

Pathways to the Regulation of Crypto-Assets: A Global Approach

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Preface

How best to regulate something that's borderless, open-source, decentralized and constantly evolving? This is the question policy-makers, industry and users are grappling with as the crypto-asset ecosystem develops.



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As with some other emerging technologies, regulating this ecosystem is like walking a tightrope – it requires a delicate balance between preventing harms, protecting users and promoting innovation.

While significant progress has been made over the past few years, especially the numerous consultations and frameworks from international organizations (the FSB, IMF, BIS, OECD, IOSCO and others) and national regulators (the EU, Singapore, Japan, the UAE, India, South Africa, the US and many more), as well as various industry efforts, several pertinent questions remain under discussion, such as:

- How best to define and classify crypto-assets? How should they and related activities be characterized to enable a harmonized understanding of the ecosystem and promote regulatory coordination?
- As crypto-assets and related activities move along a spectrum from being centralized to decentralized, which novel legal and policy issues need to be considered? Are specific frameworks required to address these issues or can existing rules and regulations be adapted for them?
- What are the best ways to maintain regulatory oversight over not just the area of crypto-assets, but also other institutions (banks, investment firms, etc.) that interact with this ecosystem, so that the risks pertaining to cybersecurity, consumer protection, money

laundering and market integrity, among others, are sufficiently addressed?

- How can policy-makers, regulators and industry work together to establish a consistent, coordinated and effective regulatory framework for crypto-assets?

This publication, *Pathways to the Regulation of Crypto-Assets*, sets out to understand and highlight the needs and challenges in developing a global approach to crypto-asset regulation. In doing so, it delves into the various regulatory approaches being adopted by different jurisdictions. Borne out of this analysis and the multistakeholder consultations conducted is a non-exhaustive list of prioritized pathways for international organizations, national authorities and industry actors to consider in evolving a coordinated approach.

The paper's findings, set amid the recent turmoil in the industry, reinforce the urgent need for policy-makers and regulators to collaborate with industry and users to realize the benefits while addressing the risks involved.

It is hoped that this paper, developed with significant contributions and expert insights from members of the Digital Currency Governance Consortium (DCGC) community – a global, multistakeholder group of more than 85 leading organizations in the field – will enable various actors to accelerate dialogue, collaboration opportunities and action to build the vision of an equitable, inclusive and sustainable crypto-asset ecosystem.

Executive summary

Coordinating regulatory frameworks across jurisdictions is a complex task for almost any sector. With crypto-assets – given the unique features of the underlying technology as well as the boundless opportunities that it presents – it is often contended that global coordination is not just desirable but necessary.

There exists a broad spectrum of views, especially as there are multiple stakeholders at varying levels of maturity, and the need for a global approach is warranted due to:

- The borderless nature of technology: as the crypto-asset ecosystem moves across the spectrum from centralized to decentralized, the intricacies in identifying the “who”, “where” and “whom” also become markedly difficult.
- The potential of interconnectedness within the crypto-asset ecosystem and with the traditional financial system: events in 2022 have evidenced that the crypto-asset environment is highly interconnected, meaning that fragmented regulatory regimes will create challenges for ensuring uniform consumer protections or market integrity efforts. As the potential for connectedness with the traditional financial system is examined, the need for a collaborative approach is even more pronounced.

While the global approach is an ideal pathway, there are various barriers that impede this:

- Lack of harmonized taxonomies/classification: different jurisdictions define and categorize crypto-assets in various buckets, creating ambiguity in understanding the risks posed as well as a lack of clarity for market participants.

- Regulatory arbitrage: as different jurisdictions evolve their respective regulatory frameworks, this hampers effective oversight and development of the ecosystem.
- Fragmented monitoring, supervision and enforcement: lack of coordination among various law-enforcement agencies leads to inconsistent enforcement and lack of coherence in regulatory approaches.

Over the past few years, various international standard-setting bodies and organizations have made considerable efforts to produce evidence-based research as well as high-level frameworks to evolve a global approach. Amid this, some countries have also chosen to focus on certain key aspects of the ecosystem, often with the objective of ensuring consumer protection, prevention of illicit financing and financial stability, but taking varied approaches. This paper discusses some jurisdiction examples pertaining to a wide spectrum of regulatory approaches such as principle-based, risk-based, agile regulation, self and co-regulation and finally, regulation by enforcement.

To ensure a broad and global view of this topic, diverse stakeholders as part of the Digital Currency Governance Consortium were consulted to evolve recommendations for the international organizations and national/regional authorities as well as industry stakeholders, while duly acknowledging the critical role of academia, civil society and, most importantly, the users in evolving a responsible ecosystem.

Interestingly, the recommendations appreciate that the distinct opportunities and risks presented by crypto-assets will also need an innovative approach, while building on lessons learned and best practices developed in other sectors as well.

1

The need for a global approach to crypto-asset regulation

The borderless nature of the technology, the interconnectedness within the crypto-asset ecosystem and the prospect of linkages with the traditional financial ecosystem strengthen the case for a global approach to crypto-asset regulation.



Decentralized ledger technology (DLT) is a transformational technology with the ability to disrupt the way people record transactions, enhance transparency and governance, exchange value and coordinate and collaborate across geographies and industries.

Blockchain, a subset of DLT, forms the infrastructure layer for many cryptocurrencies, some central bank digital currencies (CBDCs)¹ and many other assets within the digital-asset environment. For this paper, “crypto-assets” refers to digital assets for financial uses that are enabled by DLT and secured cryptographically, including but not limited to cryptocurrencies and stablecoins. CBDCs are excluded from the scope of this paper.² Please note that the terminology employed in the paper to describe crypto-assets is not absolute and can be subject to interpretation. Depending on the specific context and jurisdiction, alternative terms such as “virtual assets”, “digital assets” and “crypto tokens”, among others, may be used. It is essential to recognize that this paper primarily addresses the broader realm of crypto-assets and may not comprehensively cover the intricacies of more specialized assets, such as non-fungible or real-world assets. Nonetheless, certain concepts discussed herein may have applicability and implications for these distinct asset categories as well.

Crypto-assets have a variety of uses, financial and non-financial, although many current uses are concentrated in and developed with a focus on the financial sector. While still much smaller than the aggregate size of the traditional financial sector, the gross market capitalization of all crypto-assets is estimated at more than \$1 trillion as of February 2023, which is significant.

With the prevalence of crypto-assets and smart-contract programming, myriad uses – ranging from cross-border aid disbursement and remittances to reimagining traditional financial applications – are increasingly being tried and tested. As a result, regulatory attention has increased, and regulators are keen to understand the potential benefits and

risks for existing businesses, financial stability and integrity, preventing illicit finance and consumer-protection concerns.

The crash of a “stablecoin” and the fall thereafter of one of the world’s largest crypto exchanges in 2022 sent shockwaves through the industry, eliciting strong responses from regulators and users. While smart contract programs function as they are coded to do so,³ challenges remain, both technological and non-technological. Risks stem from code vulnerabilities, lack of independent verification, inadequate oversight and accountability controls, among other factors. The 2022 failure serves as a reminder of the importance of distinguishing between businesses that leverage technology for transparency, risk mitigation and innovation, and those that merely engage in crypto-asset activities without adequate technology safeguards.

Regulatory approaches have differed widely across jurisdictions, depending on, among other things, the maturity of the local market, the degree of expertise of public and private actors, the degree of actual or perceived harm occurring in a market and regional priorities. The varied approaches have led to regulatory fragmentation, increased risks arising from opportunities for regulatory arbitrage, and a lack of clarity on the status of the crypto environment in multiple jurisdictions. For example, a DLT-based crypto token may be termed a “virtual asset” in one jurisdiction but a “crypto token” or even a “virtual digital asset” in another (each with differing definitions) and be banned in a third. This has led to the suggestion that a global, coordinated approach to the definition and to crypto-asset regulation is needed.⁴

Taking a detailed and nuanced view of the crypto-asset ecosystem, this paper, a part of the Digital Currency Governance Consortium (DCGC),⁵ proceeds in four parts: (1) it examines the need for a global approach to regulation of crypto-assets; (2) it probes the major challenges to realizing the global approach; (3) it highlights the various regulatory approaches adopted by jurisdictions for regulating crypto-assets; and (4) it shares concluding thoughts and recommendations.

1.1 The nature of technology

Crypto-assets, and the technologies on which they are based, present unique technical and structural challenges to regulation due to the decentralized, transparent and open-source nature of the ecosystem.

For financial uses, transactions taking place on-chain may offer opportunities for faster/safer payments and may be traced and tracked in cases of illicit activities. The conduct of transactions on-chain, supported by relevant analytics and record-keeping systems, also allows better analysis by users and/or

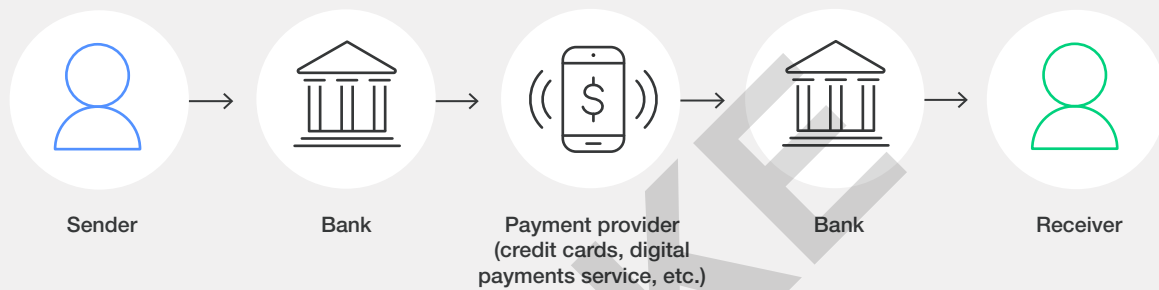
financial institutions/service providers to understand the relevant commercial interests and, in turn, develop products/services that meet service needs. Moreover, the deterministic nature of smart contracts (where the code functions as it is coded to function in contrast with human discretion and artificial forms of intelligence), transparency, the immutability of the ledger and the open-source nature of the ecosystem provide technology protections that could achieve regulatory objectives without the same cost of audit and compliance as traditional structures.

