

DISCUSSION PAPER

ACCOUNTING FOR CRYPTO-ASSETS (LIABILITIES):

HOLDER AND ISSUER
PERSPECTIVE

July 2020



EFRAG

European Financial Reporting Advisory Group

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EFRAG welcomes constituents to provide comments in response to the questions outlined in the 'Questions to Constituents' section. Any comments should be submitted through the EFRAG website by clicking [here](#)

Comments should arrive **no later than 31 July 2021**. Where respondents are able to, EFRAG would welcome comments at any time during the consultation period that starts on the DP issuance date. EFRAG will place all comments received on the public record unless confidentiality is requested.

This Discussion Paper is open for comments for 12 months from the July 2020 issuance date to allow constituents sufficient time to evaluate and provide feedback on the topic after taking account of constituents' impacted priorities and any constraints faced due to the current pandemic. The consultation period also allows EFRAG sufficient time to obtain as much feedback as possible.

EFRAG Secretariat will conduct outreach activities during the consultation period in a manner and timing that is suitable for stakeholders. **EFRAG welcomes comment letters from the constituents that are able to respond earlier during the consultation period.**

If there is a need to clarify or further discuss any matter addressed in the Discussion Paper, please feel free to at any time reach out to the EFRAG research team via cryptoassets@efrag.org

EFRAG RESEARCH ACTIVITIES IN EUROPE

This paper is part of EFRAG's research work. EFRAG aims to influence future standard-setting developments by engaging with European constituents and providing timely and effective input to early phases of the IASB's work. Four strategic aims underpin proactive work:

- Engaging with European constituents to understand their issues and how financial reporting affects them;
- Influencing the development of International Financial Reporting Standards ('IFRS Standards');
- Providing thought leadership in developing the principles and practices that underpin financial reporting; and
- Promoting solutions that improve the quality of information, are practical, and enhance transparency and accountability.

More detailed information about our research work and current projects is available on the EFRAG website.

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SUMMARY

INTRODUCTORY REMARKS

- ES1 The EFRAG research on the accounting for crypto-assets (liabilities) (EFRAG research) was approved by the EFRAG Board following the EFRAG Agenda Consultation in 2018. The focus of this Discussion Paper (DP) is on the accounting by holders and issuers of crypto-assets as these are broad topics that encompass most of the accounting issues that are likely to be relevant for International Financial Reporting Standards (IFRS) reporting entities.
- ES2 The DP is motivated by the ongoing evolution, growth potential and diversity (over 5,000 different types) of crypto-assets. Their unique and risky nature has drawn the attention of stakeholders including National Standard Setters (NSS), market practitioners, regulators, policymakers and academics. Stakeholders have also highlighted potential gaps in the accounting requirements for crypto-assets (liabilities). Furthermore, the IASB has been monitoring related developments since 2016. The motivation for this DP is further detailed in the introduction section (**Chapter 1**).
- ES3 There is no legal or commonly accepted definition of the term “crypto-assets”, and there is pluralism in stakeholders’ use of related terminology, which is a by-product of the rapidly evolving ecosystem of products and use cases. For the purposes of this DP, a *crypto-asset is defined as a digital representation of value or contractual rights created, transferred and stored on some type of distributed ledger technology (DLT) network (e.g. Blockchain) and authenticated through cryptography*. In addition, “*crypto-liabilities*” are defined as *obligations that arise from the issuance of crypto-assets resulting in a present obligation for the issuing entity to transfer or grant access to an economic resource in digital or non-digital form*. These definitions encompass private crypto-assets (liabilities) and central bank digital currencies (CBDCs), albeit that the analysis in this DP is primarily focused on private crypto-assets (liabilities).
- ES4 However, there are other technology-neutral definitions that de-emphasise the cryptographic process and others that exclude CBDCs. Different publications and regulatory authorities also use other terms such as: “*cryptographic assets*”, “*cryptocurrencies*”, “*crypto-tokens*”, “*digital tokens*”; “*digital assets*” “*DLT tokens*”; “*DLT assets*”, “*blockchain tokens*” and “*virtual assets*” as being synonymous to crypto-assets. In this DP, **cryptocurrencies are described as a subset of rather than synonym¹ to crypto-assets**. Furthermore, unlike some publications that differentiate cryptocurrencies (also referred to coins) from tokens, this DP uses the term tokens interchangeably with crypto-assets. Definitions are further discussed in the introduction section (**Chapter 1**).
- ES5 Crypto-assets analysed in this DP include cryptocurrencies with no claim on the issuer that are often interchangeably referred to as “*crypto-coins*” or “*payment-type crypto-assets*” or “*payment tokens*” or “*exchange tokens*” or “*virtual currencies*” as they are primarily used as a means of payment. Other crypto-assets include: “*utility tokens*” or “*utility-type crypto-assets*” that primarily grant holders rights to access network functionality or services; “*security and asset tokens*” that are akin to investments; “*stablecoins*” that are intended to mitigate the volatility of crypto-assets; and “*hybrid tokens*” that combine differing characteristics (e.g. can have both utility and payment token characteristics). Security and asset tokens are sometimes collectively referred to as “*investment tokens*” or “*investment-type crypto-assets*”. Asset tokens are sometimes referred to as “*digitised assets*” or “*tokenised assets*”. The description of the classification taxonomy and examples of different crypto-assets are further detailed in **Appendix 2**.

¹ As noted in an April 2020 European Parliament publication, the massive growth of the number of private “tokens”, and emergence of “stablecoins” and (CBDCs) have caused various regulatory authorities, standard-setting bodies and legal scholars to shift their focus and expand their vocabulary from the term “cryptocurrencies” to the broader term of “crypto-assets”. (See European Parliament, April 2020. *Crypto-assets: Key developments, regulatory concerns and responses*. [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/648779/IPOL_STU\(2020\)648779_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/648779/IPOL_STU(2020)648779_EN.pdf))

- ES6 Crypto-assets (liabilities) are the first but not only use case of blockchain technology. Only crypto-assets (liabilities) are in the scope of the EFRAG research, even though there could be gaps in the accounting requirements of other extended applications² of the blockchain technology.
- ES7 The reason for focusing on crypto-assets (liabilities) is because they have a longer transactions history and evidence of being monetisable than is currently the case with extended blockchain applications. Furthermore, their economic characteristics and possible accounting approaches and gaps have been subject to considerable analysis within NSS, accounting firms, academic and other stakeholder literature but this is yet to be the case for extended blockchain applications. A more detailed description of the scope of the EFRAG research is in the introduction section (**Chapter 1**).
- ES8 The introduction section (**Chapter 1**) gives an overview of crypto-assets (liabilities). **Appendices 1, 2 and 3** detail the nature and prevalence of their related activities, economic characteristics and regulatory requirements and **Appendix 4** contains a Glossary of Terms. These sections of the DP provide contextual background to help in the review of accounting matters. **If needed, readers of this DP could consider reviewing the background content before the rest of the report.**
- ES9 This DP considers issues that were within and outside the scope of the June 2019 IFRS Interpretations Committee agenda decision clarification³ (IFRS IC agenda decision) on the accounting for cryptocurrencies with no claim on the issuer. Also considered are accounting issues and possible approaches within NSS and accounting firms' guidance and academic and other stakeholder literature.
- ES10 This DP has been developed to review whether there are sufficient reasons for the development of IFRS accounting requirements for crypto-assets (liabilities) and to propose ideas on the direction that such development could take.
- ES11 The content of this DP reflects the findings of the EFRAG research, which taken together with constituents' feedback can inform the forthcoming IASB agenda consultation and the contents of a potential future IASB project on crypto-assets (liabilities).

KEY FINDINGS OF THE EFRAG RESEARCH PROJECT

Prevalence and characteristics of crypto-assets issuers and holder entities

- ES12 As highlighted in **Appendix 1** and a January 2020 PwC report⁴, relative to both 2017 and 2018, there has been a notable decline in 2019 of the volume and value of token issuance through Initial Coins Offerings (ICOs). There has also been increased issuance of Security Token Offerings (STOs) in 2018 and 2019, albeit with volatile month to month trends. STOs have included the issuance of tokenised corporate bonds and loyalty/referral programs by leading financial institutions and corporations⁵. Meanwhile, Initial Exchange Offerings (IEOs) increased their market share of overall issuance in 2019

2 DLT including blockchain technology has emerging and wider applications including:

- for personal identification by public authorities (e.g. pilot projects by Dutch Blockchain Coalition) or by private firms (e.g. Microsoft ID);
- to make records in property or weapons registers;
- to handle usage and storage of data from public video-cameras;
- as decentralised data storage (medical records or flying data by Boeing);
- protection of copyrights (e.g. Spotify's pilot project or in showbusiness);
- in supply chain management (e.g. IBM Blockchain operated by Maersk);
- in insurance (e.g. AXA Fizzy contracts).

3 IFRS Foundation, October 2019. *Compilation of Agenda Decisions-Volume 1: Published by IFRS Interpretations Committee January 2019 to September 2019*. <https://cdn.ifrs.org/-/media/feature/supporting-implementation/agenda-decisions/agenda-decision-compilations/agenda-decision-compilation-volume-1.pdf?la=en>

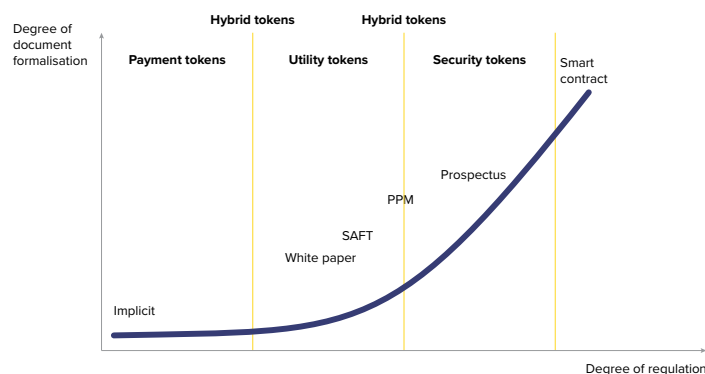
4 PwC, January 2020. *6th ICO/STO report - A Strategic Perspective*. https://www.pwc.ch/en/publications/2020/Strategy&_ICO_STO_Study_Version_Spring_2020.pdf

5 Issued STOs of tokenised bonds and loyalty/referral programs included: Austrian Government (USD 1.4bn), Bank of China (USD 2.8bn), Banco Santander (€20mn), BBVA (€150mn), Daimler (€100mn), Deutsche Bank, Emaar, Société Générale (€100mn) and World Bank (USD108mn).

likely due to the strengthening of regulatory regimes related to crypto-exchanges. ICOs, STOs and IEOs are within the scope of analysis of the accounting by issuers discussed in **Chapter 4**.

- ES13 The EFRAG research outreach feedback indicated that large, listed entities have limited exposure to crypto-assets holdings, and those that are holders typically tend to do so in an intermediary capacity (i.e. holding on behalf of others). However, except⁶ for papers from the IASB, Chartered Business Valuation Institute and Canadian Securities Administrators, it proved challenging to obtain aggregate data showing the number of IFRS reporting entities with exposure to crypto-assets (liabilities). On a global basis, as highlighted in a November 2019 IASB staff paper⁷ on monitoring activities, only a small number of large IFRS reporting companies have reported crypto-assets and related activities. Only 66 entities across ten IFRS reporting jurisdictions reported cryptocurrencies holdings for the year ending 2018, and this is an increase from 26 entities for the year ending 2017. The IASB staff analysis affirms that crypto-assets holdings amongst IFRS companies are insignificant (see **Chapter 2: Paragraph 2.14** for further analysis).
- ES14 Nonetheless, the potential for innovative market development (e.g. the rollout of stablecoins and potential launch of CBDCs), ongoing growth of blockchain-based and crypto-economic business models and enhancements to regulatory requirements and oversight, may⁸ result in an increased uptake and participation by mainstream institutions in the future. Furthermore, the EFRAG research outreach feedback and some publications show a growing level of institutional investor interest and increasing asset allocation towards crypto-asset holdings (see **Chapter 2: Paragraphs 2.5 to 2.7** for further analysis).
- ES15 As shown in the diagram below (**Figure 1**), there is a spectrum and diversity in the level of formalisation of underlying rights and obligations associated with crypto-assets. At this stage of market development, crypto-assets are characterised by relatively immature and opaque contracting arrangements, and this can make it challenging to precisely identify the underlying rights and obligations for some crypto-assets, which in turn presents accounting challenges.

Figure 1: Degree of Formalised Documentation Across Different Crypto-Assets



PPM- Private purchase memorandum; SAFT- Simplified agreement for future tokens

- ES16 The analysis in this DP aligns with the classification of economic characteristics, rights and obligations that is based on the taxonomy commonly applied in accounting, regulatory and legal literature (i.e. including but not being limited to main classes of crypto-assets, namely: payment tokens, utility tokens, security and asset tokens). That said, there is a recognition that some NSS (e.g., France accounting standard setter-ANC) avoid specific classifications when setting their guidance, as they consider such taxonomies to be static and risk becoming obsolete due to the ongoing rapid innovation within the crypto-assets market.

⁶ Publications from the EBA, ECB and FSB all highlight the elusive nature of quantitative data related to crypto-assets holdings within reporting entities.

⁷ IFRS Foundation, 2019. *IASB Staff Paper- November 2019 IASB Meeting- Agenda Ref 12J, Project- Cryptoassets, Topic- Monitoring activities*. <https://www.ifrs.org/-/media/feature/meetings/2019/november/iasb/ap12j-implementation-matters.pdf>

⁸ However, there is need for awareness of the barriers to entry by institutional investors including the crypto-assets being too small compared to other asset classes. See Cointelegraph- Pechman, M., 2020. *5 Reasons Why Institutional Investors Refuse to Join the Crypto Sector*. Cointelegraph.com website. May 5, 2020. <https://cointelegraph.com/news/5-reasons-why-institutional-investors-refuse-to-join-the-crypto-sector>

- ES17 However, the application of a taxonomy classification within this DP does not overlook that there are hardly any pure-play utility or security tokens and that the three broad taxonomy categories (payment tokens, utility tokens, and security tokens) simply reflect the predominant⁹ economic attribute of particular tokens.
- ES18 In addition, the aforementioned rapid innovation may be in the hybridisation¹⁰ of crypto-asset features and in the technology mechanisms used to fulfil economic functions rather than being due to the change in fundamental economic characteristics of crypto-assets. Therefore, a taxonomy that helps to identify distinguishing economic characteristics and rights, could facilitate the appropriate conceptual thinking that should underpin the accounting for hybrid tokens. For instance, on how the bifurcation of component attributes could occur for accounting purposes or to identify the predominant component of hybridised crypto-assets.
- ES19 Furthermore, the fundamental rights and economic characteristics of various types of crypto-assets are in substance economically similar to existing “non-crypto” transactions (e.g., foreign currency holding, investment in commodities, holding of loyalty miles, emission rights). These fundamental characteristics are unlikely to become obsolete in the context of either crypto-assets or analogous “non-crypto” transactions. Hence, a taxonomy classification can have ongoing relevance for establishing the accounting requirements for the current and next generation of crypto-assets.
- ES20 The question on the nature of underlying rights and obligations is applicable for utility, security and hybrid tokens, but less relevant for payment tokens including cryptocurrencies with no claim on the issuer. **Appendix 2: Paragraphs A2.40 to A2.50** provides a detailed breakdown of the distinctive rights for utility tokens and security tokens and gives some examples of crypto-assets that have these distinctive rights. A granular breakdown and focus on rights can mitigate potential concerns that the “utility tokens” and “security tokens” classification categories may be too broad for accounting purposes.

