

# BLOCKCHAIN AND THE FUTURE OF DIGITAL ASSETS

a thematic report prepared by  
THE EUROPEAN UNION BLOCKCHAIN  
OBSERVATORY & FORUM

# About this report

The European Union Blockchain Observatory & Forum has set as one of its objectives the analysis of and reporting on a wide range of important blockchain themes, driven by the priorities of the European Commission and based on input from its Working Groups and other stakeholders. As part of this it will publish a series of thematic reports on selected blockchain-related topics. The objective of these thematic reports is to provide a concise, easily readable overview and exploration of each theme suitable for the general public. The input of a number of different stakeholders and sources is considered for each report. For this paper, these include:

- Members of the Observatory & Forum's [Working Groups](#) as well as the Observatory's Digital Assets Sub-Working Group (please see next page).
- "[Blockchains and Digital Assets](#)", by Luis-Daniel Ibáñez, Michał R. Hoffman, Taufiq Choudhry School, from the University of Southampton, academic partner of the EU Blockchain Observatory & Forum.
- Input from participants at the "[Digital Assets](#)" workshop held in Brussels on 24 May 2019.
- Input from the Secretariat of the EU Blockchain Observatory & Forum (which includes members of the DG CONNECT of the European Commission and members of ConsenSys).

## CREDITS

This report has been produced by ConsenSys AG on behalf of the European Union Blockchain Observatory & Forum.

Written by: Faustine Fleuret, Tom Lyons  
Thematic Report Series Editor: Tom Lyons  
Report design: Benjamin Calmégane

v1.0 - Published on February 19th 2020.

## DISCLAIMER

The information and views set out in this publication are those of the author(s) and do not necessarily reflect the official opinion of the European Commission. The Commission does not guarantee the accuracy of the data included in this study. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use which may be made of the information contained therein.

## ACKNOWLEDGEMENTS

The EU Observatory & Forum would like to expressly acknowledge the following for their direct contributions and feedback to this paper as members of the Digital Assets Sub-Working Group:

- Anastasios Antoniou
- Tamás Chlepkó
- Amandine Doat
- Nadia Filali
- Michèle Finck
- Jānis Graubiņš
- Julian Hosp
- Iwona Karasek-Wojciechowicz
- Manuel Machado
- Martin Pospěch
- Philipp Sandner
- Ivona Skultétyová

## NOTE

While we have done our best to incorporate the comments and suggestions of our contributors where appropriate and feasible, all mistakes and omissions are the sole responsibility of the authors of this paper.

# Contents

5	<b>Executive summary</b>	
7	<b>1. Presentation of digital assets</b>	
	1.1 The practical definition of digital assets	7
	1.2 The legal qualification of digital assets	11
15	<b>2. The digital asset revolution</b>	
	2.1 The benefits of digital assets	15
	2.2 The main types of digital assets and their concrete applications	16
19	<b>3. The limits and challenges that digital assets must overcome</b>	
	3.1 Legal uncertainty and regulatory arbitrage	19
	3.2 Hurdles for the adoption of digital assets	20
	3.3 The lack of support to develop digital assets	21
23	<b>4. Public authorities' commitments towards digital assets</b>	
	4.1 State of play and achievements of public authorities	23
	4.2 Future efforts and expectations towards public authorities	28
33	<b>Conclusion and recommendations</b>	

# Executive summary

Since the advent of Bitcoin and blockchain in 2008, digital assets have become one of the most talked about innovations in financial services and the broader economy. While digital assets existed before blockchain and can exist without it, **in this paper we focus on the emerging world of blockchain-based digital assets<sup>1</sup>** in all its diversity and complexity, covering their background, their promise, the challenges and issues they pose, as well as how policy-makers and other authorities are reacting to their rise.

This new world of digital assets is extremely diverse. **Digital assets can represent almost anything**, from physical assets, securities and property to more intangible items like rights, identity or attestations of fact. Thanks to blockchain, digital assets can be created by almost anyone with the technical know-how, a process generally referred to as “tokenisation”, and can be distributed in a number of innovative ways. The technology also makes them easy to trade on secondary markets, but introduces new concepts and raises new challenges when it comes to asset custody. Thanks to smart contract technology running on blockchain, digital assets can also be “programmed” – adding new capabilities that are not possible using traditional means of asset issuance and exchange.

As such, digital assets can both reflect the traditional world of assets and represent something completely new in the world. This has ignited debate around how to categorise and legally qualify them. While public authorities in many jurisdictions have been examining these issues, today there is no globally recognised, binding taxonomy in use. That said, an informal working consensus has developed around the three basic digital asset categories of: **a) payment/exchange/currency tokens; b) investment/security tokens; and c) utility/consumption tokens**. The existence of a number of hybrid tokens, which have features spanning more than one of these categories, shows, however, the difficulties that still remain in coming to an agreement on how digital assets should be classified.

Regardless of their definition, digital assets promise a number of important benefits for asset markets. For example, digital assets based on smart contracts can be audited, meaning that they will execute as written. This can add new levels of transparency to markets. Since smart

---

<sup>1</sup> As we mention in the main text, for the purposes of this paper we use the term “digital assets” to mean such assets issued, traded and custodied on a blockchain.

## EXECUTIVE SUMMARY

contracts can be programmed to comply with existing regulations, they can also bring legal security. As a single version of the truth, a blockchain can also foster confidence in shared information and so bring reliability to markets. Digital assets also represent a promising field for innovation, for example through automation or fractional ownership.

There is still a great amount of work to do to realise these benefits. As we point out, while tokenisation can make certain assets more easily tradable on secondary markets, this **does not automatically mean there will be a demand for them**. The **legal incertitude** that surrounds the digital asset environment is also a major roadblock at the moment, as is the **cost of technical innovation**, the **difficulty of onboarding** users and investors to new platforms, a **general reluctance on the part of banks** to support the growth of digital assets, and **the lack of central bank-issued digital currencies** – something which, as we explain in the paper, could prove a major catalyst for digital asset uptake.

**We can expect most if not all of these hurdles to eventually be overcome.** Along with ongoing technical innovation, a key element in the development and acceptance of digital assets will be the **legal and regulatory environment**. Public authorities around the world continue to work to understand and regulate digital assets, looking to strike a balance between their innovative potential and important concerns like **consumer protection**, the **smooth functioning of market infrastructure**, and **financial stability**. We look at the overall regulatory response so far, before taking a deeper dive into particularly sensitive topics such as **anti-money laundering and counter-financing of terrorism**, the tax and accounting treatments of tokens, and other topics including custody and ownership and the challenges raised by decentralisation.

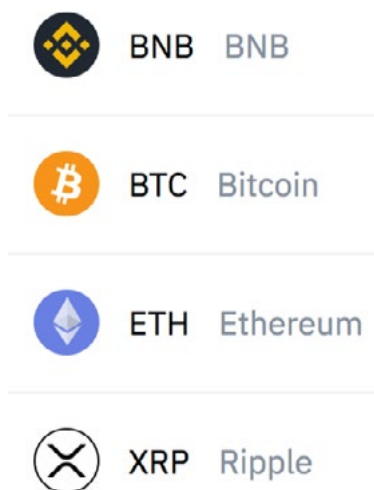
While there are certainly risks associated with digital assets, in our conclusion we also **urge policy-makers to consider the potential rewards**. To move the digital assets revolution forward, we recommend, among other things, that policy-makers in Europe develop a **harmonised understanding** of digital assets, **determine the legal treatment** of digital assets, strengthen the **synergies between public authorities and private actors**, and **clarify regulatory oversight**.

# 1. Presentation of digital assets

## I.1 THE PRACTICAL DEFINITION OF DIGITAL ASSETS

### 1.1.1 The emergence of digital assets

The concept of “digital assets” is not a new one, and does not inherently rely on blockchain. Digital tokens exist in the same way that electronic record-keeping systems do. They can be defined as a string of characters, often stored in a binary format, that represent values or rights that can be exercised within a specific context. For this reason, the term “digital assets” does not necessarily refer to assets issued and transferred on a blockchain, since this is a sub-group within the more generic definition of digital assets. In the context of this report, however, we refer to digital assets in the sense of those digital assets limited to the blockchain universe. Each digital asset is associated with one blockchain, on which transactions on such assets are stored within blocks. A digital asset is usually identified thanks to its name and an affiliated three-letter code, as illustrated below.



Examples of digital assets (logo, code and name). Source : [binance.com](https://binance.com)

Blockchain-based digital assets existed before Ethereum, but the introduction of the first token standard on Ethereum in November 2015 led to an explosion in their issuance and use. As it was introduced as an ERC (Ethereum Request for Comment) and assigned GitHub issue number 20, this standard was named “ERC-20 token”. Today, the vast majority of digital assets are based on this standard.

Digital assets can be programmed to serve many different functions. For example, they can represent a resource earned or produced within a sharing economy or environment (such as computing power units), rights (access, voting, etc.), identity or attestations of facts (driving licence, degree, etc.), physical assets (gold, commodities, etc.), securities (shares, debt instruments, etc.), or even property (such as a painting or real estate). Sometimes various functions overlap within the same token, making the asset difficult to place under a single heading.

This notwithstanding, since their emergence digital assets have been subject to various attempts at classification. Some<sup>1</sup> have emphasised the distinction between native digital assets and tokenised existing assets: the former are created at the time that they are issued on a blockchain, whereas the latter represent tangible or intangible assets that are also held off-chain. The European Securities and Markets Authority (ESMA) defines “tokenisation” as “the representation of traditional assets on DLT”<sup>2</sup> and “a method that converts rights to an asset into a digital

<sup>1</sup> For example, the Committee on Payments and Market Infrastructures (CPMI). See part 2.2.1 in their analytical framework: “Distributed ledger technology in payment, clearing and settlement”, CPMI, February 2017: <https://www.bis.org/cpmi/publ/d157.pdf>

<sup>2</sup> “Advice on ICOs and crypto assets”, ESMA, 9 January 2019: [https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391\\_crypto\\_advice.pdf](https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_crypto_advice.pdf)

## 1. PRESENTATION OF DIGITAL ASSETS

token”, which enables someone to “represent ownership of (such) assets on DLT”. Some differentiate between digital assets issued on a public blockchain and those that live on a private blockchain, depending on whether the ledger is accessible to the general public or a restricted circle of authorised participants. Digital assets can also be differentiated by whether they are governed by the blockchain protocol itself (therefore without a formal issuer) or by a smart contract deployed by a so-called “token issuer”. Finally, some<sup>3</sup> distinguish between operational and pre-operational digital assets, the latter not yet being operational at the time of the initial coin offering (ICO). Crucially for this discussion, regulators have adopted an economic classification, which we will look at in detail in part 1.2.

