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REGULATION

Bringing law and order to a new frontier

Bitcoin and other cryptocurrencies seem on the cusp of revolutionising global finances, but regulators are unsure of how to deal with such an innovation

DAVID COWAN

According to Microsoft president Brad Smith: “If you create technology that changes the world, the world is going to want to govern you; it’s going to want in some measure to regulate you.” This is certainly the case with cryptocurrencies.

When things go wrong, they attract the interest of regulators, and some things have gone wrong in crypto with warnings of cyber-theft, trading outages or allegations of market manipulation.

The two big regulatory questions are how and when. Events have led to a handful of outright bans and a few enthusiasts jockeying for jurisdictional position, but for most markets the approach is optimistically cautious. Regulators around the world are trying to figure out how they should treat cryptocurrencies, while the industry wonders when they can expect firm regulations.

John Salmon, partner at law firm Hogan Lovells in London, says: “What is driving regulation is the worry about scams, terrorism, anti-money laundering laws, know your customer and so on, and there is also the concern about investor protection.”

The regulators want protection against risks, while the industry wants innovation. Ryan Zagone, director of regulatory relations at Ripple, says: “What we are seeing is a global conversation about the balance between risk and innovation.”

Coming to terms with the issues requires education for regulators and industry. However, the issues need to be put into the perspective that the size of the cryptocurrency market is considerably less than its reputation and headlines. These headlines cast a giant shadow and there is a danger of seeing the threats as being greater than they are, which will destroy the benefits.

Mr Salmon explains: “The market is less than 1 per cent of GDP, so regulators aren’t so concerned about financial resilience effects.” However, he says: “Scams are out there, they need to be addressed and everyone knows this, but we don’t want to stifle the industry, and if regulation comes too early then we could end up with bad regulation.”

The benefits to regulation are clear in the certainty of use and value, good consumer protection, excluding bad players, and ensuring



cryptocurrency is used for legitimate and good economic reasons. Understanding how regulation will evolve requires viewing the challenge in three dimensions: economic, technological and legal.

The economic question is why have there been so many booms and busts in cryptocurrency? The simplest answer comes from economist Nouriel Roubini of Roubini Macro Associates and New York University’s Stern School of Business. He criticises bitcoin and other cryptocurrency as the “biggest bubble in human history”, comparing it to the 17th-century tulip crisis.

However, Dr Roubini, also known as “Doctor Doom”, is probably off the mark. As Dr Andrei Kirilenko, director of the Centre for Global Finance and Technology at

Imperial College Business School in London, notes: “There have always been booms and busts in various financial markets, especially as new assets are invented.”

Mary Starks, director of competition at the Financial Conduct Authority, says: “Most people now view bitcoin and other such coins as an asset class rather than a means of payment, hence ‘crypto assets’, which is probably both cause and effect of swings in the value.” She adds: “This has a range of public policy implications.” The good news is regulators and industry want the same thing: certainty.

Turning to the technology, Ms Starks says: “We will need to understand this technology, its strengths and its vulnerabilities, and its implications for competition, much better before we are comfortable to

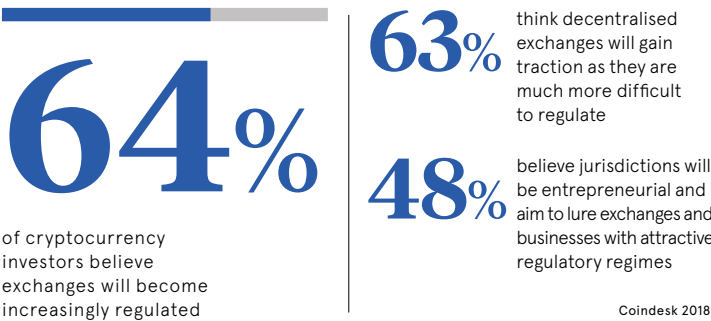
entrust it with significant swathes of our financial infrastructure. We need to ask ourselves as regulators what we should do so that we are not inhibiting the benefits nor overlooking the risks.”

The evolution of cryptocurrency will continue in a process of trial and error as the user experience and understanding improves, which brings in the legal aspects. The challenge regulatory authorities and the industry face is that cryptocurrencies are so new that they do not fit neatly into laws that were passed decades ago prohibiting misconduct in the securities and commodities markets. “It will take time for those regulations to catch up,” says Paul Anning, financial institutions group partner at law firm Osborne Clarke in London.

Market participants are campaigning for regulation because it brings the much-needed benefit of certainty. Mr Salmon explains: “The priority is dealing with the uncertainty and to achieve this the industry needs a consistent taxonomy to deal with the problem of different terms being used.” Mr Zagone agrees: “Regulatory certainty is needed and greater co-ordination. Self-regulation works where you have a mature industry and strong governance. This technology is at an early stage, so it is too early to be an option, but could be in the future.”

With legal certainty comes the benefit of confidence. Matt Bisanz, financial services regulatory and enforcement associate at Mayer Brown in Washington, says: “Safeguards and protections will inspire confidence. We’ve seen this with other technology developments, like online grocery delivery. When it was first launched there were doubts, but it happened in incremental steps and we are now comfortable with it. There was trial and error. The same will happen here.”

The snapshot of cryptocurrency regulation is that much discovery work is being done this year, which will create the foundation for making 2019 the year of cryptocurrency regulation. The G20 expects to have proposals out next month, and other national and industry bodies are mulling their options. There is a global process of learning and reflection to ensure regulatory goals are achieved, while making sure innovative energy is not quashed. “I’m more optimistic now than I’ve ever been,” Mr Zagone concludes. ♦





Kuni Takahashi/Bloomberg via Getty Images

Crackdown on crypto companies

Once a front runner in cryptocurrencies and crypto exchanges, India has now sought to shut down trading

BURHAN WAZIR

Ever since he was elected in 2014, India's prime minister Narendra Modi has pledged to use technology to accelerate national development and boost growth. Promising to make government more transparent and innovative, Mr Modi says he will overhaul healthcare, banking and government services.

He has already announced that India is partnering with Google to bring wifi to 500 railway stations across the country. He also says he will aggressively expand the nation's broadband network to 600,000 villages.

But the Indian government has struck a more cautious tone when faced with the often tumultuous rise of cryptocurrencies and

crypto exchanges. In recent years, India has become a regional leader for cryptocurrencies and trading exchanges. According to industry figures, in May 2017 India accounted for almost 10 per cent of all global cryptocurrency trades.

In April, the Reserve Bank of India abruptly introduced measures to halt the flow of digital funds into the banking sector. The bank said all regulated financial companies must end services to individuals or businesses dealing with bitcoin and other cryptocurrencies using blockchain technology within 90 days.

The new rules, which come into effect on July 5, effectively bar traders and investors from using India's regulated banking system to buy or sell virtual currencies for rupees online. Facing a possible legal challenge, the central

bank later appeared to concede that its ban was not based on detailed research.

The Indian government's caution mirrors that of a number of others around the world. Nations such as Algeria and Bangladesh have all prohibited the use of cryptocurrencies and last September China moved to shut down all cryptocurrency exchanges.

India's decision coincided with a ruling by neighbouring Pakistan's central bank that cryptocurrencies were no longer deemed legal in the Islamic republic. The State Bank of Pakistan told other banks and financial services providers to refuse any customers seeking cryptocurrency transactions. The bank also said those using cryptocurrencies to transfer money outside of Pakistan could be prosecuted.

Yet it wasn't until recently that the Indian government began to issue warnings on a sector which is estimated to have added 200,000 new users each month. Last December, the Indian finance ministry described digital currency investments as being like "Ponzi schemes" and urged caution when investing in cryptocurrencies. The ministry said investors transacting with digital currencies were doing so "entirely at their risk and should best avoid participating therein".

In addition, the finance ministry highlighted possible national security threats and said the nature of encrypted transactions meant they could be used for activities such as "terror-funding, smuggling, drug trafficking and other money laundering acts".

Crypto specialists have viewed the Indian central bank's ruling as a glaring example of bureaucratic overreach that could stifle innovation. "The way I see it, the Indian government, or the bureaucratic system, is not really proficient in understanding new technological advancements like cryptocurrencies or blockchain," says Awanish Rajan, co-founder and chief executive of www.idap.io, a forthcoming crypto-derivatives exchange, registered in Estonia, preparing an initial coin offering.

Mr Rajan says Indian regulators were seeking top-down control over cryptocurrencies and exchanges. "They are not proficient in understanding how it works and they couldn't see what was happening in the crypto space. They felt they were losing their authority over the system and didn't really understand either blockchain or cryptocurrencies. My suggestion was to follow a country which has taken a good lead on this, for example Japan. But that hasn't happened."

Yet even as India prepares for the new rules to come into effect, a number of companies have chosen to fight the central bank's decision in court. Other exchanges, such as Unocoin, are considering moving abroad to another country.

"The innovation that has happened in the Indian crypto-exchange space over the last couple of years will be stifled," says Anirudh Rastogi, managing partner at TRA Law, a Delhi legal firm. TRA Law is

representing CoinDelta cryptocurrency exchange in challenging the Indian central bank's decision. Mr Rastogi warns that a ban isolating cryptocurrencies from the banking sector would either push companies abroad or underground into an illegal "dark" sector.

"The promising companies are going to flee outside the country," he says. "Worse is that the Reserve Bank of India (RBI) directive comes in advance of a decision by the government on the legality of and regulatory mechanics for cryptocurrencies. If the government or the court were to decide in favour of crypto businesses eventually, the RBI directive would have by then taken a complete toll on the businesses, innovation and wealth in cryptos that has been created so far in the country."

Crypto specialists have viewed the Indian central bank's ruling as a glaring example of bureaucratic overreach that could stifle innovation

CoinDelta founder Shubham Yadav says the ruling had a big impact on business; new users on the trading platform had fallen from a peak of between 7,000 and 8,000 a day to just 50 to 60 after the ruling. "We are an exchange, so it has impacted us on a huge scale," he says. "The RBI's decision also has a lot of other unintended consequences. When the RBI asks banks to shut down the accounts of businesses like ours, they are effectively asking them not to support companies like us. We use these accounts for our operating expenses and salaries. This means we have to think about banking elsewhere."

The central bank has said it is exploring the possibility of creating a digital currency of its own and Indian state entities have already shown interest in using blockchain technology to tackle challenges ranging from land registration to managing healthcare records.

Critics hope the government will quickly relax the banking ban on cryptocurrencies in favour of a tax. "They talk about blockchain without really understanding how it works," says Mr Rajan. "You can streamline your governing, but that is not blockchain. The current expectation is that the government will come up with something like a tax, which would be more acceptable. That would be much better than seeing a parallel crypto black economy." ♦

01 The Reserve Bank of India has conceded that the ban announced in April was not based on detailed research

02 Prime minister Narendra Modi had pledged to use technology to accelerate national development and growth, promising to make government more transparent and innovative



Paul Miller/Bloomberg via Getty Images

02

Tracking progress in cryptocurrencies

Evolution of cryptocurrencies and blockchain is close to a tipping point as central banks and governments are now starting to recognise the opportunities



Bitcoin and blockchain have evoked mixed reactions for many years now. After it was first unveiled in 2009, bitcoin was widely dismissed as a speculative bubble that was bound to burst and cryptocurrencies have remained largely a fringe activity since then. Meanwhile, broader attention has focused on the opportunities that might be derived from the underlying distributed ledger technology. China and India are so against the new technology they have decided to impose complete bans on crypto trading.

In more recent months, however, countries such as Japan have proactively embraced digital currencies, and the same commercial banks and investment banks that had previously decried crypto as the mother of all bubbles are discreetly realigning their positions. Driven by recent volatility and the gradual transition of crypto into a professional asset class, many are now actively investing in bitcoin

and blockchain as they realise the scale of the opportunities.

This has the potential to completely reshape traditional financial markets as we know them. Cryptocurrencies bring new technologies, new markets and new systems, driven from the ground up by market practitioners and individual investors rather than by central banks or governments. If cryptos continue to evolve at the current pace, this could bring about a revolution in the way financial services are delivered and consumed. The digitisation of assets has the potential to democratise often closed investment areas, giving the general public access to markets and products in a way which has not happened before.

The bulk of investment in blockchain and digital currencies so far has come not from the official sector, but rather through unconventional channels such as crowdfunding. Initial coin offerings generate the capital to develop new crypto assets, but they are often being

bought by inexperienced investors who have never previously owned a stock, bond or currency. In other words, the technology on which the financial services system could one day come to depend is owned not by central banks, governments or professional investors, but rather by members of the public.

The financial services sector is well accustomed to change, of course, and

When major investment banks are allocating substantial resources to develop their own blockchains, we know things are changing

big financial centres have historically been driven to adapt by new products, technology and shifts in demand. The advent of electronic communications, for example, allowed hedge funds to move from the City of London to Mayfair and from Wall Street to Boston. The building of Canary Wharf in London and most recently Hudson Yards in New York has further dispersed historically famous financial centres.

The development of blockchain and cryptocurrencies could be even more disruptive, further diminishing the role of New York, London, Tokyo, Shanghai and Singapore as leading financial centres. Many of these cities have retained their pre-eminence because of the liquidity they manage and the high concentration of banks, technology and buy-side firms in those areas.

Blockchain has no such physical constraints when it comes to liquidity or technology. The beauty of a distributed ledger is that it can be accessed and amended anywhere, with no need to concentrate around existing financial centres. Each chain is equivalent to a new financial ecosystem and investors are closely watching the space to identify which will endure for the long term. From complicated investments to retail operations, it offers a new transparent, accessible way of managing data.

Up until now, main centre regulators have largely focused their attention on concerns over fraud and market manipulation associated with cryptocurrencies and initial coin offerings. This is, of course, absolutely right, and they are aware of the potential opportunities provided by blockchain to promote greater transparency, security and ease of access for a broader spectrum of investors and traders. In the long run, it is those agencies with the foresight to investigate these benefits properly, rather than simply outlawing or constraining crypto trading, which will drive the best results for their markets.

The speed and scalability of blockchain cannot yet meet the demands of most modern financial systems,

but this is bound to change. With the volume of financial and human resources now being pumped into the technology, it is advancing very quickly. The priority for main centre market practitioners and regulators should be to recognise that blockchain is here to stay and looks set to become an integral part of mainstream trading. If they do not adapt these developments, they will find smaller, more dynamic financial centres stealing a march.

As with every innovation, there is a tipping point, a switch in sentiment and understanding that leads to bigger changes. We believe that tipping point for crypto is very close. When major investment banks are allocating substantial resources to develop their own blockchains, we know things are changing. The market volatility is now understood and investors are looking past the market fluctuations at long-term value – and the official sector is now doing the same.

Revolution not anarchy

"Anti-establishment, libertarian and revolutionary – all words which have been used to describe cryptocurrencies and the rise of blockchain technology. From the moment it was formed through to the meteoric growth in the people and firms associated with crypto, the message has always been that this will change the world. And it will do this without the need for government intervention or regulation," says Philippe Ghanem, vice chairman and chief executive of ADS Securities.

"It is the intellectual freedom which has created the phenomenon we see today; however, can it really be unregulated? If it is setting out to change the way that financial services operate, taking control from governments, politicians and leaders, and putting it in the hands of the masses, can this be achieved with no judicial or social controls?

