

The French, German, and Polish governments have each developed strategies to bolster training and research in their respective cybersecurity sectors.

For example, as part of the France 2030 initiative, the French government [allocated €1bn](#) to bolster its cybersecurity sector. Part of the funding was used to diminish the country's fragmented cybersecurity ecosystem by launching Campus Cyber in February 2022.

In June 2023, Germany incorporated cybersecurity into its [National Security Strategy](#). The updated strategy now emphasises research in artificial intelligence (AI), quantum computing, and cryptography. The changes indicate an increasing focus on career development opportunities and investment in advanced research.

Poland's [updated national security strategy](#) enhances its cybersecurity framework through enhanced regional cooperation, including its roles in the Bucharest 9 and the Three Seas Initiative, as well as the ongoing development of advanced cybersecurity technologies such as the [CyberSecIdent](#) programme.



Outlook

As the demand for skilled professionals in the European digital asset industry grows, formal education in this field is expected to become more prevalent. Post-secondary institutions are increasingly recognising the sector's potential, and the number of formally qualified, digital asset-educated graduates is expected to rise in the coming years.

The private sector will continue to play an important role in European educational efforts, supporting further alignment between graduate skillsets and job market demands. This is particularly important given rising levels of competition for a shrinking pool of entry-level positions.



 DLResearch

The State of Digital Assets in Europe

CHAPTER 5

Culture

Douglas Robinson

Partner

Simmons & Simmons



Gordon Ritchie

Supervising Associate

Simmons & Simmons



Why was the 'Wright v COPA' case so significant for the community?

The case is a victory for the continued development and innovation of Bitcoin by developers and will likely significantly impact Craig Wright's ability to pursue related litigation against participants in the community. By reducing the threat of litigation against developers, the case encourages developers to interact more freely with the Bitcoin software and bolsters Bitcoin's credentials as a permissionless network.

By establishing that Wright is not Satoshi Nakamoto, with neither database rights in the Bitcoin blockchain nor file format rights in the Bitcoin file format, Wright's ability to threaten software developers with litigation, which could stifle the use and governance of the Bitcoin software, is significantly reduced.

For the crypto community, this is pivotal in reducing developers' exposure to the possibility of being sued for infringing intellectual property rights by virtue of their work to maintain and develop the Bitcoin system for users. It also undermines Wright's claims against other members of the community – like exchanges offering Bitcoin – which were largely predicated on him being Satoshi Nakamoto.

From your perspective, what are the key legal considerations in the 'Tulip Trading Ltd v Bitcoin Association' for the BSV case arguing that blockchain developers have a fiduciary duty to their users?

The court suggested that if the decentralised governance of the Bitcoin network is a myth, so that Bitcoin owners can realistically be described as entrusting their property to the Bitcoin developers, then it is arguable that the developers who create and maintain the Bitcoin software owe fiduciary duties to the owners of Bitcoin. Accordingly, the decentralised nature of the network is itself an issue in the case.

Whilst the court agreed that developers may arguably owe fiduciary duties to Bitcoin owners, it did not conclude that there is a legal fiduciary duty. This issue will be decided at trial once the disputed facts of the case are established. If it is established that the developers do owe fiduciary duties to Bitcoin owners, this could have a significant impact on Bitcoin in practice.

Even if the software patch which Tulip Trading wants could be added, it may not be accepted by the miners in the network. This could result in a fork and ultimately leave this issue, and similar issues going forwards, unresolved. As the court noted, this speaks to the decentralisation question; it could also become highly onerous to be a Bitcoin developer, since developers would have to

implement the software patches required to return misappropriated assets to victims, meaning that fewer people may be willing to act as developers.

The key legal considerations - in terms of whether a fiduciary duty exists for the developers - lie in the definitive test in 'Bristol and West Building Society v Mothew [1998]'. The court highlighted several characteristics of the Bitcoin developers which resonate with this test.

The English common law's ability to develop the law regarding fiduciary duties in this area is also important, as the common law system can incrementally progress the role, if any, of fiduciary duties in the law relating to digital assets and crypto. This is because categories in which fiduciary relationships can be identified are not yet closed and could, therefore, be expanded to cover participants such as the developers.

Could cases like this spell an end to the 'anon developer' era?

Whilst case law allows for the ongoing development of Bitcoin software by anonymous developers for now, the regulatory trajectory is moving firmly towards ensuring that firms which list crypto assets disclose and conduct due diligence on issuers of those assets and developers. We have seen the requirement for regulators and offerors (or those that seek to list a crypto asset) to agree white papers with regulators prior to listing. It is unlikely for crypto assets, other than Bitcoin, to receive permission to be listed on an EU exchange if the developer remains anonymous.

Similarly, the UK's Financial Conduct Authority uses its financial promotion toolkit to effectively introduce a listing regime through the back door, whereby firms that offer crypto assets to UK customers must be able to

demonstrate that they have undertaken "significant due diligence" on the crypto assets to be promoted.

Following HM Treasury's response to its consultation on the future financial services' regulatory regime for crypto assets, this will likely evolve into a formal issuance and disclosure regime for crypto assets.

Culture

The rallying cry of activists, innovators, speculators and – more recently – policymakers, “crypto” is becoming a polarising phrase. Typically bandied about by the loudest voices, often alongside terms like “Web3” and decentralised finance, or “DeFi,” a shift in dinner table conversation to the topic instantly separates a room, giving some a pulpit while the rest scratch their heads.

Crypto, Web3 and DeFi are distinct but interconnected components of a broader ecosystem. Taken together, they represent a vision of a future in which the internet is decentralised and consumers own their own data.

Web3, which runs on distributed ledger technology, is often touted as the next iteration of the web. Among other features, it promises to deliver decentralised applications (dApps) that serve various use cases. DeFi is currently the preeminent Web3 use case, offering an alternative to traditional financial systems that is speedier, removes intermediaries, and increases transparency.

Kevin Bradford, founder of Web3 marketplace OpenChrono, sees the switch from today’s Web2 to Web3 as a foregone conclusion, “Web3 will undoubtedly be the next version of the internet, but it will take time for interoperability, standards and user-friendly applications to make their way into our lives,” he told DL Research.

The European ecosystem

Europe is well-positioned to capitalise on the rapidly shifting cryptocurrency landscape. Tech hubs in cities including Berlin, Paris and Amsterdam boast a vibrant ecosystem, supported by an events circuit that includes Paris Blockchain Week, Lisbon’s WebSummit, and the [Ethereum Community Conference](#).