Enhancing IFRS accounting guidance for holders

- ES21 **Are they assets?** Through applying the IASB Conceptual Framework for Financial Reporting (Conceptual Framework) definition of assets, the starting premise of this DP is that crypto-assets meet the accounting definition of assets (see analysis in **Chapter 3: Paragraphs 3.3 and 3.4**). This view is supported by an emerging legal perspective regarding the nature of crypto-assets and the enforceability of associated arrangements. For example, in 2019, the UK LawTech Panel¹¹ issued an authoritative legal statement, which stated that **crypto-assets are property and associated smart contracts are legally enforceable** (see analysis in **Chapter 3: Paragraphs 3.5 to 3.9**). Although this statement is only applicable to the UK and is based on common law, its reasoning could influence similar stances in other jurisdictions.
- ES22 **What type of assets are they?** The IFRS IC agenda decision clarified that a subset of crypto-assets (cryptocurrencies with no claim on the issuer) should be classified as either intangible assets under IAS 38 *Intangible Assets* or inventory under IAS 2 *Inventories*, depending on the purpose of holding the cryptocurrency.
- ES23 While not disagreeing with the essential conclusions of the IFRS IC agenda decision, namely that cryptocurrencies with no claim on the issuer fall under the IFRS classification of either intangible assets or inventory, several stakeholders have argued that crypto-assets are a unique type of asset and that the current measurement requirements under IAS 38 and IAS 2 were not developed with crypto-assets in mind. For instance, unlike most commonly known intangible assets (e.g. software, intellectual property, brands), they have some cash-like properties; some are traded in active markets and they can have trading or investment asset attributes.
- ES24 The analysis within this DP pinpoints recognition and measurement challenges for holders of crypto-assets (in own capacity and/or on behalf of others) that either need the clarification or amendment of existing IFRS requirements. The challenges can be summed up as follows:

9 The same idea of predominant attribute is applicable for a holder of a ticket to a popular forthcoming sporting contest (e.g. Football World Cup final). After considering its predominant economic character, the prepaid ticket which would be treated as a prepayment asset prior to the event, even though the ticket may have an active secondary market with much higher prices than the original acquisition value, which would also make it akin to a trading asset for a holder who is not a ticket vendor.

10 Combination of payment, utility or investment asset features within a crypto-asset product.

11 The LawTech Delivery Panel was established by the UK Government, the Judiciary and the Law Society of England and Wales.

- **Gaps related to when crypto-assets are non-financial asset investments:** there are gaps in IFRS guidance when crypto-assets are considered to be non-financial asset investments (i.e. there is no explicit IFRS guidance for when intangible assets or commodities are held as investments) (see discussion in **Chapter 3: Paragraphs 3.37 to 3.41**).
- **Need for relevant measurement for holders in all circumstances:** measurement requirements under IAS 38 or IAS 2 may not always reflect the economic characteristics of crypto-assets that have trading or investment asset attributes (e.g. when it is assumed that there are no active markets based on IFRS 13 *Fair Value Measurement* requirements) (see discussion in **Chapter 3: Paragraphs 3.42 to 3.48**).
- **Need to ensure financial asset or similar classification where appropriate:** there should be a clarification of the circumstances under which crypto-assets are eligible to be classified as financial assets. There may be a need for a possible update of existing IFRS requirements for situations where crypto-assets do not meet the current IFRS definition of financial instruments but are held for investment purposes and have functional equivalence to equity and debt securities (e.g. rights to profit, stakes in partnership arrangements, voting rights, entitlement to cash flows from entities). This could be the case for some security tokens, hybrid tokens and even what may be labelled as utility tokens. The amendments to IFRS could be such that these tokens ought to be accounted for either as a financial asset or as a unique asset that has a similar accounting treatment to financial assets (see discussion in **Chapter 3: Paragraphs 3.49 to 3.56**).
- **Cash or cash equivalent definition may need to be updated:** the cash definition in IAS 32 *Financial Instruments Presentation* or cash equivalents definition in IAS 7 *Statement of Cash Flows* may need to be updated to include: some crypto-assets (e.g. stablecoins that are pegged to fiat currency on a 1:1 basis, CBDCs and crypto-assets defined as e-money according to jurisdictional definitions). That said, there should be a consideration of the implications on monetary policy and financial stability if stablecoins (private and central bank issued) were to be included within an updated cash or cash equivalent classification (see discussion in **Chapter 3: Paragraphs 3.57 to 3.63**).
- **Accounting for holders of some utility and hybrid tokens may need clarification:** as detailed in **Appendix 2** and illustrated in **Paragraphs A2.40 to A2.50**, utility tokens can have a variety of associated rights¹² including access to network services, blockchain creation rights, governance and network contribution rights. Some of these functional or consumption rights are atypical tradeable rights (e.g. rights to update network functionality; or rights to contribute labour, effort, or resource to the system) embedded within or related to complex structures such as digital autonomous organisations (DAOs)¹³. An example of a DAO is the Swiss-based Aragon network, where alongside tasks automated into smart contracts, its token holders can vote on network projects or fulfil governance functions (e.g. serve as jurors adjudicating disputes). Due to their atypical nature and complexity, some of these rights can be difficult for holders to understand.

Therefore, it may also be difficult to determine the appropriate accounting for such holdings based on a comparison to the accounting for analogous transactions. Furthermore, it can be challenging to consistently ascertain the business purpose for holding utility tokens as they bear both investment and functional/consumption value attributes making it difficult to consistently implement a classification based on business purpose. There is a question of whether the predominant component should be considered or if/how bifurcation principles should be applied to determine the classification and measurement of hybrid tokens including those that have utility functionality (see **Paragraphs A2.40 to A2.50** for examples).

Finally, utility tokens can be classified as prepayment assets, but as noted in accounting firms' literature, there is limited IFRS guidance on this asset category (see **Chapter 3: Paragraphs 3.64 to 3.74** for analysis of utility tokens and hybrid tokens).

12 As outlined in Appendix 2, different publications including a Smith+Crown 2017 website article describe the variety of token rights including access to service rights that are most common amongst issuance of ICOs (i.e. approximately 70% of 2014-2017 ICOs granted holders rights to access network services). There are also block creation, contribution and governance rights (see Smith+Crown, 2017. *Token Rights: Key Considerations in Crypto-Economic Design*. Smith+Crown website. March 30, 2017. <https://perma.cc/2TDF-V8BW>)

13 The decentralised autonomous organization (DAO) was an organisation created by developers to automate decisions and facilitate crypto-asset-based transactions. It is a form of organisational innovation where tasks are automated and governance is decentralised and in the hands of network participants. Their essential feature is that operating rules are programmed and automatically applied and enforced when the conditions specified in the software are met. This differentiates them from traditional organisations, whose rules form guidelines that someone within the organisation must interpret and apply and governance or management is resident within the organisation.

- **Accounting by holders on behalf of others may need clarification:** technological features of crypto-assets (i.e. private keys and wallet arrangements) can impact how they are stored and managed in intermediary holder arrangements (e.g. custodial services, exchanges and brokers). Accordingly, these features can be indicative of which party (i.e. depositor client or intermediary holder) has economic control in such arrangements and therefore needs to recognise the crypto-assets in the statement of financial position. But there are also other factors (see **Chapter 3: Paragraphs 3.79 to 3.93**) that could be indicators of economic control and none of these factors is singularly determinative. Other than the application of IAS 8 *Accounting Policies and Accounting Estimates*, there is no explicit guidance within IFRS on the accounting treatment of entities in a principal versus agent relationship in the holding of crypto-assets. Hence, there may be need for clarification on this aspect too.
- **Other holder related topics that may need clarification:** these include holdings due to mining activities and barter exchanges (see **Chapter 3: Paragraphs 3.75 to 3.76**). There are other items¹⁴ that may need clarification but are not further discussed in this DP as they need further analysis on what, if any, is the underlying issue that may need clarification.

Enhancing IFRS accounting guidance for issuers

ES25 As noted in **Appendix 2 Paragraph A2.39**, obligations from token issuers vary greatly depending on the type of crypto-assets involved but also within a given category. Apart from issued tokens that are deemed equivalent to securities and the more regulatory-compliant STOs and IEOs, there is limited regulatory oversight and lack of robust and enforceable contractual arrangements associated with many ICOs. As a result, identifying the precise nature of obligations of the issuer is one of the challenges in fully identifying the accounting implications for issuers of crypto-assets. Similar to crypto-assets, applying the Conceptual Framework definition of liabilities, the starting premise of this DP is that crypto-liabilities meet the accounting definition of liabilities (see analysis in **Chapter 4: Paragraph 4.11**).

ES26 The review of NSS guidance across jurisdictions shows that there is less guidance for issuers than there is for holders' and issuers' accounting was not part of the IFRS IC agenda decision. As summarised in **Chapter 4: Paragraphs 4.82 to 4.90**, areas for clarification or amendment of issuer guidance (ICOs, and other types of offerings-IEOs and STOs) may include the following:

- **Issuance eligibility for financial instruments accounting (IAS 32 and IFRS 9) needs clarification:** there is need for clarification on the Standard to be applied for the issuance of security tokens and their eligibility for classification under IAS 32 and IFRS 9 *Financial Instruments*, particularly for hybrid tokens and for those with features that may change over time.
- **Applicability of revenue recognition requirements for issuance needs clarification:** there is need for clarification on the applicability of IFRS 15 *Revenue from Contracts with Customers* for issuance of utility tokens that entitle holders to network goods and services, under circumstances where there may be questions on the enforceability of the arrangements between the issuing entity and the subscriber. These questions include: can the utility token issuer and holder arrangement be considered equivalent to a customer contract within the scope of IFRS 15? What are the revenue recognition requirements related to mining activities (i.e. accounting for transaction fees and block rewards)?
- **Applicability of contingent liability recognition requirements needs clarification:** there is need for clarification of the circumstances where IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* is applicable (when for instance the issuer determines that IFRS 15 is not applicable, it does not have a financial liability under IAS 32 and applies IFRS 9).
- **Accounting for issuance of utility tokens needs clarification:** other areas of potential clarification related to the issuance of utility tokens include: which entity bears the performance obligation when there is a principal versus agent type arrangement involving the issuer and other counterparties? What is the nature of the performance obligation and the pattern of revenue recognition if a customer contract exists, particularly as performance obligations may change over time as the predominant character (investment versus consumption) may change over time? What is the nature of

¹⁴ Other items not addressed in this DP include: holders as a result of airdrops to hard fork events; proof-of-stake coins; and the appropriate unit of account for impairment testing under IAS 38.

the obligation towards holders of atypical tradeable rights (e.g. rights to contribute labour and resources to the system; or rights to update network functionality)? Under what conditions can an entity consider that a constructive obligation exists?

- **Accounting for issuance of hybrid tokens needs clarification:** another area for clarification is the appropriate IFRS requirements for the issuance of hybrid tokens with multiple features, and whose obligations may change over time and be uncertain.
- **Other issuer clarification issues:** finally, the following fact patterns need further examination of accounting implications: accounting treatment of airdrops or free tokens; entities holding of issued own tokens for use in exchange for third-party services or employment services; issuance costs; and pre-sale agreements (Simplified Agreement for Future Tokens-SAFTs and pre-functional tokens).

Emergent valuation/measurement considerations

ES27 The existence of mechanisms for price discovery and reliable valuation of crypto-assets transactions (i.e. active markets and robust valuation approaches) is necessary for their faithful representation within financial statements.

ES28 During the EFRAG research outreach, there was an indication of the difficulties that some stakeholders faced in identifying active markets under IFRS 13 and a noted lack of standardised valuation approaches for ICO issued crypto-assets. The following are key conclusions of **Chapter 5** on valuation:

- There is an emergence of valuation methodologies tailored for crypto-assets highlighted in several publications including a December 2019 CBV Institute research publication¹⁵ (CBV Institute report). The new valuation methodologies are comparable to and have some overlapping attributes with the traditional valuation approaches recognised within accounting literature including IFRS Standards (i.e. cost, income and market-based approaches). However, there are unique features in respect of assessing the intrinsic value of utility tokens, which is typically derived from the growth potential of the issuers' network.
- These emergent valuation methodologies also provide further insight on the nature and sources of the economic value of crypto-assets in a manner that is helpful for thinking about the nature of these assets (e.g. their intellectual property and other intangible asset features) and the corresponding appropriate accounting requirements.
- **Need for clarification on identifying active markets:** the CBV Institute report gives evidence¹⁶ highlighting the importance of identifying active markets, and there is some indicative guidance from accounting firm publications on this matter. Nonetheless, as noted in **Chapter 5: Paragraphs 5.44** and **5.47**, there is still need for clarification on how to identify an active market for accounting purposes. There are also unique features of crypto-assets markets that need to be considered including: 24/7 trading¹⁷; multiple crypto-exchanges compared to few traditional exchanges; significant pricing variances across sources; and the ability for crypto-crypto in addition to crypto-fiat currency exchanges. There could be a question of the accounting implications of these unique features of crypto-exchanges (i.e., do these features alter the definition of an active market for crypto-assets?).

Possible cross-cutting gaps in IFRS requirements

ES29 Several regulatory definitions (e.g. French Loi Pacte) characterise digital tokens (crypto-assets) as intangible assets. In addition, the IFRS IC agenda decision classified cryptocurrencies with no claim on the issuer as intangible assets with IAS 38 and IAS 2 (for scope exclusions) being the applicable Standards. Furthermore, the Basis of Conclusion paragraph BC5 of IAS 38 states that *'The Board concluded that the purpose for which an entity holds an item with these*

15 CBV Institute - Singh, T.K. and Tylar, J., 2019. *Decrypting Crypto: An Introduction to Crypto-assets and a study of select valuation approaches*, Journal of Business Valuation, December. <https://cbvinstitute.com/wp-content/uploads/2019/12/DecryptingCrypto-Final-DIGITAL-VERSION.pdf>

16 The CBV Institute report reviewed the reporting practices of 32 holder entities in Canada and found that a majority of the studied companies applied either Level 1 or Level 2 fair values. However, anecdotal evidence provided by other stakeholders in Europe indicates that Level 3 fair values are quite common.

17 Forex markets are also 24/7.

characteristics is not relevant to its classification as an intangible asset, and that all such items should be within the scope of the Standard’.

- ES30 Nonetheless, as noted in **Paragraphs 3.42 to 3.48**, the measurement requirements of IAS 38 and IAS 2 can fail to reflect the economics of crypto-assets whenever these are held as investments and are within the scope of these two Standards. In addition, as discussed in **Paragraphs 3.37 to 3.41**, some stakeholders have noted the lack of explicit guidance of intangible assets or commodities held as investments. The previously applicable IAS 25 *Accounting for Investments* was superseded by IAS 39 *Financial Instruments Recognition and Measurement* and IAS 40 *Investment Properties*. As a result there is a perceived gap in the IFRS literature for the accounting of non-financial assets that are held as investments.
- ES31 Furthermore, some stakeholders (e.g. Australian Accounting Standards Board) have called for a distinction between the accounting treatment of intangible assets held as cash-generating assets within a business and those held as investments. This would be similar to the distinction made for the accounting for tangible assets for ordinary business versus investment purposes (i.e. IAS 16 *Property, Plant and Equipment* versus IAS 40).
- ES32 The absence of explicit IFRS guidance for non-financial assets held as investments (other than investment properties) is a cross-cutting issue that contributes to the challenge of appropriately accounting for crypto-assets (e.g., cryptocurrencies with no claim on the issuer) that are classified as intangible assets or commodities, and are held as investments. It also can pose a challenge of ensuring the consistent and appropriate accounting for any other intangible assets or commodities held as investments (e.g. gold held as investments by monetary authorities) and other non-financial assets (emission trading rights and water rights).

Implications of potential market development

ES33 The analysis in **Chapter 7** leads to the following conclusions on potential market developments:

- The institutionalisation of crypto-assets is only starting and more traditional players such as investment funds and traditional banking entities could potentially increase their allocation, adding to the current needs for regulatory clarity and accounting guidance including IFRS requirements.
- There are varied expectations including across jurisdictions on whether there is likely to be increased mainstream application and greater institutional uptake of crypto-assets. That said, there is consensus that greater institutional uptake would depend on: enhancements to regulation/oversight requirements and other trust-building mechanisms that curtail abuses; ensuring the enforceability of contracts; strengthening of network governance; enhanced scalability and interoperability of networks; increased processing speeds of crypto-asset transactions; efficiency and sustainability of transaction verification mechanisms; and price stability of crypto-assets. Greater uptake may translate to increased holding and issuance by IFRS applicants. As such, there may be an ongoing need to ensure that related IFRS requirements are fit for purpose and applied consistently to economically similar transactions.
- The EFRAG research has identified some technology-driven features of the next generation of crypto-assets that may enhance the network value and scalability of related platforms and increase their uptake. The identified features include: the use of Ricardian smart contracts that are legally enforceable; increased sophistication of tasks coded into smart contracts; enhancement of digital autonomous organisations; and development of cross-chain network interoperability to meet end-user diverse needs through a single interface rather than being fragmented platforms focused on niche use cases. But there remains a question on whether there will be innovative features that would change the nature of crypto-assets in a manner that would necessitate different and new IFRS requirements.
- As noted in **Chapter 7: Paragraphs 7.19 and 7.22**, ongoing innovation and enhancements within the crypto-space could result in crypto-assets becoming more mainstream with increased uptake by large institutions. At the same time,

there is also intense competition including an ongoing quest for the development of alternative digital currencies¹⁸ including those that do not depend on blockchain technologies. However, it is beyond the scope of the EFRAG research to foretell the outcome of the ongoing innovation and varied competitive forces at play and the impact these may have on the viability of crypto-assets. It is also difficult to predict the timing and journey to the possible maturity and mainstreaming of the crypto-assets market and if that will ultimately translate to a greater uptake of related transactions by IFRS reporting entities.