"The answer is of course no. This does not mean that the same types of regulation which are applied to fiat currencies need to be in place. However, like water cascading down a hill, its power and purpose can only be captured and controlled when it is channelled and directed.

"We are now in a period of its development when as many new 'regulatory' bodies are being formed as new coins issued. This tells me that there has to be governance. Systems are needed which set the boundaries and rules required to protect companies and individuals.

"However, no central bank or entity is controlling distributed ledger technology. For example, looking at bitcoin, investors hoarding the coins – typically the first movers – and institutionalised miners using huge computing power have become the de

facto major players influencing market prices. This is already a broken model.

"There is also a finite cap of 21 million bitcoins – at this stage about 17 million coins have been mined – so this risk of concentration means bitcoin cannot be compared to any other market; it's efficiency and attractiveness are compromised.

"We have to hope the emergence of new tokens and market participants, typically smaller but more numerous individual investors, speculators and more traditional institutional players, will take a bigger market role. Ultimately, it is the spread of the technology and increased market access, government regulation, transparency and liquidity which will make blockchain an essential part of the financial services world.

"History tells us that revolutions do not cancel all rules, they reset them, and this is what has to happen with crypto."



Philippe Ghanem
Vice chairman and chief executive
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SOCIAL BENEFIT



Money power to the people – not pizza

Although cryptocurrencies may be viewed by some as primarily a speculative investment opportunity, they have a possibly greater, social value

OLIVER PICKUP

Bitcoin Pizza Day, celebrated on May 22, commemorates the first real-world cryptocurrency transaction, completed on that date in 2010. Laszlo Hanyecz exchanged 10,000 bitcoins – then the equivalent of \$80 and now worth around \$70 million – for two large pizzas.

Facilitating the purchase of an Italian cheese-and-tomato-based food staple is unlikely to have been what Satoshi Nakamoto had in mind when publishing the bitcoin white paper in October 2008, before mining the genesis block and launching the network the following January.

However, it's impossible to know for sure, because Nakamoto has remained both anonymous and silent since establishing the original cryptocurrency, which has now spawned more than 1,500 others. In the eight years since Mr Hanyecz's pizza purchase, the value of cryptos, both financially and in terms of benefitting society, has expanded exponentially.

Even now, at this relatively early stage of development – some call it “the 1994 of the internet” – there is a multitude of examples, all over the globe, showcasing how cryptos can be a force for betterment.

“We are already seeing social-impact solutions that otherwise wouldn't be possible without cryptocurrency technology, such as

expediting the sustainable transfer of aid and providing secure government services,” says Doug Galen, lecturer at Stanford Graduate School of Business and chief executive of RippleWorks, an organisation that pairs startup and technology experts with social ventures around the world.

“When applied in the right use-cases, we may well see cryptocurrency do to certain industries what the internet has done to how we access information or what mobile technology did to how we connect people.” And that may be what the people behind bitcoin were striving for.

In Nakamoto's white paper, *Bitcoin: A peer-to-peer electronic cash system*, the author proposes “a purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution”.

The white paper posits: “No mechanism exists to make payments over a communications channel without a trusted party. What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party.

“Transactions that are computationally impractical to reverse would protect sellers from fraud and routine escrow mechanisms could easily be implemented to protect buyers.”

Bitcoin and more advanced cryptos have solved a number of

the issues outlined by Nakamoto, thus causing even sceptics to concede that this form of digital currency could well be the future of money. With an inbuilt safeguard against fraud and false identity, thanks to the blockchain ledger technology underpinning bitcoin, greater transparency, plus lower fees for cross-country transactions, and by being free from government interference, cryptos have begun transforming payment systems in emerging markets.

Moreover, it is estimated there are approximately 2.2 billion individuals with internet access, via smartphones and similar devices, but without access to a traditional financial exchange, making them prime targets for the cryptocurrency market.

Ian Bradbury, chief technical officer of financial services at Fujitsu, says: “The most obvious developing social value use-case for a ‘stored value’ solution is in the area of identity. Although you may not see identity as a cryptocurrency, it certainly has significant value to an owning individual and it is frequently shared with others in a controlled way to gain access to many services, for example border control, right to work, education, healthcare, financial services, benefits and many others. Now, very basic forms of identity management are being implemented to help refugees, for instance.”

Jimmy Nguyen, chief executive

“Cryptocurrency will achieve greater financial inclusion for people in developing countries



The organisation uses both a smart contract that manages the entire life cycle of carbon credits and a utility token (ocean) that facilitates the efficient settlement of carbon credit transactions.

“The cryptocurrencies that enjoy media attention, for example bitcoin, are more akin to commodities like gold than anything else. Conversely, utility tokens allow the access of specific services on their given platform and can typically not be used for any other purpose,” he says.

On May 1, Poseidon joined forces with Ben & Jerry’s Scoop Store in London. For every scoop of ice cream bought, Ben & Jerry’s vowed to more than rebalance the climate impact of the process. The consumers too have been invited to contribute and match the pledge. “They are taking that opportunity and exceeding it,” says Mr Giricz. “So far, in just over four weeks, we conserved an area of rainforest the size of more than 100 tennis courts with these micro-donations, thereby protecting over 1,500 trees already.”

Elsewhere, cryptos are also enabling much greater and quicker investment in innovative projects, points out Ransu Salovaara, chief executive of Gibraltar-based TokenMarket. “This is next-generation crowdfunding,” he says. “In TokenMarket’s first year, we helped startups raise twice as much money as the UK’s largest equity crowdfunding platform Crowdcube,” he says.

“Thanks to almost-instant cryptocurrency contributions, innovative startups and growth companies can access a global investor base easier. In 2017, initial coin offerings helped startups raise \$5 billion, far exceeding venture capital in the same sector. So cryptos empower entrepreneurs to finance their ventures and also enable anyone from any country to buy those digital tokens.”

Luke Chittock, chief executive of Kent-based philanthropic organisation Lifelabs, which allocates 30 per cent of all transactions to charitable causes, says it is now possible to “literally follow the money from the point of paying it into the wallet of a charity right through to the point when it’s paid out for its dedicated cause”.

He explains: “Smart contracts automatically ensure that your money can only be spent on pre-defined goods and receivers. This builds an enormous amount of additional trust for charities and their brands, something that is essential in the world of philanthropy.”

Trust, transparency, inclusivity – these, and not pizza, were surely what Nakamoto had in mind when inventing bitcoin almost exactly a decade ago. Because of cryptos, the world is a better place and the social benefit of this global phenomenon is only going to increase with the maturity of the technology. That calls for a celebration. Margherita anybody? ♦

of London-headquartered crypto specialists nChain, continues this theme. “Cryptocurrency will achieve greater financial inclusion for people in developing countries,” he says. “They have large unbanked populations with limited access to financial services because they cannot easily save, store or send money. But with a digital wallet on their mobile phone, ‘the unbankables’ can participate in the digital financial world.

“They can electronically save and send cryptos anywhere in the world for mere pennies, rather than paying money remittance fees that can cost up to 8 per cent of the transaction amount, as well as buy goods and services in digital commerce.”

Five years ago, more than a third of Kenyans signed up for a bitcoin wallet offered by the revolutionary mobile phone-based money transfer, financing and micro-financing service M-Pesa (*pesa* is Swahili for money). Further, according to a 2017 Citibank report, the founding cryptocurrency makes up more than 2 per cent of the African country’s gross domestic product (GDP).

Kenya is fifth in that list, two places behind Nigeria (3.5 per cent), with Russia top on 5 per cent. By comparison, America’s market share of bitcoin as a percentage of GDP is only 0.17 per cent. But, even though those emerging markets are unburdened by the legacy of creaking financial systems, bitcoin is not the only cryptocurrency benefiting societies. After all, in December, blockchain.com worked out that the average bitcoin transaction took 78 minutes. Unsurprisingly, newer and quicker crypto strains have been adopted, and developed for specific use-cases.

“Digital assets can be a real tool for good,” enthuses Laszlo Giricz, founder and chief executive of Poseidon, a non-profit organisation that engages in forest conservation.

Bitcoin comes of age

Cryptocurrencies are attracting professional and high-net-worth investors, and they need reliable service provision



Buying bitcoin is almost as easy as booking a train ticket these days. Just register with one of the growing number of cryptocurrency exchanges, go through a few standard compliance checks, load a cash balance and away you go.

This ease of accessibility is no accident. The mainstay of demand for bitcoin so far has been from retail investors and day traders keen to dabble in this new market, so the priority has been to make it as easy as possible for them to access the currency without excessive layers of paperwork and screening.

As the cryptocurrency market matures, however, it is attracting interest from a wider spectrum of investors, including professionals and high-net-worth individuals. This is to be welcomed as bitcoin has been on a rollercoaster ride of volatility in recent months and, with the increasing participation of institutional traders, it offers tangible opportunities to sophisticated investors.

Transitioning from fringe currency to an investment asset class will be a major change for bitcoin and other crypto assets. Market participants will need confidence in the regulation

and security of the market, while also developing an understanding of the changeable nature and technical factors that drive currencies.

At CoinCorner, we have been conscious of the need to address security concerns, something that has been a priority since we first launched in July 2014. Our clients can access their assets at any time and can be assured that these are kept securely in cold storage while not required.

We are based in the Isle of Man, which is one of the safest places to live in the world, and take every necessary step to assuage concerns over fraud and security. The Isle of Man has become an active centre for bitcoin trading and one of the first jurisdictions in the world to introduce legislation for cryptocurrencies.

While there was no legislation in place when we launched, we fully expected that this would change at some point and carried out robust anti-money laundering, counter-terrorist financing and know-your-customer procedures from day one. We worked closely with the Isle of Man government to develop the local crypto legislation that came into force in 2016 and have been registered with the Isle of Man Financial Services Authority for the past two years.

Proportionate regulation of the cryptocurrency space is to be welcomed and should help to facilitate its transition into a professional-grade product, giving investors greater confidence that this is not the wild west of financial markets, but rather an emerging asset class in its own right.

Volatility will also play its part in supporting this transition and the fluctuating price of bitcoin over the past six months has certainly helped to bring in new participants. There is a natural tendency across financial markets to focus on intraday price fluctuations, but it is the broader trajectory of bitcoin over the last nine years

Our new service, CoinCorner Concierge, will be aimed specifically at a more sophisticated class of investor

that should be of greater relevance in showing its growth.

The steady appreciation in the value of bitcoin, coupled with the rapid development of other digital currencies, highlights the rising maturity of the market as it begins to attract a new breed of longer-term professional.

While it is the risk and volatility of bitcoin, and the potential for high returns, that will draw professional investors in, they still need reliable service providers as they experiment in trading the product. That might range from technical support to advice on security and regulation, and this will be just as important for high-net-worth individuals as for day traders.

Our new service, CoinCorner Concierge, will be aimed specifically at a more sophisticated class of investor, recognising that even if buying £100,000 of bitcoin rather than just £10, reliable and innovative exchanges will be no less important.

The cryptocurrency world is evolving fast and we are excited to be on the cusp of its next phase of growth.

For more information please visit coincorner.com/concierge

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<https://coinmarketcap.com/currencies/bitcoin>

35%

of high-net-worth individuals already have exposure to cryptocurrencies or will have by the end of 2018

<http://www.internationalinvestment.net/cryptocurrencies/survey-reveals-35-of-hnwis-are-investing-in-cryptocurrencies/>

SAM SHAW

Millennials love an experience. And what could be more experiential than turning up to a music festival, ditching that summer's capsule wardrobe into a minimalist glamping pod and heading off into a field of dreams armed with nothing but optimism? No bumbags, no festival-friendly satchels to protect, no wallets. Not physical ones, anyway.

Already embracing digital wallets pre-loaded with cryptocurrency, will the next phase see us simply donning watches, bracelets or even microchips embedded into our hands, giving a new meaning to wave and pay?

"The more flexible industries will be first," says Iqbal Gandham, UK managing director at social trading platform eToro. "Where concerns exist around cash payments, yet people don't really want to use debit cards, these might move to their own digital currency. I think festivals and the music industry could be ripe for adopting cryptocurrencies."

More broadly, the multi-trillion-dollar media and entertainment sectors look optimally placed for the uptake of cryptocurrency. Whether it's downloading the number-one hit from future pop princess Blue Ivy Carter, daughter of Beyoncé and Jay-Z, or projecting a virtual Matisse on to your living room wall, digital assets naturally lend themselves to digital currency purchase.

Applied futurist Tom Cheesewright thinks the media industry is one example of low-hanging fruit that will be first to adopt crypto as the norm.

"Cryptocurrency ought to be good for anything using low-cost transactions and micropayments, which remain problematic in today's digital economy," Mr Cheesewright says.

Given today's tug of war between advertisement or subscription-driven revenue models, he adds: "In publishing, most potential traffic is walled out from accessing the site because they have no ability to take payments of just 10p for a particular article."

Volatility and frictions around cost and speed appear to the biggest barriers to uptake, but change is already afoot. Bitcoin may be the market leader, but there are more



Festivals and other places requiring low-cost transactions could be the first to adopt cryptocurrencies

Photo by picjumbo.com from Pexels

Several central banks are developing a new form of money known as central bank digital currency

Sovereign states appear to be key to progress, alongside their respective regulators, despite not quite agreeing on the basics, and some countries are already at work. Be it Estonia, a self-proclaimed digital leader or economic powerhouse China, someone just needs to go first.

eToro's Mr Gandham says: "Some people have said by 2030 we will have 25 or 30 per cent of world currencies replaced by bitcoin. I think it will be far, far quicker than that. Countries with less faith in their governments will adopt the currency quicker and the more stable may come a little later."

Rohit Talwar, chief executive at global futurist publisher and consultancy Fast Future, agrees: "The world isn't going to align on Estonia's crypto as the global standard. It would either have to be a pan-European thing, but the European Commission is just way too behind the game, or US-led, but no one is going to put their money towards Trump's vote right now. Even if the Federal Reserve came up with a watertight model, there is just too much nervousness around him that would put people off."

But by 2030 Donald Trump will be out of office and if an Oprah Winfrey or a George Clooney or some other such outsider is by then leader of the free world, perhaps the United States will be at the table with a more serious hand?

According to the International Monetary Fund, several central banks are developing a new form of money known as central bank digital currency (CBDC). If over the next ten years we see CBDCs rolling out and replacing notes and coins, there will be an enormous boost to state funds, reduced transaction costs, wider financial inclusion and tailored anonymity.

From permitting unshackled revelling in muddy fields to influencing monetary policy, the scope for cryptocurrency over the next decade seems rather daunting. Yet if they were designed not to be centrally managed, an impartial observer could not help but foresee attempts by governments failing by sheer design. Partnerships between governments, technology giants and banking institutions feel like a natural evolution, with parallels drawn from the rise, fall and eventual settling of the internet age. ♦

Cryptos set to cash in as money loses appeal

Today's futurists see a tomorrow when cryptocurrencies dominate financial transactions big and small

than 1,600 rival cryptos desperate to take over.

Distributed ledger technologies Tangle and Hashgraph are vying to topple blockchain's crown before it has even become comfortable. The next generation will continue finessing the underlying technology on which cryptocurrency

operates, such as targeting the inability to hold personal data on the ledger. And the other cryptos will hope maturity will help stabilise price sensitivity.