Despite the stereotypes, a cohort of young europeans with a high risk appetite is also increasingly embracing digital assets as an important component of their investment portfolios (see [Economic Impact](#) chapter).

A number of post-secondary courses have also sprung up across European universities, including Cambridge, IT University Copenhagen, Stirling University, and Nicosia University. These programmes are helping the continent meet rising demand for highly skilled professionals in a growing, but increasingly competitive job market (see [Education](#) chapter).

Roman Beck, a professor at the IT University Copenhagen and head of the European Blockchain Center, pointed out that these are still early days, telling DL Research, “Good university education focuses on developing capabilities and analytical thinking, not only skills and descriptive knowledge, as is often typically the case with vocational training programmes. Unfortunately, not many good rankings exist that would provide guidance for what is on the market.”

European financial regulators and the European Union (EU) itself have also been at the forefront of efforts to regulate the sector, most notably with the EU’s Markets in Crypto Assets Regulation (MiCA), which will be largely implemented by the end of this year (see [Regulation](#) chapter).

“In the EU, the spirit of working within frameworks such as MiCA is very much present. There’s a desire to ‘get it right’ the first time instead of moving too quickly.” — Phillip Pieper, co-founder, Swarm Markets

Phillip Pieper, co-founder of German-based DeFi platform Swarm Markets, notes that the EU is a leader in codifying the engagement of financial institutions with crypto.

He sees the UK as equally receptive but more focused on stablecoins than other DeFi instruments. “This has led market participants [in the UK] to look at extra-regulatory avenues” he told DL Research, “whereas, in the EU, the spirit of working within frameworks such as [MiCA](#) is very much present. There’s a desire to ‘get it right’ the first time instead of moving too quickly.”

The original crypto clique

The reputation of traditional finance (TradFi) was hurt by the financial crisis of 2008, in which a series of defaults on a number of opaque, contrived credit instruments highlighted the fragilities in the system.

Society faced a rude awakening: it had been conditioned to believe that TradFi institutions were measured, safe and socially productive. Instead, it emerged that many of the most-respected institutions were engaging in wild, reckless activities that toppled the global economy.

Bitcoin emerged that year as a decentralised alternative to the banking system that cut out intermediaries and replaced them with a trustless architecture.



Bitcoin's 2008 launch echoed another significant but lower-key event from 17 years earlier. In 1991, Philip Zimmerman published Pretty Good Privacy (PGP), now the most used email encryption software package. Like Bitcoin, it was open source, owned by no one and available to everyone. Its creation directly responded to a 1991 US draft bill exploring backdoor surveillance of private communications, making it a true Cypherpunk technology.

Cypherpunk

The [Cypherpunk](#) social movement originated in 1980s America. It was initially a collaboration between scholars and activists concerned with the mass adoption of computer systems by governments. Members worried about the potential for the erosion of privacy that could result from mandatory digital identification, and excessive data collection.

While it has its roots in the US, the movement has since made its way into Europe, in no small part thanks to WikiLeaks founder and Cypherpunk poster child, Julian Assange.

Assange formed connections with European computer activists groups, including Andy Muller-Maguhn of Germany's [Chaos Computer Club](#) (CCC) and Jeremie Zimmerman, the founder of French advocacy group [La Quadrature du Net](#), who featured in the Julian Assange show.

Bitcoin's architecture – decentralised and anonymous – echoes Cypherpunk paragons. While not totally opaque, it aligns closely with Cypherpunk thinking on personal privacy. To this day, it is common practice for users across the Web3 space to hide their identities behind pseudonyms.

Phillip Pieper points out that legacy tax havens and shadow banking networks mean this is a characteristic of TradFi as well and isn't inherently negative.

“Crypto gets a lot of attention for the existence of anonymity within blockchain, but less so for the transparency of what is happening within that infrastructure and the traceability of assets. Regulators and law enforcement are becoming increasingly adept at using the positive aspects of blockchain to catch bad actors,” he told DL Research.

The rise of the 'Bro'

The open-source nature of projects like Bitcoin has seen communities emerge as a key component of the digital assets industry. These are spaces where technical personas and champions congregate to eulogise, build, refine and troubleshoot issues.

Bitcoin's early community was mostly libertarians, tech enthusiasts and Cypherpunks – technically orientated and ideologically driven people excited by decentralisation, privacy, and financial independence.



As Bitcoin gained popularity and early altcoins such as Ethereum and Ripple launched, the crypto community expanded to include those seeking investment opportunities as well.

The [initial coin offering](#) (ICO) boom of 2017 gratified many of these fortune hunters. While it was characterised by scams and huge losses, the ICO boom also included stories of large sums made almost overnight – stories that were amplified by media attention.

Emboldened by their ability to capitalise on a technology few people understood, a group of young, predominantly male investors were quick to broadcast their success. Thus the ‘Crypto Bro’ stereotype took shape, blending tech savvy (if not deep technical understanding) with a focus on wealth accumulation.

Bro culture is neither new nor unique to crypto. It has roots in the hyper-masculine, [All-American fraternity Bro](#), but has since splintered to include a plethora of other ‘Bros.’ Tech Bros, Finance Bros, Business Bros, Crypto Bros... the stereotypes all share common traits. They value success, speed, wealth and acclaim. A less favourable analysis would also point out a tendency towards aggression, misogyny, condescension and a lack of self-awareness.

Since money is one of the most quantitative measures of masculine success, crypto’s potential for wealth accumulation fits this persona well, and Bro culture has become entwined in its narrative. So much so that it acts as a beacon to Bros who’ve made their name in other arenas.

For example, original Toxic Bro Andrew Tate, currently the subject of multiple allegations of [sexual abuse, human trafficking, and rape, can generate headline coverage](#) that eschews all mention of his legal battles with a tweet about crypto.

Does this association impact external perceptions of crypto, particularly among women? “Yes and no,” Katie Evans, founder of London’s Women in Blockchain Breakfast, told DL Research. “It is certainly unhelpful to have such a figure associated with the sector, but this is firmly on the very online side of it. It’s not the crypto sector’s responsibility in the same way as it isn’t the responsibility of banks to stop drug dealers working in cash payments. There’s only so much you can control in that sense.”

Hype, Cycles, and NFTs

Bro culture has been a mixed blessing for the fledgling Web3 space. The influx of loud advocates has popularised it, attracting much of the funding and support essential for development. However, with the technology still in its nascency and use cases limited, there's a real risk that too much scrutiny too early will subvert it completely.