### 1.1.2 The lifecycle of digital assets

The lifecycle of digital assets often resembles that of financial instruments, although blockchain enables the building and deployment of innovative channels to create, distribute and trade digital assets.

**Issuance.** Digital assets can be created by almost anyone with the technical know-how, from entities with legal personality to individuals (with the exception of security tokens, as the issuance of securities requires the formation of a company). They can choose either to pre-mine the digital assets so that they are all issued in one batch at the very beginning, or they can issue them “with the flow” all along the life of the digital assets. That is the case, for example, with Bitcoin and Ether, which are minted continuously as blocks

are added to the chain. Some also combine both creation mechanisms by pre-mining one portion of the total digital assets that they aim at creating, then issuing the remaining part through ongoing mining (for example, when tokens become operational).

**Distribution.** Once they are created, aside from going back to validators, digital assets must be made available to potential subscribers. They can be sold to “investors” through Initial Coin Offerings (ICOs), or Security Token Offerings (STOs) when dealing with tokenised financial instruments. These operations generally involve a white paper, explaining the rationale behind issuing the digital asset, a limited subscription period, and usually a threshold below which the offering is cancelled and funds already collected are returned to investors. The biggest ICO ever was conducted by EOS, which raised 4.2 billion US dollars between June 2017 and June 2018. Sometimes, before such offerings, a private round is launched to solicit a restricted circle of early investors who would be rewarded for this through privileged advantages compared with later investors. Telegram succeeded in achieving its funding objectives (1.7 billion US dollars) within a single month thanks to two private pre-sales, and so had to cancel its public sale. Airdrops and hard spoons are less common distribution mechanisms that provide holders of token “x” with the same amount of token “y” created on the same blockchain or a new one. They are different from the forks that we describe below, in which holders of token “x” “exchange” them for token “y” when the network splits into two chains.

**Trading.** After the initial distribution, digital assets can be traded among a community of investors. This has enabled a secondary market for tokens. Different systems have emerged that can be categorised depending on which

<sup>3</sup> “Global Cryptoasset Regulatory Landscape Study”, Apolline Blandin et al, University of Cambridge Faculty of Law Research Paper No. 23/2019, May 2019: [https://www.jbs.cam.ac.uk/fileadmin/user\\_upload/research/centres/alternative-finance/downloads/2019-04-ccaf-global-cryptoasset-regulatory-landscape-study.pdf](https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2019-04-ccaf-global-cryptoasset-regulatory-landscape-study.pdf)



1. PRESENTATION OF DIGITAL ASSETS

operations – from the placing of orders to the execution of transactions – take place on the blockchain. They range from centralised exchanges, semi-decentralised exchanges and (fully) decentralised exchanges:

	Centralised exchanges	Semi-DEX	Decentralised exchanges
Trading conditions	Multilateral	Multilateral	Bilateral
Placing and matching of orders	Off chain	Off chain	On chain
Execution of transaction	Off chain	On chain	On chain
Examples	Paymium, Kraken, Bitrex	Tetra, LGO	Ox, EtherDelta, Kyber, Bancor, Airswap, IDEX, Uniswap

But not all digital assets are transferable. Some restrictions can be encoded into them by their creators to prohibit their transfer or to establish trading conditions. In the universe of tokenised financial instruments, transfers must not be authorised unless counterparties have been clearly identified as “clean” under legal Know Your Customer (KYC) requirements.

**Custody.** When the protocol is established or the smart contract is deployed on a blockchain, digital assets are “minted” or “transferred” on the public address of the issuer or directly on the writer’s one. Each public address is paired with one private key that enables the holder to sign transactions and transfer digital assets from his/her own address to another one. That is why the “custody” of digital assets refers to holding the private key that is linked to the public address on which digital assets are stored. This can be confusing as in the financial world, the “custody” of financial instruments means something quite different. Some of these differences are highlighted in the next table.

	Financial custody	“Crypto-custody”
Method of holding	Securities are held by one single actor	Digital assets are held on a “cold wallet” or a “hot wallet” by either one or several third party/ies either the individual him/herself
Ownership	The custodian is not the security owner (Latin law)	The “crypto-custodian” owns digital assets that he keeps on behalf of clients
Record keeping	The custodian records in a securities account the financial securities in the name of their owner	The “crypto-custodian” does not need to provide record keeping services thanks to blockchain
Asset keeping	The custodian opens one or more accounts with the central depository (CSD) or with the issuer	There is no CSD necessarily
Processing the events occurring in the life of the retained assets	Yes	Not necessarily

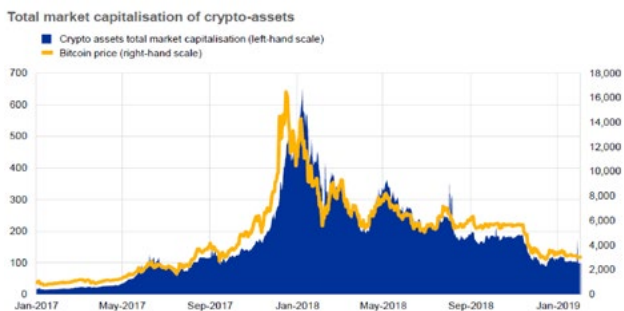
The “crypto-custody” concept itself is even more complex as it refers to a very eclectic underlying reality. In the world of blockchain-based digital assets, custody can be managed by the owner of digital assets him/herself (self-custody) or by third parties. There are various methodologies to implement the custody of digital assets, for example “multi-sig” arrangements, time lock periods, etc. However, in the crypto world, when a third party holds digital assets on behalf of a client, it is not necessarily providing “custodial services” as they are traditionally understood (namely a proxy to transfer ownership over an asset on the principal’s behalf). It is therefore important to distinguish between “custodial” and “non-custodial services”. We therefore propose using the term “custodial services” for intermediaries holding powers to transfer tokens on behalf of their owner, as opposed to “non-custodial services” or “key management services”, which are limited to safeguarding the private keys of a token owner without a proxy to execute transfers on the owner’s behalf. Yet the lines are blurry. The truth is, not everyone agrees on a clear and common definition of “crypto-custody”. In France, in the new regime that applies to digital asset service providers, “crypto-custody” (for non-financial digital assets only) is defined as controlling, on behalf

**1. PRESENTATION OF DIGITAL ASSETS**

of a third party, the means of access to the digital assets recorded in the shared electronic recording system and maintaining a register of positions, opened in the name of the third party, corresponding to its rights over the said digital assets.<sup>4</sup> By contrast, in the United Kingdom, the Financial Conduct Authority (FCA) describes “crypto-custody” as “a business that looks after the customer’s tokens in its IT system or server and may administer or transfer the token on behalf of the customer”, without either distinguishing digital assets and their means of access or associating systematically any record-keeping function to the core role of safeguarding digital assets.

**1.1.3 The state of play of digital assets**

According to the European Central Bank (ECB), around 1,900 “crypto-assets” were in circulation as per June 2019. That said, under its definition “crypto-assets” exclude tokenised financial assets. Figure 1 shows the evolution in market capitalisation of digital assets, highlighting a significant decrease after an all-time high of 650 billion euros in January 2018: one year later, this had plunged to 96 billion euros.



Sources: Cryptocompare, Coinmarketcap and ECB calculations.  
Notes: The data used here follow the “circulating supply” definition of market capitalisation, which corresponds to the “free float” for each crypto-asset (i.e. excluding the part that may be owned by a company supporting the crypto-asset). Daily data from 1 January 2017 to 31 January 2019.

Figure 1 - Total market capitalisation of digital assets (1 January 2017 - 31 January 2019)<sup>5</sup>  
Source : ECB, 2019

The following diagram (Figure 2) represents the allocation of token creation among industries in 2019. A clear dominance of financial use cases can be highlighted as most digital assets are developed for trading and investing, payments, commerce and finance. This confirms the trend already observed in 2018, 2017 and 2016. But the myriad marginal use cases that digital assets support proves their potential and wider perspectives as they are being adopted across businesses. By comparison, in 2016, 64.8% of funds raised through ICOs funded projects in Finance.

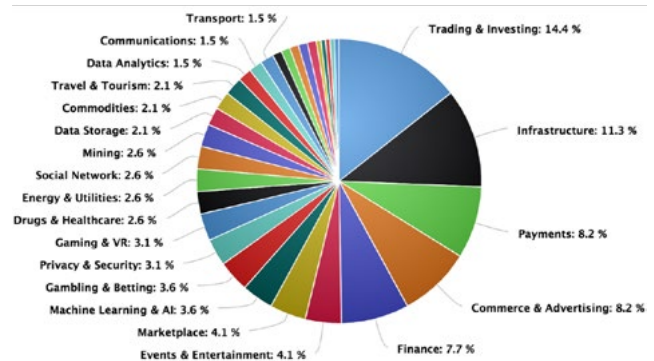


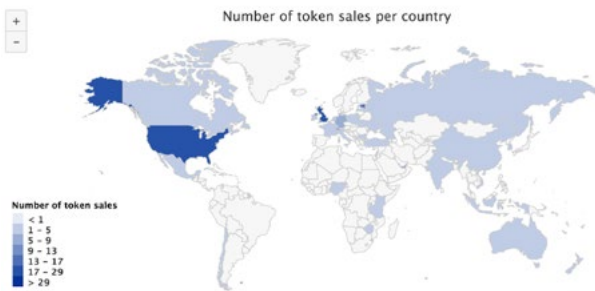
Figure 2 - Token sales (ICOs and STOs) among industries in terms of amount raised. Source : Coinschedule

Since January 2019, more than 2.9 billion US dollars were raised through 187 token sales around the world. This, however, does not bear comparison with 2018, when more than 20.5 billion dollars were collected through 998 operations. Despite this significant decline, the dominance of particular host territories has been relatively consistent throughout the years, with Singapore, the United States of America, the United Kingdom and Switzerland leading the way in terms of being countries for digital asset project holders.