POSSIBLE APPROACHES TO THE CLARIFICATION OR DEVELOPMENT OF IFRS REQUIREMENTS FOR CRYPTO-ASSETS (LIABILITIES)

ES34 The identified areas for possible clarification and amendments of IFRS requirements for holders and issuers of crypto-assets, summarised in **Paragraphs ES24 to ES28** are:

- Enhancing IFRS accounting guidance for holders of crypto-assets and specifically the application of IAS 38, IAS 2, IAS 7, and IAS 32 to holders;
- Clarifying IFRS accounting for issuers of crypto-assets and specifically the application of IFRS 15, IAS 37, IFRS 9, and IAS 32 to issuers; and
- Emergent valuation/measurement considerations under IFRS 13 or other applicable IFRS Standards.

ES35 To decide on whether to further develop IFRS requirements, it is necessary to take into account these identified areas as well as the current and potential crypto-assets exposure for IFRS reporting entities. Should there be a sufficient case for developing IFRS requirements, the following three principles could be considered:

- **Economic substance including rights and obligations:** an emphasis on economic substance as well as underlying rights and obligations rather than on the underpinning technology is necessary when thinking of the appropriate accounting for crypto-assets (i.e. accounting should be technology-neutral and focus on “what is in the container” rather than focusing on the “container”). Such an approach is a way to future proof accounting requirements particularly as the fundamental economic functions of crypto-assets (i.e. means of payment, investment roles, and network functional and consumptive value) are likely to remain the same. Hence, a taxonomy-based classification should only be a starting point for the case-by-case consideration of economic characteristics, rights and obligations of crypto-assets to determine their accounting.
- **Holder business purpose:** the asset classification should be determined through a combined consideration of the business purpose for holding the crypto-asset and its economic characteristics and underlying rights. In other words, the accounting classification of held crypto-assets ought to be determined after considering both their economic nature and function/business purpose of holders. Classification by function and/or nature is the approach within the IFRS IC agenda decision and within most of the analysed NSS guidance (i.e. except for the Japanese guidance where crypto-assets are considered to be a unique asset type).
- **Nature of the issuer obligation:** accounting by issuers should be based on the determination of whether there is an obligation and on the nature of the obligation. There is need to consider whether the IFRS requirements sufficiently capture the obligations that can arise from issuance of crypto-assets or whether such issuance gives rise to any unique obligations that necessitate the amendment or development of new IFRS requirements.

ES36 The following possible approaches to the way forward may be considered.

18 For example: a) the Libra project (see Financial Times- Stacey,K. and Murphy,H., 2020. *How Facebook Libra went from gamechanger to just another PayPal*. April 17, 2020. <https://www.ft.com/content/79376464-72b5-41fa-8f14-9f308acaf83b>); b) Valuation expert and New York university Professor Aswath Damodaran pinpoints the intense competition and likelihood of a viable alternative to fiat currency (Damodaran, A., 2017. *The Cryptocurrency Debate- Future of Money or Speculative Hype?* Musings on Markets Blog, August 1, 2017. <http://aswathdamodaran.blogspot.com/2017/08/the-crypto-currency-debate-future-of.html>); c) there are indications of attempts to revive the concept of e-gold (a digital currency) that pre-dated bitcoin. See Medium.com-Stancel, D., April 2020. *Coin Perspective-Douglas Jackson*. Medium.com website. April 16, 2020. <https://medium.com/coin-story/coin-perspective-7-douglas-jackson-913d1985e9fa>

Option 1: No amendment to IFRS Standards

ES37 Option 1 entails no change in applicable IFRS Standards. In effect, preparers will continue to apply existing IFRS including having to develop their own accounting policy (IAS 8).

Option 2: Amend and/or clarify existing IFRS Standards

ES38 The analysis in **Chapters 3 (Paragraphs 3.33 to 3.63)** shows that several amendments to IFRS Standards might be needed for the accounting by holders of crypto-assets. Under Option 2, possible clarification or amendments of applicable IFRS Standards could be done in the following ways:

- **Provide clarifying guidance on specific fact patterns:** this would entail the development of application guidance or educational material for topics that may need clarification on the application of current IFRS Standards. These topics are summarised in **Paragraphs ES23 to ES28** above and detailed in **Chapters 3, 4 and 5** and include the following:
 - Accounting by holders on behalf of others in all applicable holders Standards (IAS 8 could be currently applicable);
 - Applicable accounting for utility and hybrid tokens with atypical rights including on how to apply the principles of bifurcation and guidance for prepayment assets (IAS 1 *Presentation of Financial Statements*, IAS 8, IFRS 9 and IFRS 15 could be currently applicable);
 - Determining the carrying value of holdings from barter transactions (IAS 16, IFRS 15 could be currently applicable);
 - Determining the carrying value of holdings from mining activities (applicable Standards are IAS 2, IAS 38, IFRS 11 *Joint Operations* and IFRS 16 *Leases* could be currently applicable);
 - Circumstances that may affect eligibility for IFRS 9 for holders and issuers, and IFRS 15 and IAS 37 for issuers; and
 - Identification of active crypto-asset markets as defined in IFRS 13.
- **Narrow-scope exclusion amendment:** have a narrow scope amendment that excludes crypto-assets from the scope of applicable IFRS Standards (e.g. include crypto-assets in scope exclusions outlined in IAS 2.2-3 and IAS 38.2-7) so that preparers may develop their own accounting policy. Excluding cryptocurrencies (a subset of crypto-assets) from the scope of IAS 38 has also been proposed by some stakeholders (International Organization of Securities Commissions - IOSCO¹⁹ and Canadian Securities Administrators²⁰ in their responses to the IFRS IC agenda decision) and was suggested²¹ by some (Accounting Standards Advisory Forum - ASAF) members in respect of the December 2019 session on the forthcoming IASB agenda consultation.
- **Amend requirements of IFRS Standards:** possible amendments could include:
 - An amendment to IAS 2 and IAS 38 requirements, to explicitly address situations where commodities or intangible assets including eligible items (e.g. cryptocurrencies with no claim on the issuer) are held for investment purposes. BC5 of IAS 38 states that the business purpose is not relevant for the classification as intangible assets. However, some stakeholders (e.g. 2016 AASB publication) have proposed the need for a distinction - similar to that made for the accounting for tangible assets - between the accounting treatment of intangible assets held as cash-generating assets within a business and those held as investments.

The amendments to IAS 2 and IAS 38 could address the appropriate measurement of intangible assets or commodities held as investments based on the holding time horizon (cost, FVPL or FVOCI). Furthermore, the notion

19 IOSCO, 2019. *IOSCO Comment Letter Response to IFRS Interpretation Committee Tentative Agenda Decision- Holdings of Cryptocurrencies*. 9 May 2019. https://www.iosco.org/library/comment_letters/pdf/IFRIC-17.pdf

20 Canada Securities Administrators (CSA), 2019. *CSA Comment Letter Response to IFRS Interpretation Committee Tentative Agenda Decision- Holdings of Cryptocurrencies*. 2 May 2019. https://www.securities-administrators.ca/uploadedFiles/General/pdfs/LECAC_Cryptocurrency_HoldingsTADResponse.pdf

21 IFRS Foundation, 2019. *IASB Staff Paper- December 2019 ASAF Meeting- ASAF Agenda Ref 1, Project- 2020 Agenda Consultation, Topic- Suggestions received for potential future topics*. <https://cdn.ifrs.org/-/media/feature/meetings/2019/december/asaf/ap1-agenda-consultation.pdf>

of “held in the ordinary course of business” that is used to exclude intangible assets from the scope of IAS 38 ought to be defined (see **Paragraphs 3.33 to 3.36** for further discussion).

- An amendment of IAS 38.72 to allow FVPL in addition to FVOCI under the revaluation model when applied to the measurement of eligible items (e.g. cryptocurrencies with no claim on the issuer). In addition, to permit the FVOCI option when there is no active crypto-assets market. This could potentially address shortcomings in current measurement requirements for cryptocurrencies highlighted by some stakeholders including those who participated in the EFRAG outreach (see **Paragraphs 3.37 to 3.48** for further discussion).
- An amendment of IAS 32.11 to include items such as crypto-assets (e.g. utility tokens, hybrid tokens, some security tokens²²) that have investment asset/financial instrument attributes and functional equivalence to securities but do not qualify as financial instruments under existing IAS 32 (see **Paragraphs 3.49 to 3.56** for further discussion).
- An amendment of items considered to be cash equivalent in IAS 7.6, or that provides an explicit definition of cash going beyond the implicit definition in Paragraph AG3 of IAS 32. This amendment may be needed because within IFRS requirements there is a description of items that can be considered cash equivalents but there is no explicit definition of cash. An explicit definition of cash and cash equivalent could potentially result in the inclusion of the following crypto-assets as either cash equivalents or cash: stablecoins that are pegged to fiat currency on a 1:1 basis; and cryptocurrencies that qualify as e-money under jurisdictional definitions.

The current restrictive classification of items as either cash or cash equivalent could be seen as a gap in IFRS requirements, especially if one considers that technology-driven developments including the advent of private sector stablecoins and CBDCs may change the commonly understood definition of money. But there is also the need to consider the risks to monetary policy and financial stability highlighted in a March 2020 Banque de France working paper²³ and a January 2020 International Monetary Fund (IMF)²⁴ publication that could be exacerbated if stablecoins were to be classified as either cash or cash equivalents in financial statements (see **Paragraphs 3.57 to 3.63** for further discussion).

ES39 The pros and cons of each of the above approaches are further analysed in **Chapter 6: Paragraph 6.18, Table 6.1**.

Option 3: A new Standard on crypto-assets (liabilities) or digital assets (liabilities)

ES40 Option 3 would entail developing a new standalone IFRS Standard for crypto-assets (liabilities) on the premise that they are unique assets and liabilities.

ES41 A new IFRS Standard can address the multiple issues on different topics related to crypto-assets (liabilities), including those that are summarised and intended to be addressed under Option 2.

ES42 At the same time, over the last decade, there has been a rapid and ongoing evolution in the application of the blockchain technology that has led to a wide variety of crypto-assets including tokens that encode smart contracts. But crypto-assets are not the only use case of blockchain technology. There are extended blockchain-based applications (e.g. in supply chain management and financial services) that may also qualify as accounting assets or liabilities and whose transactions may have novel features that necessitate a review of accounting requirements.

ES43 Therefore, the scope of a new Standard could, where needed, go beyond the crypto-assets (liabilities) as defined in this DP. It could include a broader category of digital assets (liabilities) (e.g. non-fungible smart contract applications; and

22 Security tokens would be expected to qualify as financial instruments for accounting purposes. At the same time, they could fail to meet the IAS 32 definition of financial asset, financial liability or equity despite having features similar to equity and debt instruments (e.g. rights to profit). They may not have the same level of legal and contractually enforceable rights as traditional securities.

23 Banque De France-Melachrinou, A., and Pfister, C., 2020. *Stablecoins A Brave New World?*, March 2020 Working Paper 757. <https://publications.banque-france.fr/sites/default/files/medias/documents/wp757.pdf> - This paper highlights that risks that would arise from wholesale and retail stablecoins, including those from the private sector and central banks.

24 IMF, January 2020. *FinTech Notes: Regulation of Crypto-assets*. Dated December 2019 and Published on 10 January 2020. <https://www.imf.org/en/Publications/fintech-notes/Issues/2020/01/09/Regulation-of-Crypto-Assets-48810>

non-fungible digital assets founded in the virtual reality world such as virtual land²⁵, virtual houses, or virtual collectibles such as crypto-kitties²⁶) and could also include other extended applications of blockchain.

ES44 That being said, unlike crypto-assets (liabilities) that have significant transactions history and evidence of being monetisable, it is hard to readily identify whether extended blockchain applications are assets or liabilities according to the Conceptual Framework definition, and if they give rise to any novel accounting issues. Furthermore, they may have dissimilar economic characteristics to crypto-assets (liabilities). Therefore, if a new and broader Standard for digital assets (liabilities) were to be developed, there will be need for careful consideration of its appropriate scope.

OTHER ISSUES FOR STANDARD-SETTING CONSIDERATION

ES45 As summarised in **Paragraphs ES29 to ES32**, the absence of explicit guidance for non-financial assets (other than investment properties) held as investments is a cross-cutting issue that leads to a gap in the accounting for some crypto-assets that are held as investments but do not qualify as financial assets under IFRS. It also contributes to a gap in the accounting for a variety of intangible assets or commodities that are held as trading or investment assets (e.g. gold held as investments by monetary authorities) and other non-financial assets (emission rights and water rights). As noted, this gap in IFRS requirements arose after the withdrawal of the previously applicable IAS 25 and to the extent that the subsequent Standards related to investments (IAS 40 and IFRS 9) cannot guide the accounting for non-financial assets held as investments.

ES46 Hence, another topic that the IASB could consider is developing a new principle-based Standard that addresses non-financial assets (other than investment properties) held as investments.

CONSTITUENTS' FEEDBACK AREAS

ES47 This DP seeks constituents' views on the potential accounting gaps including the identified possible areas of clarification and amendment of IFRS requirements.

ES48 This DP also seeks views on which of the above options should be the way forward for addressing IFRS requirements and what should be the scope of any chosen option. **Chapter 6: Paragraph 6.18, Table 6.1** includes a detailed analysis of the pros and cons of each option. One concern expressed by some stakeholders is that if the IASB were to undertake standard-setting activities related to crypto-assets (liabilities) at this early stage of market development, it may legitimise these inherently risky products and this would result in reputational risk were there to be a future market failure. Some also take the view that dealing with investor protection issues at this stage is best left to the regulatory bodies.


ES49 However, other stakeholders have noted the need to future proof IFRS requirements by addressing any gaps in IFRS that are brought to light by emerging transactions. There is also a view that accounting standards ought to, in a neutral manner, reflect reporting entities' economic transactions and should not exclude transactions due to the associated risks. A different form of reputational risk could arise if the IASB does not address the noted diversity in current practice and respond to the stakeholder need for clarity and possible enhancement of the accounting for crypto-assets (liabilities).

ES50 Furthermore, robust and globally applicable accounting requirements could be developed in a parallel and complementary manner to regulators' efforts to enhance investor protection. As pointed out in the January 2020 IMF publication, there is diversity in regulatory approaches and gaps²⁷ in some of the frameworks within jurisdictions. Therefore, waiting for enhanced and harmonised global regulatory requirements before addressing the accounting requirements for crypto-assets (liabilities) may fail to provide a timely response to stakeholders' needs.

25 In February 2020 users of Decentraland platform could pay USD 1 million for virtual land. See Cointelegraph-Pirus, B., 2020. *Users Pay \$1M for Digital Land as 2017 ICO Finally Opens Virtual World*. Cointelegraph.com website, February 20, 2020. <https://cointelegraph.com/news/users-pay-1m-for-digital-land-as-2017-ico-finally-opens-virtual-world>

26 Cryptokitties are non-fungible tokens of virtual cat images possessing non-replicable distinctive features due to their being recorded on the blockchain, and they have value due to their digital scarcity enabled by blockchain technology. Evidence of their economic value is that in 2018 there was an investor that was willing to pay USD170,000 for a crypto-kitty.

27 The aforementioned IMF publication shows that 64% of regulators considered there to be gaps in frameworks for crypto-assets, and only 30% of these have been addressed.



ES51 The analysis of other pros and cons of the options, as outlined in **Chapter 6**, includes consideration of the following factors:

- Maturity of the crypto-assets ecosystem including consideration of the current and potential prevalence of crypto-assets transactions;
- The extent to which potential gaps in the accounting for crypto-assets (liabilities) can be addressed;
- Envisioned effect on diversity in current practice;
- Due process requirements and timeliness in addressing stakeholder needs for clarification or enhancement of accounting requirements; and
- The extent to which any updates to the accounting requirements for crypto-assets can be applied by analogy whilst applying IAS 8 for the accounting for non-financial instruments held as investments.

ES52 The **mentioned possible options for developing IFRS requirements are not mutually exclusive** and the IASB could also consider a phased approach towards addressing the accounting for crypto-assets (liabilities).

QUESTIONS TO CONSTITUENTS

EFRAG invites comments on all matters in this DP, particularly in relation to the questions set out below. Comments are more helpful if they:

- Address the question as stated;
- Indicate the specific paragraph reference to which the comments relate; and/or
- Describe any alternative approaches that should be considered.