"NFTs are the poster child of this issue," explains Katie Evans. "NFTs have enormous potential applications for the tokenisation of real-world assets, but the term is and forever will be associated with the hype cycle of 2021."

Non-fungible tokens (NFTs) are unique, non-replicable tokens that represent either real or digital assets. They have broad utility across a range of sectors, providing proof of ownership, authenticating artwork, allowing gamers to own in-game assets, increasing supply chain traceability, or facilitating fractional ownership.

NFTs have enormous potential applications for the tokenisation of real-world assets, but the term is and forever will be associated with the hype cycle of 2021. — Katie Evans, founder of the Women in Blockchain Breakfast

One of the earliest use cases for NFTs was [CryptoPunks](#) in 2017, a limited series of collectable pixelated images. Initially issued for free, they've become so embedded in the crypto zeitgeist that they can now sell for tens of millions.

By 2021, there was significant hype around the digital art use case, helped by a crypto bull run and record-breaking [NFT sales](#). A 10,000-part NFT series, Bored Ape Yacht Club, tapped into both prevailing Bro culture and lockdown boredom. Twitter avatars of NFT Apes became a must-have accessory for Tech and Crypto Bros and sparked a frenzy which spilled into celebrity endorsements and mainstream awareness.

"This entire market has since collapsed in on itself," continued Katie Evans. "But NFT technology remains viable. The word has become almost dirty by association, but the tech is still being worked on quietly to do serious things with."

Meme(coin) culture

It's a recurring theme: quiet people building useful tech while the world obsesses over brash personalities and the trends they're pushing. Industry insiders are quick to point out, however, that despite a vibrant meme culture that itself leans into the Crypto Bro stereotype, the industry is more diverse.

"It is easy to look at what happens on social media and see that as an embodiment of the industry, but social media isn't a good representation of real life," cautioned Philipp Pieper. "It would be like visiting a city centre on a Saturday night and deciding that the revellers you meet are a good representation of an entire country. They're one aspect of it but not the whole picture."

Whether the industry is willing to admit it or not, the Crypto Bro with his get-rich-quick attitude and lack of technical understanding, is a parody that highlights certain cultural dynamics at play within this world.

Bro culture fuels many of the trends that whip through crypto, including memecoins. These are volatile crypto assets that typically invoke popular images, jokes, animals, characters, or individuals. and have no underlying fundamentals. They are promoted through their internet virality, such as demand created by celebrity tweets and TikTok trends.



The first memecoin, Dogecoin, was intended to poke fun at the furore around cryptocurrencies by software engineers Billy Makus and Jackson Palmer. They adopted the popular “doge” meme to represent their satirical payment system in 2013. It caught the attention of the Reddit community almost immediately and has enjoyed staying power ever since, eventually grabbing the attention of Elon Musk, whose [tweeting](#) about Doge throughout 2020 and 2021 preceded huge price swings and attracted [allegations of market manipulation](#).

This cycle has seen a proliferation of memecoins celebrating all aspects of internet meme culture, from Pepe the frog to the Bros themselves. Elon Musk’s face is the logo for memecoin ELON, while \$WOLF celebrates Finance Bro Jordan Belfort, and the problematic Andrew Tate is tradeable as TOPG.

PolitiFi

The biggest election year in global history has inspired a subculture within memecoins. While currently playing out in the US, it’s notable as the start of the infiltration of democratic ideals into what has so far been a largely Cypherpunk (anarchist) technology.

PolitiFi (a portmanteau of “political” and “DeFi”) is a category of memecoins built around political themes and candidates. While not affiliated with any candidate or party, these assets are tradeable and have the potential to provide a [bellwether](#) for voter sentiment, creating a new dynamic around political discourse.

Founded with vastly differing degrees of reverence to the associated candidates, [MAGA](#), [BODEN](#) and [TREMP](#) are among the leading memecoins in this ecosystem.

Generational divides

From the outside, the memecoin market looks at worst to be a scam or, at best, a frivolous waste of money. But the PolitiFi movement hints at its potential to mature into something more intentional if given the chance.

There is a persistent narrative among older generations that millennials and Gen Z, because they engage with these assets, make for less sophisticated investors than previous generations. This not only devalues crypto and those engaging with it, but also fails to consider how quickly technology is changing our world.

Older generations accumulated wealth by buying physical, appreciating assets. Web3 provides an opportunity to invest in digital, appreciating assets instead.

“There is a persistent narrative among older generations that millennials and Gen Z, because they engage with these assets, make for less sophisticated investors than previous generations.”

To a TradFi industry that values physical ownership above all else, a real estate NFT in Decentraland might seem like a worthless investment but has some of the same fundamentals as real-world property investment, namely location, anticipated demand and limited supply.

As Kevin Bradford points out, the difference in perceptions between younger and older generations is one of comfort and understanding.

“Currently the average person lacks understanding surrounding the concept of Web3 and ownership. The early adopters of these applications are inevitably millennials and younger age groups, to whom the concepts of digital ownership of things like skins, in-game purchases, and collectables are nothing new,” he told DL Research.

Katie Evans sees the issue as more nuanced, “People from all walks of life – from wealthy older investors to young people – are engaged with the sector in different ways. Where you see differences in attitudes, you’ll quickly find that those who aren’t engaged with it are likely not engaged with finance more generally. It is a matter of involvement and experience at the moment, rather than demographic.”

2025 and beyond

The “Great Wealth Transfer” could perpetuate these generational divides. Over the next 30 years, those born after 1980 will inherit an estimated [\\$100tn](#) globally. Millennials and Gen Z are more socially and environmentally conscious than past generations when it comes to investing, and their familiarity with Web3 investments could pressure TradFi institutions to make changes.

“We’re already beginning to see asset managers look at DeFi and realise there is an opportunity there not just in terms of utility but cost as well, which is a huge potential catalyst,” noted Swarm Markets’

Philipp Pieper. “There’s going to be a move toward using blockchain and bringing assets on-chain by these institutions and we’ll start to see a real blurring of lines between DeFi and TradFi.”

Finding this middle ground is critical. More traditional stakeholders need to start seriously considering the motivations and experiences of the younger generations, particularly as they transition to become the preeminent financial power.

“These are the very early days of this technology, and the real change to consumer and investor behaviour instigated by Web3 is still ahead of us.”