4 French Monetary and Financial Code, Art. D. 54-10-1. §1 (being translated).

5 In billion euros on the left-hand; in euros on the right-hand.

## 1. PRESENTATION OF DIGITAL ASSETS



Number of token sales per country in 2019

Source: Coinschedule

## I.2 THE LEGAL QUALIFICATION OF DIGITAL ASSETS

### 1.2.1 The “traditional” taxonomy of digital assets

Qualification and classification of digital assets is an issue that was put on the table a few years ago. Although the competent global and European authorities (the Financial Stability Board (FSB), the EBA) have recognised that the volume of investment in cryptographic assets is very low compared to the economy as a whole, and therefore does not pose a threat to financial stability, the mere existence of these assets raises the question of whether or not they are new types of assets that need to be regulated on their own, or whether they fit into current regulatory frameworks. In addition, the explosion of the ICO phenomenon from 2017 onwards placed added emphasis on reflecting on what types of tokens were being issued by newly created companies in order to raise capital. Given that people were buying these tokens primarily as an investment, the question has also arisen of whether or not they could all be regarded as securities and, consequently, whether they had to comply with appropriate securities regulations.

Different jurisdictions have issued opinions

on this subject, leading to the emergence of divergent approaches and some degree of controversy. For example, some voices in the US believe that all tokens should be classified as a security, except for those used only as a means of payment, i.e., cryptocurrencies such as Bitcoin.<sup>6</sup>

In recent years, some authorities have started to issue official statements about this topic, attempting to clarify which cases current regulation can be used to deal with digital assets. Thus, the UK’s FCA, Switzerland’s FINMA and others have published their own classifications of digital assets. In the US, two congressmen have introduced the “Token Taxonomy Act” in the House, a bipartisan bill that seeks to amend the Securities Exchange Act – which established the current structure for classifying what a security is – and add a new definition for “digital tokens”.

At the European level, the EBA and the ESMA published reports almost simultaneously in early 2019, each defining what they consider to be a digital asset and giving an initial classification and indicating the regulation that would be applicable to each type.

The EBA defines a “crypto-asset”<sup>7</sup> as an asset that:

- depends primarily on cryptography and distributed ledger technology (DLT) or similar technology as part of its perceived or inherent value
- is neither issued nor guaranteed by a central bank or public authority, and
- can be used as a means of exchange and/or for investment purposes and/or to access a good or service.

<sup>6</sup> This stance may, however, be softening. See [SEC Issues First ‘No-Action’ Letter Clearing ICO to Sell Tokens in US](#), Coindesk, 4 April, 2019.

<sup>7</sup> “Report on crypto-assets”, EBA, 9 January 2019: <https://eba.europa.eu/eba-reports-on-crypto-assets>

## 1. PRESENTATION OF DIGITAL ASSETS

As the EBA states, the use of digital assets has evolved rapidly over the last couple of years, extending well beyond tokens for payment-type purposes to include “investment” or “security” tokens representing debt or equity claims on the issuer and “utility” tokens used to provide access to applications or services (commonly involving Distributed Ledger Technologies (DLTs)).

At present there is no common taxonomy of digital assets in use by international standard-setting bodies. However, generally speaking, a basic taxonomy of digital assets has informally evolved and gained a certain amount of acceptance. It comprises three main categories:

- **Payment/exchange/currency tokens:** Often referred to as virtual currencies (VCs) or cryptocurrencies. These typically do not provide rights (as is the case for investment or utility tokens) but are used as a means of exchange (e.g. to enable the buying or selling of a good provided by someone other than the issuer of the token) or for investment purposes or for the storage of value. “Stablecoins” are a relatively new form of payment/exchange token that is typically asset-backed (by physical collateral or digital assets) or is in the form of an algorithmic stablecoin (with algorithms being used as a way to stabilise volatility in the value of the token).
- **Investment/security tokens:** Typically provide rights (e.g. in the form of ownership rights and/or entitlements similar to dividends or coupons). For example, in the context of raising capital, asset tokens may be issued through a Security Token Offering (STO) which allows businesses to raise capital for their projects by issuing digital tokens in exchange for fiat money or other digital assets.

- **Utility (or consumption) tokens:** These typically enable access to a specific product or service, often provided using a DLT platform, but are not accepted as a means of payment for other products or services. For example, in the context of cloud services, a token may be issued to facilitate access.

However, there is a wide variety of digital assets, some of which have features spanning more than one of the categories identified above (hybrid digital assets). Sometimes digital assets can have characteristics that enable their use for more than one purpose (means of exchange, investment or access) at any single point in the lifecycle of the asset, and some have characteristics that change during the course of their lifecycle.

For example, Ether has the features of an asset token but is also accepted by some people as a means of exchange for goods external to the Ethereum blockchain, and as a utility in granting holders access to the computation power of the Ethereum Virtual Machine. To clear up these different issues, the International Token Standardisation Association (ITSA) is currently developing a three-stage process as the first approach worldwide to standardise the token economy of the future, including the identification, classification and analysis of all kinds of available tokens, considering both the economic and technological background of the token.

### 1.2.2 Are there digital assets that qualify as existing legal instruments?

Digital assets are not recognised in any of the member states or by the European Central Bank as fiat money (i.e. value designated as legal tender, typically in the form of notes

## 1. PRESENTATION OF DIGITAL ASSETS

or coins), “deposits” or as “other repayable funds”. However, the EBA has carried out an assessment of whether digital assets may qualify as “electronic money” within the EMD2<sup>8</sup> or as “funds” under the PSD2.<sup>9</sup> This is intended to complement ESMA’s analysis of whether digital assets may qualify as “financial instruments” within the scope of the MiFID2.<sup>10</sup>

As a preliminary remark, when assessing whether the EMD2, the PSD2 or MiFID apply to an activity involving a digital asset, it is essential for an assessment to be carried out on a case-by-case basis, bearing in mind that different digital assets have different characteristics, which in some cases may change during the lifecycle of the asset, and that a “substance over form” approach should be adopted.

This said, a digital asset will qualify as “electronic money” as defined in the EMD2 only if it satisfies each element of the definition:

*“Electronic money” means “electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in point 5 of Article 4 of [PSD2], and which is accepted by a natural or legal person other than the electronic money issuer”.*

A number of competent authorities reported to the EBA some cases in which proposals for business models entailed digital assets that would, in the opinion of those competent authorities, satisfy the definition of “electronic money”, the issuance of which may be carried out only by “electronic money issuers” defined

in the EMD2 (including credit institutions, electronic money institutions, and certain public bodies).

Hence there may be cases where, based on the specific characteristics of the digital asset in question, the asset will qualify as “electronic money” and will therefore fall within the scope of the EMD2. On the other hand, digital assets are not banknotes, coins or scriptural money. For this reason digital assets do not fall within the definition of “funds” set out in the PSD2 unless they qualify as “electronic money” for the purposes of the EMD2.

ESMA, in its Advice, states that except for payment tokens, digital assets may qualify as transferable securities or other types of MiFID financial instruments under the European legal definition.<sup>11</sup> Indeed, in a survey that the authority conducted with national regulators, conclusions revealed that a wide majority of digital assets under scrutiny were viewed as securities. Under this scope, a full set of EU financial rules, including the Prospectus Directive, the Transparency Directive, MiFID II, the Market Abuse Directive, the Short Selling Regulation, the Central Securities Depositories Regulation and the Settlement Finality Directive, are likely to apply to their issuer and/or firms providing investment services/activities to those instruments. In the United States of America, since 2017, the almost systematic qualification of all digital assets as securities has been largely assumed by the Securities and Exchange Commission (SEC). In a public Senate hearing held in February 2017, Jay Clayton even declared that “every ICO I have so far seen is a security”.<sup>12</sup> Such analysis relied upon the Howey

<sup>8</sup> Electronic Money Directive 2.

<sup>9</sup> Payment Services Directive 2.

<sup>10</sup> Markets in Financial Instruments Directive 2.

<sup>11</sup> MiFID2, article 4.1.15.

<sup>12</sup> [SEC Chairman Jay Clayton: “I’m not going to change rules just to fit a technology”](#), The Tokenist, 15 September, 2019.

## 1. PRESENTATION OF DIGITAL ASSETS

Test,<sup>13</sup> which provides four conditions to define a transaction as an investment contract.<sup>14</sup> But some additional elements are being considered to better analyse digital assets. In April 2019, the Strategic Hub for Innovation and Financial Technology of the SEC published guidelines giving clarifications about how digital assets are likely to comply with the Howey Test. Therefore the qualification of digital assets as financial instruments is likely to become more and more pervasive worldwide.

Meanwhile, a number of digital assets fall outside the current financial regulatory framework. This poses substantial risks to investors who have limited or no protection when investing in those digital assets.

### 1.2.3 Are digital assets deemed to be property?

From a common law perspective, digital assets are definitely considered as property. For years, courts have ruled in that respect. For example, in 2018 in the UK, the High Court judgement in *Vorotyntseva v Money-4 Ltd (T/A Nebus.com)* found that digital assets were a form of property that could be subject to a freezing order.<sup>15</sup> In 2017, the Singapore International Commercial Court in *B2C2 Ltd v Quoine Pte Ltd* held that digital assets fulfilled Lord Wilberforce's definition of property.

In November 2019, the UK Jurisdiction Taskforce of the Lawtech Delivery Panel, an industry-led initiative, published a Legal Statement "on cryptoassets and smart

contracts".<sup>16</sup> Although it does not deliver a binding position of any nature, the Legal Statement addresses whether digital assets are property. It concludes that they "have all of the indicia of property" and that the novel features possessed by some digital assets – such as intangibility, decentralisation, rules by consensus, etc. – do not disqualify them from being property. Moreover, the fact that they cannot be regarded as "things in possession" or "in action" do not prevent digital assets from qualifying as property.

Treating digital assets as property may imply various consequences for the application of some legal rules. They range from the succession upon death, the vesting of property in personal bankruptcy, and the rights of liquidators in corporate insolvency.

<sup>13</sup> Framework for "Investment Contract" Analysis of Digital Assets: <https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets>

<sup>14</sup> a. It is an investment of money;

b. There is an expectation of profits from the investment;

c. The investment of money is in a common enterprise;

d. Any profit comes from the efforts of a promoter or third party.

<sup>15</sup> <https://communications.freshfields.com/files/uploads/documents/dr/litigation%20update/Elena.pdf>

<sup>16</sup> [https://35z8e83m1ih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056\\_JO\\_Cryptocurrencies\\_Statement\\_FINAL\\_WEB\\_111119-1.pdf](https://35z8e83m1ih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056_JO_Cryptocurrencies_Statement_FINAL_WEB_111119-1.pdf)

## 2. The digital asset revolution

### 2.1 THE BENEFITS OF DIGITAL ASSETS

Representing assets on blockchain confers many advantages for their issuers, their users and regulators.