All comments should be received by [31 July 2021].

GENERAL QUESTIONS

QUESTION 1 - USE OF CRYPTO-ASSETS (LIABILITIES)

Chapter 7 discusses some of the factors that may influence the uptake of crypto-assets (liabilities) by mainstream institutions. Furthermore, as noted in Chapter 3 (**Paragraph 3.98**), the business purpose for holding a crypto-asset should be a key consideration in the accounting classification.

Please describe the areas in which your company (or institutional clients) use or expect to use crypto-assets (liabilities).

What are the main factors influencing the usage of crypto-assets (liabilities)?

For what purposes are crypto-assets usually held or issued by your company or institutional clients?

QUESTION 2 – WAY FORWARD

Question 2.1. As detailed in **Chapters 3** and **4**, this DP proposes that there is need to address accounting topics, not in scope of the IFRS IC agenda decision on cryptocurrencies and to include unaddressed holders' and issuers' accounting topics.

Do you agree that there is need to address accounting topics not in scope of the IFRS IC agenda decision on cryptocurrencies? Please explain.

Question 2.2. **Chapter 6** and **Paragraphs ES35 to ES46** of the executive summary section analyses three possible approaches on the way forward for addressing IFRS requirements. **Chapter 6: Paragraph 6.26, Table 6.1** outlines the pros and cons of each option. The three options are as follows:

- Option 1: No amendment to existing IFRS requirements;
- Option 2: Amend and/or clarify existing IFRS requirements; and
- Option 3: A new Standard on crypto-assets (liabilities) or digital assets (liabilities).

Which of the three options do you consider to be the most appropriate solution to address IFRS requirements? Alternatively, please elaborate if you consider there to be other possible approaches towards clarifying and developing IFRS requirements for crypto-assets.

If a new standard is to be developed, what should be in its scope?

SPECIFIC QUESTIONS ON ACCOUNTING REQUIREMENTS

QUESTION 3 - ACCOUNTING FOR HOLDERS

Question 3.1. This DP (Chapter 3: Paragraphs 3.37 to 3.41) has identified that applicable IFRS Standards for crypto-assets holders (IAS 2 and IAS 38) do not explicitly²⁸ address situations where crypto-assets are considered to be held as non-financial asset investments. Furthermore, as outlined in Chapter 3: Paragraphs 3.42 to 3.48, there are situations where the measurement requirements under IAS 2 or IAS 38 may not allow FVPL or FVOCI to reflect the economic characteristics of crypto-assets with trading or investment asset attributes. For example, under IAS 38, FVOCI is only allowed if there is an active market.

Do you agree that standard-setting activity is needed to address the limitations of IAS 2 and IAS 38 requirements towards addressing non-financial asset investments; namely that: IAS 38 does not allow FVPL when cryptocurrencies are held as trading or investment assets; and IAS 38 does not allow fair value measurement when markets are inactive? Please explain.

Question 3.2. This DP (Chapter 3: Paragraphs 3.49 to 3.56) has identified the need to clarify the eligibility of some crypto-assets for classification as financial assets. There may be a need to update IAS 32 such that crypto-assets that have similar characteristics or functional equivalence to equity or debt securities (e.g. rights to profit, stakes in partnership arrangements, voting rights, right to cash flows from entities) but do not meet the current definition of financial assets under IAS 32. Alternatively, there may be a need to classify crypto-assets as a unique asset and to allow accounting treatment that is similar to that of financial assets where appropriate.

Do you agree that there is need to clarify crypto-asset holders' eligibility to apply IFRS 9? Please explain.

Do you have views on whether or not IAS 32 needs to be updated to include crypto-assets (tokens) with functional equivalence to equity or debt securities, within the IAS 32 definition of financial instruments (financial assets for holders and financial liabilities for issuers) or alternatively whether crypto-assets should be classified as a unique asset and allowing accounting treatment similar to financial instruments where appropriate? Please explain.

Question 3.3. This DP (Chapter 3: Paragraphs 3.57 to 3.63) has identified that the definition of cash or cash equivalents may need to be updated to include some of the stablecoins that are pegged to fiat currency on a 1:1 basis, cryptocurrencies that qualify as e-money and CBDCs. And that crypto-assets received in exchange for goods and services could also be treated as being equivalent to foreign currency.

Do you have views on whether or not the definition of cash or cash equivalents needs to be updated? Please explain.

Question 3.4. This DP (Chapter 3: Paragraphs 3.79 to 3.93) proposes that the clarification of IFRS requirements is needed for holders on behalf of others (e.g. custodial services) including on interpretation of the indicators of economic control.

Clarification is also needed for accounting by holders of utility tokens and hybrid tokens, and for holdings arising from barter transactions and proof-of-work mining activities (Chapter 3: Paragraphs 3.64 to 3.76). For hybrid tokens, there is a question of whether the predominant component should be considered or if/how bifurcation principles should be applied to determine their classification and measurement. For utility tokens, there is also a question of the appropriate recognition and measurement of atypical tradeable rights (e.g. rights to update network functionality; and rights to contribute resources and effort to the system) and the lack of IFRS guidance for prepayment assets.

Do you agree that the aforementioned areas need clarification in IFRS requirements as has been identified in this DP? Please explain.

²⁸ The Basis of Conclusion Paragraph BC5 of IAS 38 states that 'The Board concluded that the purpose for which an entity holds an item with these characteristics is not relevant to its classification as an intangible asset, and that all such items should be within the scope of the Standard.'

QUESTION 4 - ACCOUNTING FOR ISSUERS

Question 4.1. This DP (Chapter 4: Paragraphs 4.23 to 4.29) concludes that in the absence of clarification by the IASB, the preliminary conclusion of this research is that ICO issuers (and issuers in similar offerings) can apply one or a combination of the following IFRS Standards: IFRS 9 *Financial Instruments*, IAS 32 *Financial Instruments: Presentation*, IFRS 15 *Revenue from Contracts with Customers*, IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* and IFRS 13 *Fair Value Measurement*.

Do you consider that existing IFRS Standards provide a suitable basis to account for crypto-liabilities by issuers of ICOs, IEOs and STOs? Please explain.

Question 4.2. The DP (Chapter 4: Paragraph 4.28) highlights a number of areas that could pose concerns with the application of IFRS 15 for an entity issuing crypto-assets through ICOs (or other offerings such as IEOs and STOs).

In cases when an issuing entity establishes that the issuance of crypto-assets falls within the scope of IFRS 15, which areas, if any, would you consider need further guidance/clarification for an entity to apply the principles in IFRS 15? Please explain.

Question 4.3. The DP (Chapter 4: Paragraphs 4.25 and 4.29) highlights a number of areas that could pose concerns with the application of IAS 37 for an entity issuing crypto-assets through ICO (or other offerings such as IEOs and STOs).

In cases when an issuing entity establishes that the issuance of crypto-liabilities qualify as a financial liability under IAS 32/IFRS 9 or as a provision under IAS 37, which areas, if any, would you consider need further guidance/clarification for an entity to apply these Standards? Please explain.

QUESTION 5 - VALUATION

Question 5.1. The DP (Chapter 5: Paragraphs 5.44 and 5.45) observes that when considering fair value measurement under IFRS 13, determining an active market for crypto-assets is not always straightforward.

Do you consider that the guidance in IFRS 13 provides an adequate basis to determine an active market for crypto-assets (and, if applicable, related crypto-liabilities) when these are measured at fair value?

Question 5.2. The DP (Chapter 5: Paragraph 5.42) observes that there is an emergence of valuation methodologies, that might differ from the fair value measurement guidance in IFRS 13, tailored for crypto-assets.

In the absence of an active market under IFRS 13, do you consider that IFRS 13 provides an adequate basis to determine an appropriate valuation technique to measure crypto-assets (and, if applicable, related crypto-liabilities) at fair value? If not, what alternative measurement bases do you propose?

QUESTION 6 - OTHER

Question 6.1. ***Do you have other comments on the accounting for crypto-assets (liabilities), or on any other matter in the DP not addressed by the above questions?***

CHAPTER 1: INTRODUCTION

OVERVIEW OF CRYPTO-ASSETS (LIABILITIES)

Definitions

- 1.1 **Definition applied in DP:** as noted in the Summary section, there is no legal or commonly accepted definition of crypto-assets, and there is pluralism in stakeholders' use of related terminology, which is a by-product of the rapidly evolving ecosystem of products and use cases. For the purposes of this DP, the term crypto-asset is defined as *a digital representation of value or contractual rights created, transferred and stored on some type of distributed ledger technology (DLT) network (e.g. Blockchain²⁹) and authenticated through cryptography*. The characterisation of these assets as "crypto-assets" arises due to the application of cryptographic³⁰ technology. In addition, *"crypto-liabilities" are defined as obligations that arise from the issuance of crypto-assets resulting in a present obligation for the issuing entity to transfer or grant access to an economic resource in digital or non-digital form*. These definitions encompass private crypto-assets (liabilities) and CBDCs.
- 1.2 That being said, the analysis in this DP is primarily focused on private crypto-assets (liabilities) because CBDCs are still only under consideration by some central banks (e.g. China, France, Sweden and Switzerland) and, at the time of writing, to the understanding of the EFRAG research team, are not yet available for public use. The definition applied in this DP is similar to that within accounting firms' publications and in the January 2020 IMF publication where the term crypto-assets denotes *"digital assets that use cryptography for security and are coins or tokens of distributed ledgers and/or blockchains, including asset-backed tokens"*.
- 1.3 **Other definitions:** there are other definitions for either crypto-assets or subsets of crypto-assets (i.e. what are described as cryptocurrencies in this DP) including the following:
 - a) The EU Anti-Money Laundering (AML) directive, defines virtual currencies (synonymous with cryptocurrencies that are a subset of crypto-assets in this DP) as *"any digital representation of an instrument which is not issued or guaranteed by a central bank or by a public authority, which is not necessarily attached to a legal tender currency and which does not have the legal status of a currency, but which is accepted by natural or legal persons as a means of exchange and which can be transferred, stored or exchanged electronically"*. This definition is technology-neutral and excludes CBDCs;
 - b) The Financial Action Task Force (FATF)³¹ defines virtual assets as *"digital representations of value that can be digitally traded or transferred and can be used for payment or investment purposes, encompassing both convertible and non-convertible, and centralised and decentralised forms, as well as ICOs. These are not limited to only those assets that rely on cryptography"*. The FATF definition is also technology-neutral and seems to include CBDCs; and
 - c) The European Central Bank (ECB) has a narrower definition of crypto-assets than any of the above definitions and the term denotes *any asset recorded in digital form that is not and does not represent either a financial claim on, or a financial liability of, any natural or legal person, and which does not embody a proprietary right against an entity*.

29 There are other DLT platforms apart from Blockchain including: Directed Acyclic Graph (DAG); Radix (Tempo) is a public trustless decentralised ledger; Hashgraph, and Holochain. See the following: a) Datadriveninvestor-Khan, F., 2019. *What are the different types of DLTs and how they work?* Datadriveninvestor.com website, February 14, 2019. <https://www.datadriveninvestor.com/2019/02/14/what-are-the-different-types-of-dlts-how-they-work/>; b) Hashim, L. and Sandner, P., 2020. The Impact of Financial Regulation on Development of Distributed Ledger Technology Firms. *Working Paper Universitat Autònoma de Barcelona and Frankfurt School of Finance and Management*. https://www.academia.edu/43187721/The_Impact_of_Financial_Regulation_on_the_Development_of_Distributed_Ledger_Technology_DLT_Firms?email_work_card=thumbnail

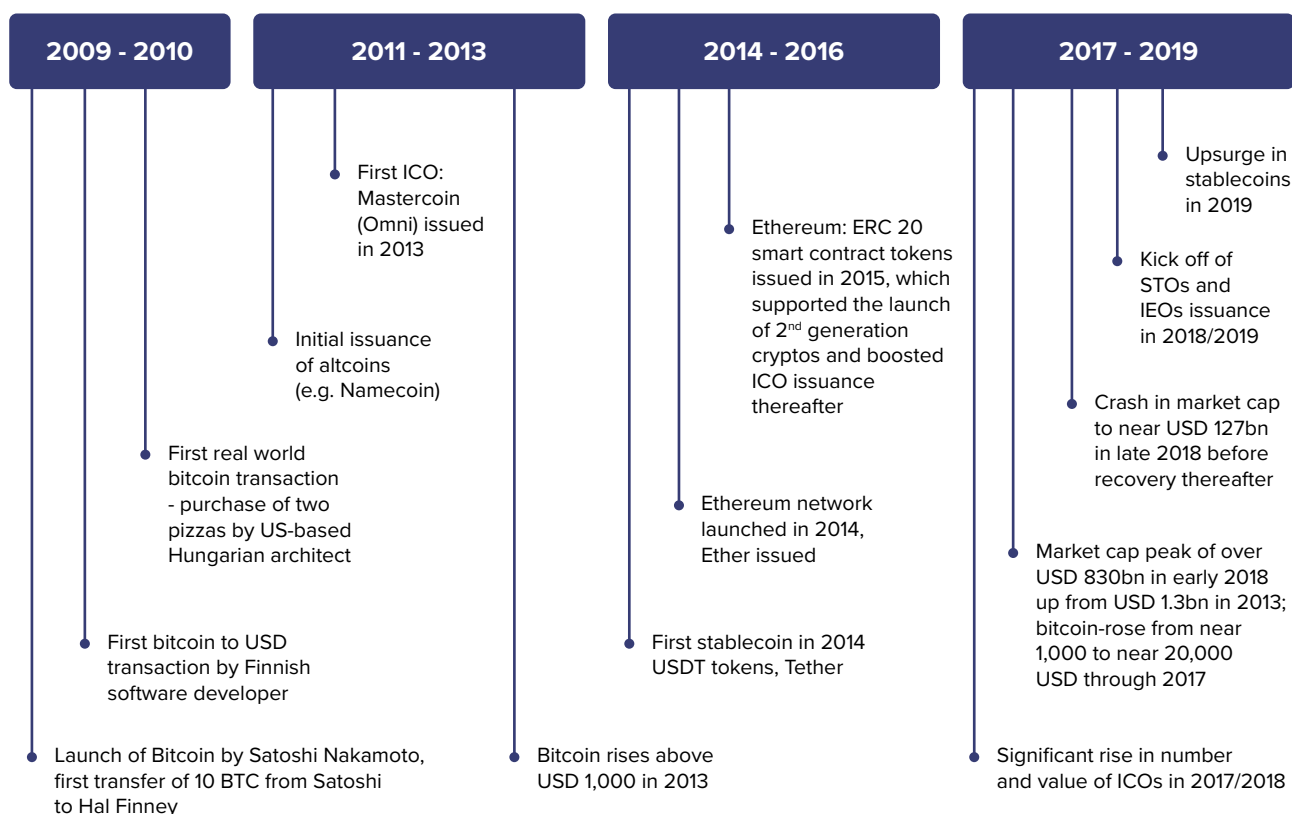
30 Appendix 1 describes different features of processing and storing transactions including where cryptography comes into play (e.g. role of private keys, and mining). At a high level, cryptography is applied for creating unique digital signatures for each transaction, for verifying the authenticity of transactions, and for validating and getting consensus amongst network participants on the updates to the blockchain (which is a ledger of all transactions) so as to ensure that double-spending (or sending the same units of value more than once) by users does not occur.

31 FATF, June 2019, *Guidance for a Risk Based Approach - Virtual Assets and Virtual Assets Service Providers*. <https://www.fatf-gafi.org/media/fatf/documents/recommendations/RBA-VA-VASPs.pdf>

Background

1.4 **Figure 1.1.** below and the description that follows highlight some of the key events in the crypto-assets market since 2009.

Figure 1.1: Selection of Crypto-Assets Milestones



Source: EFRAG based on input from different sources

Bitcoin ("Ground-zero")

- 1.5 Bitcoin, the first crypto-asset was conceptualised in an October 2008 seminal paper³² by Satoshi Nakamoto, its pseudonymous creator. It was then launched in January 2009 following Nakamoto's distribution of the related open-source code³³. It was essentially born of growing mistrust in the financial markets system in the aftermath of the causes and responses to the global financial crisis including the effects of what some considered to have been unfavourable and centrally controlled monetary policy choices.
- 1.6 As detailed in Gomzin (2016), at the time of bitcoin's invention, several digital-cash schemes, including DigiCash, E-bullion, Liberty reserve, Flooz, Benz and E-gold, had failed or were nearly failing in their attempts to create economically viable, reputable and widely accepted electronic equivalents of bills and coins. Furthermore, as pointed out by both Orr and

32 Nakamoto. S, 2008, Bitcoin: A Peer-to-Peer Electronic Cash System. <https://bitcoin.org/bitcoin.pdf>

33 According to Wikipedia, open-source software is a type of computer software in which source code is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software to anyone and for any purpose.