“We have seen the start of financial services, gaming and art applications in Web3, but we have yet to solve challenges around personal identity, ownership and environmental and sustainability initiatives,” cautioned Kevin Bradford. “These are the very early days of this technology, and the real change to consumer and investor behaviour instigated by Web3 is still ahead of us.”

Outlook

Crypto Bros and fast-moving trends won’t dominate dinner table chat forever – they’re just the beginning of a far longer and more important story.

Traditional financial stakeholders who allow themselves to get turned off by some of the louder cultural elements of the space risk missing out on the developments happening in its quieter corners.

Regulatory frameworks will mature, the number of trained graduates will increase, and digital natives will gain financial prominence and create demand for more use cases. The future of this technology is expansive and reaches far beyond DeFi. It won’t be defined by current crypto stereotypes, but by its potential to introduce decentralised, transparent and equitable frameworks to every aspect of society.

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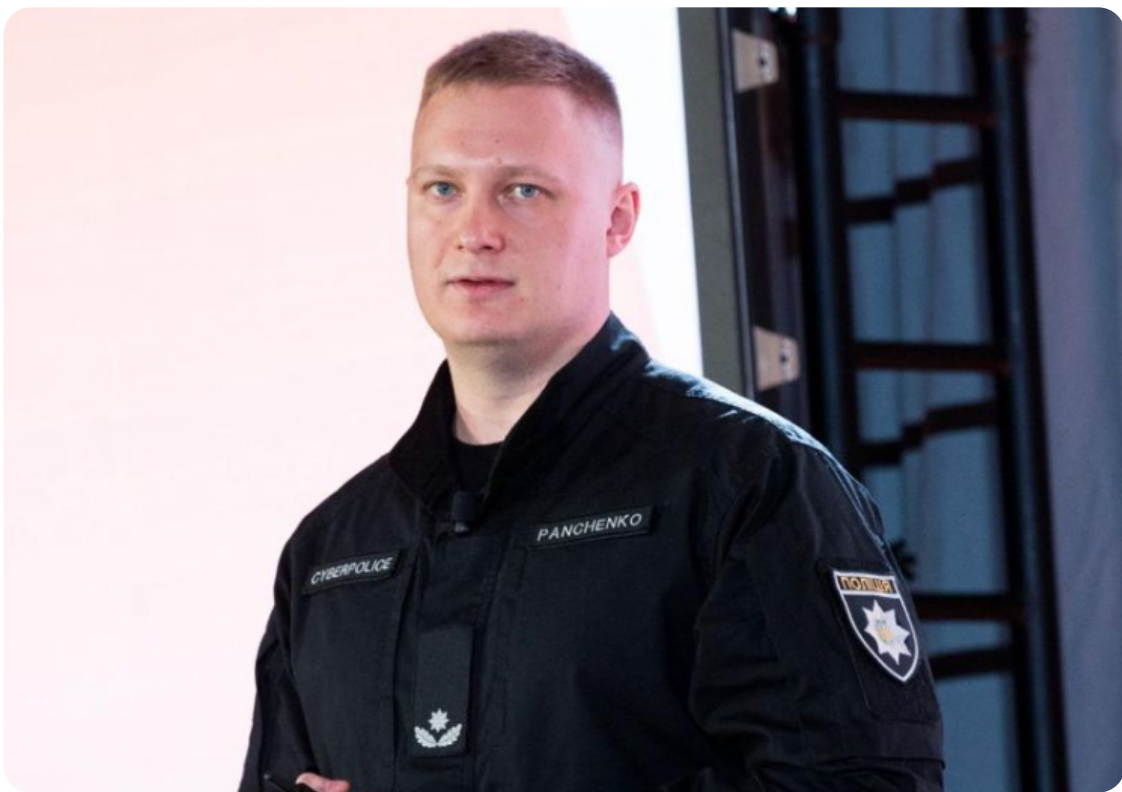
The State of Digital
Assets in Europe

SPECIAL REPORT

Crypto in Conflict

Yevhenii Panchenko

Head of Operational Analysis
Department of Cyberpolice,
National Police of Ukraine, Kyiv



Ukraine has been in the forefront of cryptocurrencies and conflict in recent years. The full Russian invasion of February 2022 sparked a wave of support for the country around the world, with crypto being used to send millions of dollars to Ukrainian charities, aid organisations, families and friends.

Throughout the last two-and-a-half years of conflict, Ukraine's cyber police have also been active, protecting legitimate transactions and interdicting illegal ones. They have done this despite some terrible conditions and the loss of colleagues under Russian bombardment. Now, the Ukrainian Department of Cyberpolice is one of the world's most tested and experienced agencies in the fight to keep crypto space clean. Yevhenii Panchenko spoke to DL Research from Kyiv.

■ Can you briefly describe your role in the Department of Cyberpolice and how you came to work there. Do you have a police background or an IT one, or both?

I have some technical background and I've always been interested in innovative and creative approaches. I first started working in police investigations in a district office, finding ways to make this work more effective and faster by using information technology. Then I moved to the Cyberpolice about five years ago, to the Operational Analysis unit. We undertake forensic and cryptocurrency analysis and have had some good results. We have four units in my department – one for general analysis, then another for open-source intel, then one for dark web and deep web work. Then there are investigations related to virtual currencies. So, I didn't go to university or some specialist place of study for this, but have gained a lot of experience and taken a lot of exams and training courses over the years to develop my understanding and knowledge of the field.

■ In the period leading up to Russia's attack on Ukraine in February 2022, how important had cryptocurrency been in your work and in Ukraine?

Up to 2022, when the full-scale war started, we were more focused on cases inside Ukraine. These included crimes such as fraud, or the trafficking of illegal goods – guns and drugs mostly – in which cryptocurrencies were being used as finance. There were also more traditional crimes that might have a crypto-element – a kidnap, for example, with a ransom in crypto. We had more than 800 cases a year back then, which is a lot, but mostly they were cases in which crypto was an element in an investigation being undertaken by another department. For example, an organised criminal group (OCG) using a crypto wallet might lead to the OCG unit asking for our help, or the National

Anti-Corruption Bureau might also need our support when investigating a corruption case.

How did that change when Russia attacked?

We have had so much more work to do! Since the full-scale war started, we have also had to operate in some very difficult conditions. It's still quite dangerous here in Kyiv, with many of the Russian attacks not on military targets but civilian ones. Sometimes there is a missile or drone that falls really close. If the electricity goes down, you have problems with the internet. But you still have to find ways to work – you have to have a laptop, make sure your batteries are charged – it's our responsibility to investigate crime whatever the conditions. In other words, despite the challenges, we have to be strong and proactive. I think when you look at our results, too, you will see that regardless of these bad conditions, we still do our work very well.