**Transparency.** Smart contracts program digital assets to behave under strict conditions that they cannot circumvent, and that can be observed and verified by anyone who accesses the blockchain and has the necessary technical expertise. Such automation prevents the occurrence of unpredictable and undesirable events. Conversely, transactions that meet all required conditions “must be” executed and are registered in the tamper-proof ledger. This could, for instance, ensure creditors receive payment for coupons and help them verify the payments. Such transparency could also be put in the hands of regulators, who could benefit from a privileged “viewpoint” on transactions.

**Reliability.** The distributed ledger of transactions becomes the “single version of the truth” on which a very large sample of participants can rely but which none of whom can unilaterally control. In a very long chain of partners, intermediaries and competitors, this fosters confidence in the information that is being shared.

**Innovation.** Digitalisation can broaden the imagination as new opportunities become technically possible. Programmability allows for the development of new applications, such as the automatic distribution of dividends. Tokenisation can also make fractional ownership of assets easier to achieve as they

could be divisible up to 18 decimal points.

**Legal security.** When smart contracts are written and deployed correctly, programmability and automation support – indeed, even reinforce – compliance with existing regulations. For example, in the financial universe, some token standards – such as the “controllable” ERC-20 – allow developers to ensure that transactions that contravene laws designed to protect financial integrity (money laundering, tax evasion, financing of terrorism, etc.) cannot be executed. Such standards include various modules that enable smart contract writers to specify the necessary conditions for operation: white and black lists, caps, certificates, etc. This can help better equip compliance teams within companies and provide additional guarantees to regulators regarding the actors under their supervision.

**Time and cost reductions.** Digitalisation of assets enhances the efficiency of related processes. First, blockchain optimises existing arrangements or supports dematerialisation where it is relevant. Second, it does away with the need for some types of infrastructure and intermediaries. Therefore it allows for time and cost savings at different stages of the asset lifecycle, from the execution of transactions to their clearing and settlement, through the custody of assets and the management of rights associated with them. Some have estimated that transaction costs for cross-border payments, for instance, could be cut by 40-80% thanks to blockchain.<sup>1</sup>

<sup>1</sup> “Cross-border Payments on Blockchain”, Deloitte : <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/grid/cross-border-payments.pdf>

## 2. THE DIGITAL ASSET REVOLUTION

**Community building.** Aside from raising funds, selling digital assets through ICOs aims at getting future subscribers to stay with the project and form a supportive community. Indeed, while tokens can confer financial and governance rights, they can also enable privileged access to the underlying product or service (which is not the case, for example, with shares).

### 2.2 THE MAIN TYPES OF DIGITAL ASSETS AND THEIR CONCRETE APPLICATIONS

The benefits of tokenisation are undeniable. Certain kinds of use cases in particular are likely to fare well.

**Security tokens.** Financial instruments are expected to pave the way for tokenisation on a large scale. Most financial instruments are already paperless (in France, all securities have had to be dematerialised since 1981), which constitutes the first required step towards tokenisation. Moreover, most operations on financial instruments (issuance, transactions on secondary markets, etc.) are linked to many different kinds of record-keeping maintained by various parties. These must be carefully managed and updated, requiring frequent reconciliation with the others. Some processes have therefore remained manual and so subject to human error.

Distributed ledgers would seem a particularly appropriate tool to optimise such existing arrangements by increasing their efficiency and reducing costs. Furthermore, tokenisation can enhance the liquidity of some traditionally

illiquid assets, such as non-listed shares, or in the private equity and real estate industries.

---

#### **Case Study: Mata Capital**

*On 31 July, 2019, Mata Capital – a French independent player in the management of real estate investment funds (with approximately 600 million euros in assets under management) – launched a new platform to record and process some of its real estate investment operations on the blockchain. This platform will be used for a real estate project, structured as a “club-deal”, for an investment volume of 26 million euros.*

*Mata Capital uses the Ethereum public network to tokenise the shares of a capital company that owns a property. Thus, the platform offers several major features for investors:*

- *The on-chain management of securities accounts.*
- *The execution of all requirements relating to the fight against money laundering and terrorist financing, including KYC.*
- *The monitoring of the evolution of the status of the subscription to a fund or a “club deal” operation.*
- *Over time, redemptions of subscriptions for their over-the-counter securities, starting from one euro cent.*

*There are many advantages of using blockchain here. It can help reduce liability management costs for the issuer, improve the liquidity of unlisted assets, strengthen transparency of operations and reduce the risk of fraud.*

*In the future, the platform will deal with all the eligible operations of Mata Capital, which also intends to offer this white label solution to*



## 2. THE DIGITAL ASSET REVOLUTION

*professional partners in the financial sector.*

---

**Digital twins.** A digital twin is a concept that refers to the virtual replica of a physical asset, like luxury goods or artworks, in the digital realm, for example on a blockchain. This requires creating a digital identity for such objects, allowing for their digital existence alongside their physical one. The digital identity is generated thanks to traditional authentication solutions (such as NFC, RFID, visual recognition, etc.) and is first independent from the distributed ledger. Once created, the digital identity can be associated with a token and managed on a blockchain. This helps track physical assets and integrate them into dematerialised processes to optimise the operation and maintenance of the underlying physical assets. This also encourages innovative solutions that combine both blockchain and Internet of Things (IoT).

---

### **Case Study: LVMH and the AURA platform**

*LVMH is developing AURA, a platform that aims to serve the entire luxury industry with product tracking and tracing services on Ethereum. All along the value chain, from production to distribution, LVMH's luxury goods "live" on blockchain. Indeed, once one product is manufactured, a token is minted and affiliated with this product. When the product is sold, the related digital twin is transferred to the acquirer. Consumers can then access the product history and proof of authenticity of any of the items they buy, at any stage of their lifecycle. This is made possible by recording these attributes on the blockchain and attaching a certificate containing all the product information: details on product origin and components,*

*instructions for product care, after-sales and warranty services available. At this stage, even if it is technically feasible, tokens are not traded on secondary markets.*

---

### **Case Study: TEO - The Energy Origin**

*Engie, a French supplier of gas and electricity, and Ledger, a French blockchain start-up known globally for its hardware wallets, partnered to create The Energy Origin (TEO) platform. This project is based on several observations. First, climate change and energy transition are now compelling issues for energy suppliers, which are shifting towards more responsible production. Second, citizens have become increasingly concerned by their energy consumption and favour green power sources. However, it is very hard for them to measure the real impact of their efforts on the environment and to know the precise origin of the energy that they use.*

*TEO records in real time both generated and consumed energy volumes thanks to sensors installed on sites. Based on the customer's preferences, TEO's matching engine calculates the volumes of energy exchanged between the renewable assets and the customer's sites as well as the impact in terms of avoided CO2. This information is registered in tamper-proof certificates and accessible on TEO.*

*Tokenising "avoided CO2" enables citizens to value their green commitment. Based on this first layer, further use cases could be imagined, such as a system of rewards or monetisation of energy savings.*

---

**Utility tokens.** As already discussed above, utility tokens are virtual representations of rights of use a product, a technology or a

## 2. THE DIGITAL ASSET REVOLUTION

service that is distributed by their issuer. Therefore utility tokens encompass a very large scope of possible applications. They range from accessing resources and organising governance to voting rights and even decentralising identity. With the ICO wave in 2017, utility tokens were very “trendy”. Today a kind of market self-sanitisation has occurred, de-emphasising the ICO phenomenon in favour of other types of digital assets such as stablecoins and security tokens.

---

### Case Study: iExec

*iExec is a French company founded in 2016 by a duo of French researchers and experts in grid computing from INRIA and CNRS. On 19 April, 2017, they raised more than 12 million dollars to finance their project of a decentralised platform for sharing computing power units (CPUs): the iExec Cloud Computing Marketplace.*

*CPU suppliers are compensated with RLC “Run on Lots of Computers” tokens that were issued during the ICO. These are utility tokens designed to provide access to the services offered by iExec. But they are also exchangeable on a number of secondary platforms, such as Binance and Bittrex.*

---

**Stablecoins.** Stablecoins’ core value proposition is that they attempt to “overcome the volatility drawback of existing crypto-assets by claiming to exhibit a stable value”,<sup>2</sup> usually parity with one prominent international currency or a basket of some such currencies. The holder of one unit of stablecoin can thus

<sup>2</sup> “Crypto-Assets: Implications for financial stability, monetary policy, and payments and market infrastructures”, ECB Occasional Paper Series No 223, May 2019: <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op223~3ce14e986c.en.pdf>

assume that its value will remain constant over time. Therefore, contrary to original payment tokens such as Bitcoin and Ether, which have experienced periods of extreme volatility (e.g. at the end of 2017/beginning of 2018) and are mainly traded for speculative purposes, stablecoins offer tangible opportunities: they could be usable as a store of value and a new means of payment, foster the financial inclusion of under- or unbanked populations, or overcome failings in current payment systems and infrastructures, especially regarding cross-border operations.

---

### Case Study: Libra

*In June 2018, Facebook announced its intention to create a “new decentralised blockchain, a low-volatility cryptocurrency, and a smart contract platform that together aim to create a new opportunity for responsible financial services innovation” according to their own white paper. Targeting their 2.4 billion users, Facebook aims at facilitating global payments and advancing financial inclusion of the unbanked. Libra plans to be pegged to various “reputable” currencies. The underlying reserve should consist of bank deposits and short-term government securities in these currencies. Libra’s governance is built on the Founding Members of the Libra Association forming a network of 100 validator nodes. Libra is a private permissioned protocol with a dedicated coding language (Move), but a transition towards a permissionless network is planned within five years.*

*Facebook initially planned to launch Libra in 2020, but reaction from regulators around the world pushed them to guarantee that they will clarify the regulatory framework first.*

# 3. The limits and challenges that digital assets must overcome

At this stage, some of the aforementioned benefits are forward looking, and have not yet been realised. Technical benefits may not automatically translate into realised benefits: tokenisation can, for instance, help make certain assets more easily tradable on secondary markets; that doesn't automatically mean there will be a demand for them.

Moreover, the digital asset expansion in general faces some roadblocks.

## 3.1 LEGAL UNCERTAINTY AND REGULATORY ARBITRAGE

The legal incertitude that surrounds the digital asset environment is probably the most painful thorn in its side.