Believing it should be possible for any size crypto-based transaction to take place for a maximum 1p each, Mr Cheesewright expects a large

consumer-based organisation to fix the efficiency issue in the next few years and says it is perfectly reasonable that a China-based internet behemoth will dominate the crypto space by 2030.

"I can't see it being a Google or an Amazon. I think these companies are already under such regulatory scrutiny that if they started to present a serious challenge to the existing banking and monetary infrastructure, they would run up against a regulatory wall. No one, bar their shareholders, really wants to see them have power in yet another domain," he says.

"I think it is far more likely to be a JD.com or Alibaba where those regulatory controls are less strong. They would then provide a potential engine of 'soft power' for the China government and we could see a China-based currency, crypto or otherwise, that became the de facto global platform for trade, rather than the dollar."

B2B cryptos

Cryptocurrencies may become commonplace for low-cost transactions and micropayments made by consumers, but what about business-to-business (B2B) payments of the future? TraDove is developing a light, fast and trustable B2B blockchain payment network that hopes to mitigate many of the problems that hamper the business payments industry.

The TraDove platform uses various social networking functions, such as endorsements and references, and deploys artificial intelligence to connect corporate buyers and sellers with faster discovery, reducing the time and effort spent by businesses on due diligence. Founded by experts from MIT, LinkedIn, Facebook, Amazon and Alibaba, with backers from the corporate, finance and tech worlds, TraDove also this year launched the world's first B2B token, BBCCoin,

opening up corporate demand for cryptocurrencies for their sales and marketing needs – a \$76-billion market, according to the company.

"This is tremendous for businesses given that they can eliminate the hassle of working with international banks, as well as reduce their costs for payments. This in addition to the level of transparency afforded to transactions thanks to the blockchain," the firm says.

Next-generation platforms

A next-generation cryptocurrency platform is offering regulation and security – with no trading fees

Since being launched less than a decade ago, cryptocurrencies have become one of the most disruptive creations of the internet age. This once niche pursuit is slowly, but surely, becoming noticed and adopted by key players in the global financial ecosystem, leading to more widespread use. Yet, much has changed in the crypto space over the last few years, especially in terms of what traders expect from cryptocurrency exchanges.

Now that a number of cryptocurrencies are worth a great deal when converted to traditional fiat money, improving security is becoming an increasingly important consideration across the industry. From Indian crypto exchange Coinsecure losing more than \$3.5 million after a theft, to a Japanese cryptocurrency platform called Coincheck falling victim to a hack that saw over \$500-million-worth of digital currency stolen, the consequences of inadequate protections are clear.

Platforms operating outside the regulatory system are likely to face challenges going forward. Traditional financial institutions will not be able to work closely with unregulated firms, as exchanges that hope to work inside the global financial ecosystem will require a robust regulatory framework. Equally, in such an unregulated crypto space, companies with strong and untarnished reputations will be highly attractive to traders.

Cryptocurrency exchange DX.Exchange is one of the next genera-

tion of crypto platforms that wants to empower users to trade on a regulated and secure platform, with no trading fees. DX partnered with a world-class matching engine, which will prevent double-counting and fake volumes, at the same time as offering traders cutting-edge technology.

"Crypto enthusiasts shouldn't have to pay more than a minimal membership charge to trade with their peers and they shouldn't have to trade in an unregulated, unsecure environment. The DX.Exchange interface is one that will create a one-of-a-kind, fair trading experience that puts the traders first," says Daniel Skowronski, chief executive of DX.

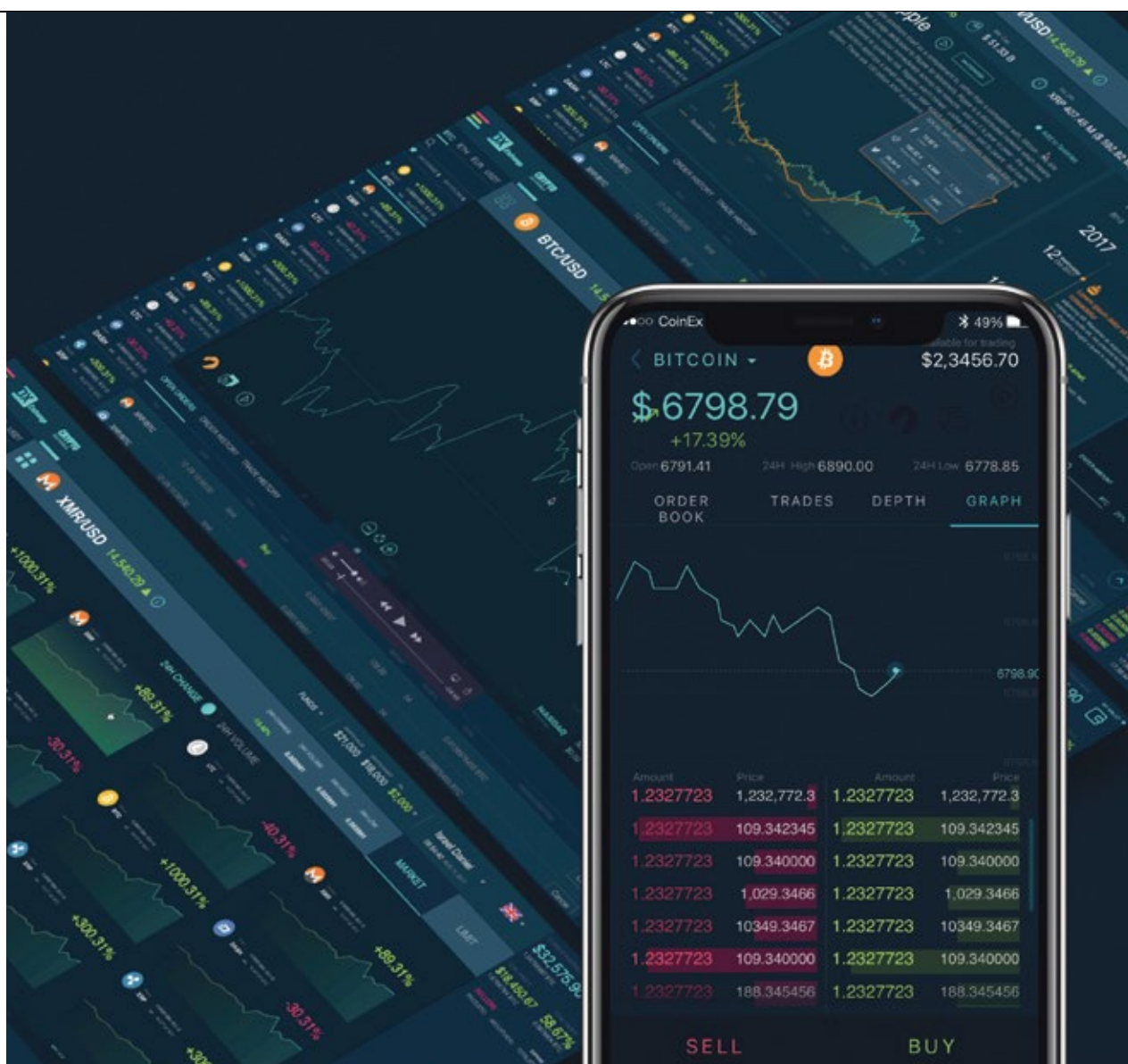
Mr Skowronski stresses the importance of regulation, explaining that regulation has always been on the side of the trader and the industry must fully embrace legal frameworks if it is to mature. In the absence of regulatory structures guiding companies, it's difficult to see a sustainable future in the volatile area of digital currencies.

By focusing on the complex needs of traders, advanced cryptocurrency exchanges such as DX hope to become a one-stop shop for cryptocurrency enthusiasts all over the world. "Crypto fans are a very social crowd. Word of mouth is the best form of advertisement in the crypto space and I hope DX will live up to their expectations," says Mr Skowronski.

Unclear fees for transactions and trading on exchanges can quickly hurt a trader's profit. Users who are new to cryptocurrencies or want to invest relatively low amounts may also find the price breakdown difficult to work out and understand exactly how much certain purchases or sales will cost.

"Cryptocurrency traders don't want to pay fees on every trade. What they do want is transparency; 'what you see is what you get'," says Mr Skowronski. With this in mind, DX's model is purely peer to peer where users can trade for a monthly membership fee of €10, with professional traders who invest more than €50,000 paying competitive trading fees.

After a straightforward registration on DX, when customers are asked to provide some basic information, users can deposit either traditional fiat currency or cryptocurrency into their account and start trading. Unlike competitors in the industry, DX pairs the



Cryptocurrency exchange
DX.Exchange is one of the next generation of crypto platforms that wants to empower users to trade on a regulated and secure platform, with no trading fees

robust functionality and unified operation with an Estonian EFSA licence and a license from Cypriot regulator CySEC, allowing traders to feel secure when buying, selling or storing cryptocurrency, even when high volumes of trades are happening.

"We want the excitement around DX to continue. That's why our team will never compromise on security, the no-trading-fee principle and providing the best technology-driven user experience," Mr Skowronski concludes.

For more information please visit dx.exchange



COINS.EXCHANGE

First-time buyers of cryptocurrency may find trading platforms more complicated and unnecessary for their simple buy and sell needs. In response to customer demand for an easy buy-sell exchange, where no actual trading between cryptocurrencies takes place, the team behind DX.Exchange have created Coins.Exchange (CX). Coins.Exchange was designed to take the best aspects of user experience and combine them with top-level security technology.

This new platform focuses on simplicity, security and ease of use. Cryptocurrencies can be easily

bought and sold using a traditional fiat currency, credit or debit card, making the process uncomplicated for customers who have no previous holding of digital currency and want to ensure the entire purchasing experience is protected from risks normally associated with the industry.

"Based on the customer's choice, cryptocurrencies can be automatically transferred to their e-wallet and, if they do not have one, they can download the Coins.Exchange single-use wallet," says Daniel Skowronski, chief executive of DX.

DX.EXCHANGE FOR ICOs

Although initial coin offerings (ICOs) have only been around for a few years, they have rapidly become a viable funding mechanism for cryptocurrency firms. In 2017 alone, the more than 100 ICOs raised over \$5 billion. However, with the constant risk of a hack breaching platform security, it is vital for any firm considering an ICO to do their research and select a reliable exchange.

All participants in ICOs are set to benefit from DX solutions, perhaps most

importantly from the comprehensive know-your-customer and anti-money-laundering services available.

"Token listing should be on exchanges such as DX.Exchange, which is a regulated, secure and strong technology. Reputation is key in the crypto space, and with DX having all the necessary parameters, such as European Union regulation and security, this is exactly where ICO participants should list their tokens to the public," says DX chief executive Daniel Skowronski.



Daniel Skowronski
 Chief executive, DX.Exchange

**ZEN**

ticker symbol

\$100m

market capitalisation

21m ZEN

maximum supply

4m+ ZEN

circulating supply

Cryptos need core changes to work for everyone

Cryptocurrencies have a powerful specialist investor base, but lack mainstream consumer and business adoption. To succeed they need to be easier to use, truly trusted and integrated with traditional banking systems

Consumers and companies are taking an active interest in cryptocurrencies, but there is clearly a long way to go before their eventual role in personal and business finance is fully realised.

To some degree, a lack of broader awareness of what cryptocurrencies have to offer is holding the industry back. But so too is a lack of joined up thinking within some projects.

"Very few of the 2,000 or so cryptocurrencies operating have a truly business-like operational structure and a hierarchy that ensures they make good strategic decisions," says Rowan Stone, director of business development for cryptocurrency ZenCash. "All these digital currencies are still in the phase of the geeks – too complicated

and clunky for many to use. People are starting to realise that by fixing this we can make traditional finance efficient."

ZenCash is in the process of simplifying usage of its products and core currency, but it also has a broader vision. Work is taking place to create an Apple App Store-like platform that is simple to use and acts as a whole ecosystem in itself. Companies will be able to create their own apps with any link to cryptocurrency and blockchain technology, from real estate to information storage and analysis.

For any cryptocurrency, when a truly consumer-like interface like this is created, mass adoption and institutional investment could follow. But Mr Stone says the industry also needs to tackle how it is perceived by investors.

"We found that whenever we mention we're a privacy coin, the investment community tend to shy away," he notes. "Since tipping the word to 'confidentiality', and pitching that we are creating an ecosystem of apps with the ability to restore users' confidentiality, investors have been able to understand what we're doing and have become really open to our proposition."

In terms of funding, cryptocurrencies also need to secure the support of organisations interested for the long haul. "It's actually too easy to raise money for cryptocurrencies," Mr Stone says. "What we want is the right strategic support."

ZenCash recently scored a big win with financial backing from the Digital Currency Group, which has a similar

vision and owns a controlling stake in a select group of the largest cryptocurrency firms. This opens up access to institutional capital, while offering other investors reassurance about the quality of opportunity.

In addition, the industry needs regulatory acceptance. For now, the cryptocurrency world remains relatively unregulated and misunderstood, but steps are being taken to make it less risky and considerably more transparent. Mr Stone says he would welcome any "sensible regulation that doesn't stifle growth", adding: "Rather than resisting regulation, which many projects are doing, we are welcoming open and honest conversation; without it there will be broad-brush regulation that will damage the industry."

In the long term, cryptocurrencies must ensure interoperability with banking systems. "At the moment the two do not really talk, given that legacy banking systems rely on masses of metadata, whereas cryptocurrencies are essentially an input and output hash," says Mr

The first company to make crypto and legacy banking work well together is likely to be the first to win mass adoption

Stone. "It's going to be a huge project, but the first company to make crypto and legacy banking work well together is likely to be the first to win mass adoption."

He sees cryptocurrencies delivering on the original vision of making the world a better place, by bringing banking solutions to millions more people and introducing personal financial stability to some of the most economically unstable regions of the world. "The core thing to remember is that cryptocurrencies are a permissionless system; you don't need to be allowed by a government or a company to operate. Anyone can jump into

crypto, create an app or fork; it's completely open," says Mr Stone.

As the cryptocurrency world pushes for simpler, accessible and trusted offerings, the potential for delivery on this goal is now highly evident.

To find out more about ZenCash and how it is simplifying cryptocurrencies for all to use please visit zencash.com or follow @zencashofficial



Rowan Stone
Director of business development
ZenCash

Experience creates strength

Despite having experienced some significant setbacks and a bumpy ride in ZenCash's short history, director Rowan Stone remains optimistic about the future for cryptocurrencies. "We become stronger and better from our experiences," he says. "We're now anti-fragile."

Shortly after launch in May 2017, a ZenCash developer attempted to bring down the project following a coding error. The situation resulted in a criminal investigation and the involvement of the FBI. Multiple transactions were double spent and scores of early users needed to be reimbursed.

Soon after, following strategic talks with Charles Hoskinson of blockchain development firm IOHK, ZenCash's business prospects brightened. Introductions led to the hiring of more high-calibre developers.

Listing on Bittrex led to increased exposure which gave ZenCash the budget required to expand its team. Late-2017 saw ZenCash launch a secure node network and its team was expanded to more than

50 people. Not long after, the cryptocurrency market crashed and so did the value of the company's currency. Reserves were substantial and well organised but, nonetheless, it came close to the wire.

Support from the Digital Currency Group proved a timely and important intervention. Its backing gave the company valuable credibility and access to new investors, and led to its entry into more online wallets, exchanges and websites.