How has cryptocurrency been used since then, both legally and legitimately, and illegally and illegitimately?

In terms of types of cases, we have now, for example, had to pursue cases against Russian soldiers operating on Ukrainian soil using crypto, and those collaborators who supported them – who supported the invasion. We also help other law enforcement agencies and other people investigating Russian psy-ops, for example, and other misinformation exercises with a crypto payment element. We help people in other jurisdictions, too, see the way the Russians can damage their country.

Of course, though, we don't only see illegal ways in which crypto is used. It has also given us great benefits in transferring money and helping people. As you know, there have been some campaigns by charities and other organisations to help us using crypto. A huge amount of money has come to us this way – far more than the

Russians have received. A respected company analysed this and said 90% of these funds were clean, used and sent by legal sources. So we see many positive uses for crypto.

Do you have any concerns about the use of cryptocurrencies today, in terms of conflicts and the financing of states and non-state actors? If so, what are those concerns?

I am still very concerned about crypto being used for money laundering and other types of criminal activity. The use of crypto mules is a very big problem and a challenge for all jurisdictions, not just Ukraine. Sometimes there is the use of fake documentation, or fake persons. In addition, while we have ways to block activities such as fraud, crime and terrorist activities via traditional banking systems, with crypto, we sometimes need to create new methods and ideas to block such activities using crypto. So we prepare reports and suggest ideas to our authorities and those in other jurisdictions, such as the European Union, to help do this.

What steps would you like to see the international community and other authorities take regarding cryptocurrency nowadays?

If you want to find out about Russian activities, we can give information about this to our partners in law enforcement elsewhere. But sometimes we see that while in our jurisdiction, we have legal powers that give us a good chance to act, some of our partners don't have the same framework. We expect to see in the near future some really good laws to regulate crypto and legal systems to adapt really fast. But crypto has no borders, and we still have quite a long way to go with cooperation with other jurisdictions. We need to have more adaptive and faster ways to cooperate with other law enforcement agencies.

On balance, do you think cryptocurrency is a positive or negative thing, given the experience of Ukraine in recent years?

I would say, from my point of view, that crypto is a very positive thing. It has certainly brought more benefits than downsides. In the future, we can see many challenges lie ahead with it, but also many opportunities, new ways to interact. On balance, then, I would say crypto has been more of a positive than a negative thing.

Crypto and Conflict

With the history of money and the history of warfare so inextricably linked, it is not surprising that contemporary conflict is also fully entangled with a very contemporary form of money – cryptocurrency.

From Ukraine to Palestine, Iraq to North Korea, cryptocurrencies have been both a bane and a boon for countries involved in conflict — either directly or covertly — among each other and powerful non-state actors, including terrorist groups to organised criminal groups (OCGs).

Then there has been another level of conflict: that of financial authorities and governments against their own citizens. Financial crashes can also lead to violence, as the forces of law-and-order link arms outside a high street bank to prevent its customers from accessing their own money. In these scenarios, cryptocurrency has also played a significant role.

Indeed, as one anonymous crypto figure interviewed for this piece who wished to remain anonymous said, “Where there’s chaos, there’s crypto”.

Conflict is the world’s leading provider of chaos, suddenly rupturing of what was previously an ordered, systematic way of life – and of doing business. Crypto therefore finds a natural home in places where such social infrastructure is so suddenly and thoroughly disrupted.

Money and Sovereignty

When the first coins were minted, 2,500 years ago on the Aegean coast of modern-day Turkey, they were not only produced as a means of exchange. They also lent legitimacy to the state by being directly controlled by it. These coins bore the stamp of King Alyattes of Lydia, telling anyone who had them that this was his patch and no one else’s. Sovereignty, in other words, is key to coinage, with money about who whose authority ultimately legitimizes it. Therefore the medium of exchange is not just about what something can be traded for, it is about who rules. ‘Who rules’ is also the central question of warfare.

Crypto, however, is intended to resist this centralization of sovereignty. With no state-sanctioned “rulers,” it is decentralised to the point of single individuals with laptops can pose a potential threat to that national – if not imperial –sovereignty over money.

Thus cryptocurrencies have been used to keep the financial wheels turning when conventional monetary activity has been blocked by conflict. Families and individuals in a globalised world have used Bitcoin (BTC), Ethereum (ETH) and others to help each other across continents and borders. That trans-boundary nature of cryptocurrencies has also, of course, been a challenge as it disrupts the rule of states over their own territories.

In this sense, conflict and crypto are not just entwined by circumstance: Crypto will always be one side in a conflict between a notion of individual sovereignty and that of the state. That conflict will continue long after the guns go silent on the world's current frontlines.

Crisis Management: Ukraine and Crypto

The Russian invasion of Ukraine has been a turning point in global geopolitical relations, but it is worth remembering that in the lead-up to February 24, 2022, few in Ukraine or elsewhere actually believed Russia would invade. When the day came and Russian tanks began to roll, it therefore came as a huge shock.

Financially as well as physically, many reacted in the time-honoured way: with a flight to safety. Ukrainians went to the bank and tried to draw out their savings, intending to use cash to finance sending family members to safety, securing basic supplies and to buy traditional stores of value, such as gold and US dollars. The Ukrainian authorities also reacted in the time-honoured way: imposing martial law. The central bank, the National Bank of Ukraine (NBU), suspended most currency trading and froze the official exchange rate of the hryvnia (UAH).

However, it also *didn't* react in some other time honoured ways. For instances, it did not shutter the banks to prevent a bank run, and was largely successful; the country's high street lenders are today proud of the fact that the banking system hasn't halted for a single day since the invasion.

In another break with tradition, just two days after the Russian attack, the Ukrainian government launched the Aid For Ukraine initiative by posting the addresses of its BTC, ETH and Tether (USDT) wallets online. Donations flooded in, particularly during those crucial first few days and weeks of the invasion.

Data from Elliptic for February–November 2022 shows that around 80% of the \$212m of crypto donations made to Ukraine during that time happened in the first two months. Of that total, some \$83.5m went to the Ukrainian government, \$78m to blockchain projects, \$35.1m to military charities and \$28m to humanitarian causes.