However, crypto-assets and their ecosystem do not always fit squarely into the existing activity-based, intermediary-focused approach of regulation, even where crypto-asset activities mirror those of the traditional financial sector. Some of the reasons for this include an inability to classify either various tokens under the existing definitions or the intermediary in providing services to users (especially in cases of decentralized finance that run on automated protocols and enable a transfer to occur peer to peer with no intermediary organization that can be regulated and held to account).

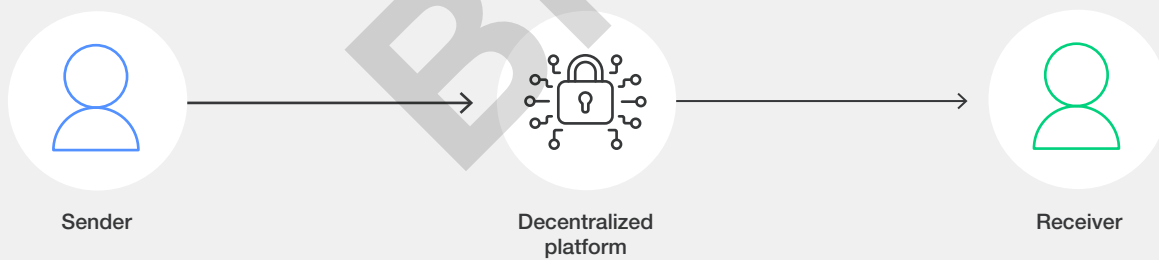
Figure 1 illustrates intermediated flows of funds in the traditional financial system (above) and peer-to-peer flows of funds in a decentralized system (below). Regulatory safeguards provided by intermediaries such as banks may no longer be fully applicable for a decentralized system. This may require re-envisioning key tasks, how they are performed and by what parties to ensure maintenance of regulatory safeguards and compliance with legal obligations. It is noted that Figure 1 is a simplified depiction of the traditional financial/decentralized systems. Practically, even within the crypto-asset ecosystem, a variety of activities occur on a wide spectrum ranging from centralized to decentralized.

FIGURE 1 Intermediated flows of funds in traditional banking compared to peer-to-peer flows of funds in a decentralized system

Current banking industry



Crypto-assets and the decentralized ecosystem



Source: World Economic Forum

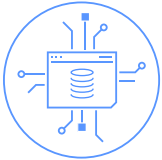
From a policy-making perspective, identifying where transactions originate, who conducts or facilitates them and who is responsible in the DLT environment is not always straightforward, particularly for decentralized systems.

1. **Identifying the “where”:** Crypto-assets are often said to be without a locality or a jurisdiction of origin. There have been case-law developments such as *Ion Science Ltd vs. Persons Unknown* (unreported, 21 December 2020), which indicated that (in this case English) courts would view the domicile of the owner of the crypto-asset as

definitive. Several other countries are likely to follow this approach, given that in many jurisdictions digital assets are seen as “movable intangible assets”, where legal principles indicate that the location would typically follow the person with custody or control over the asset. Nonetheless, this does not clarify how preemptory supervision⁶ by a supervisory body would use such jurisdictional setting mechanisms. From a tax perspective, for example, many tax authorities are still reliant on self-declaration by domiciled individuals in tax returns for assessments. Similarly, crypto-asset service providers and intermediaries (referred to

in many jurisdictions as CASPs or as virtual-asset service providers, VASPs) have proven to be difficult to tie to a geography given that many do not have clearly defined headquarters or traditionally centralized operations. However, the “carrying on business” and “nexus” test provisions usually seen in securities laws and anti-money laundering (AML)/combating the financing of terrorism (CFT) laws draw the focus away from the jurisdiction of any headquarters and focus on where the business is carried out or where it has a nexus to determine if that jurisdiction’s regulation is applicable to enforce. Each of the issues above presents a clear challenge in terms of how regulators will be able to identify

those who are within and those who are outside their jurisdiction. This may also create information asymmetries between regulators who have the resources to conduct more complex investigations (for example, incorporating on-chain analyses and wallet tracking) and those without the technical capacity to do so. At the same time, the technology solutions by themselves may be a way to address this asymmetry by ensuring better verifiable data with less friction. The immutability of transaction records that are publicly visible also has a deterrent effect on malicious actors who may attempt to engage in illicit activities.



In August 2022, the OECD approved the Crypto-Asset Reporting Framework (CARF), which provides for the “reporting of tax information on transactions in Crypto-Assets in a standardized manner, with a view to automatically exchanging such information”. The CARF defines the relevant crypto-assets in scope and the intermediaries and other service providers that will be subject to reporting. This is designed to ensure the collection and automatic exchange of information on transactions in crypto-assets. The CARF consists of “rules and commentary that can be transposed into domestic law to collect information from Reporting Crypto-Asset Service Providers with

a relevant nexus to the jurisdiction implementing the CARF”. The implementation consists of a “framework of bilateral or multilateral competent authority agreements or arrangements for the automatic exchange of information collected under the CARF with jurisdiction(s) of residence of the Crypto-Asset Users, based on relevant tax treaties, tax information exchange agreements, or the Convention on Mutual Administrative Assistance in Tax Matters”. These systems may aid regulators to combat information asymmetry on actors within their jurisdiction and properly enforce national laws against those who fall within their purview.⁷



2. Identifying the “who”: DLT-based transactions in a public permissionless network are by their very nature transparent and thus traceable. Traceability may or may not lead to identification of a “legal person” behind the transaction. However, using blockchain forensics for tracing various transactions, it is possible to amass evidence of identity, leading to identification of the “who”.

Although true anonymity in widely adopted crypto-assets is difficult to achieve, there are some crypto-assets that are designed with anonymity

functions using cryptographic methods, such as those described in the World Economic Forum Digital Currency Governance Consortium white paper *Privacy and Confidentiality Options for Central Bank Digital Currency*,⁸ or, at the very least, robust pseudonymity. Such anonymity-enhancing cryptocurrencies (AECs), also referred to as “privacy coins”, enable their users to choose the level of privacy they wish to have in on-chain transactions, but they may also have the effect of shielding such transactions from regulatory scrutiny, posing a direct challenge for developing and enforcing

regulatory efforts. Note that anonymity functions are typically lost when traded or exchanged through a centralized token-exchange platform. Additionally, technical enhancements such as viewing keys that can be shared with regulators with appropriate safeguards (such as a court mandate) are one

potential method of balancing data privacy and sharing on a “need-to-know” basis.

Illustrative examples of tools and functions that can make identification of the “legal person” challenging are listed in Table 1.

TABLE 1 Functions that may make identifying a “legal person” challenging in DLT-based transactions

<p>Privacy/anonymity-enhancing tools</p>	<p>Cryptographic “mixers” or “tumblers” to mix crypto-asset funds from different sources to preserve privacy or disguise their origin are tools used to anonymize on-chain activities.⁹ Recent events suggest that blockchain analytics tools have the ability to trace transactions for such mixing services, although the degree of traceability may vary depending on the protocol, the users and the traceability tool.¹⁰</p>
<p>Self-hosted wallets (also referred to as “non-custodial”, “unhosted” or “private” wallets)</p>	<p>Self-hosted wallets offer better security and privacy because the user has substantially more control over their private keys and the crypto-assets. From a regulatory perspective, however, users of self-hosted wallets may not be readily identifiable.</p> <p>Nevertheless, self-hosted wallet transactions are fully recorded on-chain. In addition, a majority of the funds going in and out of personal wallets pass through a centralized exchange. As of November 2022, about 75% of funds from personal wallets were reportedly sourced from centralized exchanges and 64% arrived at a centralized exchange.¹¹ In other words, regulatory authorities and law enforcement will have to rely on compliant exchanges with comprehensive AML/know your customer (KYC) documentation to identify these transactions.</p>
<p>Decentralized exchanges</p>	<p>Decentralized exchanges (DEXs) operate using smart contracts to allow users to participate in near-instantaneous transactions without a centralized intermediary or custodial third party. Considering the events of 2022, DEXs have been witnessing growth in trading volumes. The regulatory tools for enforcement without a centralized intermediary and where trades are facilitated by smart-contract protocols are evolving. Incorporating blockchain analytics tools directly on DEXs is a potential solution to manage the risks associated with decentralized platforms.</p> <p>While the DEX model may reduce settlement and counterparty risk, its novel set-up – to function as coded, the decentralized nature of underlying distributed ledger technology and the decentralized nature of governance of the smart contracts – poses challenges for regulators in assessing the distinct risks (smart-contract risk, for example).¹²</p>
<p>Source: World Economic Forum</p>	<p>Although the enhanced capability in blockchain analytics to unmask the anonymity of transactions involving the use of mixers has been demonstrated, as the technology continues to evolve, regulatory authorities will have to be matched with corresponding investigative techniques and tools to be able to decipher the “who”.</p> <p>3. Identifying the “whom”: Accountability of stakeholders in the crypto-assets ecosystem is a core concern for policy-makers. Not to be confused with anonymity, accountability refers to the ability of enforcers to hold actors accountable in accordance with their relevant legal obligations. Accountability may become even more difficult where, for example, wallets are either controlled by multiple actors, by automated bots or software or by decentralized autonomous organizations without clear governance structures in place. In each of these instances there arises a risk not of anonymity but of dispersed accountability, making it difficult to causally attach the actions of the wallet or decentralized autonomous organization (DAO)</p> <p>to individual legal persons who are subject to legal enforcement. (Please see the World Economic Forum’s insight report <i>Decentralized Autonomous Organization Toolkit</i> for a more detailed explanation.¹³)</p> <p>This could be problematic at scale – i.e. where such an action may be attributable to a large body of people. In public listed companies, this issue is solved through a governing body (such as a board of directors) to which responsibility and legal accountability is entrusted and which has responsibility for enforcing sanctions for any wrongs. Distinct from this approach, case law in the United States has suggested that jurisdictions may treat unincorporated DAOs as general partnerships, with liability attributed to individuals holding tokens in the DAO as general partners.¹⁴ Where the governance structures of such organizations are not clear, it may mean that policy-makers and regulatory authorities may find it difficult to single out individual actors to hold accountable.</p>