In the first half of 2018, ZenCash listed on Binance, the leading exchange of its kind in the world. This added exposure came at a cost though with one of the company's exchange partners being robbed through a 51 per cent attack, which is an attack on the blockchain. ZenCash, however, has a fix in the works that should eliminate these risks for the whole industry.

ZenCash now has a user-base numbering 70,000 people and ambitions to become among the most transparent, reliable and well-structured cryptocurrency operations in the world.

Let’s offer a safer way to invest

An urgent need remains to safeguard cryptocurrency launches and fundraising from cash-grabbing scammers

DAVID COWAN

There is little doubt that initial coin offerings (ICOs) promote innovation. Risk and entrepreneurship have always gone hand in hand, and ICOs offer an exciting way for ventures to raise money and for investors to speculate. ICOs attract early-adopters and operate creatively like a crowdfunding exercise. However, they are also unregulated, allowing startups to bypass the rigorous and well-regulated capital-raising process in established markets.

This gives the unscrupulous a platform for scamming and the non-profit Anti-Phishing Working Group estimates that about \$1.2 billion in cryptocurrencies has been stolen since early-2017. Some say ICOs are the wild west, susceptible to fraud because not all exchanges actively pursue scammers and wild fluctuations in price swings inherent in the market make it easy to mask artificial price manipulations.

White papers bring some order to the table, offering some transparency around the project on objectives, funds needed, virtual tokens kept by pioneers and the ICO campaign timeline. Paul Anning, financial institutions group partner at law firm Osborne Clarke in London, agrees: “A lot of attention is paid at the point when a white paper is published, but it is equally important to pay attention to the project going forward.”

Dennis Uitz, co-founder of BDXCoin, says trading firms need to comply with the rules for exchanges and insist on extensive record-keeping. Citing the recent case of German-based ICO startup Savedroid, when funds went “missing” in an apparent public relations

stunt, he says: “That’s crazy. Client funds should not be touched by companies. The use of funds should be clearly stated; everything should be made transparent in the white paper. Cryptocurrencies are a two-way communication between company and investor.

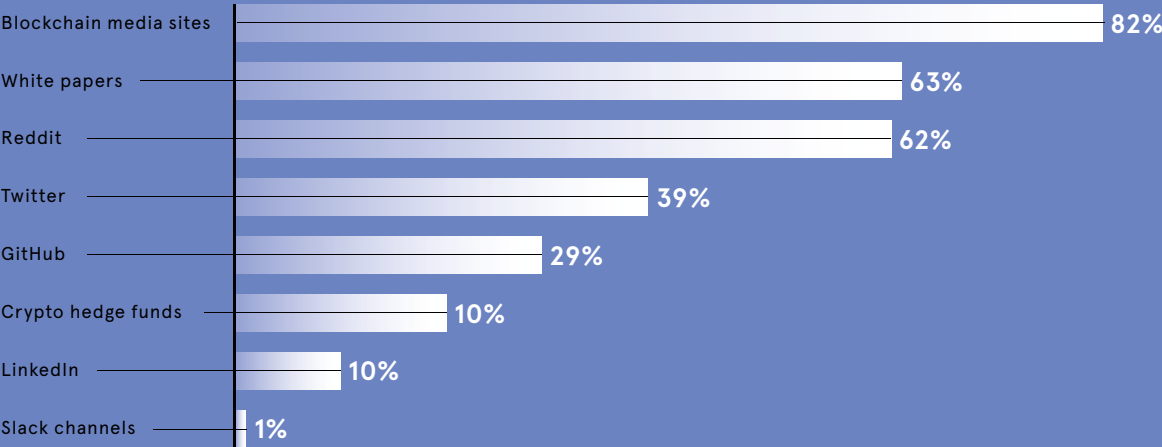
“I am concerned when I hear regulators say they regard cryptocurrency and bitcoin as a threat. Self-regulation will come and in many ways it is ideal for innovation, but there are always those who will not be compliant, so we need to have a Europe-wide framework to protect the basics and create standardisation. However, we should not kill innovation.”

CryptoUK was formed in February by seven of the largest cryptocurrency companies joining forces to promote self-regulation within the UK crypto industry. The association urges regulators to focus on exchanges, brokers and trading platforms rather than the cryptocurrencies themselves, and says HM Treasury should grant the Financial Conduct Authority (FCA) new permissions or licences to govern crypto investment.

Iqbal Gandham, chair of CryptoUK and UK managing director at trading platform eToro, told a recent Treasury Select Committee inquiry: “Introducing a requirement for the FCA to regulate the ‘on-off’ ramps between crypto and fiat currencies

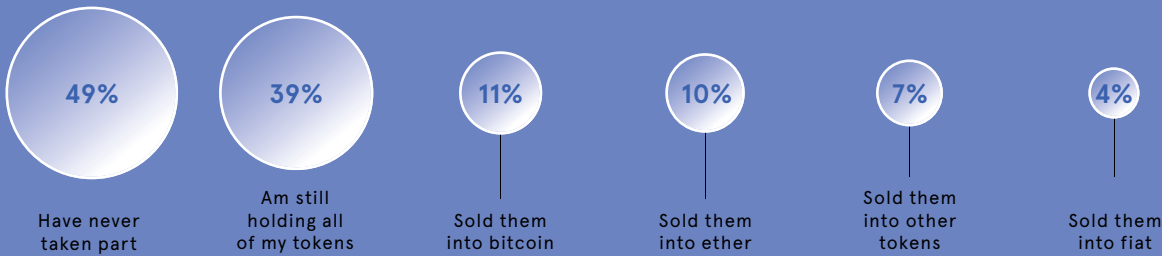
“ICOs attract early-adopters and operate creatively like a crowdfunding exercise

What investors use to learn more about token/ICO projects



ICO intentions

Have you taken part in an ICO and if so what have you done with your ICO tokens?



CoinDesk 2018

is well within the remit of HM Treasury. Based on our analysis, this could be achieved relatively easily, without the need for primary legislation, and would have a huge impact, both in reducing consumer risk and improving industry standards.

“This is an approach which is already working well in other countries, which are now taking the lead over the UK, for example in Japan and Gibraltar.” Guidelines from the Centre for Rule-Making Strategies at Tama University in Japan state that ICO projects should be clear on distribution of funds, rules for tracking the progress, the identity of buyers and restrict insider trading.

Bans blocking exchanges and one-size-fits-all approaches can stifle innovation, and there is much support for focusing on a more sophisticated use-approach. One use is the enterprise use as a liquidity tool for financial institutions; another would address consumer risks while enabling enterprise use. For virtual currency uses, risks can be addressed through a licensing framework whereby policymakers could issue licences that include consumer protections and the gamut of regulatory concerns.

Ryan Zagone, director of regulatory relations at Ripple, says: “My hope is they will opt for a licensing solution. We have to ask why do we want regulation? It is because of the many new use-cases, and we need to recognise there are many uses, such as the consumer use-case, and regulators need to preserve that. Regulation is a prerequisite before the professional players get into this more aggressively.” Lawyer Mr Anning concurs: “The important question is what is the regulatory objective?” Answer that and we may be on the road to standardisation. ♦

Case study Ripple

Using the Ripple blockchain, banks can send money internationally and use the XRP token to square up balances almost instantly. What typically took days in the past is now accomplished in four seconds.

Based in San Francisco, Ripple partners with over 100 banks, with 75 more in the pipeline. Ripple has made their protocol open, encouraging developers to build on top of their platform and leverage their blockchain.

Accelerators focused exclusively on products using the Ripple protocol, such as CrossCoin, have emerged to further enhance this process. Ripple is currently the third

most valuable coin measured by circulating supply market capitalisation.

Ripple highlights the regulatory question of classification. Cryptocurrency prices have hitherto been highly correlated with bitcoin. However, Ripple believes this could end soon as markets start to acknowledge the differences between assets.

Chief executive Brad Garlinghouse maintains that XRP cryptocurrency should be categorised differently, pointing out differences between XRP and classic securities, such as stocks. “If you own XRP, you don’t own rights to the profits or any dividends. XRP has real utility,” he says. “I think it’s a matter of time until people better understand the different use-cases.”



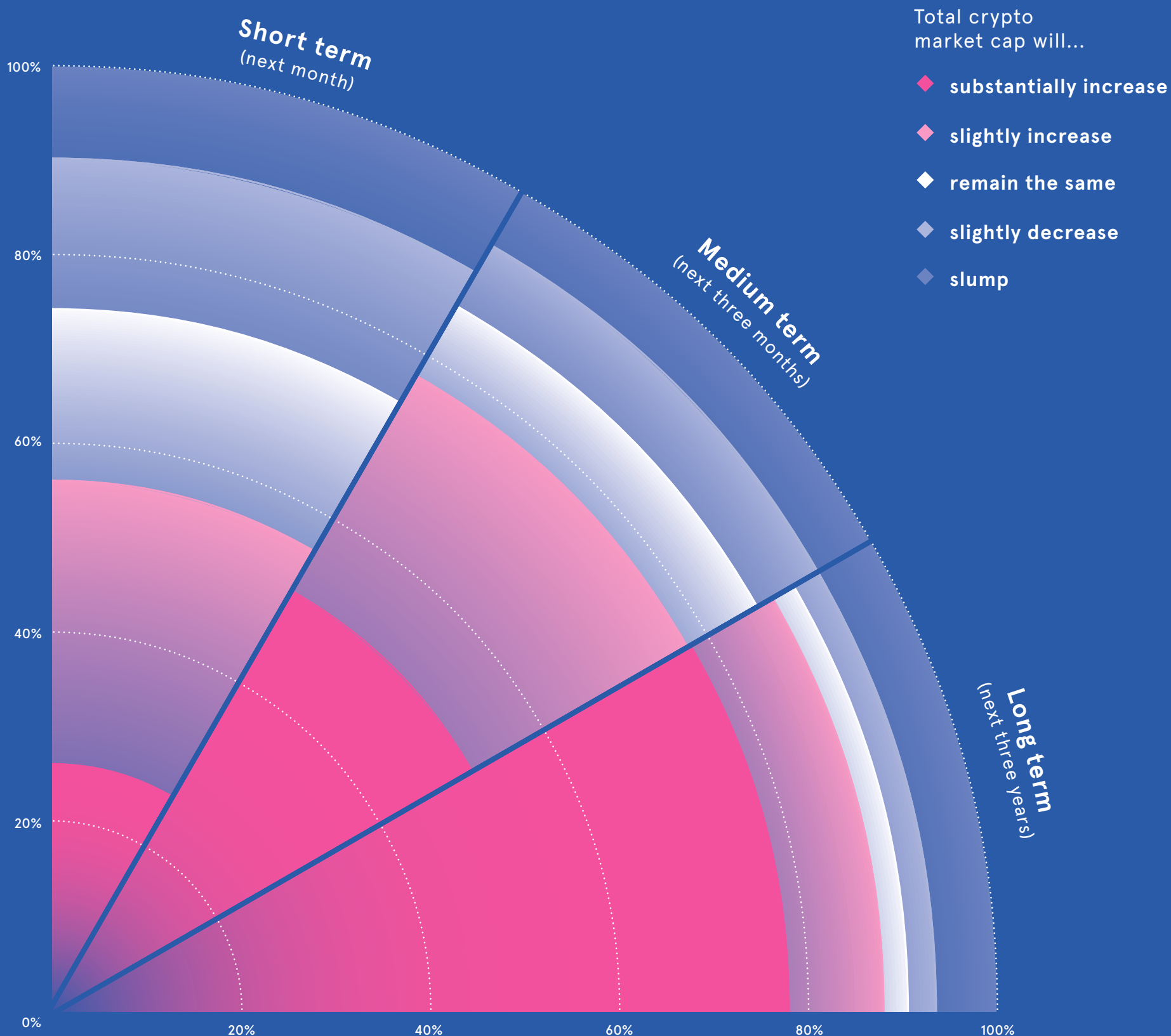
Brad Garlinghouse
Ripple chief executive

CRYPTO SENTIMENT

Exploring the motives and bullishness of investors gives insight into the market sentiment for cryptocurrencies, and where the industry is heading