Lancaster³⁴ (2018) and a March 2019 American Bar Association report³⁵, several ideas³⁶ conceptualised before 2009 laid the foundation for bitcoin's successful invention.

- 1.7 In launching bitcoin, Nakamoto (2008) proposed a solution in the form of an 'electronic cash system' based on a peer-to-peer payments network supported by blockchain online ledger, distributed and accessible to all network participants. He describes the electronic coin or cryptocurrency as a chain of electronic signatures whereby each coin's related transactional data is stored in time-stamped virtual 'blocks' linked together through a cryptographic process (i.e. cryptographic hashing³⁷).
- 1.8 Once added to the chain, a block is immutable or tamper-resistant and this enables the blockchain to serve as a recording ledger that keeps track of accounts and balances. The proof-of-work³⁸ consensus mechanism that is used for transaction validation avoids the problem of double-spending and instils "trustlessness" whereby trust is built into the system and network participants do not have to trust any counterparty or intermediary.
- 1.9 As at the morning of 2 July 2020, there were over 538 million bitcoin transactions since its launch in 2009. These transactions are recorded in the Bitcoin network blockchain ledger that consisted of 637,320 blocks as at 2 July 2020, with a new block of transactions being updated approximately every ten minutes. What bitcoin transactions and **blockchain recording look like can be seen on the website blockchain.com**³⁹, which records all the bitcoin transactions that have occurred since 2009. In addition, a reader-friendly detailed explanation and **illustration of a bitcoin transaction can be found on pages 20-25 of the July 2019 European Commission publication-*Blockchain Now and Tomorrow***⁴⁰. **Appendix 1** also further describes some of the key features of crypto-assets' transactions (e.g. private and public keys, and wallets).
- 1.10 Bitcoins (BTC) have no intrinsic value as their holders have no claim on either the platform developer or other network participants, and there is no underlying asset. Their economic value lies in market participants' perceived value of the Bitcoin network alternative monetary system, and it is driven by supply and demand dynamics. Their value is also influenced by the high costs and difficulty of mining new units of bitcoin and their overall limited supply.
- 1.11 Nonetheless, the real economic value of cryptocurrencies including bitcoin has also been questioned by numerous critics and market commentators including eminent economist Nouriel Roubini who posit that they are nothing more than a bubble⁴¹ and a passing fad. Other critics such as Dr Jackson, the founder of the failed e-gold (a non-blockchain-based digital currency that pre-dated bitcoin), have questioned⁴² the effectiveness of DLT/blockchain technology in delivering

34 Orr, D.A., and Lancaster, D.M., 2018. Cryptocurrency and the Blockchain: A Discussion of Forensic Needs, *International Journal of Cybersecurity and Digital Forensics* 7(4): 420-435.

35 American Bar Association, March 2019. *Digital and Digitized Assets: Federal and State Jurisdictional Issues* https://www.americanbar.org/content/dam/aba/administrative/business_law/buslaw/committees/CL620000pub/digital_assets.pdf

36 The following ideas foreshadowed the launch of bitcoin:

- In 1976, Diffie and Whitfield from Stanford University published a paper on cryptography discussing the concept of distributed ledger.
- In 1989, DigiCash was created by David Chaum and used public and private key cryptography to enhance electronic payments.
- In 1991, Haber and Storneta published a paper titled "*How to Time-Stamp a digital document*".
- In 1997, Adam Back's Hashcash brought about a proof-of-work concept that is now applied as a key cryptocurrency transaction verification mechanism.
- In 1998, Nick Szabo and Wei Dai proposed distributed digital money schemes. The main idea behind these proposals was that balances were stored in a distributed database.
- In 1999, Tomas Sander and Amnon Ta-Shma proposed digital coins that did not carry personal data but a hash of its serial number.
- In 2004, to further the concept of proof-of-work, Hal Finney introduced a Reusable Proof-Of-Work (RPOW) concept that had no need of being connected to an email address. This allowed the RPOW to be used freely without restriction.

37 Pages 17 to 21 of a December 2018 JP Morgan Center for Commodities publication provides an education-oriented explanation of the role of cryptography and the hash function in processing crypto-assets transactions (see <http://www.jpmmc-gcard.com/wp-content/uploads/2018/12/Special-Feature-Collection-111918.pdf>)

38 As detailed in **Appendix 1**, proof-of-work is the verification mechanism applied for bitcoin and it entails network participants competing to solve a cryptographic puzzle in generating the hash signature. It provides incentives to solve the puzzle and agreement by a majority of nodes in the network on authenticity of transaction.

39 <https://www.blockchain.com/explorer>

40 European Commission, July 2019. *Blockchain Now and Tomorrow - Assessing Multidimensional Impacts of Distributed Ledger Technologies*. <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/blockchain-now-and-tomorrow>

41 Roubini, N., 2019. Nouriel Roubini: *The Father and Mother of All Bubbles*. CFA Institute Enterprising Investor Blog. <https://blogs.cfainstitute.org/investor/2019/03/06/nouriel-roubini-on-shitcoin-the-mother-and-father-of-all-bubbles/>

42 Jackson, D., 2020. Debunking Blockchain: The case for centrally administered, but highly distributed, financial utilities. https://www.academia.edu/37444985/Debunking_Blockchain_The_case_for_centrally_administered_but_highly_distributed_financial_utilities

on the original promises of its proponents of creating a fully decentralised, digital, viable and broadly acceptable alternative to fiat currency.

“Altcoins” and the growth in crypto-assets

- 1.12 The bitcoin-inspired blockchain recording technology led to a proliferation of other types of crypto-assets including altcoins, which are defined by Maas (2019) as tokens that are not issued on the Bitcoin network. However, other writers have a broader description of altcoins as “any crypto-asset other than bitcoin”.
- 1.13 According to Maas⁴³ (2019), the first altcoin issued in 2011 was namecoin, and it has also been described as the first utility token as it served as a domain registration service allowed users to buy domain names ending with a “.bit”. The first ICO - Mastercoin (renamed Omni) was pre-mined and issued in 2013. Mastercoin heralded the second-generation crypto-assets as it was designed to allow Bitcoin users to generate smart contracts on the Bitcoin network.
- 1.14 Alongside bitcoin (BTC), another widely used crypto-asset is ether (ETH) that has been issued/mined from the Ethereum platform⁴⁴ since 2014. Furthermore, in 2015, the Ethereum platform issued ERC 20⁴⁵ smart contract tokens that served as the launchpad for issuance of different tokens by other platform developers (non-native tokens). ETH is also used as a means of payment⁴⁶ for non-native token transactions on the Ethereum platform.
- 1.15 ERC 20 smart contracts gave impetus for the growth in ICOs issuance (see yearly **trend data in Appendix 1**). As at December 2019, 2,716 out of 3,240 (83%) decentralised applications⁴⁷ (related to non-native tokens) were on the Ethereum platform. Maas (2019) observes that there was a heavy correlation between the price of ETH and the altcoin market capitalisation.
- 1.16 In total, crypto-assets have grown significantly both in number, variety and value. As at the end of December 2019, approximately 5,000 different crypto-assets were traded or listed on various crypto-asset exchanges with a total market capitalisation of USD 192 billion⁴⁸ albeit that the overall market capitalisation is dominated by a few crypto-assets that also primarily serve as cryptocurrencies or payment tokens (i.e. BTC which has 68.28% overall market capitalisation and the top 3 cryptocurrencies (BTC, ETH and XRP) have 80.07% of overall market capitalisation). However, new issuances from 2014 to 2017 through ICOs were mostly related to utility tokens. According to blockchain research organisation Smith + Crown⁴⁹, approximately 70% of these ICOs granted holders rights to access network services.
- 1.17 There has also been significant volatility in the market capitalisation of crypto-assets pointing to their risky nature. For example, the price of each bitcoin rose from near zero in 2009 to an all-time high of near 20,000 USD in late 2017/early 2018, with a significant loss of value to a low of near USD 3,200 later in 2018 before having some recovery and closing 2019 at near USD 7,200.
- 1.18 Despite their growing significance, crypto-assets are relatively immaterial compared to mainstream asset classes (e.g. equity, fiat currency). Notably, a May 2019 ECB publication⁵⁰ highlights that the market capitalisation of the ECB-defined crypto-assets is equivalent to 1% of euro-area GDP, 4% of the market capitalisation of technology giants FAANG⁵¹, 1.2% of Euro-area M1 money supply and 0.8% M3 money aggregates. Furthermore, the May 2019 ECB publication and May 2019

43 Maas, T., 2019. Initial Coin Offerings: When are Tokens Securities in the EU and US? *Working Paper*, Tilburg University. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3337514

44 Ethereum was founded by Vitalik Buterin who had contributed to the Mastercoin. He launched Ethereum following a disagreement with Mastercoin developers after he had wanted Mastercoin to have a protocol that was more generalised and able to support more types of contracts (see Maas, 2019).

45 ERC 20 smart contracting standard allows for easy deployment and interoperability of tokens on the Ethereum network.

46 Users of smart contracts usually pay a fee for computation performed on the blockchain computer for the smart contract. Ethereum network fees are measured in units called “gas” but ultimately charged in ether.

47 <https://www.stateofthedapps.com/stats>

48 According to Coinmarketcap, there were 4,924 crypto-assets as at 30 December 2019. (<https://coinmarketcap.com/>)

49 See Smith+Crown, 2017. *Token Rights: Key Considerations in Crypto-Economic Design*. <https://perma.cc/2TDF-V8BW>

50 European Central Bank, May 2019, *Crypto-Assets: Implications for financial stability, monetary policy, and payments and market infrastructures*: Occasional Paper Series. <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op223~3ce14e986c.en.pdf>

51 Facebook, Apple, Amazon, Netflix and Google (FAANG).

FSB⁵² publication state that they did not pose any systemic risk at the time of writing. They are also primarily owned by retail clients or individuals rather than by institutions.

Diversity of crypto-assets

1.19 *Diversity in issuance:* as detailed in **Appendix 1** and summarised in **Chapter 2**, some crypto-assets are created and become part of the available supply through mining activities on platform developer networks (bitcoin, litecoin). Other crypto-assets are pre-mined and thereafter issued by platform developers and other entities through ICOs, IEOs and STOs. Many issued tokens are tradeable in secondary markets including on specialised trading platforms where they exchangeable for fiat currencies or other crypto-assets.

1.20 As detailed in **Appendix 2**, crypto-assets vary widely in technical design, economic features, underlying rights, obligations and holder purpose. They can be distinguished based on the following factors:

a) *Whether based on decentralised or centralised networks:* crypto-assets (digital tokens) can be issued and transacted on either decentralised or centralised networks. The economic relationship between the token issuers and holders is relevant for the distinction between centralised and decentralised business ecosystems. The main feature of tokens useable within a centralised network is that the right to access this specific network is established and controlled by token issuers who generally have majority ownership of the issued tokens.

Under a decentralised, permissionless network, virtually anyone can have access to the full transaction history and become a participant in the validation and consensus process. Examples of tokens issued on decentralised networks would be bitcoin on Bitcoin and ether on Ethereum. Under more centralised systems, only a few nodes known as permissioned ledgers are given permission to verify transactions. Examples of permissioned networks tokens are Ripple XRP, Alastria and Utility Settlement Coins.

b) *Economic function and underlying rights:* as detailed with accompanying examples in **Appendix 2**, crypto-assets have differing characteristics that range from payment tokens including cryptocurrencies with no claim on the issuer (such as bitcoin) that are primarily intended as a means of payment, to utility tokens that enable access to network functionality and/or goods or services, to security and asset tokens that have features akin to investments, and finally to hybrid tokens with different combinations of payments, utility and investment features. Some categories of crypto-assets (utility tokens, security and asset tokens, hybrid tokens) can consist of a variety of underlying rights and obligations as detailed in **Appendix 2**.

c) *Coins versus tokens:* there is inconsistency on the use of terms “coins” and “tokens” across different publications including through the terms being used interchangeably. The French Loi Pacte defines a token as “*any intangible asset representing, in digital form, one or more rights, which can be issued, recorded, stored or transferred by means of a DLT making it possible to identify, directly or indirectly, the owner of said asset*”. Correspondingly, in many instances including in this DP, the term ‘digital tokens’ is used in a broad sense⁵³ and as a synonymous term to crypto-assets. However, the literature including the 2019 CBV Institute report, a January 2019 Organisation for Economic Co-operation and Development (OECD) publication⁵⁴ also shows that the term tokens can be applied in a narrower sense with a distinction being made between coins and tokens. The following are the various distinctions made between coins and tokens:

(i) A distinction between coins and tokens that depends on whether issuance is made on own blockchain network. A coin (i.e. payment coin and other coins) resides on its own blockchain, while a token resides on top of another blockchain. Examples of tokens based on this distinction would be Gemini dollar, Filecoin, and Documo that reside on the Ethereum blockchain; or NEO that resides on Bitshares. What are considered as coins based on

52 Financial Stability Board, May 2019. *Work underway, regulatory approaches and potential gaps*. <https://www.fsb.org/2019/05/crypto-assets-work-underway-regulatory-approaches-and-potential-gaps/>

53 Maas (2019) describes “token” as an umbrella term that can be seen as “*any digital representation of an interest, which may be of perceived or inherent value, or a representation of rights to receive a benefit or perform specific functions, which is reliant on cryptography and distributed ledger technology for its accounting and security*”.

54 OECD, January 2019. *Initial Coins Offerings (ICOs) for SME Financing*. <http://www.oecd.org/finance/initial-coin-offerings-for-sme-financing.htm>

this distinction are sometimes described as “native tokens” while tokens in this narrower sense are sometimes described as “non-native tokens”;

- (ii) Another distinction is based on their function. Both the April 2020 European Parliament publication⁵⁵ and the January 2020 IMF publication state that the main purpose of coins is to serve as “currency” and means of payment and alternative to government legal tender. Tokens have more functions than coins, for example, permitting the coin holders to participate in the service provided or the returns offered by the token issuer. Along similar lines, an academic paper (Hu, Parlour and Rajan, 2019)⁵⁶ states that coins are mainly used as a medium of exchange, while tokens are used as coupons or vouchers of a reward or funding mechanism. While the former US SEC Chief Accountant Wesley Bricker notes that coins refer to those transactional-based cryptocurrency assets, whereas tokens refer more to a type of investment vehicle, serving as a representation of claims against an entity or its assets, cash flows or residual value (Bricker⁵⁷, 2017).

- d) *First and subsequent generation crypto-assets*: Bitcoin and variants of cryptocurrencies similar to bitcoin (e.g. Litecoin and bitcoin variants from hard fork events such as bitcoin cash and bitcoin SV) would fit within what an October 2018 FSB publication⁵⁸ describes as “first generation” crypto-assets. These are decentralised, are not denominated in a sovereign currency, do not represent a claim on an issuer or underlying asset, and make for unsafe means of payment.

The October 2018 FSB publication also describes “second-generation crypto-assets” as decentralised tokens with improved technology and/or underlying assets. Would add that there has been a shift⁵⁹ to centralised networks during the issuance of second-generation crypto-assets that include: smart contract-based issued tokens; private sector stablecoins; and CDBC.

Lastly, as described in **Chapter 7**, potential innovation is ongoing to enhance different aspects of crypto-assets (i.e., efficiency and sustainability of transaction verification mechanisms, network governance, interoperability of networks, the enforceability of contracting mechanisms, the sophistication of tasks that can be coded into smart contracts, and enhancement of digital autonomous organisations). Nonetheless, at this stage, it is difficult to identify the likely distinguishing features of future generation crypto-assets.

- e) *Fungible versus non-fungible tokens*: fungible tokens⁶⁰ are easily replaced by identical tokens while non-fungible tokens are not easily replaced by identical tokens because they offer unique characteristics and are digitally scarce. Most crypto-assets are fungible tokens but some may be non-fungible tokens (e.g. some utility tokens). Some fungible tokens are based on smart contracts on the Ethereum platform built using the ERC-20 standard while many non-fungible tokens are what is described as ERC-721 compliant.

55 The April 2020 EP publication considers that coins are cryptocurrencies (traditional non-backed and stablecoins that are backed by underlying assets) that are a means of payment. Tokens, on the other hand, are those crypto-assets that offer their holders certain economic and/or governance and/or utility/consumption rights (i.e. utility tokens, security tokens and hybrid tokens). Based on this narrower definition of tokens, the EP publication does not consider cryptocurrencies to be tokens and argues against the use of the term payment tokens.