1.2 The prospect of interconnectedness between traditional financial and crypto-asset ecosystems

In 2022, crypto-asset market capitalization reduced by more than 50% relative to 2021. At their current level, crypto-assets represent a small portion of the overall global financial system, but even so the lack of regulation in some jurisdictions and the absence of a harmonized regulatory framework is raising concerns as to whether this market could pose a threat to global financial stability. As stated in the World Economic Forum Digital Currency Governance Consortium's report, *The Macroeconomic Impact of Cryptocurrency and Stablecoins*, released in July 2022,¹⁵ and as evidenced by recent events,¹⁶ the impact in the macroeconomic environment could involve spillover effects, market contagion, liquidity crises, sudden job loss and loss of investors' funds, among others. Within the ecosystem there are the following trends:

1. Connectedness within the crypto-assets ecosystem: Crypto-assets are highly interconnected and mostly correlated to bitcoin movements.¹⁷ To some extent, this may be attributed to the maturity of the ecosystem, high volatility, ownership structures of centralized platforms and/or lack of sufficient guardrails or lack of consistent enforcement of existing law. As the

spot price of bitcoin falls, so does that of ether, various altcoins and even non-fungible tokens (NFTs). This correlation leads to diminishing volumes on various exchanges, resulting in a loss of liquidity. For the time being, it seems that this volatility has been largely contained within the crypto-assets markets and has not spilled over to the traditional financial markets.¹⁸

2. Growing interest among institutional investors: Institutional investors have consistently shown interest in the crypto-asset ecosystem. According to a survey by Fidelity, in the first half of 2022, more than 8 in 10 institutional investors surveyed view digital assets as having a role in their portfolio. Another survey by Coinbase conducted in the second half of 2022 found that 58% of surveyed respondents expect to increase their allocations in the next three years.¹⁹ This shift has been enabled in part by the increasing availability of institutional vehicles that help institutions access crypto-assets, such as prime brokerage, institutional custody, traditional investment vehicles (i.e. exchange-traded funds, ETFs), exchange-traded notes (ETNs) or exchange-traded commodities (ETCs).

3. Increasing participation of retail investors: It is not only institutional investors who are engaging with cryptocurrencies – retail investors are also at the forefront of crypto-assets. Crypto retail adoption varies among countries. In the United States, 16% of adult Americans have bought or held crypto.²⁰ Similarly, the Bank of Spain reported a 12% adoption rate across the Spanish population, and Mexico holds a 16% adoption rate. According to one survey, adoption in Nigeria is as high as 45% and in Argentina it is estimated to be 35%.²¹

Should the interconnection between the traditional financial and crypto-asset ecosystems increase, it could pose the following risks for financial stability:

A. Contagion risks: Where markets are interconnected, spillover of risk from one market to the other can lead to adverse impacts. Due to greater adoption, the correlation between traditional stocks and crypto-assets has increased,²² but there is no evidence as of the date of this report to suggest that there has been any significant spillover risk from crypto-assets to traditional financial markets, even given the extreme volatility in 2022.

However, the potential threat should not be completely ignored. In view of the increasing adoption and high volatility of crypto-assets, direct exposure of financial institutions in the absence of harmonized prudential norms could threaten financial stability. Maintaining prudential norms on capital-exposure limits as well as in dealing with, and custody of, crypto-assets is essential to improving control and risk-management practices. At the same time, such norms should follow the principle of “same activity, same risk, same regulatory outcome” – meaning essentially that where an activity, irrespective of the means of delivery, presents the same risks as a regulated activity, that activity should be regulated to achieve the same regulatory outcome, taking into account the unique characteristics of the crypto-asset ecosystem, without unduly burdening the new market participants. This will encourage regulated entities to engage with crypto-assets, making it less appealing for users to become involved with riskier, unregulated entities.

B. Concentration risks: Despite the promise of decentralization, the crypto-asset landscape as it stands today continues to be dominated by a few players in each of its verticals, which, in the absence of a clear regulatory framework (market abuse, conflict of interest, competition policies), may lead to concentration risks. For example:

- *Stablecoins:* In 2022 two stablecoins, USDC and USDT, represented around 73% of total stablecoin market capitalization.²³ More regulatory clarity can potentially open the doorway to additional stablecoin issuers. Similarly, concentration can be seen in the stablecoins’ reserve assets because most invest in US Treasury bonds, which is generally considered low-risk and highly liquid.
- *Exchanges:* Although there are multiple regulated and largely unregulated crypto exchanges in different regions, a few exchanges dominate the market. If even one of them collapses, as happened with FTX recently, it has a severe impact on the industry.²⁴ Exchanges are also often vertically integrated, providing additional services ranging from custody and issuance of stablecoins to principal-based trading and market-making. This level of vertical integration raises both concerns about competition and interdependencies.
- *Protocols and technology:* There are several decentralized applications powering the crypto-asset ecosystem, but the underlying technology is dominated by Ethereum, one of the most decentralized blockchains. Although there are several “layer 1” protocols, most are based on Ethereum technology (Ethereum Virtual Machine compatible, EVM). However, the “layer 2” protocols – such as Polygon, Arbitrum and Optimism – and their governance structures are addressing some of the key concentration risks and benefits of crypto-token activities on Ethereum. Moreover, a trend towards more EVM-compatible chains that do not depend on Ethereum for consensus, such as Avalanche, can further create competitive networks that share the same developer support.

Aside from the concentration among dominant players, another – largely underappreciated – risk is when crypto-asset companies and projects, including stablecoin providers, are “de-banked” from larger, traditional financial institutions (FIs) with a diverse clientele and holdings. Because banking services are necessary for conducting business, crypto-asset companies and projects may be concentrated in smaller banks and institutions where these companies and projects represent a larger proportion of these smaller FIs’ balance sheets, creating concentration risks that the smaller FI cannot substantially diversify. A lack of banking options can push companies and projects offshore, making it difficult for regulators and supervisory authorities to police activities that are carried out outside of their jurisdictions.

2

Challenges to a global approach

A global approach to crypto-asset regulation is ideal; however, there are various challenges in achieving this.



2.1 Lack of standardized definitions, taxonomies, classifications and understanding

The crypto-asset ecosystem lacks a consensus on definitions, taxonomies or even classification, and these continue to evolve as the uses for the technology develop. For too long, national regulators have metaphorically spoken different languages when communicating about and defining crypto-assets. Comparing regulatory frameworks worldwide, there are divergent licensing and registration obligations, but also different definitions and classifications of key terms. For example, the term “exchange tokens” is used by HMRC, the tax

office of the United Kingdom, to describe tokens intended to be used as a means of payment or as an investment,²⁵ but it is not a commonly used term worldwide. Other institutions and organizations may define cryptocurrency as an asset or property.

Most of the policy guidelines and regulations tend to classify crypto-assets in terms of primary functionality, despite the fact that most, if not all, can be used as a form of payment or exchange and have a spectrum of uses:

TABLE 2 Crypto-assets – spectrum of uses

Category	Payment/exchange	Investment	Use
Description	Designed or intended to be used as a means of payment or exchange	Provides rights and obligations similar to traditional financial instruments such as shares, debt instruments, etc.	Grants holders access to a current or prospective service/product in one or multiple networks or ecosystems
Subcategory	Payment, e-money, exchange crypto-assets	Security crypto-assets	Utility crypto-assets
	Hybrid crypto-assets		

Source: Bank for International Settlements, *Supervising Cryptoassets for Anti-Money Laundering*, 2021

However, even this classification is not comprehensive because questions relating to the functionality (primary/incidental) of even long-standing crypto-assets such as bitcoin and ether remain subject to discussion. Similarly, hybrid tokens with multiple and variable functionality may fall within more than one category, making it difficult to navigate the available regulatory frameworks. This is rendered more complex due to the fact that possible uses are still emerging.

Without a common minimum understanding it is difficult to regulate the ecosystem from a global perspective, considering the cross-border nature of crypto-asset activities. This leads to:

1. Inability to develop ecosystem consensus: Lacking a common minimum understanding prevents entities within government and private industry from being able to agree on common terminologies, much less common regulation. One example of this can be seen in AML and KYC frameworks. Currently countries regulate AML/KYC statutes based on their national-level legislative frameworks, a number of which are informed by the Financial Action Task Force (FATF) recommendation (see “Case study: FATF Travel Rule”). But the cross-

border nature of crypto-assets results in a need to develop ecosystem consensus, no matter where these ecosystems are headquartered or based geographically around the world.

2. Increase in cost for compliance and setting up legitimate global businesses: Increasing costs for compliance for small and medium businesses (SMBs) to establish themselves in a global context may limit innovation and SMB growth in the absence of a harmonized approach. SMBs are often the cornerstone of innovation for emerging technologies, particularly as these SMBs can help identify specific gaps and niches in which such technologies can be used.