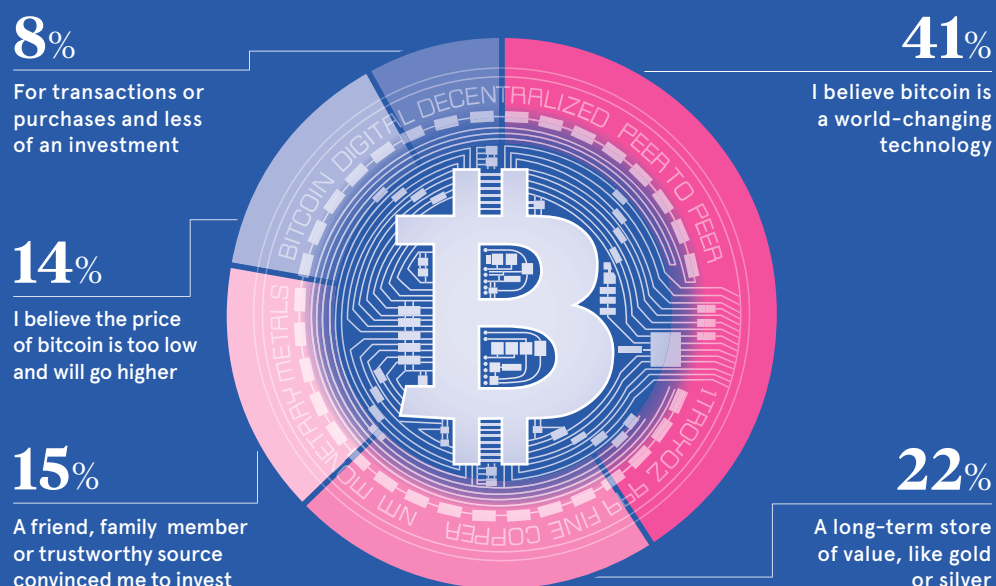
Crypto expectations

Survey of 1,800 individual cryptocurrency investors worldwide



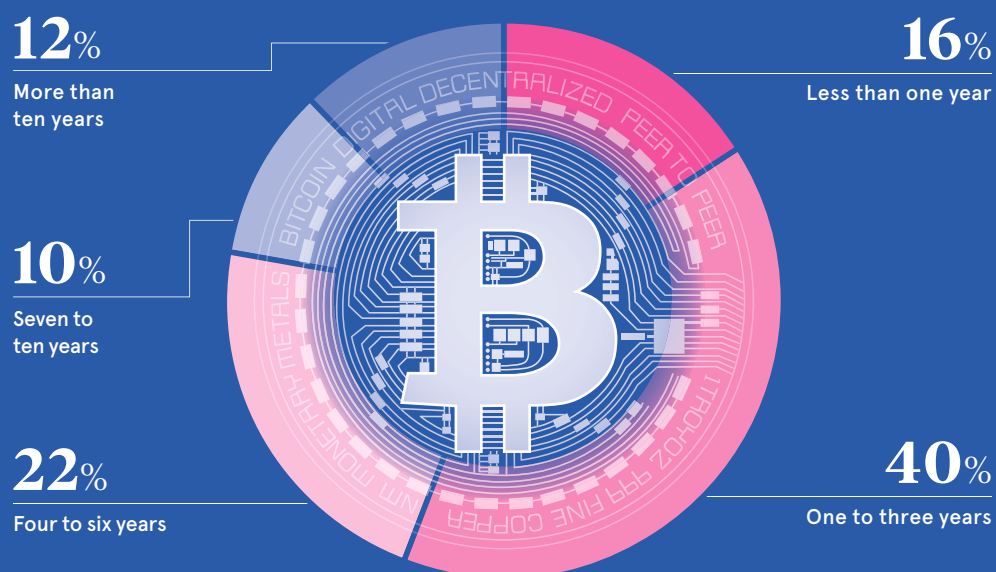
Why consumers are investing in bitcoin

Survey of those already invested in bitcoin as of November 2017



How long investors plan to hold on to their bitcoin

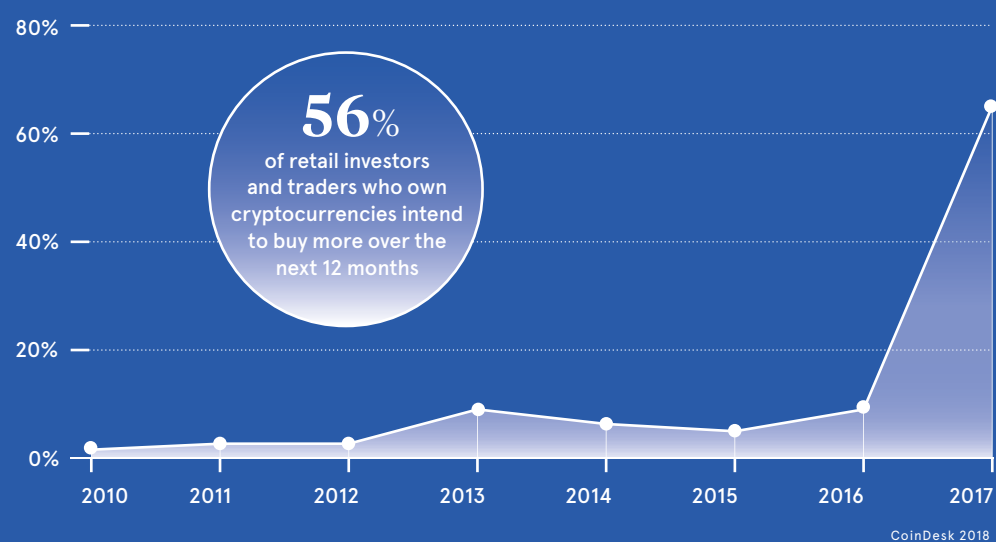
Survey of those already invested in bitcoin as of November 2017



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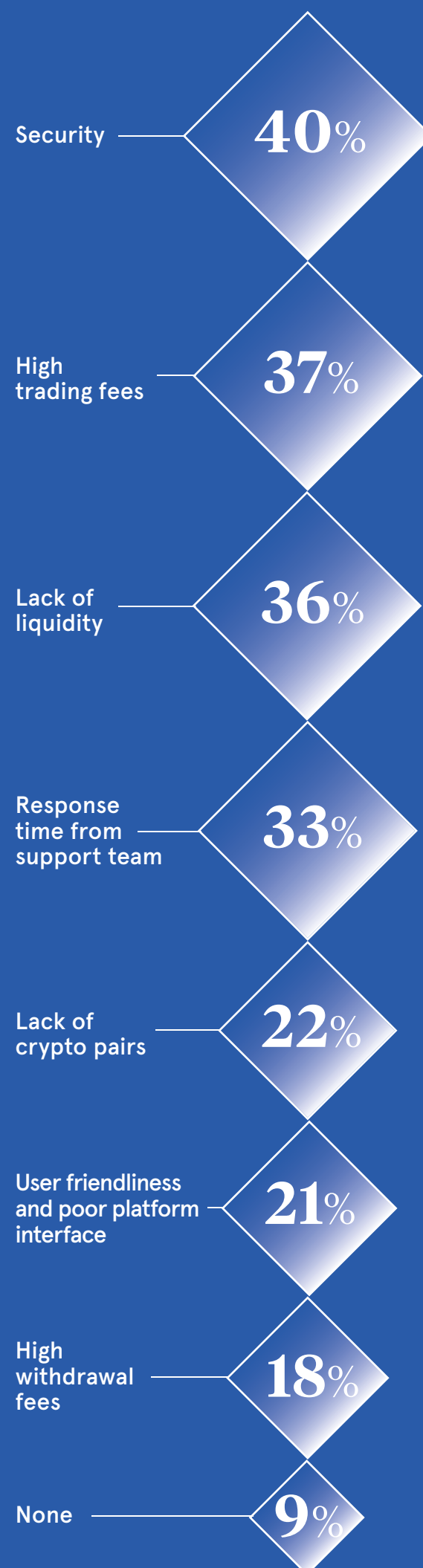
When crypto investors became involved

Year when investors were first active in cryptocurrency markets



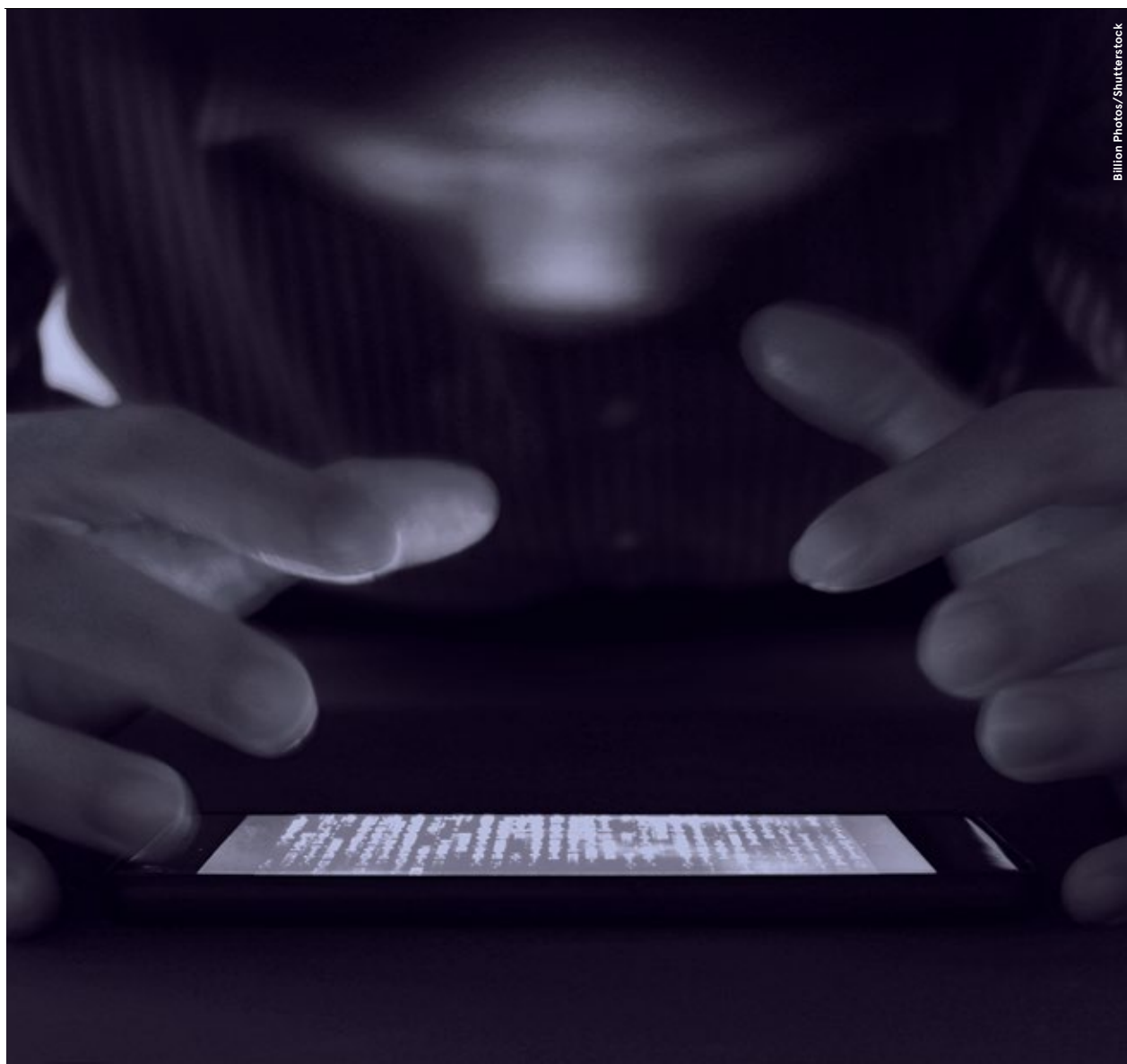
Top concerns of crypto traders

Percentage of crypto traders concerned with the following issues about crypto exchanges



Encrybit 2018

DISPELLING MYTHS



Billion Photos/Shutterstock

03
Crypto transactions take too long to complete

In December, blockchain.com calculated that one bitcoin transaction takes on average 78 minutes. This can be frustratingly slow and, worse, unreliable – two of the main reasons financial institutions have not adopted the original cryptocurrency. However, countless other cryptos have learnt from bitcoin's sluggishness and boast near-instant transaction speeds.

XRP, the token of Ripple, has a processing speed of just four seconds, according to the blockchain.com research. Further, Ripple is able to complete 1,500 transactions a second. It is still some way of Visa's 24,000 transactions per second, but the technology is being improved upon all the time. For instance, at BlockShow 2018 Europe, hosted in Berlin in late-May, David Schwartz, the chief cryptographer at Ripple hailed the recent introduction of the Lightning Network, calling it a game-changer.



Things/Shutterstock

Time to put the record straight about cryptos

The early mystique of cryptocurrencies may have given rise to a number of misunderstandings or myths which can easily be dispelled

OLIVER PICKUP

Criminals use cryptos because they are anonymous

Cryptocurrencies are often viewed with suspicion because of alleged links to criminal activity. Many believe, wrongly, that bitcoin and other cryptos attract dark-web lurkers because of their anonymity. While users can be pseudo-anonymous, every transaction on the underlying blockchain is traceable, by design. Kerim Derhalli, chief executive of Invstr, says: "The single most-outdated misconception is that bitcoin and other 'shady' cryptos are the preserve of drug dealers, child

abusers and weapons merchants. The association of bitcoin with criminality is a throwback to its earliest days and has been deeply unhelpful." George Morris, partner at global law firm Simmons & Simmons, adds: "The majority of cryptocurrencies are not entirely anonymous; in fact they have a layer of transparency that sets them apart from physical commodities and cash. The physical US dollar remains the number-one instrument worldwide for nefarious transactions and that is not going to change soon. Cash remains king as it provides a level of anonymisation that cannot be replicated by any cryptocurrency."

02
Cryptos have no value

Sceptics question the value of cryptocurrencies and ridicule investors for backing speculative, unregulated assets. However, the fact is cryptos are global, borderless currencies that fluctuate based on supply and demand. Indeed, that it is cashless is why numerous supporters believe it is the future of finance. Siam Kidd, founder of TheRealisticTrader.com, says: "Over 90 per cent of the money people hold dear, like the dollar, euro or pound, is already in digital format. There is a very small supply of actual hard money these days. The general trend around the world is a move towards cashless societies. Also cryptos like bitcoin can't just be inflated away via quantitative easing like fiat currencies, and as bitcoin is a scarce and deflationary currency, it's easily argued that it is a far better store of wealth."

04
Coins and tokens are the same thing

Belief that cryptocurrency coins and tokens are one and the same thing is a common mistake, so don't worry if this comes as a shock. As Brian Donegan, head of operations for fintech and digital development at the Isle of Man Department of Economic Development, explains: "Coins such as bitcoin have a tangible value that

may go up or down and can be wildly volatile in the markets – just look at the period from June to December last year when one bitcoin rose from around \$2,500 to just under \$20,000. Tokens on the other hand, if designed as a utility, as opposed to a security, facilitate access to online goods and services."

05
Bitcoin is the best long-term investment

"Bitcoin's investment performance depends on the entry and exit time, just like any other financial asset," says Julian Zegelman, cryptocurrency lawyer and co-founder of TMT Blockchain Fund. But there is more to it than that. It is estimated there are now around 1,600 cryptocurrencies and, although they can all be traced back to bitcoin, many are far superior in technological terms. Other crypto projects have improved upon bitcoin's sluggish transaction speed and solved its scalability concerns. Consequently, if (or when) cryptos are widely accepted by financial institutions, bitcoin is likely to be left behind. Investors are aware of this. Consider how in 2017 bitcoin's annual return was 1,289 per cent – impressive, but way below the 19,830 per cent the other top five cryptos gained. ♦



spayam/Shutterstock

‘There is no reason to let short-term concerns cloud our view of the future’

Cryptocurrencies are criticised for their volatility, exposure to hacking and manipulation, and potential facilitation of money laundering. But it is quite common for innovations to encounter hesitant starts, and yet bring enormous economic and social benefits and change.

Thirty years ago, or even more recently amid the dot-com collapse, it would be difficult to imagine that there would be a small number of dominant technology companies, notably Google, Apple, Facebook and Amazon (GAFA), bringing such social and economic change. Furthermore, the challenges they are bringing along with these benefits were not always those that would have been imagined.

All this is probably relevant for crypto assets. Some of the concerns that people worry about – volatility, exposure to manipulation, lack of acceptability – are unlikely to be long-term issues. They stem from illiquidity. Once there is enough liquidity, these issues will disappear and there are good reasons why liquidity for the “winning” cryptocurrencies is likely to improve in the near or medium term.

One reason sits with central banks, where two distinct shifts may have a big impact. One is that leading merchant and international banks are starting to offer services involving crypto assets, for example offering exchange-traded futures on crypto assets when requested by customers, which in turn is putting pressure on central banks to develop prudential rules for the treatment of crypto assets on bank balance sheets.

A critical side effect of this activity is that the introduction of formal regulatory approved valuation and risk-measurement techniques, aimed at ensuring the resilience of the banking sector, will bring cryptocurrencies into mainstream banking and legitimise them. The other is the role of digital currencies in central banking payment systems. Central banks are all actively looking at introducing digital currencies and it is not if, but only a question of when this will happen.

The entry of central banks into the digital currency arena will bring the general populace into using digital currencies on a daily basis, from which the jump to using cryptocurrencies becomes a much smaller step.

The arrival of well-functioning cryptocurrencies could, for example, be a boon for users of retail banking services enabling them to use low-cost, fully verifiable transaction mechanisms to replace the existing

expensive payment services offered by banks. But this is essentially replacing existing systems with cheaper alternatives and the potential for innovative services is probably where the long-term benefits lie.

The benefits for insurance markets are often cited as an area that will benefit greatly since cryptocurrencies and the underlying blockchain should enable the exact price of insured items to be verified, rapid and precise public verification of events triggering insurance payments, and provide the relevant payment, all on one platform.

However, the ability for cryptocurrencies to include insurance-like contracts triggered by specific events, so-called smart contracts, appears to be even more exciting. It could enable small firms to borrow more easily and at lower rates because they will be able to publicly offload certain risks that depend on well-identified outcomes, such as currency exchange-rate triggers and prices of commodities futures. Such smart contracts could also be used to affect bond ratings and essentially could be useful in all sorts of investment opportunities.