56 Hu, A.S., Parlour, C.A., and Rajan, U. 2019. Cryptocurrencies: Stylized Facts on a New Investible Instrument, *Financial Management*, Vol.48, Issue 4, Pages 1049 to 1068. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/fima.12300>

57 Bricker, W., 2017. Statement in Connection with the 2017 AICPA Conference on Current SEC and PCAOB Developments. <https://www.sec.gov/news/speech/bricker-2017-12-04>

58 Financial Stability Board, October 2018. *Crypto-assets - Potential channels for future financial stability implications*. <https://www.fsb.org/2018/10/crypto-asset-markets-potential-channels-for-future-financial-stability-implications/>

59 Bruegel, 2018. *The economic potential and risks of crypto-assets: Is a regulatory framework needed?* Policy Contribution, Issue no 14, September 2018. https://bruegel.org/wp-content/uploads/2018/09/PC-14_2018.pdf

60 Cointelegraph- Blenkinsop, C., 2018. *Nonfungible Tokens, Explained*. Cointelegraph.com. July 26, 2018. <https://cointelegraph.com/explained/non-fungible-tokens-explained>

MOTIVATION FOR PROJECT

Growth potential, associated risks, heightened attention and needed regulatory clarity

- 1.21 The inherent risk, anonymity or pseudonymity, ease of transferability, boundaryless⁶¹ nature and growth potential of crypto-assets transactions has led to increased stakeholder attention on related market developments and risks. It has drawn the attention of NSS, accounting firms, market practitioners and academics as well as of regulators and policymakers from the EU and across the globe whose purview is consumer protection, financial stability, market integrity and investor protection. Publications have been issued by the Basel Committee for Bank Supervision (BCBS), EC, European Parliament (EP), ECB, EBA, ESMA, FSB, FATF, IMF, IOSCO and the OECD. These publications highlight the key economic and technological features, business models, risks and regulation of crypto-assets. In addition, several of these institutions have constituted working groups that are monitoring crypto-assets related developments.
- 1.22 Providing regulatory clarity (e.g. when crypto-assets are to be regulated as securities) alongside the strengthening and possible harmonisation of regulatory requirements and oversight on crypto-assets' transactions across jurisdictions is a prerequisite for these transactions to become part of entities' mainstream economic activities. At an EU level, the Loi Pacte in France, enacted in May 2019, marked a key milestone in creating a legal environment for the issuance and holding of crypto-assets and giving legitimacy for related market activities.
- 1.23 A more recent example of progress towards providing regulatory clarity is the March 2020 announcement⁶² by the Federal Financial Supervisory Authority (BaFin) of Germany that cryptocurrencies, which are described in the broad sense as "digital representations of value" with specific characteristics,⁶³ are to be defined as financial instruments. Providing this regulatory definition and level of clarity around what BaFin deems to be cryptocurrencies will facilitate related transactions in Germany and give some relief to businesses built around them. The document issued by BaFin further notes that what are deemed to be cryptocurrencies are not to be confused with various types of "electronic money" which have other sections of the law dedicated to them.
- 1.24 The need for regulatory enhancement and legal clarity on crypto-assets necessitates a parallel and complementary review, and where needed, the development of accounting requirements that can contribute to transparency and quality of information on entities exposure and in so doing support the overall investor protection regime.

Reasons for developing IFRS requirements

- 1.25 Addressing any potential gaps in the financial reporting requirements for crypto-assets can complement the enhancement of related regulatory requirements. In this regard, several National Standard Setters (NSS) from across the globe have issued accounting guidance.
- 1.26 Concurrently, the IASB has been monitoring⁶⁴ developments in crypto-assets since the topic was discussed at the December 2016 ASAF meeting. In November 2018 and November 2019, the IASB discussed a summary of related developments as prepared by IASB Staff. On both occasions, the IASB decided to continue its monitoring activities rather than undertake standard-setting because the evidence obtained by the IASB staff indicated that crypto-asset transactions are not prevalent amongst entities preparing financial statements applying IFRS Standards. In November

61 These transactions can be conducted on the internet with no need for intermediary entities. Even in jurisdictions where ICOs are banned (e.g. China, South Korea), there are indications that market actors bypass such prohibitions. See CCN- Terzo, G., 2020. *What Ban? Chinese Investors Continue to Participate in ICOs with Workarounds*, CCN March 21, 2018. <https://www.ccn.com/what-ban-icos-in-china-are-alive-and-well/>

62 Decrypt- Frost, L., 2020. *Germany recognises Bitcoin as a legal financial instrument*. Decrypt, March 3, 2020. <https://news.bitcoin.com/german-banks-authorized-to-store-and-sell-cryptocurrency-in-2020/>

63 The term cryptocurrencies as used by BaFin is closer to the definition of crypto-assets in this DP. Cryptocurrencies are defined by BaFin as "digital representations of value" that have the following characteristics: not issued or guaranteed by any central bank or public body; don't have the legal status of currency or money; can be used by individuals or legal entities as a means of exchange or payment; serve investment purposes; and can be transmitted, stored and traded electronically.

64 The accounting for digital currencies was discussed at the December 2016 ASAF meeting based on a presentation by the Australian Accounting Standards Board. See paragraphs 49 to 58 of the ASAF meeting summary – IASB ASAF, 2016. *December 2016 ASAF Meeting Summary*. <https://cdn.ifrs.org/-/media/feature/meetings/2016/december/asaf/asaf-summary-dec-2016.pdf>

2019, the IASB staff identified⁶⁵ only 66 entities, across ten jurisdictions, that report transactions involving crypto-assets in their financial statements. This is an increase from 26 entities identified in November 2018.

- 1.27 In June 2019, the IFRS IC issued an agenda decision clarifying the appropriate accounting treatment for a subset of crypto-assets (i.e. cryptocurrencies where there is no claim on the issuer). Such cryptocurrencies represent a significant proportion of the overall crypto-assets market capitalisation.
- 1.28 Some stakeholders consider the aforementioned IFRS IC agenda decision to be sufficient for now. They support a continued monitoring stance by the IASB and are of the view that any risk mitigation and investor and consumer protection should primarily be addressed through enhanced regulatory guidance particularly as these assets are yet to become mainstream for a majority of entities. However, other stakeholders, including some of those who participated in the EFRAG research outreach have called for further clarification and development of IFRS requirements for crypto-assets.

IFRS IC clarification only focused on holders of cryptocurrencies

- 1.29 Holding of some crypto-assets where there is a claim on the issuer (e.g. some stablecoins, security tokens, utility tokens) and the issuance of crypto-assets fell outside the scope of the IFRS IC agenda decision. Several stakeholders, including participants of the EFRAG research outreach, have expressed the need for the IASB to address the matters not covered by the IFRS IC agenda decision.
- 1.30 Furthermore, there are several unaddressed issues under current IFRS requirements for holders of crypto-assets as detailed in **Chapter 3**.

Diversity in current practice

- 1.31 The feedback to the IFRS IC draft agenda decision consultation is indicative of diversity in the application of IFRS Standards within certain jurisdictions as shown by the evidence (**Table 1.1**) provided by the Canadian Securities Administrators (CSA) in its response⁶⁶ to the IFRS IC tentative agenda decision.

Table 1.1: Illustration of Diverse Measurement Approaches on Entities' Cryptocurrency Holdings

STANDARD APPLIED	NUMBER OF ENTITIES	PERCENTAGE
IAS 8.11 (to arrive at FVTPL)	16	39%
IAS 2.3(b)*	11	27%
IFRS 9 – FVTPL	4	10%
IAS 38 – Cost Model	1	2%
IAS 38 – Revaluation Model	4	10%
Not determinable	5	12%
Total	41	100%

Source: CSA comment letter to IFRS IC tentative agenda decision

- 1.32 The November 2019 IASB staff paper on monitoring activities also highlights the diversity in practice through the analysis of the reporting of 66 entities from across the globe for the year ended 2018 - *with 9% applying the IAS 38-cost model; 17% applying the IAS 38 revaluation model; and 58% applying fair value through profit or loss (FVPL)*. Furthermore, as

65 IFRS Foundation, 2019. *IASB Staff Paper- November 2019 IASB Meeting- Agenda Ref 12J, Project- Cryptoassets, Topic- Monitoring activities*. <https://www.ifrs.org/-/media/feature/meetings/2019/november/iasb/ap12j-implementation-matters.pdf>

66 Canada Securities Administrators (CSA), 2019. *CSA Comment Letter Response to IFRS Interpretation Committee Tentative Agenda Decision- Holdings of Cryptocurrencies*. 2 May 2019. https://www.securities-administrators.ca/uploadedFiles/General/pdfs/LECAC_Cryptocurrency_HoldingsTADResponse.pdf

discussed in **Chapter 3: Paragraph 3.46**, Sixt and Himmer⁶⁷ (2019) cited examples of two similar entities (i.e. exchanges) respectively located in Australia and Hong Kong that apply different subsequent measurement to their crypto-assets holding in a manner that lessens the comparability of reporting between the two entities.

- 1.33 This evidence of diversity in practice in accounting by IFRS reporting crypto-asset holder entities is indicative of the need for either further clarification or amendment of IFRS requirements to help narrow or prevent the diversity in practice. That being said, it remains to be seen whether the IFRS IC agenda decision has reduced some of the noted diversity in practice.

Updates could inform IFRS requirements for analogous transactions

- 1.34 In reviewing the accounting for crypto-assets transactions under IFRS, consideration could be made of the similarities and differences between the crypto-assets that are not classified as financial assets and analogous 'non-crypto' transactions (e.g., commodities held as investments, emission rights, water rights and rights arising from loyalty programmes and similar schemes) for which IFRS Standards provide none or limited specific guidance. In effect, an update to the IFRS requirements for crypto-assets that are not classified as financial assets could potentially have broader implications and inform the general accounting for non-financial assets held as investments.

Could be applicable for potential IFRS reporters and IFRS entities counterparties

- 1.35 Furthermore, regardless of the low prevalence of crypto-asset holdings by current IFRS reporting entities, consideration of areas for the clarification or enhancement of IFRS guidance is useful because:
- a) Smaller unlisted entities that are holders or issuers of crypto-assets may become listed and thereafter become IFRS reporting entities meaning that the potential universe of IFRS reporting entities with crypto-assets activities could grow in the future.
 - b) At an aggregate level, there is potential for significant issuance and holdings of crypto-assets among unlisted entities, including small and medium-sized entities (SMEs). A January 2019 OECD paper⁶⁸ that reviewed ICO funding for SMEs, notes that the issuance of crypto-assets could be a good way for SMEs to generate funding when an entity is developing network-based products. Concurrently, the OECD paper notes that the absence of standardised financial reporting practices for tokens of unregulated ICOs impedes transparency and complicates decision-making by participating investors.
 - c) SMEs could be counterparties to or be part of the value chain of larger IFRS reporting entities (e.g. as customers, suppliers, borrowers). In effect, IFRS reporting entities can have indirect crypto-assets exposures, meaning that inadequate accounting guidance can result in the failure of these counterparties to faithfully represent their crypto-assets transactions and exposures. In turn, this could potentially mask the knock-on effects and crypto-assets associated risks that IFRS entities may indirectly face (e.g. effects of bankruptcy of an SME counterparty that is heavily engaged in crypto-assets transactions).
 - d) Finally, as shown by the November 2019 IASB staff paper on monitoring activities, there are some albeit an insignificant number of listed IFRS reporting entities with cryptocurrencies holdings and the number has grown from 2017 to 2018.

Development of IFRS requirements can address limitations of NSS guidance

- 1.36 A high-level analysis of a selection of jurisdictional guidance (both national GAAP and in jurisdictions that apply IFRS) shows a diversity of requirements and underlying principles across jurisdictions. In some jurisdictions, the classification of crypto-assets within the NSS guidance is consistent with or perhaps influenced by the jurisdictional regulators' classification approaches while in others this is not the case. There is also some variation on what is in the scope of NSS guidance, likely influenced by transactions that are of most concern within particular jurisdictions.
- 1.37 This noted diversity in scope, requirements and underlying principles across different NSS guidance can contribute to diversity in reporting practices across jurisdictions notwithstanding the boundaryless nature of crypto-asset transactions.

67 Sixt, E. and Himmer, K., 2019. Accounting and Taxation of Crypto-Assets. Research Paper. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3419691

68 OECD, January 2019. *Initial Coins Offerings (ICOs) for SME Financing*. <http://www.oecd.org/finance/initial-coin-offerings-for-sme-financing.htm>

This limits the usefulness of NSS guidance and further supports the case for reviewing existing IFRS requirements to help develop globally applicable crypto-assets accounting requirements.

PROJECT OBJECTIVES AND SCOPE

- 1.38 Through the development of this DP, the EFRAG research has the following objectives:
- a) Provide both a problem definition and propose possible preliminary approaches and areas of focus in developing IFRS requirements. The problem definition aspect primarily outlines existing approaches and identifies issues related to accounting for crypto-assets whilst assessing factors that can justify the need for clarification of IFRS requirements. These factors include the significance of crypto-assets activities, related economic characteristics, rights and obligations, regulatory requirements, trends and potential market developments.
 - b) The EFRAG project on crypto-assets had initially intended to focus on problem definition as a first phase (phase 1) to be followed by accounting solutions development (phase 2). However, ongoing developments and the rapidly evolving ecosystem have prompted the EFRAG research project to go beyond only initially focusing on the problem definition and to also formulate and propose next steps for IFRS development. Ongoing developments include: the issuance of NSS and accounting firms' guidance; several notable market developments related to the next generation of crypto-assets and digital assets; and steps being taken at a European and global level to provide regulatory clarity and enhance related requirements. Therefore, in addition to the problem definition elements, this discussion paper outlines accounting issues and presents possible approaches that could be taken by the IASB towards either clarifying or further developing related IFRS requirements.
 - c) This discussion paper will obtain constituents' feedback on the above. The discussion paper content and constituents' feedback can inform the next IASB agenda consultation and the contents of a potential future IASB project.
- 1.39 The scope of the EFRAG research is on crypto-assets (liabilities), which are the first but not only use case of blockchain technology. The scope excludes the extended applications of the blockchain technology of which some may meet the definition of accounting assets or liabilities and/or have gaps in their accounting requirements.
- 1.40 The reason for focusing on crypto-assets (liabilities) is because they have longer transactions history and evidence of being monetisable than is the case with extended blockchain applications. Furthermore, the nature, economic characteristics and possible accounting of crypto-assets (liabilities) have been subject to considerable analysis within NSS, accounting firms, academic and other stakeholder literature but this is yet to be the case for the extended blockchain applications.
- 1.41 The scope focuses on the following crypto-assets (digital tokens) categories that are further enumerated upon in **Appendix 2**:
- a) Cryptocurrencies with no claims on the issuer that are payment tokens (are sometimes referred to as crypto-coins or exchange tokens or virtual currencies or payment-type crypto-assets);
 - b) Security and asset tokens (can collectively be also be referred to as investment tokens or investment-type crypto-assets). Asset tokens are sometimes referred to as digitised or tokenised assets.;
 - c) Utility tokens or utility-type crypto-assets;
 - d) Stablecoins that can also be classified as payment tokens or security and asset tokens or hybrid tokens; and
 - e) Other types of tokens (e.g. hybrid tokens, pre-functional tokens).
- 1.42 Furthermore, in the context of considering the issuance, buying, holding and selling of crypto-assets, the EFRAG research considers the following crypto-assets related activities:
- a) Crypto-assets issuance through ICOs, IEOs and STOs;

- b) Crypto-assets holder entities on own behalf and holders on behalf of others: payment services, investment and other holding objectives (e.g. access to distributed network goods and services); and
 - c) Crypto-assets ecosystem related services and activities: storage and custodial services and mining activities.
- 1.43 The accounting issues for entities undertaking custodial services and mining activities are analysed only to the extent that they are considered as being part of the analysis of accounting for holders and issuers.
- 1.44 As the purpose of this DP is ultimately to influence IFRS requirements, the analysis of crypto-assets activities is focused on entities and not on individuals.

DELIVERABLES

- 1.45 The EFRAG research is envisioned to have the following deliverables:
- a) This DP that combines the issuance and holding of crypto-assets as there are symmetrical considerations whilst assessing issuer and holder accounting issues (e.g. holder rights are typically issuer obligations for crypto-assets where there is a claim on the issuer).
 - b) If necessary, a second discussion paper may be developed later that focuses on outstanding issues related to crypto-assets (liabilities) including a more detailed analysis of accounting solutions.