3. Lack of consumer protection/empowerment: Individuals participating in the digital economy on a global scale expect equal and consistent protection on the different platforms or services they use, but without a coordinated global approach there is uneven consumer protection. This issue is observable, for example, in the United States, where there is little federal oversight of existing actors in the crypto-assets ecosystem, which leaves each state to use its own consumer-protection agencies to educate and protect its own constituents.



Few jurisdictions have chosen to address the difficulty of classifying tokens, partially relying instead on the functionality enabled by the token. For example, Liechtenstein has chosen not to rely solely on classifications but to introduce the token as such as an element in Liechtenstein Law, meaning that the right or asset represented in the token triggers the application of special laws (the so-called “token container model”). This means that the tokenization as such has no legal effect: if a financial instrument is tokenized, the financial market laws are applicable if the activity

is regulated, too; if a commodity is tokenized, the laws for commodity trading might be applicable; and so on. For new instruments, such as utility coins and virtual currencies, a new regulation has to be defined. As another example, the Virtual Assets Regulatory Authority in Dubai, have put forth a [framework](#) that is underpinned by overarching regulations and compulsory rulebooks, but has segregated activities-based rulebooks to rapidly account for novel products, emerging technologies, and new business models that require regulatory capture.

2.2 Regulatory arbitrage

Global coordination may require countries to develop a consensus or, at the very least, harmonize policy and regulatory frameworks to the extent that this is feasible. With crypto-assets, a few countries/regions have been more open to the development of an ecosystem than others, leading to a concentration of ecosystem actors in some regions. Because builders can often choose their jurisdiction, irresponsible actors may prefer locations with a lighter touch and responsible ones those with a fuller regulatory framework. With varying regulatory approaches and the resulting regulatory arbitrage (i.e. the practice of capitalizing on regulatory loopholes), it may pose a challenge to develop a coordinated approach to crypto-asset regulation. The reasons for this are:

1. Evolving regulatory models: The relatively new nature of the crypto-assets ecosystem has resulted in an ever-evolving and quickly changing crypto-asset landscape. The development and widespread use of crypto-assets remains relatively limited. Owing to the ecosystem’s developing maturity, it may be too early to feasibly implement regulation of crypto-assets in a coordinated global approach.

Countries from the Americas, Asia-Pacific and the Middle East to Europe have rolled out consultations since 2022, focusing on a wide range of activities in the ecosystem, from centralized activities and stablecoin operation to decentralized finance as well as regulatory objectives such as consumer protection and the prevention of market abuse. At the same time, some jurisdictions are set to finalize legislative proposals to expand crypto regulation from AML to prudential issues, for example, Markets in Crypto-Assets (MiCA) in the European Union. Based on the scheduled commitments in these consultation and legislative exercises, various models of prudential crypto regulation could start their implementation progressively from 2024 onwards.

With the emergence of new uses and business models, policy-makers may also need to review existing approaches or adapt their planned

regulatory approaches due to new considerations as they arise. It would be essential for regulators to initiate a dialogue with a view to seeking regulatory consistency, or at the very least preventing regulatory arbitrage due to different regulatory models. Without a consistent approach, innovation might be hampered and lead to widespread adoption lag.

2. Evolution of regional hubs: In the past few years, countries have tended to operate on a regulatory spectrum, ranging from banning to adoption as legal tender, although more recently countries have moved away from the option of a total ban due to the challenges of enforcement. Recognizing continued interest among retail and institutional investors, countries continue to review and adapt their regulatory models. Countries seeking to serve as a “national/regional crypto hub” tend to be early movers in introducing regulatory frameworks, including having clearer and more efficient licensing processes.

These regional hubs can be more open, agile and willing to innovate depending upon the country’s priorities. Some hubs may be considered “too friendly”, as having a “light-touch approach” or simply as ineffective in terms of regulation due to a lack of sufficient controls and excessive exposure to the ecosystem, leading to problems of regulatory arbitrage.

3. Geopolitical issues: Global coordination requires countries to align on various issues. At present a number of international organizations – for example, the Financial Stability Board (FSB), the Basel Committee on Banking Supervision (BCBS) and the International Organization of Securities Commissions (IOSCO) – are driving the discussion of crypto-asset regulation on an international level. However, such processes may not align entirely with the national/regional pace of regulation. In addition, the current geopolitical landscape also adds challenges to achieving seamless global cooperation.



The advent of crypto-assets and blockchain-based financial services is proving to be more about convergence than disruption of the traditional economy, banking and finance. This should be encouraged, and the vital work carried out by the World Economy Forum and the Digital Currency Governance Consortium provides an accessible blueprint for jurisdictions to catalyse growth and investments in the digital assets economy, while ending the perilous era of race-to-the-bottom regulatory arbitrage.

Dante Disparte, Chief Strategy Officer; Head, Global Policy, Circle Internet Financial, USA



2.3 | Fragmented monitoring, supervision and enforcement

Monitoring, supervision and enforcement are an essential component of regulatory framework effectiveness. Many jurisdictions around the world have begun to promulgate regulatory frameworks, but most have only just begun enforcement through examination and active supervision. In the context of AML supervision of crypto-assets, a Bank for International Settlements (BIS) 2021 survey found that oversight remained nascent globally.²⁶ Although many are at different stages, with some countries still finalizing applicable law and policy and a small portion engaging in active supervision, by and large effective enforcement measures remain a work in progress. The result is a complex tapestry of enforcement trends as well as enforcement risks posed by the cross-jurisdictional influence of crypto-assets.

Fragmented monitoring, supervision and enforcement present problems in achieving a coordinated global approach to regulation. Apart from the technical challenges posed by crypto-assets to regulatory enforcement, issues are also raised by the regulatory environments themselves. These are due to the pre-existing challenges to cross-industry and global coordination but also because crypto-assets and their commercial environments present overlapping areas of risk and possibility for enforcement. Some of the key challenges to cooperative efforts for crypto-assets are discussed below.

1. Challenges to international cooperation:

Financial-sector regulators are engaged with their industries in a far deeper and more interactive way than other regulatory bodies.²⁷ In contrast, regulators are only just beginning to engage in enforcement, let alone supervisory and monitoring activities with respect to crypto-assets. In February 2022, the FSB published a risk assessment on crypto-assets, stating that “crypto-assets and markets must be subject to effective regulation *and oversight* commensurate to the risks they pose, both at the domestic and international level”.²⁸ With respect to regulatory enforcement perimeters, many jurisdictions have adopted the “same risks, same rules” approach to identifying appropriate enforcement bodies and regimes. For instance, if a crypto-asset token were classified as a security, it would fall under the purview of the US Securities and Exchange Commission (SEC) or in-country equivalent; if it were an e-money token, it would fall under the country’s e-money regulator; if it were a utility or exchange token, it might fall outside of regulatory supervision entirely. Despite this, there is no internationally agreed taxonomy of crypto-asset classification, and the rapidly evolving ecosystems (such as the emergence of decentralized finance [DeFi]) have continually presented uses that undermine such taxonomies. The overall result is a heterogeneous and reactive enforcement environment, which stifles innovation and confidence more than it establishes a healthy environment for innovation and supervision.

2. Challenges to domestic/regional cooperation:

This heterogeneity can be both domestic and international. At a domestic level, this could be across different industry regulators with different taxonomies, which may choose different paths with respect to enforcement. Take, for example, consumer-protection regulation in the context of crypto-assets. It is very difficult to identify if this is a policy concern that should overlap several regulatory bodies, such as a securities regulator, markets regulator and consumer regulator.

Furthermore, it is difficult to assess which of these

regulators would bear the burden of supervision in line with applicable policies.²⁹ Meaningful coordination of local market regulatory perimeters is a crucial component of crypto-asset enforcement, with certain countries taking this approach explicitly. For instance, in South Africa all financial regulators with jurisdiction on crypto-assets coordinate under a single cooperative body, the Intergovernmental Fintech Working Group (IFWG), through which all policies in relation to crypto-asset regulation are to be channelled.³⁰ Such an explicit structure might be beneficial in ensuring regional coordination.

CASE STUDY

FATF Travel Rule

The FATF's Travel Rule is a good example of where differences in regulatory environments and resources could affect enforcement.

The FATF's Travel Rule, also referred to as FATF Recommendation #16, obliges businesses to record and disclose the information of participants (originators and beneficiaries) to a transaction. This rule, originally applicable only to banks, was extended in 2019 to also require VASPs to record and disclose information relating to crypto-asset transactions. As a result, many observing countries began incorporating the Travel Rule into their local AML directives. Part of the Travel Rule required countries to ensure that financial institutions monitor transfers for the purpose of detecting those that lack the required originator and/or beneficiary information. If a deficiency is detected, that institution must take appropriate measures.

Unfortunately, the technology solutions to implement the Travel Rule are limited, and as noted in FATF's June 2022 targeted update report,³¹ interoperability across technical solutions and across jurisdictions is still lacking. Such fragmented enforcement techniques will pose a challenge to the supervision and monitoring of crypto-assets against regulations in the short term and may take many years to standardize. This years-long process is concerning, given the dynamic growth and rapid technological developments in crypto-assets, although the industry is also actively developing standards to address this gap. Even if consistent supervision and monitoring were possible in some jurisdictions, it is unlikely that it would be possible in all, potentially resulting in further information and enforcement asymmetries.

The need for global coordination and harmonization is well established, but given the events of 2022 and the variations in legal systems and geopolitical concerns, coordination is difficult to achieve, especially for an ecosystem that is still

evolving. Jurisdictions may agree on the need to ensure financial stability, market integrity and the protection of consumers, but the pathways they take are often different.



As the Leaders of the Group of Seven (G7) in the May 2023 summit have acknowledged, effective monitoring, regulation and oversight are critical to addressing financial stability and integrity risks posed by crypto-asset activities and markets and to avoid regulatory arbitrage, while supporting responsible innovation. This timely World Economic Forum publication sets out the need for a global and harmonized approach to the regulation of crypto-assets.