Depending on their characteristics, and because digital assets are a very heterogeneous concept, some may clearly qualify as existing legal items (often financial instruments) whereas others are very hard to define under current regulations. In the EU, ESMA and EBA have asked the European Commission to clarify the legal status of "non-identified" digital assets.

Based on the analysis to date, it appears that a significant portion of activities involving digital assets do not fall within the scope of the current EU financial services law (but may fall within the scope of national laws). Consequently, activities involving such digital assets are not subject to a common scheme of

regulation in the EU. For ESMA, this gives rise to potential issues, including those regarding consumer protection (e.g. stemming from inadequate disclosures regarding the risks entailed in the digital asset activity) and the creation of a level playing field.

But the fact that a digital asset may fall within the scope of EU financial regulations also raises problems. On the one hand, applying them might prove incompatible with security tokens: the most obvious example is when there is no intermediary or central operator. Yet existing regulations require specific intermediaries to be authorized to issue, trade and distribute financial instruments. Financial regulation is also often based on licensing, from credit institutions to investment firms and Central Securities Depositories (CSDs). However, some activities on digital assets dispense with intermediaries because the blockchain itself fulfils some of the functions of traditional financial intermediaries. For example, the distributed ledger is able to provide record-keeping of security tokens whereas this must be assumed by regulated custodians in traditional financial markets. On the other hand, applying the current financial rules to security tokens does not necessarily mean that all risks associated with the digital asset activity concerned are effectively mitigated. Indeed, new types of risks that are inherent to blockchain might not be addressed, for example when considering the development of decentralised financial services through which retail investors can be directly exposed to market risks. With this in mind, adjustments to the current financial regulatory framework for

### 3. THE LIMITS AND CHALLENGES THAT DIGITAL ASSETS MUST OVERCOME

security tokens should allow for the foregoing of intermediaries where it can be shown that a blockchain can adequately assume that intermediary's function while complying with regulatory requirements (investor protection, financial stability, etc.) and mitigating new risks.

Also, ESMA has noted that some member states (France, Malta and Liechtenstein) have or are considering some bespoke rules at the national level. While ESMA understands the need to adopt both a protective and supportive approach, the authority believes that an EU-wide approach is important, particularly considering the cross-border nature of digital assets. In the same vein, the EBA considers that in order to have a level playing field and to ensure adequate investor protection across the EU, the gaps and issues identified would best be addressed at the European level.

## 3.2 HURDLES FOR THE ADOPTION OF DIGITAL ASSETS

Even if digital assets represent significant advantages over existing solutions, they face some stumbling blocks before they can be widely adopted by both consumers and companies.

**The cost of technical innovation.** A mass adoption of digital assets can be hampered by financial considerations. If innovation clearly brings efficiency, companies may nevertheless prefer the "status quo" rather than face substantial investment in new infrastructure. This is even more likely when the required funding is high – which is generally proportional to the complexity of integration into existing systems – and the relative

improvement is not considered significant enough compared to the financial investment. Aside from technical integration costs, legal costs must also be taken into account, because in the absence of common legal standards, recourse to special legal opinions and counsel is often necessary. Aside from the legal uncertainty, which complicates the analysis, companies have to deal with the fact that there is a scarcity of legal and regulatory expertise in this domain.

**The difficulty of onboarding users and investors.** Blockchain is quite complex to understand for the average person. This can be detrimental to the adoption of this technology and related use cases if benefits are not fully understood by prospective users. It will therefore be a challenge for digital assets projects to onboard significant volumes of users beyond the early adopters. The only way to address this problem is to ensure that digital assets concepts are easy to grasp: this educational effort should be in the hands of both entrepreneurs and educational institutions, which could have a greater focus on new technologies as a whole.

Limited understanding as well as support from financial sponsors (from banks to private equity funds) can also explain the reluctance that investors may have towards digital asset projects. The risk aversion of these investors may be due not only to the lack of knowledge of the technology but also the strong, often negative media coverage around Bitcoin and ICOs (new channels for money laundering and terrorist financing, fraudulent ICOs, digital assets bubble, etc.). That is why pedagogical efforts seem crucial: for project leaders, in how they present and structure their projects; for investors, in increasing the knowledge and understanding of blockchain topics.

### 3. THE LIMITS AND CHALLENGES THAT DIGITAL ASSETS MUST OVERCOME

## 3.3 THE LACK OF SUPPORT TO DEVELOP DIGITAL ASSETS

The traditional economic and financial system still needs to be convinced by the digital asset revolution to promote its expansion.

**Banks' reluctance to support the growth of digital assets.** Digital asset projects have experienced significant difficulties when trying to open bank accounts or access other banking services. Most banks today flatly refuse to enter into business relationships with blockchain entrepreneurs. They often reject transfers from trading platforms that allow the purchase and sale of digital assets against legal tender currencies. They fear the AML-CFT risks, as tracing the origin of funds from these platforms is extremely difficult. This is a major issue for token issuers that have collected digital assets to fund their projects. Therefore many digital asset initiatives are left without funding, because banks do not want to provide it or prevent them from depositing them into an account. This standoff also affects people whose remuneration is paid in digital assets.

#### **The missing central bank cryptocurrencies.**

Central bank digital currencies (CBDCs) are “new variants of central bank money different from physical cash or central bank reserve/settlement accounts” as defined by the Bank for International Settlements.<sup>1</sup> CBDCs can in theory be issued using a number of different technologies. For the present discussion we therefore use the informal term of central bank crypto-currencies (CBCCs) to refer to CBDCs that would be issued and run on a blockchain.

<sup>1</sup> “Central bank digital currencies”, BIS, 2018: <https://www.bis.org/cpmi/publ/d174.htm>

The issuance of a CBCC on the blockchain could be a major catalyst for the development of digital assets. Beyond that, it could even evolve into a new payment infrastructure, especially for cross-border interbank payments.

Today, the potential of blockchain projects is limited by the difficulty of automating payments on the blockchain in the absence of a “tokenised” payment solution denominated in legal tender. Companies in the blockchain sector are thus forced to interact with the traditional financial system in order to settle transactions executed on chain. There are two options available. The first is to use blockchain as an account register and make payments entirely outside the blockchain. A second solution is to use payment tokens that, however, have no legal value.

Even if stablecoins could be a temporary viable solution, the real potential lies in the creation of a “tokenised” legal tender currency that would be directly usable by blockchain projects. The competitive advantage that a CBCC would give to the country or the economic zone that is the first to set it up could be significant. In the eurozone, we think the initiative should come from the European Central Bank.

Creating a CBCC raises a number of questions. First, experiments already conducted by some national central banks often conclude that blockchain technology is not mature enough: in terms of transaction volumes supported, speed of execution, etc. Second, multiple uncertainties must be removed: the cost savings (in terms of clearing and settlement) remain to be quantified, while the impact of the implementation of a CBCC must be determined (regarding central banks' monetary and prudential policies,

### 3. THE LIMITS AND CHALLENGES THAT DIGITAL ASSETS MUST OVERCOME

the operating and supervision of payment systems, and the potential financial exclusion of certain categories of the population). Third, the application of the existing regulatory framework needs to be clarified. Finally, the introduction of a CBCC in the EU requires all member states within the Eurosystem and the ECB to agree on many questions: the respective roles of the ECB and the commercial banks (in particular, who is the issuer, which form of governance is used, what control over transactions there is, etc.), the level of anonymisation of counterparties, the traceability of operations, the complementarity or substitution with fiduciary money, the targeted users (“retail” currency for micropayments, or “wholesale” for interbank payments, or both), the technical infrastructure, etc.

## 4. Public authorities' stance towards digital assets

Governments, financial regulators and supervisors as well as other international bodies such as standards-setters have all seized on the digital asset issue. But there is still a long way to go before all jurisdictions coordinate their understanding and their regulatory approaches.

### 4.1 STATE OF PLAY AND ACHIEVEMENTS OF PUBLIC AUTHORITIES

#### 4.1.1 Commitments to regulating digital assets

In most jurisdictions, central banks and financial regulators were the early movers in tackling the digital asset topic.<sup>1</sup> As a first step before regulating them, they started to issue statements and warnings to investors and projects in order to face the growing noise around digital assets, especially at the time of the 2013 bubble. The 2017 spate of ICOs – associated with a large number of scandals – prompted decision-makers to move up another gear.

Along with the rationale behind financial regulation, a legal framework for digital assets is vital for three main reasons.

The most obvious one is consumer protection. When digital assets are unregulated, their holders do not benefit from the legal protection traditionally attached to regulated instruments (e.g. possible appeals to competent instances, deposit guarantees, loss coverage in case of bankruptcy, etc.). This is a very sensitive topic for international decision-makers, who have even developed high-level principles on financial consumer protection through the OECD, which were endorsed by the G20 in 2011.<sup>2</sup>

The second one is ensuring the smooth functioning of market infrastructures and payments. Indeed, the traditional financial system is increasingly exposed to digital assets through various channels: digital assets holdings and investments by individuals and financial institutions, new services provided by financial institutions, derivative and investment vehicles (e.g. ETPs, CFDs) tracking digital asset prices, and digital assets used for retail payments (Bitcoin is authorised in Japan, for example). Such interconnectedness is enhanced by “gateway” functions provided by both new and traditional actors like “crypto-trading”, “crypto-custody” and “crypto-payment” services.

The last one is financial stability. For now, the analysis formalised at the Buenos Aires G20 Summit in March 2018 – corroborated in Osaka in June 2019 – states that digital assets do not pose a threat to financial stability.<sup>3</sup> However,

<sup>1</sup> “Global Cryptoasset Regulatory Landscape Study”, Apolline Blandin et al, University of Cambridge Faculty of Law Research Paper No. 23/2019, May 2019: [https://www.jbs.cam.ac.uk/fileadmin/user\\_upload/research/centres/alternative-finance/downloads/2019-04-ccaf-global-cryptoasset-regulatory-landscape-study.pdf](https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2019-04-ccaf-global-cryptoasset-regulatory-landscape-study.pdf)

<sup>2</sup> <https://www.oecd.org/daf/fin/financial-markets/48892010.pdf>

<sup>3</sup> G20 Osaka Leaders' Declaration, June 2019: [https://www.consilium.europa.eu/media/40124/final\\_g20\\_osaka\\_leaders\\_declaration.pdf](https://www.consilium.europa.eu/media/40124/final_g20_osaka_leaders_declaration.pdf)

#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

regulators are not letting their guard down considering current developments: crypto-assets are seen as a new asset class for investors in their diversification strategy, financial entities are more and more exposed to them and digital asset activities are inherently cross-border. Recently, the G7 “Stablecoins” Task Force concluded that “global stablecoins” could become vectors of systemic risk, which is why European institutions state that such arrangements “should not begin operation in the European Union until the legal, regulatory and oversight challenges and risks have been adequately identified and addressed”.<sup>4</sup>

For all these reasons, regulatory responses to the growing influence of digital assets have been provided all around the world. They can be split between three main types:

Bespoke regulation	Retrofitted regulation	Existing regulation
Ad hoc set of rules are implemented to regulate digital asset activities specifically, or as part of a set of new activities newly regulated (e.g Fintech activities of which they are part of)	Existing regulations are amended in order to include some digital asset activities in their scope.	Digital asset service providers must comply with current laws.
Abu Dhabi, Bermuda, France, Gibraltar, Israël, Malta, Mexico, Russia, Thailand	Australia, Canada, Estonia, EU, Germany, Japan, Singapore, UK	Hong Kong, India, South Korea, Switzerland, USA

Logically, existing and retrofitted regulations have been privileged in countries where digital asset activities were already substantial to provide an answer as fast as possible. In jurisdictions with a lower level of activity, regulators have not really considered there to be any urgency, and rely for the most part on existing regulations.