Amongst the efforts was the world's tenth most expensive NFT, according to Elliptic – a Ukrainian flag that sold for \$6.5m worth of ETH. The proceeds were used for humanitarian aid.

One major contributor was “Crypto Fund for Ukraine”, launched by Michael Chobanian, which accounted for 60% of the first \$100m raised. The decentralised staking provider Everstake also backed up Aid For Ukraine.

Elliptic data shows that donations made in BTC, ETH and other stablecoins consisted of 42.1% from exchanges, 24.4% from NFT marketplaces, and 11.9% from decentralised exchanges

Other crypto campaigns have taken place within wider donations facilities, such as United 24 (U24), which had collected some \$647.2m in both crypto and fiat by May 27, 2024. Branches of the Ukrainian security services, the Ministry of Health and individual regiments within the Ukrainian armed forces have also all launched cryptocurrency-based donation campaigns.

Other key areas receiving donations via crypto have included the media. *The Kyiv Independent* newspaper received some \$433,000 this way, while a range of Telegram channels providing information from the frontline were launched and funded by crypto donations. These have been important assets in the information conflict with Russia, with cyberwarfare groups, such as the Myrotvorets Centre, also receiving aid in cryptocurrency.

By 2023, Chainalysis data show that total donations to the Ukrainian government had reached \$225m in cryptocurrencies – \$91m of this earmarked for the military and the rest for humanitarian purposes.



Several inferences can be drawn from all this. First, on the conventional side, there is the remarkable fortitude and resilience shown by the Ukrainian people and their government. Despite being subject to a shock attack, the official financial system did not crash, nor was it shut down. That system's strength, too, was also no small achievement, owing much to some deep reforms over the previous 10 years.

Second, there was the remarkable speed with which the Ukrainian authorities embraced crypto in an emergency – an embrace that “really helped during the first few days,” Alex Bornyakov, one of Ukraine's deputy ministers for digital transformation, told the Economist, “because we were able to cover some immediate needs.”

This was made all the more remarkable by the fact that, at the time of the invasion, Ukraine did not have any legal framework for cryptocurrencies. A bill on this had been presented to parliament five days before the Russian tanks began to advance, but this Law on Virtual Assets did not actually pass until March 2022 – after the invasion had begun.

The degree of innovation has also been remarkable and rapid. One such new development has been Stellar Aid Assist. This is a partnership between the non-profit Stellar, Circle and the United Nations High Commission for Refugees (UNHCR). This programme allows humanitarian organizations to send bulk stablecoin payments of Circle's dollar-pegged USDC directly to those in need in Ukraine.

Other crypto responses were less successful. Soon after the invasion, the Ministry of Digital Transformation announced it would be airdropping new tokens to all those who had donated to Aid For Ukraine. However, this was almost immediately targeted by scammers, who began distributing their own tokens to capitalise on the cause. This was quickly uncovered, and the airdrop subsequently cancelled.

Indeed, scammers have been active in a number of ways throughout the conflict, from pretending to be victims to pretending to be charities, or to assist charities and individuals in establishing their own donation websites.

The airdrop's failure was followed by a shift to NFTs as fund raising devices. Chainalysis reported some \$190,000 in NFT in the July 2020-June 2023 period, showing the slowdown in donations following those hectic first few weeks, as well as the impact of a global NFT price crash. A CyberPunk NFT transferred to Ukraine's ETH wallet in March 2022, when it was valued at around \$260,000, was sold in June that year for just \$100,000, to demonstrate the extent of the NFT/ETH crash at the time. An online gallery to buy NFTs donated to Ukraine was set up by OpenSea, but was also plagued by scams.

Not all crypto inflows to Ukraine have been to government, military or humanitarian organizations. A large part of daily flows are from families and individuals, particularly those who fled to Europe in the early days of the war and have since been seeking to financially support their loved ones back home.

This has become a particularly acute need as the war has ground on. At the same time, Ukrainian refugees in Europe can now operate under European crypto regimes, which add a degree of safety to transactions. The Chainalysis report mentioned above thus also records an increasing trend in small donations (those under \$1000) in recent times, even as major donations using crypto have fallen.

In terms of outflows, some moving of assets abroad via crypto has undoubtedly taken place, although the extent of this remains unknown. It has clearly been a fear of the NBU, however, which banned purchases of crypto using UAH in April 2022. These rules have since eased, however, with a major liberalisation in May 2024.

One company working in the crypto sphere that shifted abroad is Kuna, which moved its headquarters to Lithuania in 2023.



On the Dark Side: Russia and Crypto

Russia, too, has benefitted from crypto donations, but compared to the support Ukraine has received via crypto, that going to Russia has been insignificant. The Elliptic survey mentioned above found only \$4.8m in crypto donations to Russia, or around 2.2% of the amount given to Ukraine.

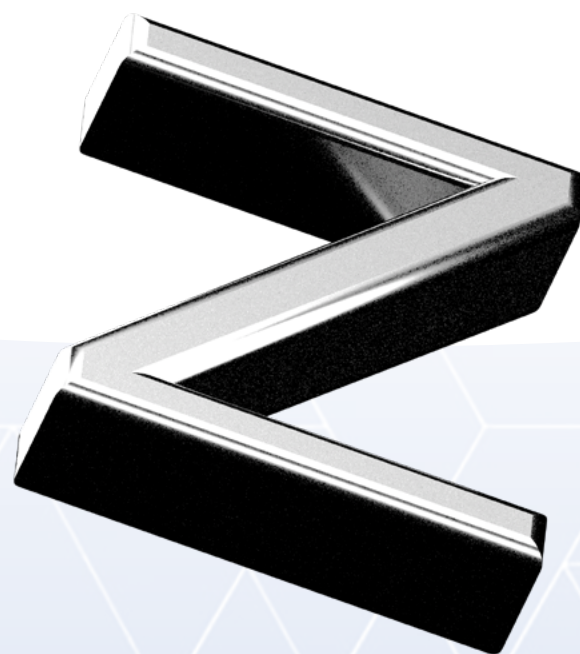
“This probably doesn’t have anything to do with crypto itself,” Elise Thomas from the Centre for Information Resilience told DL Research, “but more that people just don’t want to support Russia.”

Indeed, there is some evidence that some Russians have instead supported Ukraine, sending crypto via mixers to conceal their origin. Elliptic figures showed 1.8% of the BTC and ETH donations to Ukraine arriving that way, with well-known figures such as Ethereum’s founder, Russian-born Vitalik Buterin, declaring they had sent money using mixers.