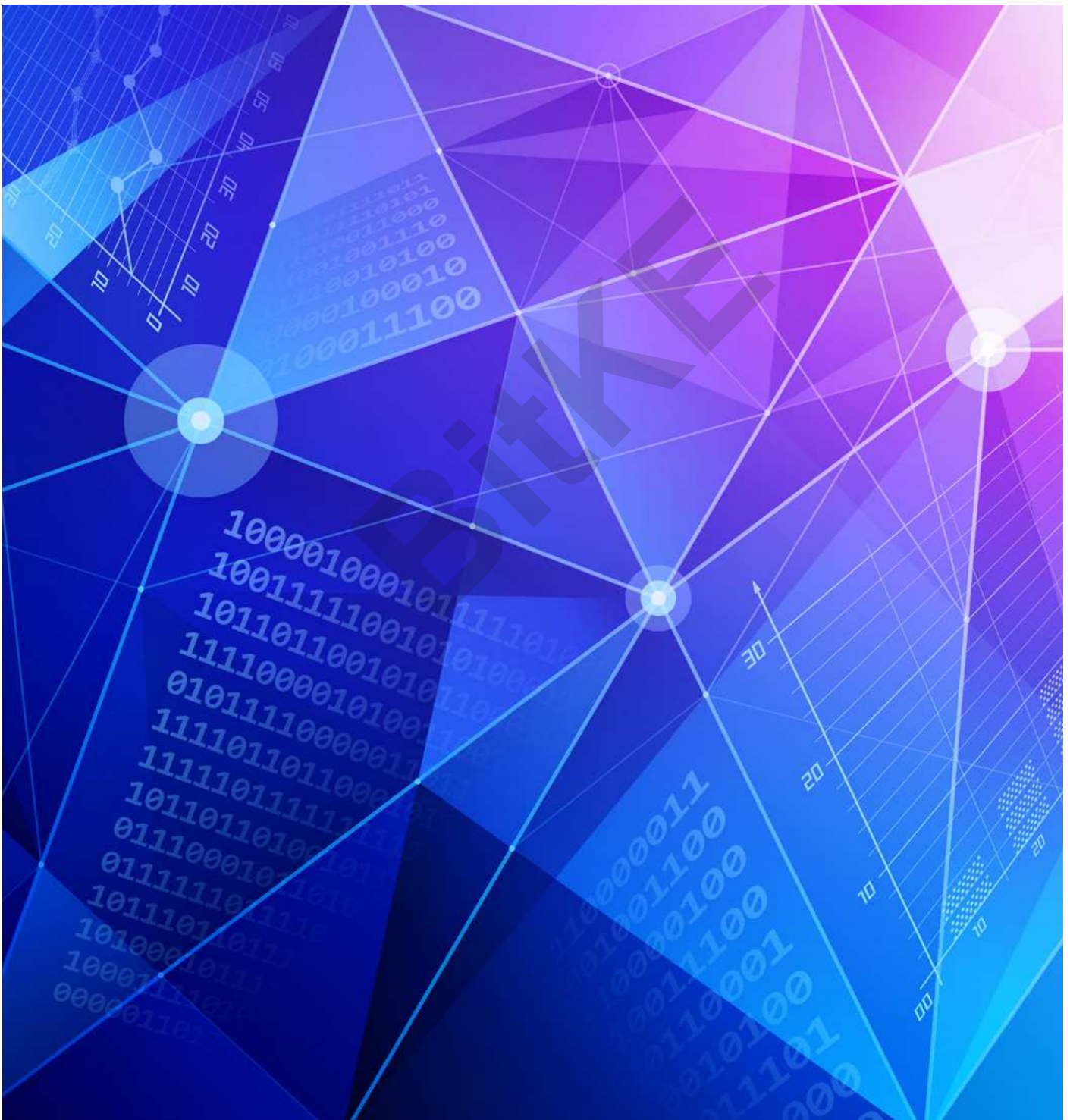
John Ho, Head of Legal, Financial Markets,
Standard Chartered, Singapore



3

Regulatory approaches

Across the globe, crypto-assets have been regulated in myriad ways by countries, leading to a fragmented regulatory landscape.

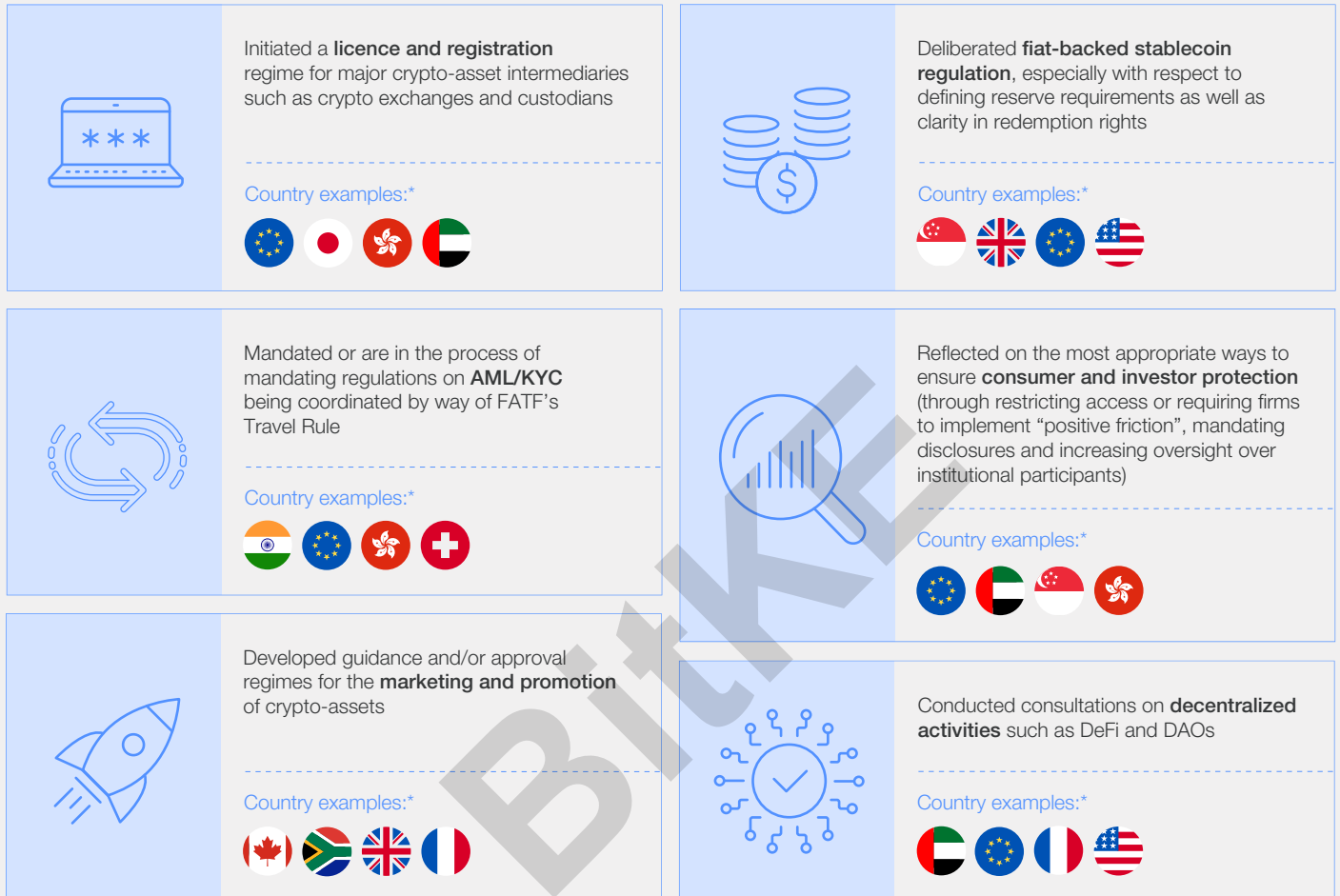


The level and scale of regulation depends on the level of maturity of the ecosystem, the perceived potential threat to financial stability, the capacity of the regulatory bodies overseeing crypto-assets and the need to promote innovation – as well as more local considerations. The particular configuration

of these variables for each country results in a complex regulatory picture, with crypto-assets banned in some countries (such as China) while in others (El Salvador and the Central African Republic) one crypto-asset, bitcoin, has been designated legal tender.

FIGURE 2 Crypto-asset regulatory developments

In terms of regulation, numerous countries/regions have:



* Country examples are not exhaustive



Most of these frameworks are relatively new, and due to a range of factors may not be appropriate to deal with decentralized governance and operational structures, novel operational and cybersecurity risks and legal-enforcement issues. As already highlighted in Sections 1 and 2, the nature of blockchain technology and differences in regulation and enforcement create challenges for cooperation between domestic regulators, international enforcement agencies and for the industry broadly as it absorbs an uneven compliance burden. On the other hand, these

differences have exacerbated regulatory arbitrage and led to the development of regional hubs. In addition to these new frameworks, existing rules and regulations continue to apply with respect to data protection, data management, cybersecurity, sanctions compliance and securities laws.

Various regulatory approaches have been adopted or are being considered by regulators and policy-makers. This section examines examples and best practices.

3.1 Principle-based regulation

Principle-based regulations lay out the broader principles and the outcomes intended. Instead of prescribing detailed rules, this regulatory approach outlines the results and performance expected. While there is flexibility for businesses to achieve the outcomes, this approach is usually supported by guidance, industry standards and other non-statutory approaches to providing clear direction. Importantly, outcomes should be sufficiently

long-term to provide stability and predictability for business.

The crypto-assets ecosystem is a fast-evolving domain requiring the consistent testing of new risks and business models. Effective policy-making benefits from a principle-based outcome-driven approach, allowing for embedded regulation to align with the outcomes.