At the same time, some regulators have considered the opportunity to regulate

<sup>4</sup> Joint statement by the Council and the Commission on “stablecoins”, Council of the EU, December 2019: <https://www.consilium.europa.eu/en/press/press-releases/2019/12/05/joint-statement-by-the-council-and-the-commission-on-stablecoins/#>

digital assets more carefully. Some fear that supervising digital assets could be perceived as legitimising business activities around them and so could encourage more people to get interested in them. Others are afraid that time has not yet allowed a thorough analysis of digital assets to create an appropriate and efficient legal framework, and so they would prefer to wait. In extreme cases there are regulators who do not want to hear about digital assets. That is why alternatives to “hard regulation” emerged.

In some countries, self-regulation has been implemented to benefit from the expertise of the industry. In October 2018, the Japanese financial regulator certified the Japanese Virtual Currency Exchange Association (JVCEA) as a self-regulatory body for the crypto-exchange industry, supervising actors and setting standards. Other countries like the United Kingdom, the United Arab Emirates or Lithuania have implemented regulatory sandboxes to allow digital asset actors to test their business and grow in a favourable environment. The optional regulation set by France for token issuers and digital asset service providers shares the same objective of promoting innovation while providing a minimum set of rules to inspire confidence among users and investors. Categorically opposed to these approaches, digital asset businesses have been strictly banned in Algeria, Bolivia, China, Morocco and Pakistan.

##### 4.1.2 The AML-CFT “hot topic”

The anti-money laundering and countering the financing of terrorism (AML-CFT) risk represented by digital assets was the first one to be addressed by regulators. Indeed the first official public report that mentioned digital assets was released by the French



#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

AML regulator in 2011 (Tracfin). However, at this stage, the range of regulatory answers worldwide is quite broad and heterogeneous, as can be shown in Figure 4. Given the highly mobile nature of digital assets, this is likely to encourage regulatory arbitrage or flight to unregulated safe havens.

Measures currently applied	Countries
Prohibition (on issue / use / dealing / settling of virtual currencies/crypto-assets)	China, India, Indonesia
Regulation of intermediaries / exchanges and others (using new or existing AML/CFT regulation)	Australia, France, Germany, Italy, Japan, Switzerland, US
Suspicious Transaction Reporting only	Argentina, South Africa
Preparing laws or regulations	Brazil, Canada, EU, Mexico, Netherlands, Russia, Saudi Arabia, South Korea, Spain, Turkey, UK

*Figure 4 - Regulatory responses to the AML-CFT issue. Source : FATF Report to the G20 Finance Ministers and Central Bank Governors (2018)*

The Financial Action Task Force (FATF), an inter-governmental body whose objectives are to set standards and promote effective implementation of legal, regulatory and operational measures for guaranteeing financial integrity, has been closely monitoring the digital asset phenomenon. Based on the work that they conducted and reported to the G20 Finance Ministers and Central Bank Governors in 2018, the FATF identified potential AML-CFT risks related to digital asset activities.

First, the anonymity provided by the trade in digital assets on the Internet. Second, the limited identification and verification of participants (KYC). Third, the lack of clarity regarding the responsibility for AML/CFT compliance, supervision and enforcement of these transactions (transferring funds or executing payments) that are segmented across several countries. Finally, the lack of a central oversight body.

The FATF quickly tackled the problem head-on. The FATF's objectives are multiple: to help and spur regulation and oversight of digital asset activities by every country, thus encouraging a more consistent approach across different jurisdictions; to support national authorities' criminal investigations involving digital assets; and to clarify the scope of AML-CFT rules applying to digital asset activities.

To support these objectives, the FATF has two tools. First, it developed guidance on "Virtual Assets and Virtual Asset Service Providers (VASPs)" (updated in June 2019) that is specific to digital assets. This helps both national competent authorities (NCAs) to understand and develop regulatory and supervisory responses to digital asset activities and VASPs, and private sector entities seeking to engage in such activities to understand their AML/CFT obligations and how they can effectively comply with these requirements. Second, in June 2019 it amended its "International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation" to make them apply to VASPs and obliged entities (including banks and financial entities) when exercising a digital asset activity.

But the FATF is not a regulator: it is a "policy-making body" which works to generate the necessary political will to bring about national legislative and regulatory reforms in the AML-CFT area.

At the EU level, both the EBA & ESMA support the FATF's work on digital assets. As early as July 2014, in its Opinion on Virtual Assets, the EBA recommended including into the scope of the AML-CFT Directive "virtual currency-to-fiat exchanges" and "providers of virtual currency custodian wallet services" in order to mitigate the risks for financial integrity arising

## 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

from those activities. Therefore, legislative amendments to this effect were ultimately agreed in the context of the 5th AML-CFT Directive negotiations such that these two players become “obliged entities” within the scope of this Directive. EU member states must now transpose the provisions, including those that apply to specific crypto-asset activities, from the 5th AML-CFT Directive into their domestic laws by 10 January 2020 when the Directive will be implemented.

Nevertheless, as stated in January 2019 in its report on crypto-assets, the EBA highlighted that the work was not complete. The EBA noted the latest call from the FATF for jurisdictions to take urgent legal and practical actions to address ML-FT risks relating to digital assets, including in relation to providers of services not currently within the scope of the 5th AML-CFT Directive (e.g. crypto-to-crypto exchanges). The EBA also noted that the extension to the EU regulatory perimeter with regard to digital asset activities would be relevant to a consideration of the implementation of the FATF Recommendations (for instance, the FATF recommends implementing an authorisation or registration scheme for five VASPs). In its January 2019 Advice, the ESMA agreed with both the EBA and the FATF.

That is why much is expected in the EU in the near future. Indeed, the scope of the 5th AML-CFT Directive could be reviewed in light of the developments of crypto-to-crypto activities, then extended to all the FATF's VASPs: providers of exchange services between crypto-assets and crypto-assets, and providers of financial services for ICOs.

### 4.1.3 The tax treatment of digital assets

One of the main concerns for citizens regarding digital assets is their taxation. Not only the way they are taxed differently across jurisdictions, but also the fact that crypto funding mechanisms and transactions have given rise to new potential taxable events, some of them not specifically covered by current legislation. This causes a certain level of legal uncertainty and potential liability risks for both individuals and businesses willing to operate with these types of assets.

Added to this, governments and public administrations have also shown some concern as to how digital assets may be used to promote or execute tax fraud. Specifically, blockchain-based anonymity enabling protocols may pose a serious challenge for enforcement actions, leading even to the point where reinforcement strategies need to be pivoted and reformulated.

#### 4.1.3.1 Securities vs. currencies, or means of exchange vs. means of payment

Digital assets may qualify either as securities or currencies depending on the legislation in each member state. Such qualification influences the tax treatment it receives. For instance, at a European level, the most recent ruling we have is the Judgement of the Fifth Chamber of the European Court of Justice, from 22 October 2015, C264/14, which states:

It therefore follows from the context and the aims of Article 135(1)(e) that to interpret that provision as including only transactions involving traditional currencies would deprive it of part of its effect.

#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

52 In the case in the main proceedings, it is common ground that the 'bitcoin' virtual currency has no other purpose than to be a means of payment and that it is accepted for that purpose by certain operators.

53 Consequently, it must be held that Article 135(1)(e) of the VAT Directive also covers the supply of services such as those at issue in the main proceedings, which consist of the exchange of traditional currencies for units of the 'bitcoin' virtual currency and vice versa, performed in return for payment of a sum equal to the difference between, on the one hand, the price paid by the operator to purchase the currency and, on the other hand, the price at which he sells that currency to his clients.

The aforementioned judgement, which treats Bitcoin as a currency for VAT purposes, with the legal effect it has for all member states, collides directly with European 5th Directive (2018/843 - AMLD5), which describes fiat currencies as "coins and banknotes that are designated as legal tender and electronic money, of a country, accepted as a medium of exchange in the issuing country", whilst virtual ones are "a digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency and does not possess a legal status of currency or money, but is accepted by natural or legal persons as a means of exchange and which can be transferred, stored and traded electronically".

The difference, in taxation terms, between operating with a "currency" or doing so with an "intangible asset" or security is absolutely critical as it changes tax treatment from

a "payment transaction", with little overall impact and certainty on tax treatment, to a "barter transaction" that usually falls under the scope of capital gains in personal or corporate income taxation and has a high degree of legal uncertainty (at least in Spain).

Of course, this difference may lead to undesired tax engineering situations where companies or subjects seeks the most "friendly" outcome for their current situations, not to mention the complexity of having citizens calculating and including barter transactions in their tax returns.

##### **4.1.3.2 Income tax and other direct taxes**

The approach to individual, personal income tax from a European perspective is not as relevant as other types of taxes, as it is the sovereign right of each member state to legislate on direct taxation.

Nevertheless, in most European countries, and given that each country will tax crypto-asset transactions differently, it is common to see that digital assets are treated as assets (not money) for taxation purposes, and individuals are liable to income tax for a) the capital gains obtained from "trading" with them, b) for the crypto-assets received from employers as a form of non-cash payment (and which may be collected via withholding tax), c) "mining" the crypto-assets and "transaction confirmations", d) "airdrops" and alike events, e) forks and f) crypto-to-crypto swaps. Overall, all the latter activities or events are taxed in the same way as other ongoing activities that generate value, requiring capital gains, or losses to be duly calculated and declared.