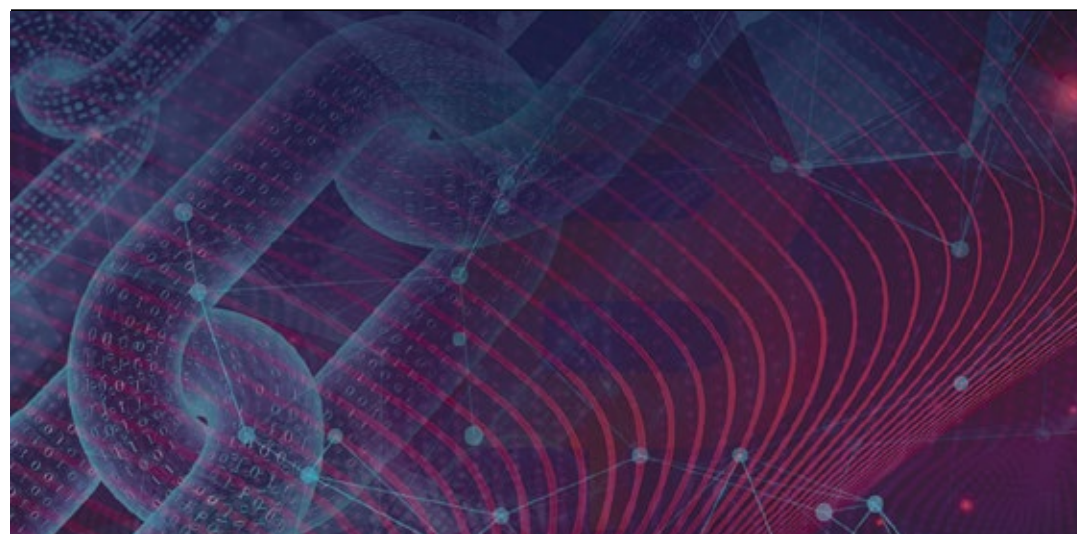
Given the need for liquidity, we will probably end up with a small number of very large cryptocurrencies, but many smaller niche ones that are used extensively by particular industries and social networks, where the concentration on a specific industry or network provides a degree of protection against lower liquidity, all sitting alongside central banks digital currencies.

At the end of the day, as with the GAFA example, it is difficult to be sure where all this will land, but there is no reason to let short-term concerns cloud our view of the future.



Ania Zalewska

Professor of finance
Director of the Centre for Governance,
Regulation and Industrial Strategy
University of Bath



Blockchain democratises quality investment for everyone

Cryptocurrency ledger technology is opening up formerly advanced investment products to regular retail customers. By dividing investment amounts into small portions and enabling quick access, it is transforming ways of growing wealth

Investing in real estate portfolios, private equity firms and other non-public corporate enterprises has typically been the exclusive domain of asset and wealth managers whose clients have £100,000 or more to put in. But the security of blockchain technology and the reliability of distributed ledgers mean investments can easily be broken into smaller chunks, offering opportunities to everyone. Anyone with as little as £200 can now invest in assets that were beyond reach.

This technological shift has meant thousands of companies have created virtual tokens to build their own investment vehicles and quickly raise capital. Many are offering cryptocurrency coins through an initial coin offering (ICO), rather like a form of corporate debt, and beginning to raise capital from a wide variety of investors on a global basis.

However, investors in these ICOs face myriad options. Many of the new investors may not be familiar with corporate

due diligence processes or know how to check and understand what they are investing in.

A new breed of companies is using the benefits of cryptocurrency to change this. One cryptocurrency is BDXcoin, born out of the skillsets of foreign exchange and futures trading firm BDSwiss. It has created a “master coin” or purchasable token that can be used to buy services and trade within the BDX ecosystem, comprised of an ICO platform and crypto exchange, for zero fees.

Every time an ICO is launched on the platform or a token is listed on the crypto exchange, BDXcoin holders receive additional tokens from those companies as a reward. To guarantee the quality of investment, BDXcoin employs its own assessment and has rejected nearly 92 per cent of ICO applications. In its review, it evaluates five factors: the founders and their prior accomplishments, if there is a credible need for blockchain, the way the token is designed, the business plan and market fit.

“We’ve been able to “tokenise” investment, meaning anyone can buy our tokens and receive the rewards of our ecosystem,” explains Dennis Uitz, co-founder of the company. BDXcoin currently has coin issues from 11 different firms in its portfolio and there is an ongoing queue being further assessed before launching.

These white-labelled ICOs include one from a real estate developer with €200 million of assets in Germany. Another is from a travel and leisure gift card company, the largest in the Austrian market, and a third issue involves an established Tunisian company developing the first African Formula 1 racetrack.

Perhaps the most cutting-edge issue is in the private equity space, which is typically off limits for all but institutional investors. The company involved is a German private equity house typically returning more than 18 per cent per annum to its investors, looking to significantly broaden its capital base by tokenising products.

Mr Uitz says blockchain technology and cryptocurrency models open up investment opportunities, but adds: “Investors can see from the huge range of coin issues out there that our evaluations are key to a good investment.

“With so many options, investors need a quality due diligence process, and institutional quality investment that will stand up to regulatory scrutiny and create proper returns. That’s why we’re applying investment-banking level due diligence across the ICO opportunities we review.”

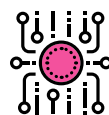
More than 3,000 investors already own BDXcoin tokens and millions more potential clients are beginning to examine cryptocurrency options. There is clearly huge scope for the right businesses to list coins and raise capital. Protected by proper due diligence, investors have an enormous opportunity to invest any amount of money in strong teams and organisations.

To find out how to take advantage of blockchain technology for accessible, high-quality investments please visit bdxcoin.com

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Women at the top driving crypto

Although the fintech sector is dominated by men, women are staking a claim in emerging cryptocurrencies

FIONA BOND

The tectonic plates of the cryptocurrency landscape are shifting. In the first ten months of 2017, four out of the 30 largest initial coin offerings (ICOs) boasted female co-founders and, according to Bloomberg, two of the female-led ICOs were among the biggest to date. It's a trend that holds promise for the industry.

In little under a decade, blockchain and cryptocurrency have grown sensationally, offering an undeniably exciting antithesis to the rigid confines of the traditional financial ecosystem.

As Sandra Ro, chief executive of the Global Blockchain Business Council, explains when asked what first attracted her to this space: "It's the transformative potential of this technology and the decentralised community; the most eclectic collection of curious, collaborative, open and globally-minded people working towards innovation and most towards good solutions for humanity."

Teana Baker-Taylor, chief marketing officer at Coinfloor, echoes Ms Ro's views. "Coming from a career in traditional finance, I'd been through several periods where consumer



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confidence in the financial system had been compromised. I was fascinated by the decentralised nature of crypto and how trust in the system is generated by consensus," she says.

"I see crypto assets as additive to our investment options and our ability to transact with each other. My long-term hope is that the token economy grows responsibly to enable everyone greater access to financial services and raising capital for new businesses."

While bitcoin, arguably cryptocurrency's biggest export, has seen its star rise and fall in recent months, it is clear interest in the industry remains buoyant. Yet, ironically for a technology that seeks to break down barriers with its innovative and unique concept, the cryptocurrency industry has yet to make the same strides when it comes to diversity.

The latest Google analysis suggested that an overwhelming 95 per cent of bitcoin searches were made by men. Meanwhile, overall female participation in cryptocurrency is commonly pegged at between 4 and 6 per cent.

Though such figures cannot be truly ascertained due to the anonymous nature of cryptocurrency, it is clear the tech industry is still very much a man's world. A recent *Forbes* study of the top 20 wealthiest people in the crypto industry showed they were all men.

Meltem Demirors, chief strategy officer at CoinShares, says: "If you look closely at the cryptocurrency space, you will see a number of women. The challenge we face, however, is that they are not the founders of businesses and thus not given the same recognition as their male counterparts. That is the issue we must overcome."

Unsurprisingly, the dynamics have spawned a flurry of female networks and groups. From Blythe Masters, who quit her job at J.P. Morgan Chase & Co to run Digital Asset Holdings, to Elizabeth Stark,

01 Sandra Ro, chief executive, Global Blockchain Business Council

02 Teana Baker-Taylor, chief marketing officer, Coinfloor

03 Claire Wells, legal and business affairs director at blockchain company Circle

04 Meltem Demirors, chief strategy officer, Coinshares

chief executive of Lightning Labs, there are a number of formidable women leading the charge.

Ms Demirors says: "We are fortunate to have a strong network of ambitious, like-minded women who collaborate and work together, identifying ways to create a more diverse community."

Claire Wells, legal and business affairs director at blockchain company Circle, adds: "Fin and tech are not known for their diversity, but I think the industry is getting much better. Diversity is a topic I feel very passionate about and have done a lot of work to promote, through conferences, like Women of the Square Mile, and as one of the first signatories on the HM Treasury's Women in Fintech Charter."

And diversity is the key word here. For these women, it is important all groups are given the opportunity to participate in this huge wealth-creation event, not simply females.

Indeed, many women argue that simply drawing attention to the gender gap brings little benefit. They

have a strong desire to be recognised for their accomplishments not their gender, and believe true change will stem from inspiring others through their passion, energy and success stories.

Ms Baker-Taylor says: "I don't think we need to highlight the industry to women per se, but more coverage of the innovation and the transformational projects underway, especially those championed by female leaders, would help to attract top talent. This industry is very passionate and it is evolving every day as new projects are announced and partnerships formed."

"Crypto is burgeoning and it is open to everyone. Now is an incredible time to get involved because it's growing and it's hungry for talented people. Personally, it was an incredible opportunity for me to transition from traditional finance into what I think could be an evolutionary shift for financial services."

If the thinking behind blockchain was to revolutionise the way people interact and transact, being led by a largely homogenous network of people will only result in biased products.

Ms Ro points out: "As CEO of the Global Blockchain Business Council and co-founder of several start-ups, I want to hire talented people, including awareness of diversity across gender and backgrounds, discourage 'group think' mentality and lead by action, integrity and accountability."

As cryptocurrency and blockchain



02

We are fortunate to have a strong network of ambitious, like-minded women who collaborate and work together, identifying ways to create a more diverse community

evolution

continue to garner interest, it is clear that we are only at the beginning of what looks set to be a compelling story, regardless of gender. And with that comes much excitement.

Ms Wells says she is particularly passionate about The Circle USDC; her firm recently announced that it is working to launch the USDC stablecoin.

She explains: "For me, it's the first step in the road to tokenisation and a significant game-changer in the industry. With USDC comes a price-stable means of exchange and store of value badly needed for financial interoperability to function reliably and consistently in the financial ecosystem.

"What really excites me is with the advent of cryptographic assets and blockchain-based technology comes the capability to disrupt traditional systems and democratise the financial industry by giving the power back to the individual to create, store and share value."

According to Ms Demirors, the industry hasn't fared well on promoting the usability of assets and, rather than become too tech-focused, should be looking at ways to encourage people to use tokens for uses beyond financial speculation.

But with this comes the need for greater regulation. As an advisory

council member of newly formed industry body Global Digital Finance, Ms Baker-Taylor says the next chapter will be defined regulatory frameworks. The body is currently drafting a code of conduct and token taxonomy to help the industry engage with policymakers.

She says: "We are at a regulatory crossroads; policymakers are in the process of evaluating new technology, new methods of raising capital and evolving ways to transfer value. I'm passionate about this project because I believe it's imperative we, the industry, work together with policymakers to help define balanced regulatory frameworks to promote good practices while enabling the crypto-asset industry to grow."

But while there is undeniable interest in tackling interoperability and scaling issues, the social impact must not be underestimated.

Ms Ro, who believes cryptocurrency should be harnessed for a "fairer, less corrupt world", says we are in the throes of a unique opportunity to reorganise the way value is distributed around the world.

She concludes: "We need entrepreneurs who will push boundaries and develop emerging technologies. There is as much a human, culture shift element to what is going on as well as the technical evolution." ♦



04



Women's Coin brings financial and spiritual wealth to investors and supporters

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CEO & Founder Prof Christine Bamford - voted top ten global women Fintech leaders - "Women's Coin Foundation enables a virtuous cycle of investment and reinvestment - Women's Coin is a force for good. It is also big business. Women control over 70% of household spend - if only 10% of women switch to women's coin currency then that purchasing power alone is worth \$3 trillion. This is a coin of substance - a coin of value - a coin of enormous growth potential."



Innovative Cobinhood platform is a crypto game-changer

A new player has entered the cryptocurrency market, putting the crypto community at the heart of its business model



Popo Chen
Chief executive, Cobinhood

Type “how to trade bitcoin” into Google’s search engine and it will return more than 150 million results. With an overwhelming amount of advice, it can seem like a minefield deciding where to buy and exchange the original decentralised cryptocurrency, launched almost a decade ago, in early-2009, and the hundreds, if not thousands, of cryptos it has spawned.

At the end of a year in which interest in cryptos well and truly flowed into the mainstream of public consciousness, it reached its high-water mark in December 2017. According to CoinDesk, a leading authority in crypto news, one bitcoin was valued at just over \$1,000 on New Year’s Day 2017 and by mid-December it peaked at just shy of \$20,000.

Although there has been a pullback in the cryptocurrency markets in the first half of 2018, experienced traders are still jostling with first-time depositors and others seeking safe-haven assets in a scramble to invest in bitcoin, as well as other major cryptos, including ether, XRP, bitcoin cash and newer “altcoins”. With prices low, they reason, now is the time to speculate. This demand to invest has triggered an initial coin offering (ICO) phenomenon. While there are numerous exciting success stories, some investors have been stung financially, by throwing money at poorly thought-through crypto projects or worse, scams.

Indeed, there is a certain level of risk in investing in a largely unregulated asset class, such as

cryptocurrencies, and there are infamous stories of major hacks. In early-2014, for instance, the Mt Gox bitcoin exchange was handling more than 70 per cent of all bitcoin transactions worldwide. In the February of that year it suspended trading and closed its exchange service after announcing approximately 850,000 bitcoins, worth \$450 million, belonging to both customers and the organisation were missing, probably stolen.

Cybersecurity has improved considerably since, though, and exchanges, by and large, have more robust defences to keep cybercriminals at bay. For those looking to buy and trade cryptos, there are other things to look out for, not least hidden charges enforced by many exchanges for trading; this is normally around 0.2 per cent of every transaction. In short, investing in cryptos is neither straightforward nor inexpensive, if you are not careful.

Thankfully, a new player entered the market in August 2017 and is changing the game for the better, by putting the crypto community at the heart of its business model. Cobinhood, headquartered in Taiwan, from where many of the planet’s best software engineers hail, is “the world’s first platform to combine a zero trading-fee cryptocurrency exchange and an ICO service”, according to Popo Chen, Cobinhood’s founder and chief executive.

Already the exchange service – the first product on the innovative Cobinhood platform, which currently offers over 60 tokens and more than 120 trading pairs – has attracted one

Cobinhood is the world’s first platform to combine a zero trading-fee cryptocurrency exchange and an ICO service

million users, with 70 per cent logging in from the Americas and Europe. No doubt the unique zero trading-fees offering is a significant driver. The organisation is well prepared for further rapid growth and vowed to bolster its defences by introducing a digital wallet within the next month.