TABLE 3 Outcome-based regulation

Approach	Description	Challenges	Benefits
Outcome-based regulation	Lays down principles and desired outcome instead of prescriptive rules	Uncertainty for businesses Measuring implementation can be challenging	Flexibility May promote innovation
Example	<p>The UK in its consultation stated that it would be guided by the “same risk, same regulatory outcome” principle while establishing its regulatory framework for crypto-assets.³² For crypto-asset custody, the UK proposes that crypto-asset custodians should ensure adequate arrangements to safeguard asset holders’ rights by having sufficient financial resources, establishing clear processes for redress and maintaining processes and controls to minimize the risk of asset misuse or loss.</p> <p>Liechtenstein, under its <i>Tokens and Trustworthy Technology (TT) Service Provider Act</i> (Article 17), stipulates special control mechanisms for certain TT service providers. The requirements are principle-based and technology-neutral.³³</p> <p>Gibraltar, as part of its <i>Financial Services (Distributed Ledger Technology Providers) Regulations 2020</i>, established nine regulatory principles for DLT providers: honesty and integrity; adequate financial and non-financial resources; clear communication with the customer; effective business management; customer-asset protection; effective corporate governance arrangements; effective maintenance of system and security access protocols; money laundering and terrorist financing detection and prevention; and resilience and market integrity.³⁴</p>		

Source: World Economic Forum

“Regulatory clarity that is globally coherent is critical to protecting consumers, creating sound markets, and ensuring continued innovation based on this revolutionary technology. The World Economic Forum’s report sets out recommendations for the international standard-setting bodies, national-level policy-makers and regulators, as well as for industry, in a way that ensures that they are not just fighting last year’s war and that takes advantage of the transparent nature of the blockchain.

Caroline Malcolm, Vice-President of Global Public Policy, Chainalysis



3.2 Risk-based regulation

Risk-based regulations are based on the assessment by the rule/standard-setter of the risks relevant to their mandate, and the appropriate level of intervention required in accordance with the level of risk. If an actor performs low-risk activity, the regulation would be accordingly streamlined, providing for lower compliance requirements. This enables regulators to use their resources efficiently, focusing their efforts on higher-risk activities. Appropriate comparisons of alternatives should also be considered in a risk-based framework. For instance, payment stablecoins, as a tokenized form of cash, resemble physical cash in circulation. Risk considerations should be formulated based on the relevant comparison.

Within the crypto-asset ecosystem, due to the higher concentration of financial uses, both international organizations and national regulators have advocated for a risk-based approach to regulation to ensure parity and proportionality. However, due consideration should be given to the distinction between centralized and decentralized entities. As most DeFi applications do not custody or have direct access to customer funds, the risk issues are quite different, even though the functionalities might be similar. Additionally, recognition of risk reductions from existing financial architecture should also be taken into consideration in a risk-based approach. For instance, with appropriate guardrails, the substitution of physical cash with tokenized cash can enhance the ability to KYC and address AML concerns. Reducing reliance on balance sheet-heavy intermediation activities can also reduce systemic risk concentrations.

TABLE 4 Risk-based regulation

Approach	Description	Challenges	Benefits
Risk-based regulation	Regulate as per the risk posed by the activity	Data gaps in assessing risks	Certainty as regulation is proportionate Efficient resource allocation
Example	<p>The UK's Money Laundering, Terrorist Financing and Transfer of Funds (Information on the Payer) Regulation 2017, which became applicable to crypto-asset businesses in January 2020, provides a risk-based approach for applying customer due diligence, monitoring and reporting suspicious activities.³⁵</p> <p>Singapore, in its consultations, has proposed regulatory measures to reduce the risk of consumer harm from cryptocurrency trading. For instance, these include consumer access-related measures where services are offered to retail investors. Put another way, where customers are less sophisticated, there are increased compliance requirements for service providers.</p> <p>Hong Kong's regime for virtual-asset activities, in place since 2018, requires, among other investor protection measures, the conducting of a virtual-asset knowledge assessment. Hong Kong is currently consulting on imposing additional safeguards if retail access to virtual assets is to be allowed.³⁶</p>		

Source: World Economic Forum

3.3 Agile regulation

Instead of prescribing and enforcing rules, agile regulation adopts a responsive, iterative approach, acknowledging that policy and regulatory development is no longer limited to governments but is increasingly a multistakeholder effort.

Regulatory sandboxes, guidance and regulators' no-objection letters are all forms of agile regulation that enable the testing of new types of solutions, iterating policy frameworks based on ecosystem evolution and industry needs.

TABLE 5 Agile regulation

Approach	Description	Challenges	Benefits
Agile regulation	Flexible, iterative and proactive approach	Need for coordination and collaboration Uncertainty	Flexible Appreciates market maturity and ecosystem development
Example	<p>The Swiss Financial Market Supervisory Authority (FINMA)'s token classification prescribes three simple categories: payment tokens, utility tokens and asset tokens. The framework acknowledges hybrid tokens and that a token's classification may change over time. Following the first classification, FINMA later also published further guidance in 2019 on stable tokens (classified as asset or a hybrid between asset and payment tokens).</p> <p>Regulatory sandboxes in the EU, India and the UAE are an example of an agile regulatory approach to regulation.</p>		

Source: World Economic Forum

3.4 Self- and co-regulation

In self-regulation, industry representatives coordinate and collaborate to formulate voluntary standards or codes of conduct. Being industry-driven, self-regulation has the benefit of maintaining awareness of ecosystem requirements and has the ability to build trust between industry, consumers and regulators. However, it is susceptible to lighter requirements and may not be effectively enforced due to lack of direct regulatory backing.

This problem is solved, to some extent, by co-regulation, where a non-governmental organization is formed by participants of a particular industry or sector to assist in the regulation of enterprises in that area with the oversight of the regulator.

TABLE 6 Self- and co-regulation

Approach	Description	Challenges	Benefits
Self- and co-regulation	Multistakeholder engagement between public and private sectors	Industry capture Lack of accountability	Builds trust in the ecosystem Innovation-friendly
Example	<p>In October 2018, Japan's Financial Services Agency (FSA) gave the country's cryptocurrency industry self-regulatory status, allowing the Japan Virtual Currency Exchange Association (JVCEA) the power to police and penalize Japanese cryptocurrency exchanges, with oversight from the JFSA.</p> <p>In Switzerland, the Financial Market Supervisory Authority (FINMA) authorizes self-regulatory organizations (SROs) to oversee the compliance of SRO members with anti-money laundering legislation, while being supervised by FINMA.³⁷</p>		

Source: World Economic Forum



3.5 Regulation by enforcement

Regulation by enforcement indicates that enforcement actions are being used to define regulatory frameworks. Given the overlap between crypto-asset uses and existing regulatory frameworks around securities, commodities, money laundering etc., several regulatory authorities brought enforcement actions against crypto-asset companies and participants, alleging that, although the crypto-assets were based on a novel technology, they violated existing laws and therefore the companies/participants should be held liable.

Enforcement actions are necessary to address issues relating to fraud and market manipulation, especially where crypto-assets blatantly resemble securities and are being used for explicitly prohibited activities such as money laundering. However, this approach is not recommended to build out a framework, as “regulation by enforcement” precludes any meaningful discussion of what should and should not be regulated.

TABLE 7 Regulation by enforcement

Approach	Description	Challenges	Benefits
Regulation by enforcement	Use of enforcement actions for making rules	Lack of certainty and predictability Non-collaborative innovation environment	Rich jurisprudence development Accountability for unscrupulous actors
Example	Starting in 2015, the US regulatory authorities have repeatedly brought enforcement actions against various crypto-asset entities and related individuals.		

Source: World Economic Forum

3.6 Analysis of regulatory approaches

Based on qualitative multistakeholder consultations with regulators, industry and civil society, the table below rates the various regulatory approaches against a perceived outcome. A higher score indicates higher effectiveness in achieving the mentioned outcome. However, neither the rating

not the outcomes are exhaustive or final. Most jurisdictions tend to opt for more than one kind of a regulatory approach. It is also noted that outcomes achieved are linked to the way in which the regulation is designed, coordinated and implemented.