Of the donations to Russia, around 75% have been military fundraisers, with BTC accounting for a similar percentage of the total. Around one-third of donations come from mixers, with dark markets, privacy wallets and coin swap services accounting for 12% between them.

This highlights a feature of the Russian crypto space that predates the 2022 invasion. Scams involving crypto have been used by the internationally unrecognised breakaway Donetsk People’s Republic (DNR) and Luhansk People’s Republic (LNR) to raise funds for several years. Mostly, these have been crypto Ponzi schemes organized by OCGs, such as the Prizm and Ouroboros coins. In both states, this has been assisted by the fact that the line between government and OCG is often blurred.

However, there is little incentive for the Kremlin to launch major donation campaigns, as Russia does not need them. Its 2024 state budget earmarks a colossal 6% of GDP to the military – up from 2.7% in 2021. High global oil and gas prices have given oil and gas-exporting Russia a huge financial boost, more than compensating for other economic losses – including those brought about by the second factor: sanctions.



War by other Means: Interstate Economic Conflicts

With the advent of nuclear weapons at the end of World War II, the risks of direct warfare between major world powers became so great that all have avoided ever since. Geopolitical conflicts are still common, however, so global superpowers have leaned into economic pressures as a means of exerting influence.

Sanctions are among the preferred tools of conducting as warfare by other means, their use as a substitute for armed conflict has escalated in recent years. This has been especially true of the international response to Russia's invasion of Ukraine in 2022, which has expanded sanctions against Russia and its DNR/LNR proxies.

The United States and the European Union (EU) have both targeted crypto activity and the activity of virtual assets service providers (VASPs), the key players in cashing-out crypto assets. VASPs can vary widely in form, from over-the-counter (OTC) operations in back rooms to fully-fledged consultancies in glamorous offices. In the US, the invasion led to a block on transactions with the DNR and LNR in February 2022.

This was followed by the US Treasury Financial Crimes Enforcement Network (FinCEN) issuing 'red flags' on crypto dealings with Russia and VASPs that might be involved in this. The Treasury's Office of Foreign Assets Control (OFAC) then sanctioned Russian dark web network Hydra in April 2022, along with Garantex, an Estonian-based crypto exchange service thought to be laundering money for Russian oligarchs. OFAC has also sanctioned a number of individuals, as well as the Russian paramilitary group, Task Force Ruisch. Blockchain and virtual currency firms thought to be assisting sanctions evasion were also targeted in February 2024, and by May 2024, the number of individuals and organizations sanctioned had reached around 300.



The EU, meanwhile, has also blocked transactions with Russian-occupied Kherson and Zaporizhzhia, while broadly following the OFAC sanctions regime. In October 2022 it also banned crypto accounts, wallets or services for Russian citizens and residents. The UK and Singapore have also broadly followed suit, with the G7 also announcing at its February 2024 summit that it would “impose additional sanctions on companies and individuals in third countries who help Russia acquire weapons or key inputs for weapons.”

Crypto, Sanctions, and North Korea

Russia was far from being the first state to use cryptocurrencies to evade sanctions, or even the most prevalent. That title goes to the Democratic People’s Republic of North Korea (DPRK), which has become something of a world champion in sanctions evasion after being under United Nations embargoes since 2006. Funding for its ballistic and nuclear missile programmes is a particular goal of its efforts in the crypto space.

“They do this in three main ways,” Jessica Peck, Senior Counsel at the US Department of Justice, told the recent Chainalysis Links 2024 conference. “The first way is by deploying IT workers abroad, asking to be paid in crypto, the second way is through stealing crypto... and the third way is through ransomware deployment.”

North Korea has been active in all these areas, with the prevalence of remote working in the industry assisting the first, hacks of exchanges and hot wallets the second, and old-school phishing exploits being the tool of choice in the third. The amounts secured have been huge – \$147.5m stolen from the HTX cryptocurrency exchange in 2023, for example, while the UN claims in 2024 alone, it had been examining 11 more thefts, valued at \$54.7m and likely conducted by North Korean IT workers hired under false pretences.

A UN panel of experts investigating cryptocurrency thefts and laundering activities reported for the last time in March 2024, before its mandate was vetoed by Russia. This was also after the US sanctioned Tornado Cash, an ETH-based mixer accused of laundering around \$1bn, some of which was allegedly for the DPRK-linked Lazarus cybercrime group.

“Currently, North Korea is sitting on hundreds of millions of dollars of crypto,” Chainalysis VP of Investigations Erin Plante told the Links 24 conference.

Asymmetrics: Conflicts between state and non-state actors

As with the DPKR's sanctions busting use of crypto, non-state actors – often described as 'terrorist groups' – have also used virtual assets to get around sanctions and raise funds. Crypto's anonymity, speed, and lack of normal bank account requirements, together with its borderless and unregulated nature, are all positives for criminal groups wishing to quickly move funds globally at scale. However, where they are less useful is in realising the end goal – exchanging coins into arms and explosives, with weapons manufacturers and gun runners usually requiring hard cash.

As such, OTCs trades, crypto exchanges, and other off-ramps are the main focus of security and law enforcement agencies to combat illicit finance in crypto. At the same time, certain types of virtual currency – such as BTC and ETH – are traceable by design, with the blockchain transactions publicly available forever.

But that is little help for law enforcement when bad actors move quickly. North Korean cybercriminals are well-known for their speed, often holding assets in a particular token or stablecoin for just five or 10 minutes before moving it again.

Other bad actors, including international terrorist organizations, also use crypto to finance operations. While exactly how much of terrorism financing is undertaken via crypto is not known, but the UN estimated around 5% of total terrorist financing in 2020 to involve digital assets.

Other terror groups known for financing activities in part through crypto in recent years have included Da'esh (ISIL) and Hayat Tahrir al Sham (HTS), an Al Qaeda affiliate. HTS is in north-western Syria, while Da'esh has affiliates in other countries. A UN Counter-Terrorism Committee Executive Directorate (CTED) report in March 2024 suggested HTS' territory was a "major hub" for cryptocurrency activity, for HTS and for Da'esh, while the latter's Asian branches had also increased their crypto activity.

Stablecoins were the preferred medium, CTED reported, with terrorist groups also recently improving their operational security. Much of Da'esh cryptocurrency activity appeared to be crowdfunding campaigns to assist Da'esh family members in detention in Syria and Iraq, with donations ranging from tens of dollars to a few thousand.