It is also important to remember that according to most EU member states' national

#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

regulations, it is the individual's burden to keep separate and sufficient records for each crypto-asset transaction for the purposes of their tax records. This is quite a critical issue, as most of the time, those records will be the only source of proof of the correspondent transactions.

Finally, it is worth noting that current taxation of crypto-assets may pose some challenges in the future, which will need to be addressed nationally. These issues are related to the volatility of asset prices, potential capital gains and the fact that if the profit has not been realised (and it is linked to crypto valuation) standing legislation may be taxing potential gains, not real ones.

##### 4.1.3.3 Jurisdictions

It is important to take into account that tax regulations differ across the European Union. The main focus of EU tax policy is the smooth operation of the single market, i.e. to ensure that individuals and businesses do not have to face obstacles relating to cross-border economic activity, and that the European Commission does not consider that across-the-board harmonisation of EU countries' tax systems is necessary to the extent that the establishment and functioning of the internal market is not hampered; countries should be able to choose what they consider to be the most appropriate system for themselves.

Therefore, individuals from the European Union should always consider the jurisdiction that they are taxed in, just as they currently do for any taxable event because, as of the time of writing this report, transactions in digital assets follow the same general tax rules as transactions in any other form of asset. The same applies to businesses providing services related to digital assets, such as e-wallets

or exchanges. Even though they are digital services involving digital assets, national tax regulations already contain specific provisions for these sorts of activities.

## 4.2 FUTURE EFFORTS AND EXPECTATIONS TOWARDS PUBLIC AUTHORITIES

Regulators and supervisors still need to address challenges in order to determine the most suitable regulatory framework for them.

**Better legally define digital assets.** The lack of a clear and consistent definition for digital assets complicates regulatory debates. Today, jurisdictions have heterogeneous interpretations about the legal qualification of crypto-assets. Moreover, the widely used security tokens vs. utility tokens vs. payment tokens classification is very flawed. Indeed, as mentioned above, some tokens do not fall under any of these categories whereas others fall under several categories ("hybrid tokens"), which raises questions as to how to regulate them: under each regulatory framework? Under the most stringent one? Under the one that "most" suits its predominant features? Finally, some digital assets that fit into this classification can already fall under existing laws: some payment tokens may be regulated under banking and payment rules. This reveals two major risks: the impossibility of developing a strong and harmonised regulation, and possible regulatory arbitrage between jurisdictions.

That is why the scope of digital assets must be harmonised, clarified and made suitable to common regulatory objectives, which requires

#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

close collaboration between jurisdictions. In the short term, the current classification scheme must be refined to better reflect the reality of crypto-assets, taking into account additional specificities, for example due to activities at different levels of blockchain infrastructures or types of protocols. Then a case-by-case analysis of the nature of digital assets would be necessary to determine their legal categorisation. In the long term, this would help answer remaining questions regarding building an adequate digital asset regulatory framework: are some digital assets existing legal items and if so, which ones? For those that would already be legally qualified, which regulations should apply to them and are they relevant/adequate/sufficient or rather irrelevant/inadequate/burdensome? Should new rules then be created? For tokens that would constitute a non-identified legal object, which new regulatory framework should be established and would a distinct regulation depending on the crypto-asset type be more suitable?

**Get complete and reliable information on digital assets.** The digital asset phenomenon is difficult to measure. Indeed, a lack of information surrounds the “crypto-market” for various reasons. First, off-chain data are complex to exploit as information sources often differ in terms of their methodology, quality and reliability (as most payers are not regulated, and those who are do not always report their unsupervised authority), data coverage (due to the inconsistency of definitions and scopes of analysis), and access to the underlying raw information. Second, on-chain data can prove very disparate in terms of record-keeping among blockchain protocols, and it can be difficult to assess the value of transactions and the parties (behind wallets) which are involved. Thirdly, mechanisms such

as mixers and tumblers, or even “privacy coins” (such as Zcash, Monero and Grin), complicate the identification of transactions and their tracking by regulators.

In order to better appraise digital assets, many areas of improvement can be identified. Standards and/or best practices for information reporting could be created to harmonise data publication across actors. Statistics and supervisory reporting mechanisms by regulated entities should be adapted to cover their activities on digital assets. Finally, access to information could be facilitated as soon as the regulatory framework of the digital asset industry is clarified and reporting requirements apply to them.

**Qualify ownership and custody of digital assets.** “Custody” and “ownership” concepts must be re-examined in the light of digital assets.

As discussed above, “crypto-custody” is very different from the traditional custody of financial instruments, for various reasons such as: it is based on public/private keys; sometimes there is no identified issuer (when digital assets are ruled by the blockchain protocol itself); and it implies new risks to monitor (theft, loss, hacking, inheritance complexity). But “crypto-custody” is not universally defined and can take various forms. It can be self-custody, where the digital asset owner holds them on his/her own private key, and third-party custody, where a “crypto-custodian” holds digital assets on behalf of their owner on its own private key (see the table below). The storage of digital assets can be either a custodial service or a non-custodial service depending on whether or not the so-called “custodian” has the possibility to use it without approval from the user. For ESMA, safekeeping services are those that

#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

have control of private keys, which might be hard to determine especially in specific cases like multisig contracts. Such limits suggest a stronger granularity when defining “crypto-custody” under its multiple forms, from which a more accurate regulatory regime could be derived.

	Self-custody	Third-party custody	
		Custodial service	Non-custodial service
<b>Description</b>	The digital asset owner holds them on his/her own private key	A third-party holds a proxy to use private keys for transferring assets on behalf of clients	No proxy: mere key safeguarding
<b>Store digital assets on his/her own private key</b>	The digital asset owner	The “crypto-custodian”	The “crypto-custodian”
<b>Can use the private key</b>	The digital asset owner	The “crypto-custodian”	The digital asset owner
<b>Examples</b>	Metamask, Ledger, Trezor	Hashicorp Vault	Portis

Ownership of digital assets (and related rights) is hard to prove. Indeed, it is not only linked to knowing the private key corresponding to the public address in which funds are locked. This only proves that you can initiate a transaction with this key. Under such incertitudes, qualifying the transfer of property of digital assets is not easy.

Clarifying these concepts is a crucial prerequisite. Thereafter, assessing whether they fall under current financial and property laws may help create new rules if necessary. For now, regarding security considerations, some industry “best practices” exist but are far from enough: e.g. Shamir’s secret,<sup>5</sup> multi-sig.<sup>6</sup>

**Find innovative ways to regulate when there is no central operator.** Digital assets can be created either by a natural or legal person that is clearly identifiable, or by an informal group (e.g. an open source community of developers)

<sup>5</sup> For more explanations: <https://medium.com/@apogiatzis/shamirs-secret-sharing-a-numeric-example-walkthrough-a59b288c34c4>

<sup>6</sup> For more explanations: <https://www.binance.vision/security/what-is-a-multisig-wallet>

or an association without legal personality (e.g. a Decentralised Autonomous Organisation). A Decentralised Autonomous Organisation (DAO) is an organisation “in which (1) participants maintain direct real-time control of contributed funds and (2) governance rules are formalised, automated and enforced using software” as described in the SlockIt white paper. The problem has been clearly identified by the ECB, which summarises it as follows: “Even when a business related to crypto-assets is covered by regulation, as should be the case with crypto-asset trading platforms, there are instances where no accountable party takes the role of operator.” Indeed, laws are applicable to targeted entities. Therefore under such circumstances, how can we identify the one which is liable, for instance for a breach of laws?

This new environment requires the establishment of some foundational principles. Should decentralised digital asset businesses remain unregulated? If not, how should we legally bind them if there is no operator? Should decentralised exchanges (DEXs) fall under the same regulation as centralised exchanges or peer-to-peer exchanges? If regulators conclude that DEXs should comply with current rules, how could current existing regulations apply to them?

Once deeper analysis allows for the clarification of such a basis, regulators could find it easier to adjust their regulatory answers in light of the particular context. For example in Singapore, the Monetary Authority (MAS) is thinking about extending AML-CFT rules to DEXs.

**Supervise new actors and intermediaries on digital assets.** Lots of new intermediaries have appeared on the digital asset stage and perform crucial activities for the efficient

#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

running of these markets. They range from token issuers, “crypto-custodians”, advisers in various fields and even specialised rating agencies. Some actors have not been considered by regulators yet (miners, developers, node operators). Hence they are neither regulated nor clearly exempted from existing laws. Among unregulated activities, some should either comply with existing laws or be subject to new laws that should be implemented, while others should remain unregulated.

In order to determine the relevant regulatory treatment of all these new players, regulators must understand and clearly differentiate:

- Activities on digital assets that are very similar to traditional ones (e.g. on financial instruments) that could therefore legitimately be embedded into the related rules: crypto-asset trading venues, investment advisory, rating, etc.
- Activities that have been adapted to the specificity of digital assets that then could justify dedicated rules, like crypto-custody.
- Novel and relevant activities in the solely digital asset world, such as mining, where further work needs to be done to assess which is the most suitable regulatory answer.

Some work is in progress in various jurisdictions. For example, Russia introduced a licence for miners in its draft Federal Law on Digital Financial Assets. Finally, some have argued that node operators may be liable for unlawful uses of a DLT system. Under the EU's General Data Protection Regulation (GDPR), node operators could face liability as so-called “data controllers” because they actively run the software and have a say in protocol upgrades. The EU Blockchain Observatory recommends

that developers and node operators on public blockchains do not qualify as “data controllers” and so should not be held liable under the EU's General Data Protection Regulation (GDPR),<sup>7</sup> which begs the remaining question about who is liable. However, many things still need to be done to cover all challenges that the new digital asset ecosystem unveils.

##### **Clarify and harmonise the accounting treatment of digital assets.**

**For entity accounting.** Accounting in this sense represents a basic tool for business communication, and is essential for taxation purposes.

Considering accounting as economic information communication, it is clear that, in a European or international context, nationally evolved accounting language is deemed to cause inefficiencies. That is, accounting is a language used, among others things, to communicate with tax authorities, but not so well to communicate across different cultures.

To this we add the fact that digital assets may be set to be accounted differently in territories where a company wants to develop business. How does a German company that wants to do business in Spain present its annual accounts to the investment community if digital assets are deemed to be different things in those countries?