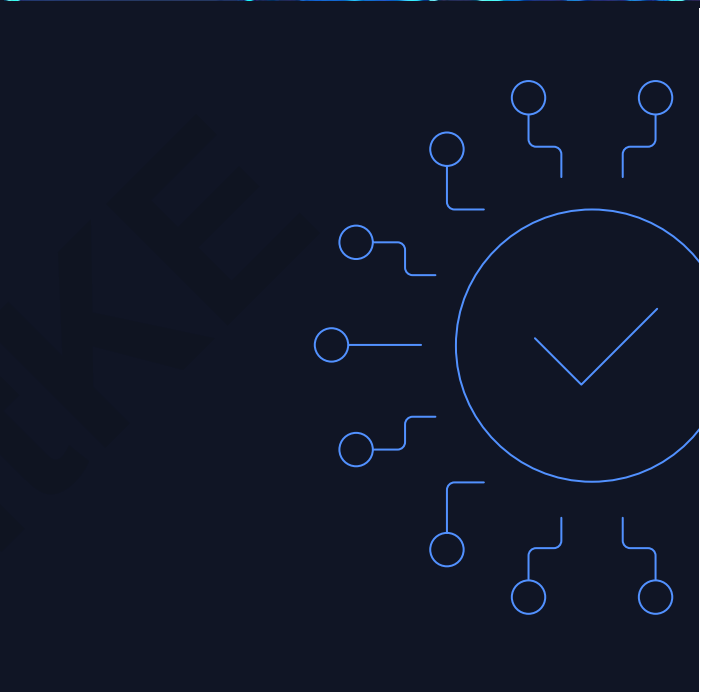
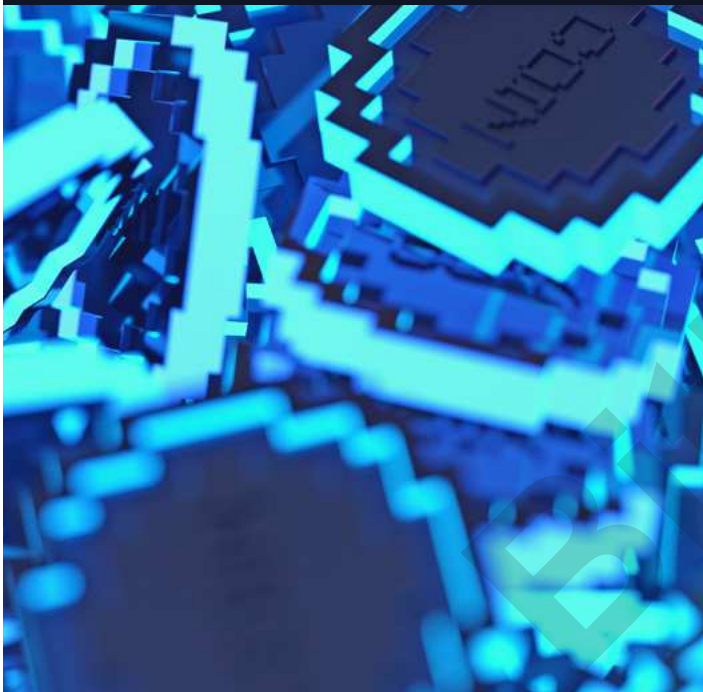
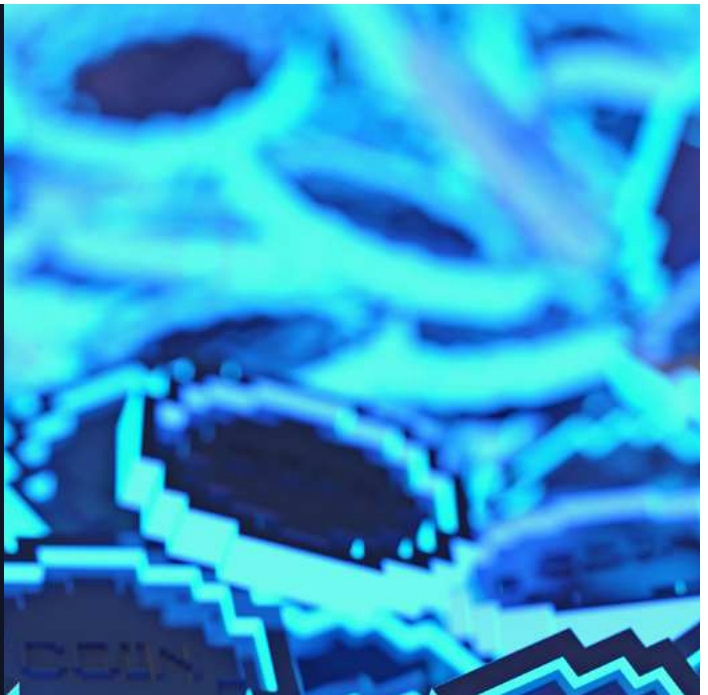
TABLE 8 Analysis of regulatory approaches

	Providing certainty for businesses	Addressing data gaps	Enforcement effectiveness	Promoting innovation
Outcome-based regulation	●●○○	●●○○	●●○○	●●●○
Risk-based regulation	●●●○	●●○○	●●●○	●●○○
Agile regulation	●●○○	●●○○	●●○○	●●●○
Self- and co-regulation	●○○○	●●○○	●●○○	●●○○
Regulation by enforcement	●○○○	●○○○	●●●○	●○○○

Source: World Economic Forum

“ Crypto asset regulation requires a forward-thinking and flexible approach that balances innovation and stability. By examining global best practices, we gain valuable insights to develop regulatory frameworks that encourage growth, protect consumers and foster trust in this dynamic digital landscape.

Sheila Warren, Chief Executive Officer, Crypto Council for Innovation



Regulation of the crypto-asset ecosystem is at varying stages of development across jurisdictions, and different regulatory approaches can have varying effects in promoting global coordination. With a principle-based approach, it is possible for jurisdictions to identify common goals while devising tailored pathways to achieve this outcome, such as ensuring responsible innovation and consumer protection. Risk-based regulation involves addressing common risks – such as money laundering, illicit financing, potential threats to financial stability, etc. – and using similar methods in managing the risks. International organizations such as the FSB and FATF have been

coordinating these efforts by researching the risks and recommending common actions. An agile approach, while much needed for the evolving ecosystem, tends to be more region-specific, as policy-makers and regulators respond to specific market conditions to avoid regulatory gaps. Self- and co-regulation is important because it enables industry participants to collaborate and develop best practices, codes of conduct and standards that can then be adopted across jurisdictions and reduce regulatory complexity. Finally, regulation by enforcement would require close coordination among law-enforcement agencies to enforce rules and regulations consistently at the global level.

4

Conclusion and recommendations

A global approach to regulating crypto-assets is ideal and needs collaboration in order to leverage the benefits and manage the risks.



A global approach is needed to maximize the advantages from the underlying technology and to manage the risks arising from regulatory arbitrage and the interconnectedness within the crypto-asset ecosystem, as well as the potential of spillover into the traditional financial systems.

However, given the different stages of market maturity, the development of regional hubs and the varying capacity of regulators, it is prudent to holistically focus also on the important role that international organizations and national/ regional regulators as well as industry actors can play in ensuring responsible regulatory evolution. In view of the analysis undertaken in the preceding sections, this section recommends prioritized

pathways for international organizations, national authorities and industry actors. In addition, because it is often argued that regulating crypto-assets is complex owing to its unique nature and the lack of precedents, this section also refers to examples and best practices from other sectors that could serve as guides for the crypto-asset ecosystem to consider while the regulatory approaches evolve.

While the following section provides recommendations for international organizations, national/ regional authorities and industry stakeholders, it recognizes that the role of civil society, academia and, most importantly, users remain critical in ensuring that the ecosystem develops in a responsible manner.

4.1 Recommendations for international organizations

International standard-setting bodies, regional authorities and national governments must **cooperate and collaborate** with industry stakeholders to address technological, legal,

regulatory and supervisory challenges. The following recommendations are intended to address these challenges.

TABLE 9 Recommendations for international bodies

Recommendation 1:	Recommendation 2:	Recommendation 3:
Promote a harmonized understanding of taxonomy/classification of crypto-assets and activities	Set out best practices and baseline regulatory standards for achieving the desired regulatory outcomes	Encourage passportability of entities and data sharing
<p>1.1 Distinguish features and risks of:</p> <ul style="list-style-type: none"> – Different crypto-assets/archetypes as a basis for a consistent classification – Different crypto-asset activities (trading, dealing, payments, staking, etc.) <p>1.2 Promote technology-neutral principles and standards that achieve cross-jurisdictional convergence on the legal characterization of crypto-assets and associated activities</p> <p>This will promote an understanding of issues relating to ownership, accounting, tax and prudential treatment while providing an even playing field across the industry spectrum and among jurisdictions. It will also avoid treating all crypto-assets as the same, which can be counterproductive for responsible innovation.</p>	<p>2.1 Best practices on critical functions (custody, transfer, settlement, track/track illicit activity, etc.) and baseline regulatory standards for AML/KYC, consumer protection and market integrity, etc. should be set out clearly. Promote evidence-based nuanced understanding of implementing the best practices to ensure that technology solutions and regulatory standards are interoperable</p> <p>2.2 Creation of international regulatory overviews that specify how different jurisdictions have incorporated crypto-assets into their national frameworks to identify and disseminate best practices</p> <p>This will create certainty for businesses and protect users as entities will be incentivized to comply with the best practices and regulatory standards to build trust in the ecosystem.</p>	<p>3.1 Standards for sharing data and insights to be set out, such that interoperability is promoted between various stakeholders (e.g. crypto service providers, financial institutions, enforcement authorities, analytics service providers, etc.)</p> <p>3.2 Passportability of registered/licensed entities should be promoted to facilitate global coordination and address cross-border risks</p> <p>Regular sharing of information relating to risks, vulnerabilities and enforcement will discourage bad actors from manipulating the ecosystem. In addition, passportability will enable global coordination.</p>

Source: World Economic Forum

TABLE 10 Existing examples from other sectors

Harmonized taxonomies and activities	Administered by the World Customs Organization, the Harmonized System (HS) is a standardized numerical method of classifying traded products and is widely used by customs authorities around the world to identify products when assessing duties and taxes for gathering statistics.
Best practices; baseline regulatory requirements	The International Organization of Securities Commissions (IOSCO) sets global standards for securities regulation. It develops baseline requirements while implementing and promoting adherence to standards for securities regulation.
Data sharing	Supervisory colleges is a collaborative mechanism used by securities regulators to foster greater supervisory cooperation, with the purpose of enhancing supervision of internationally active market participants. ³⁸

Source: World Economic Forum

4.2 Recommendations for regional/national regulatory authorities

At the regional/national level, policy-makers and regulators should develop their respective regional/national strategies by building on existing best

practices. The objective should be to provide certainty for innovators and to empower users.