“The Cobinhood exchange operates with high-level security,” says Mr Chen. “Every crypto asset deposited at Cobinhood will be stored in an offline ‘multisig’ [multi-signature] wallet. We estimate that 98 per cent of these assets will be stored offline. Each multisig ‘cold’ wallet consists of eight hardware security modules (HSMs). Transactions will require five out of the eight HSMs to proceed, otherwise the wallet will remain closed.”

Cobinhood’s business-to-business ICO service, the second of the platform’s burgeoning suite of products, is even more encouraging for the crypto community. Unlike the way the company charges zero trading fees from users on the exchange, there is a cost for prospective crypto developers to

use Cobinhood’s expertise and brand endorsement, but it is well worth it.

Currently, their ICO team receive about 20 requests a day for assistance with anything from white papers to large-scale publicity, though they can provide an end-to-end solution if required. “Cobinhood’s ICO service consists of business-model consulting, smart-contract code review, legal compliance, deployment procedures and marketing support,” says Cobinhood co-founder and chief technology officer Wei-Ning Huang.

However, they are discerning and ensure stringent due diligence is completed before committing to any ICO. “We are not interested in people looking to make money quickly,” Mr Huang explains. “We want to know what they can contribute to the crypto

community and only launch high-quality, promising ICOs.”

For example, CyberMiles, a blockchain that aims to build a decentralised ecosystem for ecommerce, has been launched by Cobinhood. CyberMiles’ ICO sold out within 48 hours, having raised more than 84,000 ether, precipitating a 300 per cent increase in the CyberMiles token’s market price.

There is much more to come from the Cobinhood platform. Its Dexon blockchain aims to solve the current blockchain technology’s low scalability, transaction latency and high transaction fees. “We have found the answer,” says Mr Chen. Given Cobinhood’s impressive track record and standing in the crypto community, achieved within less than a year, few would doubt him.

For more information please visit cobinhood.com



DEXON: COBINHOOD’S BLOCKCHAIN EVOLUTION

Launched at BlockShow Europe 2018 in Berlin last month, Dexon blockchain technology promises to be the “next-generation decentralised applications [DApps] ecosystem”, enthuses Cobinhood’s Popo Chen. “It has infinite scalability, low transaction processing latency with negligible transaction fees and energy-efficient Dexon blocklattice technology. It solves the existing problems of blockchain, including non-scalable, miner centralisation, energy inefficiency and unfairness.

“Dexon will unleash the true power of the decentralised technology and cross the chasm of the DApps era. Only with the features provided by Dexon, especially the scalability and interchain operability, can blockchain be used to support real-world applications. Therefore, everyone will benefit from Dexon because it’s a key to the decentralised future, just as smartphones and app store enables the world of apps we’re in now.”

USER EXPERIENCE



Balancing security and usability

Cryptocurrency companies need to improve security, but not at the expense of equally important user experience

FINBARR TOESLAND

Consumers around the world are becoming increasingly used to the slick interfaces offered by the likes of Netflix, Amazon and Spotify. It may be undeniable that the technologies supporting these platforms are innovative, but without such smooth user experiences, it's unlikely they would have reached such widespread adoption or prevailed over competitors. As cryptocurrency moves closer to a tipping point, more work needs to be done to improve usability, at the same time as maintaining a robust security system.

In the early days of cryptocurrency, investors who believed in its power were willing to make the effort to understand this potentially groundbreaking digital asset. "At its inception, the cryptocurrency interfaces were probably a minor annoyance to overcome, however this becomes far more important as they hit the mainstream," says Alisdair Faulkner, chief products officer at security technology firm ThreatMetrix. "As with any industry, the exchanges that flourish will be the ones

offering the best online experience and the easiest authentication process, all without compromising user safety and security."

Retail cryptocurrency investors and traders have a different set of expectations than experienced crypto investors. Newer investors expect the platforms they use to purchase digital currencies to offer a similar level of simplicity, security and speed as traditional payment solutions from banks. Yet traditional financial institutions have had decades to perfect their payment platforms to meet regulations, whereas the vast majority of cryptocurrency platforms and exchanges are only a few years old and have little experience of dealing with often complex regulations.

"Right now, the biggest problem is that companies in the cryptocurrency space are new to the whole work of KYC (know-your-customer) verification. There are no quick passes around the regulatory structure that is in place today for KYC and anti-money-laundering rules. This puts firms that already have verified customer relationships in a position of key advantage," says Paul Brody, EY global innovation blockchain leader.

Many crypto companies are just beginning to put procedures in place to meet essential regulations across different jurisdictions. However, due to the volatile nature of some cryptocurrencies, there is a limit to what digital currency platforms can do to make the purchasing process easier, until a more comprehensive framework is created by government. For example, exchanges have no power to change the decision by major UK, Australian and US banks to ban investors from buying cryptocurrencies on their credit cards.

As the crypto ecosystem continues to mature, it's increasingly clear that sophisticated technological tools are necessary to shift the security burden away from the user. Moving away from a reactive security framework towards a proactive approach, where companies utilise all available data to gain better insights into potentially fraudulent behaviour, is the next step for the industry. By implementing practically real-time analytics solutions, companies will have the power to identify malicious actors, without undermining the user experience.

"Organisations are now embracing the latest technology innovations that assess digital identity based upon the historical behaviour of a user, as seen across multiple websites and apps. This is done in a way that is completely behind the scenes and asks for no additional steps from a user," says Mr Faulkner.

For this method to be successful, he says, every phase of the customer journey, from account creation, log-in to purchasing, must be monitored to ensure all relevant data is collected and a consistent decision-making process is followed.

The use of technology is only a single part of the strategy needed by cryptocurrency firms to balance user protections and usability more effectively, with efficient staff who are able to process applications quickly and accurately being equally important. Digital currency exchange Coinbase is one of the most established platforms in the industry and has seen first hand how crucial the human element is in creating a smooth user experience, especially at a time of unprecedented growth in the cryptocurrency ecosystem

"As part of that surge, consumer demand for Coinbase increased 40 times and we experienced transaction volumes in November and December last year that grew by 295 per cent," says Zeeshan Feroz, UK chief executive of Coinbase. "We now have over 600 support agents working on our queues across three different locations and we offer phone support 24 hours a day, seven days a week."

The exchanges that flourish will be the ones offering the best online experience and the easiest authentication process, all without compromising user safety and security

In some cases, human judgment will be required to process verification requests and to determine what transactions may be problematic. By increasing the support team, Coinbase has been able to resolve customer issues faster and reduced the backlog that had built up by 95 per cent.

Reconciling customer needs with security requirements will be a continual process for cryptocurrency firms. From adopting the payment industry PCI-DSS certification standard for incorporating biometrics, two-factor authentication and device confirmation, digital currency platforms can help enhance usability without placing complex barriers in front of the user.

"As with any new technology, it is vital that the user experience facilitates adoption. Users are already on a steep learning curve when they first decide to engage with cryptocurrency and a bad user experience can put them off for months or give them a negative perception of a brand. Getting the user experience right should be a key focus of all service providers," concludes Pavel Matveev, chief executive and co-founder of cryptocurrency wallet provider Wirex. ♦

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BEGINNINGS

Repairing da

In the early days, cryptocurrencies may have been misused by the underworld, but criminals should watch out as cryptos come clean

DAVID COWAN

With the controversy and confusion surrounding cryptocurrencies, it is easy to forget that there is nothing inherently illegal in them. Tom Robinson, co-founder and chief data officer at Elliptic, says: "It is true the reputation at the moment is that cryptocurrency is the payment means of choice for scammers, terrorists and criminals. But we have to put this into perspective. The biggest use is speculation."

If the reputation of cryptocurrency is to change then it needs to go beyond regulation and build systems with integrity which consumers and professionals can have confidence in and trust.

Regulation and monitoring the professional players is certainly part of building this reputation. Dr Robinson says: "Changing the reputation will come by having good regulation and ensuring every issuer is doing good due diligence." The biggest problem for law enforcement is the many unregulated exchanges, where criminal users can stealthily navigate their way through the crowd of legitimate transactions. US Securities and Exchange Commission chairman Jay Clayton recently called out the "gatekeepers", such as exchanges, bankers

and lawyers, among the bad actors in initial coin offerings.

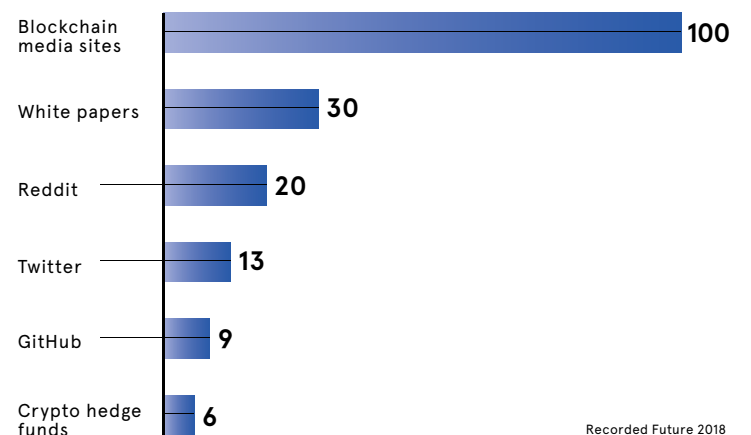
If change is to come, Dr Andrei Kirilenko, director of the Centre for Global Finance and Technology at Imperial College Business School in London, says: "There are two scenarios; a negative and a positive one. The negative one is where a very large global bank is hacked and so people can no longer say a bank is any safer than cryptocurrency. The positive is that crypto becomes a regulated asset class which attracts serious investors."

Like any market handling money, cryptocurrency will always attract scammers and the like, but most users should have the confidence that this is a safe and useful space for them to occupy. It is said every



Dark web acceptance of major cryptos

Study of 150 message boards, marketplaces and illicit services; percentage of vendors accepting the following as payment



Recorded Future 2018

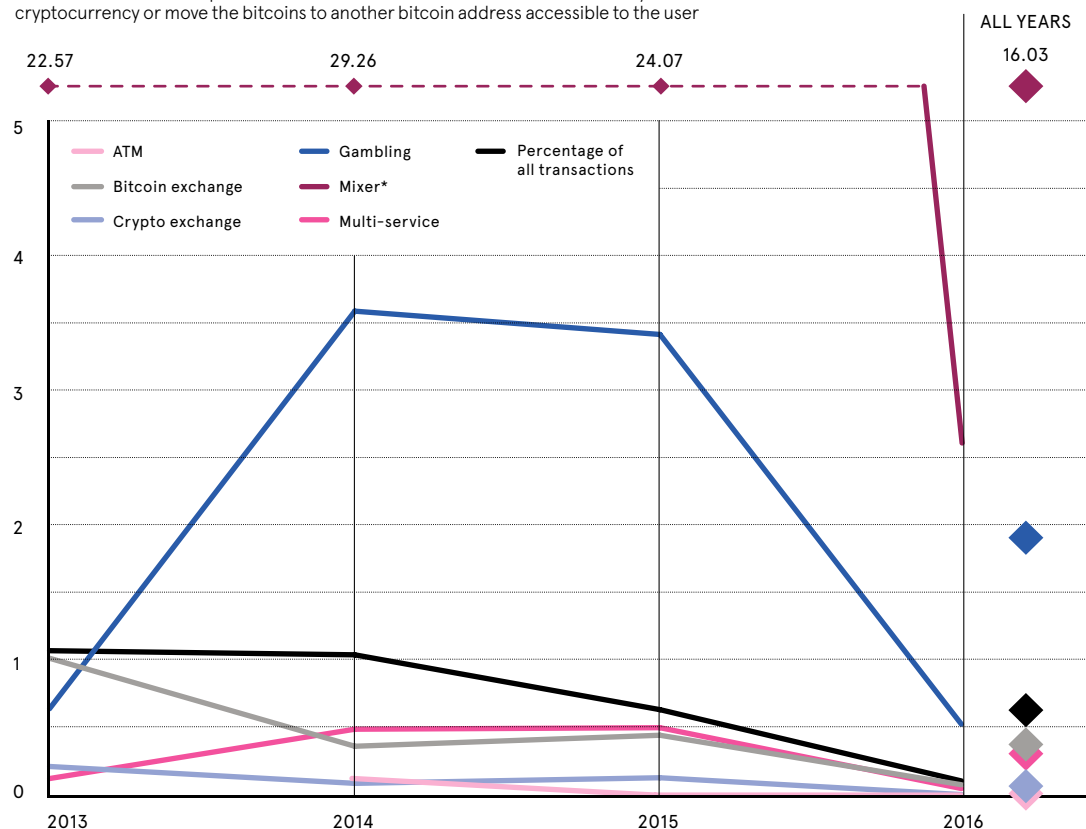
image and restoring reputation



F8 studio/Shutterstock

Percentage of bitcoins sent to conversion services originating from illicit entities

Conversion services are platforms where users convert bitcoins to fiat currency/ cryptocurrency or move the bitcoins to another bitcoin address accessible to the user



*Online software service to swap bitcoins for ones with a different transaction history, effectively laundering them

Elliptic/Center on Sanctions and Illicit Finance 2017

Changing the reputation will come by having good regulation and ensuring every issuer is doing good due diligence

US dollar note has drug residue on it, but this does not make everyone handling US currency drug-runners. It is this level of understanding that cryptocurrency is striving for, which means accepting there will always be abuses. What reputation in finance amounts to is robust integrity and confidence in the means with low negative impact on the consumer.

The foundational work for building such a reputation is one for IT specialists and forensic crime experts. Cryptocurrency uses technology to transfer value outside the institutional financial system. Criminals were early-adopters of bitcoin because they believed digital currencies were untraceable and completely anonymous. To sign up in the cryptocurrency world is easy, you simply need an address using a random string of letters and numbers, and you can have as many addresses as you wish. These addresses can be tied together without having to identify their provenance. The funds involved can be transferred without intermediaries and across jurisdictions with ease.

The foundational element of the blockchain structure is the cryptographic protocol that chains data together without which you have no blockchain. The structure of blockchain then creates the barriers for forensics, but they are also the means towards detection. Dr Kirilenko says: "Blockchain is public; anyone can see the balances at all times. They don't know who it is, but they can see it. This is an interesting reversal. We usually know little about the balances of others. Because you can see the chain, you can do profiling exercises, look at certain profiles and link them together."

Away from all the headlines and hype, the reality is that cryptocurrency networks are less private than criminals thought. In fact, crypto offers pseudonymity rather than anonymity. Dr Robinson explains: "There is a pseudonym, but this can be ultimately tied to a real-world identity." Forensic investigators are able to trace illegal behaviour and misconduct by using a range of new forensic tools, detecting patterns across cryptocurrency networks and, as the old adage in crime goes, "follow the money".

Each transaction is recorded in a distributed public ledger and can thus be tracked, and anyone can download the entire transaction history for examination. A 2018 study by Elliptic and the Center on Sanctions and Illicit Finance, a US think tank, found a fivefold increase in the number of large-scale illegal operations working on the bitcoin

blockchain between 2013 and 2016. They analysed the history of more than 500,000 bitcoins, identified 102 criminal entities and demonstrated positive links back to them.

Elliptic provides investigators, including the major government enforcement agencies and exchanges, software to screen transactions multiple times, checking for links to ransomware wallets, dark marketplaces and so on. The 24/7 nature of operations means rerunning analyses on older transactions can help trace updated suspect accounts. Dr Robinson estimates a trillion dollars' worth of bitcoin transactions have been screened using its software since starting operations five years ago. He explains: "Blockchain is a concrete

database of every transaction and address, so we can assign identities to those real-world identities, which law enforcement can then trace."