METHODOLOGY

- 1.46 As noted above, in conducting the research, to fulfil the objectives of the EFRAG research, it is necessary to assess existing accounting requirements and guidance. It is also necessary to consider factors that can justify the need for enhancement or clarification of IFRS requirements. These factors include the significance of crypto-assets activities, related economic characteristics, rights and obligations, regulatory requirements and potential market developments.
- 1.47 The development of this DP was conducted in the following two sub-phases
- a) A “preliminary desktop research” phase; and
 - b) A phase to corroborate and enhance findings that included outreach to crypto-assets experts.

“Desktop research” phase

- 1.48 The EFRAG research team conducted a review of related IASB and NSS, accounting firms, regulatory, legal, academic and other specialist literature. The review of academic literature had input from the EFRAG academic panel.
- 1.49 The literature review helped to identify issues related to accounting for crypto-assets.
- 1.50 To identify prevalence and trends of crypto-assets activities; the EFRAG research team sourced data related to ICOs from data aggregator publicly available databases.
- 1.51 The EFRAG research team explored whether, in order to evaluate the prevalence of crypto-assets holdings or exposure by listed EU entities, it would be useful to apply artificial intelligence (AI) software (AlphaSense and Sentieo) for a textual analysis of their external reporting and communication documents (filed documents, management presentations). A pilot test using the AI software highlighted the difficulty in obtaining granular entity-specific data and showed that such an approach was unlikely to lead to any conclusion that differed from the IASB staff findings that showed the limited prevalence of crypto-assets amongst IFRS reporting entities.
- 1.52 There were several limitations with the preliminary secondary research, which was conducted using publicly available databases and information on accessible websites. These limitations include:

- a) Lack of data on holder entities;
- b) Lack of data disaggregated by type of crypto-assets (e.g. payment tokens versus utility tokens versus security tokens);
- c) Lack of robust, accessible documentation on related rights and obligations;
- d) Lack of sufficient granular data related to EU countries that demonstrates the materiality of ICOs for IFRS reporting entities;
- e) Lack of data indicating the size of entities issuing ICOs and indicating the prevalence of this activity for listed versus unlisted entities; and
- f) Inconsistencies and lack of comparability of key data points (e.g. number and market capitalisation of crypto-assets, the failure rate of ICOs) across different data aggregators/databases.

“Outreach” phase

- 1.53 To augment and corroborate the findings from the preliminary secondary research, EFRAG issued a public call for crypto-assets experts to participate in the EFRAG research.
- 1.54 This resulted in the participation (telephone interviews) and/or written feedback from 25 experts (see **Table 1.2**) with diverse functional backgrounds and type of organisations and from 13 different countries including some leading markets.

Table 1.2: Functional Profile of Outreach Participants

CATEGORY	NUMBER OF PARTICIPANTS
Academic	1
Accounting Standard-Setter	2
Adviser	1
Auditor	8
Blockchain research organisation	1
Crypto-assets Intermediary	3
Crypto Exchange	1
Non-custodial wallet provider	1
DLT Platform or software developer	2
Regulator	2
Institutional Investor	1
Payment services firm	1
Lawyer	1
Total	25

- 1.55 The objective of the outreach was to attain the following:
 - a) Enhance insights on economic characteristics, rights and obligations that could have accounting implications for holders and issuers of crypto-assets. The need for input from experts arose due to the opacity of accessible white papers;

- b) To corroborate the EFRAG research preliminary findings and enhance understanding of the accounting guidance and regulation that is applicable in different jurisdictions;
 - c) To corroborate the EFRAG research preliminary findings on the prevalence of issuers and entities that are holders of their own account and on behalf of others; and
 - d) To enhance insights on trends and potential significance of crypto-assets that could help give a sense of potential significance for IFRS reporting entities.
- 1.56 To allow for an effective and structured interview process, a questionnaire was developed based on the objectives of the research. The questionnaire was to help outreach participants to identify, prepare and focus on the questions that they were well suited to address during the interview. They were not required to answer all the questions but only those that they could readily address from their existing knowledge and where they did not need to undertake research and data gathering efforts. Some participants (8 of the 25) only provided written questionnaire responses.
- 1.57 To a large extent, the outreach corroborated the desktop research findings and also provided additional insights including examples of crypto-assets with specific rights. The outreach findings are integrated within the analysis across all the chapters in this DP.
- 1.58 However, there were limited insights from the outreach on how enhancements in technology might influence innovation of the next generation of crypto-assets or whether the next generation of crypto-assets would have features that would further justify a view that they should be treated as unique assets under IFRS Standards and NSS guidance.

STRUCTURE OF THE DISCUSSION PAPER

- 1.59 The rest of the DP is structured as follows:
- a) Chapter 2 – **Overview** – *overview of crypto-asset activities, economic characteristics and regulation*
 - b) Chapter 3 – **Holders accounting** – *outlines existing guidance and areas for clarification or enhancement for accounting by holders on own behalf and holders on behalf of others*
 - c) Chapter 4 – **Issuers accounting** – *outlines existing guidance and areas for clarification or enhancement for accounting by issuers*
 - d) Chapter 5 – **Valuation** – *outlines emergent valuation theories and how to identify active markets*
 - e) Chapter 6 – **Potential development of IFRS requirements** – *outlines considerations for the potential development of IFRS requirements*
 - f) Chapter 7 – **Implications of potential market developments** – *outlines potential market developments that may contribute to mainstreaming and increased institutional uptake of crypto-assets*
 - g) Appendices include:
 - (i) Appendix 1: Crypto-assets (liabilities) activities; outlines details of ICO, custodial services and mining activities
 - (ii) Appendix 2: Details and examples of economic characteristics, rights and obligations
 - (iii) Appendix 3: Regulatory requirements; outlines regulatory requirements across different jurisdictions
 - (iv) Appendix 4: Glossary of terms
 - (v) Appendix 5: Bibliography.

CHAPTER 2: OVERVIEW OF CRYPTO-ASSETS ACTIVITIES, ECONOMIC CHARACTERISTICS AND REGULATION

- 2.1 The assessment of significance and trends of crypto-assets activities is part of establishing whether accounting standard-setting activity should occur. This chapter presents a summary of the detailed analysis of the significance of crypto-assets issuance and holder entity activities in **Appendix 1**.
- 2.2 This chapter also presents a summary of the assessment of economic characteristics and rights and obligations, as these inform the analysis of accounting by both holders and issuers relating to the more detailed analysis in **Appendix 2**. And finally, this chapter presents a summary of the regulatory requirements detailed in **Appendix 3**.

SIGNIFICANCE OF ISSUANCE AND HOLDER ACTIVITIES

ISSUANCE – ICOs AND OTHER TYPES OF INITIAL OFFERINGS

- 2.3 **Appendix 1** has data and analysis on the prevalence and trends of ICOs and other types of initial offerings such as IEOs and STOs. Key findings include the following:
- a) The first ICO issuance (Mastercoin) was in 2013. The ICO market has thereafter experienced rapid growth, raising a total of approximately USD 24.7 billion through to the end of Q1 2019 with the completion of over 5,000 ICO projects in over 50 countries. European Economic Area (EEA) countries that rank⁶⁹ in the Top 10 for ICO activity are the UK, Switzerland, Estonia and Germany. ICOs also occur in multiple industries, although publicly available data indicates that financial services lead the issuance volume.
 - b) The growing significance of ICOs as a source of finance for some business sectors is evident as blockchain start-up ICOs have outstripped venture capital (VC) financing. In the 14 months to February 2018, blockchain start-ups raised⁷⁰ nearly USD 1.3 billion in traditional VC rounds worldwide; compared to USD 4.5 billion raised by ICO projects.
 - c) A January 2020 PwC report⁷¹ shows that, relative to both 2017 and 2018, there has been a notable decline in 2019 of the volume and value of token issuance through ICOs. There has also been increased issuance of STOs in 2018 and 2019, albeit with volatile month to month trends. STOs have included the issuance of tokenised corporate bonds and loyalty/referral programs by leading financial institutions and corporations⁷². Meanwhile, IEOs increased their market share of overall issuance in 2019 likely due to the strengthening of regulatory regimes related to crypto-exchanges.
 - d) Stakeholders who provided feedback during the EFRAG research outreach, affirmed the decline in ICO activity in 2019 across jurisdictions. The decline was attributable to the increased regulatory scrutiny of ICOs and a shift towards STOs that are subject to securities regulations, and IEOs which are generally subject to a higher level of ‘third-party’ scrutiny than ICOs.
- 2.4 Despite the recent decrease in ICOs, EFRAG research outreach participants did not consider the decline in ICOs to be permanent. However, they considered that greater regulatory scrutiny was a prerequisite for increased institutionalisation and uptake of crypto-assets activities including the growth in the issuance of ICOs and other types of offerings.

69 The top five jurisdictions are the United States, British Virgin Islands, Singapore, Switzerland and the United Kingdom.

70 According to Crunchbase database. (<https://www.crunchbase.com/>)

71 PwC, January 2020, 6th Edition ICO/STO report- A Strategic Perspective. https://www.pwc.ch/en/publications/2020/Strategy&_ICO_STO_Study_Version_Spring_2020.pdf

72 STOs of tokenised bonds and loyalty/referral programs issued included: Austrian Government (USD 1.4bn), Bank of China (USD 2.8bn), Banco Santander (€20mn), BBVA (€150mn), Daimler (€100mn), Deutsche Bank, Emaar, Société Générale (€100mn) and World Bank (USD108 mn).

HOLDER ENTITIES AND ASSOCIATED BUSINESS MODELS

- 2.5 The EFRAG research's outreach feedback and the review of literature identified names of some entities in Australia, Canada, France, Hong Kong and Switzerland with crypto-assets holdings. The feedback also indicated that a significant proportion of holder entities are intermediary holders of crypto-assets on behalf of others.
- 2.6 Publications from the Cambridge Center for Alternative Finance (Cambridge CAF) issued in 2018 and 2019, point to the following activities related to crypto-assets issuance and intermediation that would likely result in holder entities:
- a) Token creation and distribution (i.e. platform developers who pre-mine and are holders before distribution) (e.g. ICOBox);
 - b) Mining activities by holders are akin to internal production of crypto-assets are discussed below in **Paragraphs 2.8 to 2.11** and further analysed in **Appendix 1**;
 - c) Storage (e.g. Coinbase, Xapo, Bitgo, Blockchain) activities that are further analysed in **Appendix 1**; and
 - d) Financial services intermediation activities as further described in **Paragraph 2.7**.
- 2.7 The January 2020 IMF publication highlights that a number of Fintech start-ups and even major financial entities (such as Fidelity Investments) are actively developing solutions related to crypto-assets. The January 2019 EBA report⁷³ highlighted that seven EU national competent authorities were aware of the following activities conducted by credit institutions, investment firms, electronic money institutions and payment service firms within their jurisdiction:
- a) Owning crypto-assets;
 - b) Lending against crypto-asset collateral;
 - c) Clearing or trading with derivatives with crypto-asset underlying;
 - d) Investing in products with underlying crypto-assets. Incidentally, the March 2019 American Bar Association report notes that there has been rapid growth in hedge funds and venture funds that are focused on cryptocurrencies. As at December 2018, there were 780 crypto-funds⁷⁴ with USD 10 to 15 billion in assets under management. An illustrative list of crypto-funds can be found on public websites⁷⁵;
 - e) Lending to entities dealing directly or indirectly with crypto-assets; and/or
 - f) Providing exchanges services for crypto-assets to fiat currencies or crypto to other crypto-assets exchanges. A January 2019 ESMA Advice publication⁷⁶ estimates that there are 200 global crypto-assets trading platforms, albeit the largest platforms are outside the EU and are in the US and Asia.

MINING ACTIVITIES

- 2.8 As detailed in **Appendix 1**, some but not all⁷⁷ crypto-assets (e.g., bitcoin, litecoin) have additional units becoming part of their available supply through an "electricity energy and computational power" intensive⁷⁸ process of validating new

73 European Banking Authorities, January 2019, Report with advice for the European Commission on Crypto-assets. <https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf>

74 <https://www.autonomous.com/>

75 <https://www.investitiin.com/crypto-fund-list/>

76 European Securities Markets Authority, January 2019, Advice Initial Coin Offerings and Crypto-Assets. https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_crypto_advice.pdf

77 Ripple and Stellar additional units come into circulation through other mechanisms where the possible supply is pre-mined and comes into circulation through other mechanisms (e.g. Practical Byzantine Fault Tolerance) and Ethereum has been shifting away from proof-of-work mining.

78 According to data reported by Digiconomist, the estimated annual electricity consumption due to bitcoin mining (60.74 TWh per year) is a bit more than the annual electricity consumption of Greece (59.3 TWh) and Algeria (60.1 TWh), and only slightly lower than that of Kuwait (61.9 TWh) and Switzerland (62.6 TWh). And each bitcoin transaction consumes as much electricity (512.34 kWh) as an average US household does for 17.32 days. (see <https://digiconomist.net/bitcoin-energy-consumption>). Furthermore, a February 2019 Economist article displays how the electricity consumption has risen over time, correlated with the rise of the price of bitcoin until early 2018 when bitcoin was at near USD 20,000. Thereafter, the consumption remained high notwithstanding the market crash in 2018. (see <https://www.economist.com/graphic-detail/2019/02/07/will-bitcoins-price-crash-cut-into-its-energy-use>)

transactions (i.e. “proof-of-work” mining activities). In addition to transaction fees, new units of crypto-assets (block rewards) are rewarded as compensation for successful proof-of-work transaction validation. This activity is open to all network participants and exemplifies the Bitcoin founder’s (Nakamoto’s) vision of democratising the participation in an alternative monetary system. There can be a predetermined possible supply of crypto-assets units. For instance, there is a predetermined possible 21 million bitcoins and the supply in circulation as at beginning of July⁷⁹ 2020 is approximately 18.4 million. Some projections indicate that the last bitcoin unit (0.00000001 unit of bitcoin-also called a “satoshi”) will be harvested by miners in the year 2140.

- 2.9 Mining activity is likely primarily undertaken by individuals but there are/have been entities involved (e.g., Antpool, Bitfury, Bitmain, Nicehash and the now-bankrupt KnC miners). Feedback from the EFRAG research and jurisdictional attribute data relating to the economic viability of mining activities outlined in **Appendix 1** (i.e. cost of electricity, speed of internet connection, ambient temperature) also shows that mining activities are unlikely to be pervasive within a majority of EU jurisdictions with exceptions such as Poland and Nordic countries including Sweden and Iceland.
- 2.10 The EFRAG research outreach respondents estimated that proof-of-work-based mining currently comprises about 60% to 80% of crypto-asset transactions. One of the stakeholder respondents revealed that an analysis of 22 Canada-based companies with mining activities showed that 63% had proof-of-work-based mining, 22% had proof-of-stake validation and 5% had both approaches.
- 2.11 **Appendix 1** shows mining can occur through owned equipment, shared ownership (mining pools) or by renting mining capacity (cloud-based). It also shows that there is a trend of shifting to proof-of-stake transaction validation and away from proof-of-work mining and that transaction fees are growing as a proportion of compensation to the miners.
- 2.12 The accounting for crypto-asset mining activities is analysed as one of the issues related to the accounting by holders of crypto-assets that need clarification (see **Chapter 3: Paragraph 3.76**).

AGGREGATE DATA ON IFRS ENTITIES CRYPTO-ASSETS (LIABILITIES) ACTIVITIES

- 2.13 Due to the early stage of market development, it is generally challenging⁸⁰ to obtain other aggregate data on issuer and holder entities (i.e. on own account or account of others) from available publications and databases. The 2019 IASB staff paper on monitoring activities on cryptocurrencies highlights the following data on cryptocurrencies (a subset of crypto-assets) held by IFRS entities across several jurisdictions. There is also data on Canadian IFRS entities in the 2019 CBV publication and 2019 CSA comment letter response to the IFRS IC agenda decision (see **Table 1 Paragraph 1.30**).
- 2.14 The 2019 IASB staff paper data shows that only 66 IFRS reporting entities had holdings of cryptocurrencies and four engaged in ICO issuance for the year ending 2018 as shown in the Tables below. There is an increase from the holdings and ICOs issuance for the year ending 2017, but overall, these remain insignificant for IFRS reporting entities (see **Table 2.1** and **Table 2.2** below).
- 2.15 That being said, it is not clear how different the picture would be if the full universe of crypto-assets and not just cryptocurrencies were analysed. Furthermore, although there have been large size ICOs (e.g. in 2019 Bitfinex issued USD 1bn, in 2018 Telegram issued USD 1.7bn and EOS issued USD 4.1bn); ICOs issuance typically pertains to smaller, unlisted entities that do not report based on IFRS. In addition, the below data does not reflect regulatory-compliant STOs and IEOs that are issued by larger entities of which some are IFRS reporting entities. For example, STOs issuance include: Banco Santander (€20mn) in 2019; BBVA (€150mn) in 2018; Societe Generale (€100mn) in 2019; and Daimler (€100mn) in 2017.