Companies naturally prefer uniform accounting systems throughout their organisation. Removing differences and barriers to global trade and business development is also, undoubtedly, a good thing. Given that digital assets are likely to become a standard asset

<sup>7</sup> [Blockchain and the GDPR](#), EU Blockchain Observatory & Forum, October, 2018.

#### 4. PUBLIC AUTHORITIES' STANCE TOWARDS DIGITAL ASSETS

for companies, this also seems like the perfect chance to move forward on common accounting principles.

**For regulatory purposes.** The BCBS<sup>8</sup> is currently taking forward work to clarify the prudential treatment of banks' exposures to/holdings of crypto-assets. The outcome of this work may lead to the amendment of the CRD/CRR<sup>9</sup> as regards institutions' exposure to/holdings of crypto-assets.

No competent authorities have a specific Pillar 2 treatment for crypto-assets. However, they are required to determine if the arrangements, strategies, processes and mechanisms implemented by institutions and the own funds and liquidity held by them are sufficient to ensure a sound management and coverage of risks arising from the activities involving digital assets. If not, they may impose additional own funds requirements.

International and national accounting standard-setting bodies should clarify the appropriate accounting treatment of digital assets with regard to whether, for example, they should be treated as intangible assets. Pending regulatory developments, competent authorities and institutions should adopt a conservative prudential approach to the treatment of exposures to crypto-assets in Pillar 1 (and Pillar 2 if needed). The EBA recommends the European Commission takes steps to promote consistency in the accounting treatment of crypto-assets.

<sup>8</sup> Basel Committee on Banking Supervision.

<sup>9</sup> Capital Requirements Directive/Capital Requirements Regulation.



# Conclusion and recommendations

Even though the digital asset phenomenon is well under way, there is still a long way to go and obstacles to overcome before it becomes a real revolution.

In our opinion, the European Union is currently focused more on the risks that arise from digital assets, to the detriment of the great opportunities that they bring.

We think authorities should continue their efforts to ensure the healthy growth of digital assets in a safe environment for consumers and established players and take additional measures to help innovative actors progress, experiment and prove their positive potential for the European economy and markets.

This starts with providing legal certainty for these actors, which actually means greater clarity for regulators to supervise the digital asset ecosystem. Below are some recommendations that should be followed in this perspective:

## **1. Develop a harmonised understanding of digital assets.**

At the EU level, efforts should be engaged to help all member states converge towards the same level of understanding of the digital asset phenomenon, from their technical functioning to the benefits that arise from them. Indeed, risks are often more easily understood than advantages. This common comprehension could provide a fundamental basis for discussions to establish the legal qualification of digital assets and their regulation. Once this scope is clarified, the list and scope of digital

asset activities that might be supervised should be clearly drawn. Whereas security tokens are already defined and covered by financial rules, and to the extent that stablecoins will probably qualify under an existing legal status, defining other digital assets is an essential prerequisite. Broadening current legal concepts – for example “financial instruments” defined in MiFID 2 – is not the solution as these rules were not initially designed for digital assets. That means they would most likely not be applicable, either because it would not be practical to apply these rules to digital assets, or because they are not relevant. The classical distinction between payment and utility tokens (security tokens being treated under financial rules) must be overhauled, or even questioned. Is it really necessary? Should digital assets be classified regarding other criteria than their economic functions? Even within one single activity, there can be substantial differences depending on the layer of the blockchain system on which actors operate, as they might fulfil different roles. A high level of granularity in defining and classifying digital assets and related services is likely to require a long and thorough investigation.

## **2. Determine the legal treatment of digital assets.**

Once digital assets and “crypto-activities” are universally understood, the EU should assess which regulatory perimeter they should enter. This requires first ascertaining which existing laws apply to which type of activities on which sub-group of digital assets. A major effort may be necessary to establish clear, efficient and non-overlapped rules for digital assets activities. For digital assets that meet existing

## CONCLUSION AND RECOMMENDATIONS

legal concepts, how current rules apply to related activities should be clarified: are they perfectly adequate? Are adjustments needed? As mentioned above, this is likely to be the case in situations where it can be argued that the distributed ledger itself fulfils some of the functions of traditional intermediaries. For digital assets that would not qualify under one current legal definition, an *ad hoc* or a bespoke pan-European regime is necessary. In both scenarios, such regimes should take into account the technological features of digital assets and activities related to them, and capitalise on the benefits of blockchain. In the case of an *ad hoc* regime, this would help build accurate but proportionate rules. In the case of a bespoke regime, this would alleviate the regulatory burden on business by simplifying rules whenever possible. In both situations, this would also represent an efficient means assessing specific risks arising from such technology. One methodology to find the right balance could be proving – with technical arguments – that blockchain can be a platform to support major economic functions carried out by traditional regulated intermediaries while complying with the objectives of the related regulatory requirements (protection of digital asset holders, stability within the whole financial and economic system, fair competition, etc.) as well as the responsibilities that such intermediaries must carry out. It would also underline areas where the blockchain could not replace traditional actors, and thus where the current regulation is still necessary.

### **3. Strengthen the synergy between public authorities and private actors.**

When designing the regulatory framework of digital assets, regulators should cooperate with the digital industry to assess if existing

laws or those on the horizon are adequate or should be adapted. One main debate to be conducted thanks to this dialogue is on the “technology neutrality” principle (“same activity, same regulation”). This “precept” should be questioned as it can have harmful limitations: for example, rules applying to “crypto-custody” of financial digital assets could not be adapted and leveraged by the technological specificities of blockchain, whereas regulation of “crypto-custody” of non-financial digital assets could be efficiently designed to take them into account. Finally, legal certainty will both help players formulate a long-term vision for their business and public authorities better monitor the growing digital environment.

### **4. Clarify regulatory oversight.**

The supervision of actors operating on digital assets involves two sides. First, the allocation of responsibilities between national authorities and European bodies should be clearly defined. ESMA and EBA have already taken the pulse of the digital asset reality and should now deepen their analysis and identify their roles in the regulatory work and practical oversight of digital assets. Second, industry players are not always aware of their responsibilities as regards all applicable regulations. The EU should favour communication and training with actors engaged in digital asset activities – especially those who are new to the game and are not familiar with regulation to the same extent as regulated entities – to provide them with information and answers to their questions when willing to start a digital asset activity in the EU. This would help innovation settle down in Europe and allow it to participate in the dynamics of the economy.

# Appendix – Blockchain Terminology

## **What is a blockchain?**

Blockchain is one of the major technological breakthroughs of the past decade. A technology that allows large groups of people and organisations to reach agreement on and permanently record information without a central authority, it has been recognised as an important tool for building a fair, inclusive, secure and democratic digital economy. This has significant implications for how we think about many of our economic, social and political institutions.

## **How does it work?**

At its core, blockchain is a shared, peer-to-peer database. While there are currently several different kinds of blockchains in existence, they share certain functional characteristics. They generally include a means for nodes on the network to communicate directly with each other. They have a mechanism for nodes on the network to propose the addition of information to the database, usually in the form of some transaction, and a consensus mechanism by which the network can validate what is the agreed-upon version of the database.

Blockchain gets its name from the fact that data is stored in groups known as blocks, and that each validated block is cryptographically sealed to the previous block, forming an ever-growing chain of data. Instead of being stored in a central location, all the nodes in the network share an identical copy of the blockchain, continuously updating it as new valid blocks are added.

## **What is it used for?**

Blockchain is a technology that can be used to decentralise and automate processes in a large number of contexts. The attributes of blockchain allow for large numbers of individuals or entities, whether collaborators or competitors, to come to a consensus on information and immutably store it. For this reason, blockchain has been described as a “trust machine”.

## APPENDIX – BLOCKCHAIN TERMINOLOGY

The potential use cases for blockchain are vast. People are looking at blockchain technology to disrupt most industries, including from automotive, banking, education, energy and e-government to healthcare, insurance, law, music, art, real estate and travel. While blockchain is definitely not the solution for every problem, smart contract automation and disintermediation enable reduced costs, lower risks of errors and fraud and drastically improved speed and experience in many processes.

### Glossary

The vocabulary used in the context of blockchains is quite specific and can be hard to understand. Here are the essential concepts you should know in order to navigate this breakthrough technology:

- **Node:** A node is a computer running specific software which allows that computer to process and communicate pieces of information to other nodes. In blockchains, each node stores a copy of the ledger and information is relayed from peer node to peer node until transmitted to all nodes in the network.
- **Signature:** Signing a message or a transaction consists in encrypting data using a pair of asymmetric keys. Asymmetric cryptography allows someone to interchangeably use one key for encrypting and the other key for decrypting. Data is encrypted using the private key and can be decrypted by third-party actors using the public key to verify the message was sent by the holder of the private key.
- **Transaction:** Transactions are the most granular piece of information that can be shared among a blockchain network. They are generated by users and include information such as the value of the transfer, address of the receiver and data payload. Before sending a transaction to the network, a user signs its contents by using a cryptographic private key. By controlling the validity of signatures, nodes can figure out who is the sender of a transaction and ensure that the transaction content has not been manipulated while being transmitted over the network.
- **Hash:** A hash is the result of a function that transforms data into a unique, fixed-length digest that cannot be reversed to produce the input. It can be viewed as the digital version of a fingerprint, for any type of data.
- **Block:** A block is the data structure used in blockchains to group transactions. In addition to transactions, blocks include other elements such as the hash of the previous block and a timestamp.
- **Smart contract:** Smart contracts are pieces of code stored on the blockchain that will self-execute once deployed, thus leveraging the trust and security of the blockchain network. They allow users

## APPENDIX – BLOCKCHAIN TERMINOLOGY

to automate business logic and therefore enhance or completely redesign business processes and services.

- **Token:** Tokens are a type of digital asset that can be tracked or transferred on a blockchain. Tokens are often used as a digital representation of assets like commodities, stocks and even physical products. Tokens are also used to incentivise actors in maintaining and securing blockchain networks.
- **Consensus algorithm:** Consensus algorithms ensure convergence towards a single, immutable version of the ledger. They allow actors on the network to agree on the content recorded on the blockchain, taking into consideration the fact that some actors can be faulty or malicious. This can be achieved by various means depending on the specific needs. The most famous consensus algorithms include proof-of-work, proof-of-stake and proof-of-authority.
- **Validator nodes:** Validator nodes are specific nodes in a network that are responsible for constituting blocks and broadcasting these blocks with the network. To create a valid new block they have to follow the exact rules specified by the consensus algorithm.

**Learn more about blockchain by watching a recording of our [Ask me Anything session](#).**