Regulation and tackling the impact of illegal use lies at the heart of making cryptocurrency mainstream. Matt Bisanz, financial services regulatory and enforcement associate at Mayer Brown in Washington, explains the reputation damage of cryptocurrency. "The situation is unsustainable," he says. "The analogy is if there were daily bank robberies in New York, getting away with hold-ups. There was a time when this was common, in the wild west."

"We still have to put more in place to build confidence, where crimes are rare or have little effect on the consumer. When you get your credit

card stolen, you don't stop using it. It has low impact. Until crypto gets to a similar level, where people are not losing these sums of money, there will always be a question mark." However, Mr Bisanz concludes: "The safeguards and protections will come; they will inspire confidence."

Once we have integrity in the technology and the trading process then markets will be much safer. Dr Kirilenko is confident about the future. He says: "There is a lot of ingenuity coming into the crypto space, which is really encouraging. What is extremely positive is the amount of development talent that goes into it, which is very significant and suggests to me crypto assets have a high probability of succeeding in the long term." ♦

Insight

Law enforcement

Like poachers turned gamekeepers, the academic researchers who helped create the encryption and software systems that made bitcoin possible are now helping law enforcement to detect criminal activity.

These experts operate at the crossroads of computer science, economics and forensics. Academic centres across the world, from Imperial College London to the University of Sydney, are using artificial intelligence (AI) to identify crypto transactions linked to criminal behaviour.

Startups like Chainalysis and Elliptic are putting AI and machine-learning tools into the hands of

law enforcement agencies to analyse profiles, cluster addresses and detect patterns.

Dr Andrei Kirilenko, of Imperial College Business School, says: "Detection is critical, but it is also what blockchain excels in, and the use of AI is enhancing this forensic work."

Every transaction made using cryptocurrency is logged on the blockchain, which is a publicly available ledger. AI and machine-learning algorithms can be used to augment the blockchain to produce superior cryptocurrency intelligence. It doesn't store identities, but every user has an associated wallet that is recorded alongside the transaction. The AI tool can search the blockchain to identify the wallet that corresponds to a real-world identity.

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RISK



Show caution when seeking high rewards

Cryptocurrencies are prone to high volatility and low liquidity, making risk tough to manage, but the rewards can be high

JOEL CLARK

Managing risk in financial markets is a well-established discipline. Whether investing in equities, bonds or currencies, widely accepted practices protect market practitioners when they are buying, selling or intermediating. Risks are typically aligned into different categories, including market risk, credit risk and operational risk, and complex formulae are used to determine how much capital should be kept in reserve to absorb losses.

When investing in cryptocurrencies, however, many of these traditional assumptions fall flat. The product is still new and relatively untested, volatility is unpredictable and, with a small, albeit growing, investor base, the market is much less liquid, making it tougher to unwind positions. This doesn't mean investors should avoid cryptocurrencies altogether, but it does necessitate a different approach to risk.

"Volatility and unpredictable liquidity are a reality of this market. Sadly, with weak governance,

fraud is also a real possibility. This is compounded with new currencies proliferating at an extraordinary pace, as the barriers to entry for an initial coin offering are very low," says Richard Longmore, managing director of capital markets consultancy Finoesis and formerly a senior manager in fixed income, currencies and commodities at UBS.

The risks may be different and tougher to manage, but as in any financial market, participants need to balance risk with reward. Following a huge spike in the value of bitcoin at the end of 2017 – it rose from \$7,000 to almost \$20,000 – some investors have already realised huge gains. The attractive rewards are luring new participants into the market every day, including banks, asset managers and hedge funds.

As these institutions move in, it represents a landmark shift for this emerging asset class, which had previously been largely the domain of individual day traders who had little to lose from dabbling in bitcoin. For institutions, the risks can be much greater, not least because they are typically managing money on behalf of others.

"Mark-to-market considerations are clearly a large issue for institutional investors. Volatility in these currencies is a given and thus the danger of stop losses triggered in a wild ride is ever present," says Mr Longmore.

"Consider also know-your-customer and anti-money laundering requirements. Being what they are, cryptos present enormous difficulties. An individual investor might not have too many concerns, but an institutional investor runs considerable risks from both a reputational viewpoint and from possible sanctions."

While volatility has eased since the end of last year, the epic move in bitcoin has increased risk appetite both for existing and newer participants, with the realisation that even just a modest exposure to cryptocurrencies could turn out to be lucrative.

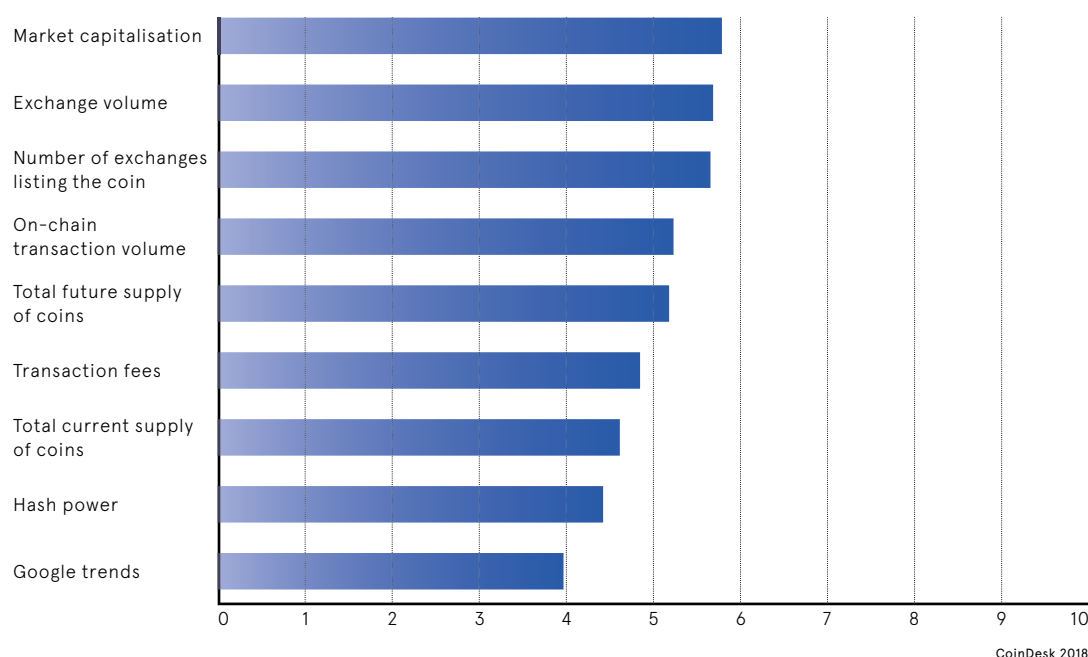
Even if only investing a small proportion of the portfolio in cryptocurrencies, however, investors should be mindful of the risks they face. Every practitioner will have an opinion on what the biggest risk may be, but few would contest that the illiquidity of crypto assets is one of the toughest risks to manage.

It is a reality in any emerging asset class that until participation becomes mainstream and widespread, liquidity is likely to be unpredictable. This means that while it may be easy to take on a position and buy into a currency, it can be much harder to unwind, particularly at times when the

The most prudent approach for new investors might be to hold just a very small proportion of their portfolio in cryptocurrencies

Importance of the following datapoints when buying cryptocurrencies

Cryptocurrency investors were asked to rate the importance on a scale of zero to ten



market is under stress and prices are plummeting.

Simon Tobler, head of trading at Swiss startup Crypto Finance AG, likens it to trading currencies such as the Argentine peso or Thai baht in which there is far less turnover and lower liquidity than in major currencies. Before joining Crypto Finance, which provides asset management, brokerage and storage for crypto assets, he traded foreign exchange options at Credit Suisse.

Mr Tobler says: "Bitcoin trades more like emerging market currencies than the majors, because it is highly illiquid with few big market makers and no corporate flow. The illiquidity leads to sharp intra-day moves, and makes it difficult to manage your risks and adjust your positions in real time."

If the market continues to attract new participants, liquidity should improve, but this will take time, particularly for institutions that must secure multiple approvals to trade new products. Even then, their participation is likely to be modest at first.

"Liquidity is increasing," says Gabriel Wang, analyst at research and advisory firm Aite Group. "As

the market cap of cryptos is rising fairly quickly, market makers, exchanges and over-the-counter desks continue to pop up in the market, and the current market size has attracted more and more institutional interest and order flow. This is driving up liquidity and trading volume."

Beyond liquidity, more idiosyncratic risks should be considered. In a market that is still developing, there are legitimate concerns over the potential for fraud and market manipulation, so investors must take necessary precautions. More established assets such as bitcoin or ethereum may be a safer bet than the newer coins, for example.

Regulatory risk is also important, as central banks and regulators around the world have taken very different stances on this evolving asset class. In China, for example, exchanges and financial institutions have been banned from handling crypto assets. While officials in other countries may have been less heavy handed, with most central banks keeping a close watch on the sector, further intervention is always possible.

"Political and regulatory risk has declined as this space has become more accepted, but investors should certainly be careful when investing in the newer coins because there is a risk of sudden discontinuation or regulatory intervention," warns Mr Tobler.

Managing this unique combination of risks is not straightforward. Whereas standard practice in financial markets would be to model key risks and set aside capital for a worst-case scenario, these idiosyncratic risks are much more difficult to measure and manage.

When investing in a high-risk asset class, investors would typically diversify across multiple products, but this approach is difficult in the crypto world as most coins are very highly correlated as they tend to move in the same direction. Diversification, therefore, offers little protection in the event of a sudden price move.

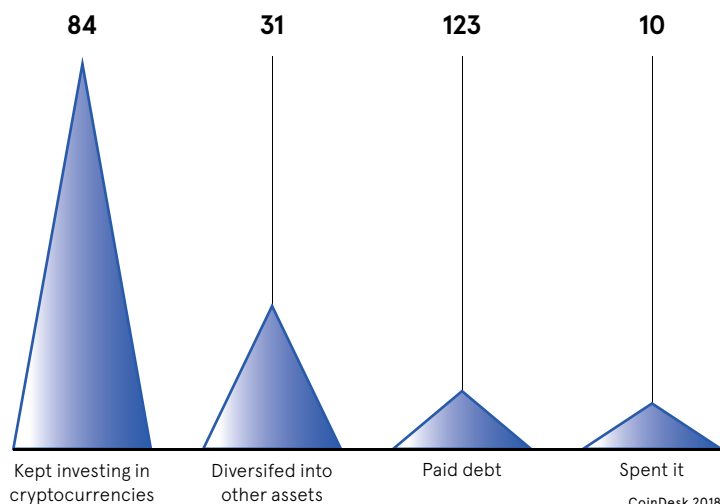
"Due diligence is always advised, but in the world of cryptocurrencies, the level required, given the landscape, is exponentially higher and more difficult. A mindset change is required not only from the requirements of a considerably more volatile and illiquid market, but given its extraordinary speed of evolution," says Mr Longmore.

Given the unpredictability of risk and the potential for high returns, the most prudent approach for new investors might be to hold just a very small proportion of their portfolio in cryptocurrencies. This would give some exposure without excessive risk as the market continues to mature.

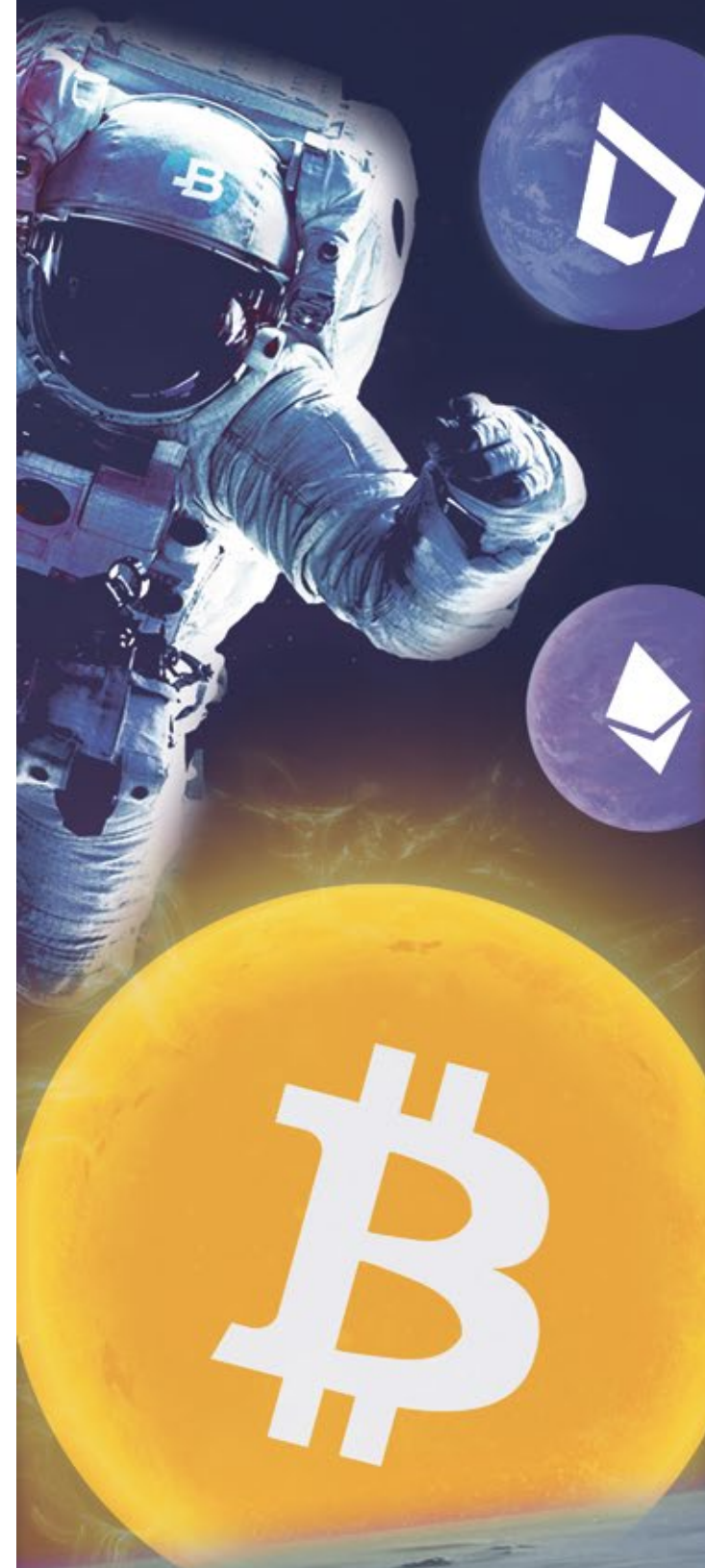
"By the end of 2017, a lot of portfolio managers had to explain to their clients why they had only achieved single-digit returns in traditional asset classes, while some crypto funds had earned up to 2,000 per cent from recent volatility. There is ultimately little downside from investing 1 per cent of the portfolio in cryptocurrencies, but the potential upside is almost unlimited," Mr Tobler concludes. ♦

Investor bullishness

How investors used gains from cryptocurrencies in 2017; percentage of those who realised gains only



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