Runs and Crashes: Conflicts between banks and depositors

The intersection of traditional banking systems and cryptocurrencies becomes particularly evident during times of financial crisis. When Lebanon's long-running financial and economic crisis came to a head in 2019-2020, a major liquidity crisis, soaring inflation and the collapse of the Lebanese pound (LBP) saw banks impose capital controls, shuttering branches.

The LBP had long been in trouble, too, with many Lebanese holding deposits in US dollars instead. When the central bank ordered those deposits transferred to the central bank, in order to shore up Lebanon's foreign exchange reserves, many Lebanese found themselves unable to access their own money.

The following months and years saw protests, occupations of banks, a bank strike, and even bank arsons and mass lootings, often with police themselves among the offenders. Military response to the chaos resulted in several injuries and even deaths.

Since the crisis began, crypto has offered Lebanese citizens a way of circumventing currency controls, despite warnings from the country's financial authorities not to use virtual assets. With a large global expatriate population willing to send money to friends and family in Lebanon, Bitcoin and stablecoins such as Tether have offered a way to send funds home rapidly despite institutional barriers. A network of unofficial OTC traders has also sprung up, with Telegram sometimes used as a channel to arrange informal cashing out.

While the Lebanese case does not involve fighter jets and missiles (although it did involve armed clashes), it brings into sharp focus a key feature of crypto and conflict: the rapid collapse of traditional financial systems in war, occupation, revolution, or as a result of long-running political corruption and failure, creates a major opportunity for cryptocurrency. That opportunity can be for good or ill, while it also may only last for as long as those emergency financial conditions last.



Outlook

As with most new technologies, crypto has positioned itself as a powerful but morally agnostic tool, leaving it to the users to decide what ends it will be directed toward.

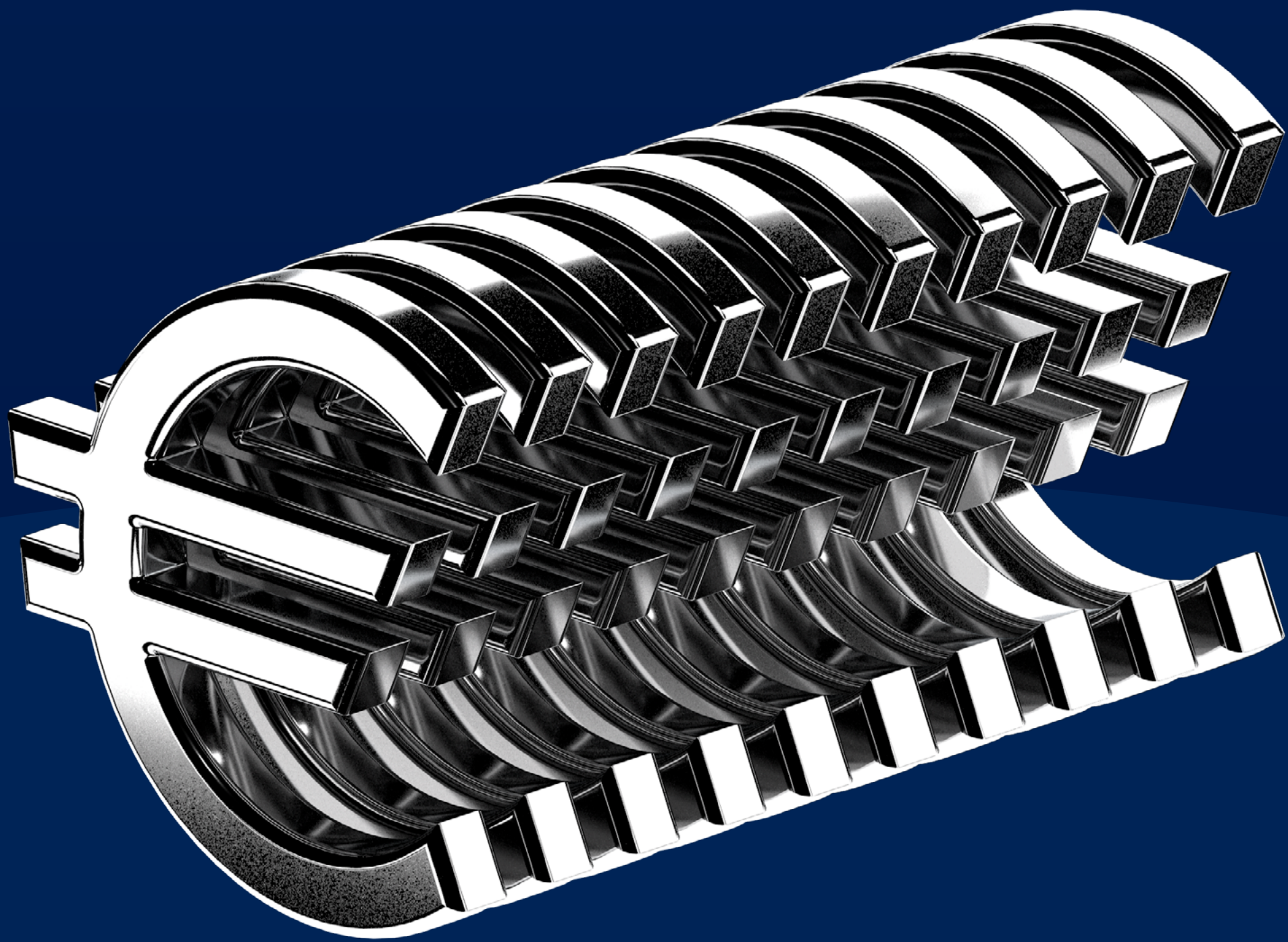
In Ukraine, crypto was undoubtedly vital for many in the first, hectic weeks of the invasion, but usage has since declined.

Indeed, compared to the billions of dollars in aid sent to Ukraine by conventional channels, crypto has largely just been the cherry on the cake. This highlights a further point – financing conflict is a multi-billion-dollar business involving the mobilisation of whole nations over long periods of time. This is true even for terrorist financing, where crypto donations pale in comparison to the transfers made by state actors.

Where there is chaos, indeed, there is also crypto —sometimes by necessity. Where cryptocurrencies demonstrate their value is at a much more local, human level. It is the donation sent to buy tents, the funding for another few weeks of fuel oil or food in a collapsing economy increasingly dominated by black market pricing.

In short, it is a lifeline for many ordinary people whose lives have just been turned upside down.





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The State of Digital Assets in Europe

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