TABLE 11 Recommendations for regional/national regulators

Recommendation 1: Cross-sector coordination	Recommendation 2: Regulatory certainty	Recommendation 3: Using technology for regulation by design
1.1 Different departments/ agencies such as financial supervisors and law-enforcement agencies should coordinate to address the risks and benefit from enforcement opportunities ³⁹	2.1 Regulators must develop guidelines, best practices and frameworks to proportionately regulate the on/off ramps for crypto-asset ecosystems	3.1 Regulators should adopt best practices to leverage technologies and analytics service providers for automated regulatory compliance/reporting, real-time risk alerts and tracking regulatory change
1.2 Multi-regulator sandboxes might be used where businesses wish to test their solutions in a controlled environment	2.2 Initially regulations might be formulated for identified centralized intermediaries and existing financial institutions, taking into account prudential requirements, accountability and consumer protection	3.2 Co-innovation-led public/private partnerships should be focused on enhancing capacity and enabling developments and risk monitoring in real time
This will build trust in the ecosystem and assist regulators in framing evidence-based regulations/guidelines, while remaining agile.	This will ensure regulatory certainty and provide incentives for actors to act responsibly.	This will improve transparency, reduce risk and build confidence in the industry, which is essential for its responsible development.

Source: World Economic Forum

TABLE 12 Existing examples from other sectors

Cross-sector coordination	In India, the Reserve Bank of India released a Standard Operating Procedure for an Interoperable Regulatory Sandbox (IoRS) in October 2022. ⁴⁰ IoRS enables the testing of financial products/services that fall within the remit of more than one regulator.
Regulation of on/off ramps	Internet protocols such as HTTP, SMTP, etc. are open and have been developed collaboratively. These protocols are standardized and remain unregulated. Applications built on top of these protocols can, however, be regulated. For example, e-commerce applications and fintechs are regulated under different frameworks, and both types of applications are built upon these standard internet protocols.
Regulation by design	Data protection and empowerment architecture in India provide for consent by design. The decoupling of a consent manager from the data provider/ consumer allows for neutrality and compliance with consent-related obligations.

Source: World Economic Forum

4.3 Recommendations for the industry

Industry has a vital role to play to ensure global coordination in regulating crypto-assets – by engaging with regulators, advocating for clear, consistent

regulations across jurisdictions, and collaboratively evolving robust voluntary frameworks (best practices, rating systems, technical standards, etc.).

TABLE 13 Recommendations for the industry

Recommendation 1: Standard setting	Recommendation 2: Sharing best practices	Recommendation 3: Responsible technology innovation
1.1 Industry should make efforts to coordinate and collaborate on evolving interoperable technical standards	2.1 Industry should make efforts to establish best practices for addressing operational risk, market risk (if relevant), counterparty risk, cybersecurity risks and AML protections as well as any other requirements consistent with national laws and regulations ⁴¹	3.1 Engage with policy-makers and sectoral regulators to innovate responsibly with a view to protecting and empowering users; align on educational efforts
1.2 Industry should collaborate to evolve standards with respect to governance, consumer protection, cybersecurity and interoperability. Standards should include consideration of terms of service, disclosure and reporting mechanisms	2.2 Industry should also review material risks posed to other entities such as financial markets infrastructure, settlement banks, liquidity providers, validating node operators and other service providers	3.2 Industry innovation should keep in view the potential maturity cycle of the industry and the environmental, social and economic risks
This will improve interoperability, enhance security and help meet regulatory requirements.	This will promote responsible behaviour, as well as strengthening user experience and ecosystem security.	This is necessary to ensure that users are empowered and that the technology is used to the benefit of society and stakeholders.

Source: World Economic Forum

TABLE 14 Existing examples from other sectors

Standard setting	The Payment Card Industry Data Security Standard (PCI DSS) is an example of widely adopted industry-led standard setting, where major credit card companies collaborated to develop standards for the security of credit card transactions and the protection of cardholder information.
Self-regulation/best practices	The Global FX industry is not formally regulated. Rather, it is overseen by the FX Global Code July 2021 (Global Code), a set of global principles of good practices in the foreign exchange market, developed to provide a common set of guidelines to promote the integrity and effective functioning of the wholesale foreign exchange market. It was developed through a partnership between central banks and market participants from 20 jurisdictions around the globe. Through its Recognised Industry Codes, ⁴² the UK's Financial Conduct Authority (FCA) recognizes four code of conduct: the FX Global Code (July 2021); the UK Money Markets Code (April 2021); the Lending Standards Board Standards of Lending Practice for Business Customers; and the Global Precious Metals Market Code (May 2017), in lieu of formally regulating these sectors in the UK.
Responsible technology innovation	The banking industry and the Hong Kong Monetary Authority (HKMA) work on various initiatives to promote a strong corporate culture of protecting consumers. This includes developing a Treat Customers Fairly Charter signed by Hong Kong retail banks. In addition, the HKMA has implemented a similar charter for the private wealth-management industry. Both charters incorporate five high-level fairness principles, drawn from good practices in both Hong Kong and overseas and from the G20 High-Level Principles on Financial Consumer Protection.

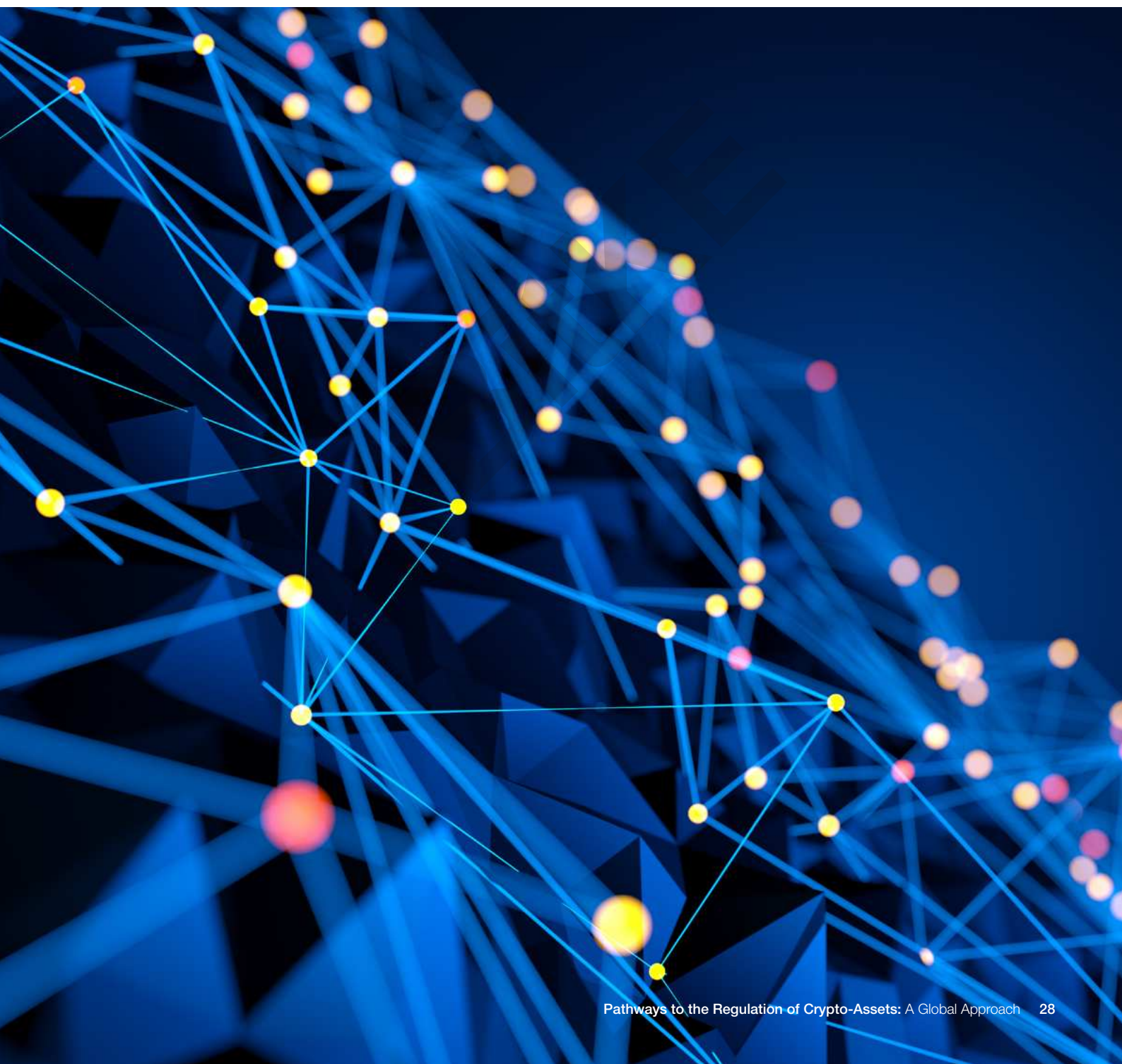
Source: World Economic Forum

The next evolution of the internet is often characterized by the guiding principles of being open-source, decentralized, permissionless and trust-less. Crypto-assets, enabled by the underlying DLT, will be an integral part of that evolution as they will serve as a means of exchange and store of value, incentivizing network participation and, most importantly, innovating with new economic and social models.

Current regulatory efforts largely focus on concerns pertaining to illicit financing, conduct and market integrity, prudential requirements and financial stability. However, as the understanding of the opportunities as well as the distinct risks strengthens, there is a need to evolve a principles-based, agile approach that advances best practices and guidelines with a co-innovation lens. Crucially, policy-makers and industry stakeholders need to collaborate across jurisdictions to ensure

consistency and clarity. While coordination is not always easy to achieve, this paper recommends several prioritized pathways that different actors can leverage to attain the desired outcome. Use of a variety of regulatory tools, ranging from legislative frameworks to voluntary codes of conduct and educational efforts, are needed to regulate this dynamic sector. Additionally, as these new technologies start from a position of transparency, it is possible to imagine even better regulatory tools to address cross-border concerns.

Building on this foundational paper, the World Economic Forum's Blockchain and Digital Assets team will launch an initiative focused on evaluating the outcomes of different regional approaches to regulation. This effort will convene public- and private-sector leaders to reveal first-hand learnings and the unintended consequences of different regulatory frameworks.



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Endnotes

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