⁷⁹ <https://www.blockchain.com/en/charts/total-bitcoins>

⁸⁰ Publications from the EBA, ECB and FSB all highlight the elusive nature of quantitative data related to crypto-assets holdings within reporting entities. Difficulties in obtaining aggregate data related to entities reflect that uptake of crypto-assets (liabilities) activities still in early stages. As noted in Chapter 7, strengthening of the regulatory regimes and legal enforceability is necessary for crypto-assets (liabilities) to be an increased part of institutional investors’ portfolios and other large entities’ activities.

Table 2.1: Cryptocurrencies Holding by IFRS Entities

JURISDICTION	SEARCH PERFORMED IN JULY 2019 ON FINANCIAL STATEMENTS ENDING 31 DEC 2018 OR LATER		SEARCH PERFORMED IN JULY 2018 ON FINANCIAL STATEMENTS ENDING 31 DEC 2017 OR LATER	
	TOTAL NUMBER OF ENTITIES	OF WHICH ARE “MINERS”	TOTAL NUMBER OF ENTITIES	OF WHICH ARE “MINERS”
Australia	6		3	
Bermuda			1	
Canada	42	24	18	4
Hong Kong	6	2		
Isle of Man	1		1	
Japan	1		1	
Jersey	1			
South Africa	1			
Switzerland	3		1	
Thailand	1			
UK	4	2	1	
Total	66	28	26	4

Source: 2019 IASB Staff Paper

Table 2.2: ICOs Issuance by IFRS Entities

JURISDICTION	SEARCH PERFORMED IN JULY 2019 ON FINANCIAL STATEMENTS ENDING 31 DEC 2018 OR LATER		SEARCH PERFORMED IN JULY 2018 ON FINANCIAL STATEMENTS ENDING 31 DEC 2017 OR LATER	
	TOTAL NUMBER OF ENTITIES	OF WHICH ARE “MINERS”	TOTAL NUMBER OF ENTITIES	OF WHICH ARE “MINERS”
Australia		1	3	
Canada		1	18	
Japan		1	1	
Thailand		1		
Total		4	1	

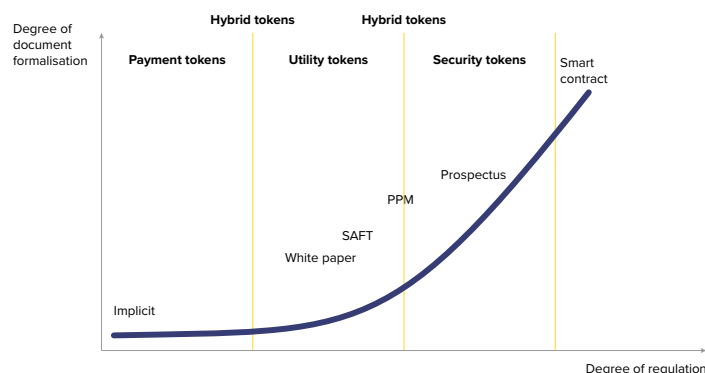
Source: 2019 IASB Staff Paper

OVERVIEW OF ECONOMIC CHARACTERISTICS, RIGHTS AND OBLIGATIONS

2.16 **Appendix 2** provides a detailed description of the economic characteristics, rights and obligations of crypto-assets. The analysis shows that there is diversity in the level of formalisation of rights and obligations associated with crypto-assets (see **Figure 2.1**). At this stage of market development, crypto-assets are characterised by relatively immature, opaque contracting arrangements making it challenging to precisely identify the underlying rights and obligations for some crypto-assets and this is a source of some of the accounting challenges. **Appendix 2** furthermore includes details of the taxonomy categories (cryptocurrencies that are payment tokens, utility tokens, security and asset tokens, e-money tokens, stablecoins, hybrid tokens, pre-functional tokens and SAFTs). It also outlines a granular breakdown of

the distinctive rights for utility tokens and security tokens and illustrative examples across different categories of crypto-assets.

Figure 2.1: Documentation and Regulation of Issued Crypto-Assets

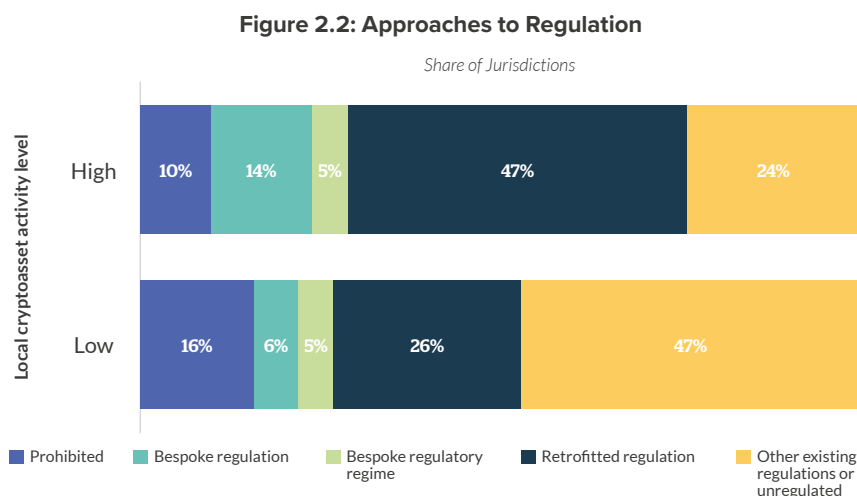


*PPM - Private purchase memorandum; SAFT - Simplified agreement for future tokens
(Appendix 2 includes more details).*

OVERVIEW OF REGULATION

- 2.17 Overall, the analysis of regulatory requirements shows that there is heterogeneity and sometimes a lack of clarity on the applicable regulatory framework for crypto-assets across different jurisdictions. The January 2020 IMF publication highlights that although 64% of regulators have identified a gap in crypto-assets regulation, only 30% have addressed the gap. The perceived gap in the regulatory framework for crypto-assets was much higher than that of other FinTech areas (i.e., algorithmic trading, lending with artificial intelligence, robo-advisors, mobile payment services, insurance, peer to peer lending).
- 2.18 Furthermore, as shown in **Figure 2.2** below sourced from a 2019 Cambridge Center for Alternative Finance publication (Cambridge CAF)⁸¹, regulatory approaches towards crypto-assets across 108 jurisdictions range from being:
- Unregulated;
 - Implicit within existing regulation where there is an application of existing laws or regulations to crypto-asset activities (e.g., China, Hong Kong, Switzerland, US);
 - Retrofitted regulation where existing laws are amended to include crypto-asset activities (e.g., Australia-AML regulation, EU-AML regulation, Canada; Japan Payment Services Act);
 - Bespoke regulation where new law or regulation is enacted to regulate crypto-asset activities (e.g. French AMF allows the optional Visa application for ICOs, Malta-Virtual Financial Services Act); and
 - Outright prohibition (China, South Korea ban on ICOs).

⁸¹ Cambridge Center for Alternative Finance, April 2019, *Global Cryptoasset Regulatory Landscape Study*, https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2019-04-ccaf-global-cryptoasset-regulatory-landscape-study.pdf



Source: 2019 Cambridge CAF Publication

- 2.19 There is also variation on the activities (e.g. issuance, brokerage and trading platforms, asset custody and segregation) and crypto-asset categories (e.g. type of tokens) that fall within regulatory perimeters. A June 2019 IMF publication⁸² notes that some regulators have created special regulatory frameworks for crypto-assets while most are taking a case-by-case approach. Regulatory requirements are discussed further in **Appendix 3**.
- 2.20 Furthermore, there are differences across countries on whether issued crypto-assets are considered to be securities. For example, while utility tokens can be considered as securities under the US Securities and Exchange Commission requirements, an ESMA survey of national competent authorities⁸³ published in January 2019 showed that none of the respondents had utility tokens being classified as securities in their jurisdictions.
- 2.21 The January 2020 IMF publication and some commentators⁸⁴ have observed that the product design of some of the issued crypto-assets (e.g. utility tokens) has been done with the intention of avoiding the prevailing applicable securities regulation. Maas (2019) notes that “while the US is increasingly being avoided by utility token issuers, in terms of both incorporation and offering utility tokens to US resident investors from abroad, the EU’s almost laissez-faire approach to utility tokens makes the Union attractive for incorporation by utility token issuers. Moreover, foreign utility token issuers can feel free to keep soliciting EU resident investors online. As such, the European consumer is, in contrast to the US, not excluded from usage of utility tokens. The EU’s regime also proves attractive for offerors of non-fungible tokens, as such tokens cannot be deemed standardized under a characteristics-based approach to the EU definition of transferable securities.”
- 2.22 Finally, there is an expectation by stakeholders including those who participated in the EFRAG research outreach that there should be a strengthening of investor and consumer protection in response to numerous scams and the notable high failure rate of past ICO issuances. In an opinion piece⁸⁵ that was published in 2019, market commentator William Mougayar observes that superficial regulation prevailing in many jurisdictions is a key cause for cryptocurrency scams, thefts and lawsuits, especially given the boundaryless nature of crypto-assets transactions. Arguing for the need to have crypto-assets’ tailored, robust and globally harmonised regulatory requirements, he observes that “Applying existing regulatory frameworks to the novelties of the blockchain, tokens and cryptocurrency is possible, but it is subject to

⁸² IMF, June 2019. *FinTech: The Experience So Far, Policy Paper*. <https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/06/27/Fintech-The-Experience-So-Far-47056>

⁸³ European Securities Markets Authority, January 2019, *Annex 1: Legal qualification of crypto-assets- survey to NCAs*. 9 January, 2019- accessible through links to related documents in press release website. <https://www.esma.europa.eu/press-news/esma-news/crypto-assets-need-common-eu-wide-approach-ensure-investor-protection>

⁸⁴ Forbes- Shin, L., 2017. *Are ICOs for Utility Tokens Selling Securities? Prominent Crypto Players Say Yes*. Forbes.com, October 2, 2017. <https://www.forbes.com/sites/laurashin/2017/10/02/are-icos-for-utility-tokens-selling-securities-prominent-crypto-players-say-yes/#18fc3c7c34fa>

⁸⁵ Medium.com- Mougayar, W., 2019. *Superficial Regulation is Key Cause of Cryptocurrency Scams, Thefts and Lawsuits*. Medium.com website, August, 28, 2019. <https://medium.com/@wmougayar/superficial-regulation-is-key-cause-for-cryptocurrency-scams-thefts-and-lawsuits-32fe8bd8c102>

various grey zones of interpretations leaving blind spots and uncovered areas that are causing undesirable outcomes including scammers being able to operate because exchanges are loosely regulated.”

- 2.23 The January 2019 ESMA Advice publication also notes potential gaps in existing regulation observing that only a fraction of crypto-assets qualify as MIFID financial instruments and a large proportion are likely to fall outside the rules and safeguards of EU financial services rules. ESMA further observes that investors may not easily distinguish between crypto-assets that are within the scope of EU financial services rules and those that are not, especially when they are available for trading on the same venues.
- 2.24 Enhanced regulatory definitions can inform and be complemented by the development of related crypto-asset accounting requirements.

CHAPTER 3: HOLDERS ACCOUNTING

3.1 The objective of this chapter is to:

- a) Delineate existing holders' accounting approaches under IFRS and a selection of NSS guidance; and
- b) Identify areas where stakeholders have expressed the need for either clarification or enhancements of IFRS related requirements for holders.

3.2 The analysis in this chapter also makes a distinction between the accounting issues for holders on own account and holders on behalf of others (e.g. custodians, brokers and exchanges). At this stage of market development, a significant proportion of entities that are holders of crypto-assets are likely to be holders on behalf of others. As detailed in the analysis below, entities that are holders of crypto-assets on behalf of others need to assess whether these assets can be recognised on their statement of financial position.

ARE THEY ASSETS?

CONCEPTUAL FRAMEWORK DEFINITION

3.3 The starting premise of this DP is that crypto-assets are assets as they can be considered to meet the IASB's revised *Conceptual Framework for Financial Reporting* ('Conceptual Framework') definition of assets. The Conceptual Framework defines an asset as *a resource controlled by the entity as a result of past events and from which future economic benefits are expected*. Based on the Conceptual Framework definition, crypto-assets are assets because they:

- a) *Are a present economic resource* (i.e. a right or access to future economic benefits): crypto-assets are a digital representation of value or contractual rights created, transferred and stored on some type of DLT network. As detailed in **Appendix 2**, they confer potential economic benefits to their holders as some crypto-assets can have economic attributes similar to currencies (e.g. be a means of exchange), others can have investment value and others can confer economic benefits related to participation in network configuration or consumption of network goods or services.
- b) *Future economic benefits are expected*: as outlined in the chapter on valuation (**Chapter 5**), the economic value of different tokens can reflect: their perceived value which in turn is a by-product of the supply and demand dynamics; or their intrinsic value reflecting current or future cash flow generation ability; or expected economic utility from the rights of participation in or consumption of network goods or services. In other words, there is both "value in exchange" and/or "value in use" for different crypto-assets.
- c) *Can be controlled by the holder entity*: control is defined as the power to obtain the economic benefits that the asset will generate and to restrict the access of others to those benefits. The notion of economic control arises across different IFRS Standards (IFRS 15, IFRS 16, IFRS 10 *Consolidated Financial Statements*) and these Standards also outline multiple indicators of control - as usually no single factor is determinative of control in all circumstances. Hence, judgment is required to determine whether a reporting entity has economic control of an asset. A similar situation arises for crypto-assets as described later in this chapter where in addition to holding the private key, there are other indicators of who has economic control (see **Paragraphs 3.79 to 3.93**).
- d) *Arise from past transactions on the DLT network*: holders of crypto-assets become holders by:
 - (i) buying them with fiat currency or exchanging with other crypto-assets;
 - (ii) from mining activities where miners earn block rewards of new crypto-asset units as described in **Appendix 1**;
 - (iii) as compensation for goods or services; or
 - (iv) from airdrops and hard fork events.

3.4 Notwithstanding their seeming to qualify as assets based on the Conceptual Framework definition, doubts could arise about such a qualification due to the opacity and uncertainty on the enforceability of the rights of some crypto-assets (e.g. utility tokens) and their insufficient documentation and contractual arrangements. And also due to their associated abuses. For instance, as shown in **Appendix 1**, approximately 80% of ICOs were scams. Furthermore, Ciphertrace cited in Kataryzna⁸⁶ (2019) shows that USD 1.3 billion of crypto-assets were stolen between 2016 and 2018. Theft typically occurs when the holder's private keys are fraudulently obtained or through hacking events⁸⁷ and/or hard forks as was the case with DAO tokens in 2016 where USD 70 million were lost due to a programming error. In addition, according to a 2020 Chainalysis report⁸⁸, in 2019, USD 10 billion or 1.1% of the cryptocurrencies' transactions volume were illicit transactions. Nonetheless, the risky nature and associated abuses should not preclude their recognition as assets for the following reasons:

- a) The Conceptual Framework asset definition refers to the potential for realising economic benefits rather than the stability of value or reasonable certainty of realising economic benefits. The definition does not preclude assets becoming worthless. Hence, if the holding of crypto-assets can be construed as being akin to making a risky bet, it would not be different from holding a lottery ticket that meets the definition of an asset⁸⁹ notwithstanding that in most cases such a ticket may be near worthless or can be subject to theft and scams.
- b) When evaluating the realisability of potential economic benefits by holders of utility tokens, as noted in **Chapter 4**, the constructive obligations of the issuer should also be considered and not just the legally enforceable obligations.
- c) Poor controls, inadequate oversight and high potential to be stolen or to be used for dubious transactions (e.g. money laundering, ransom payments and terrorist funding) are not part of criteria for asset definition. Besides, Gietzmann and Gorreti (2019)⁹⁰ argue that notwithstanding their history, there is no inherent characteristic unique to crypto-assets that makes them, under all circumstances, to be at greater risk of theft or use by dubious individuals than untraceable notes of fiat currency.
- d) The ongoing development of crypto-asset forensic tools and increased regulatory oversight on crypto-assets issuance and trading platforms including the ongoing strengthening of anti-money laundering (AML) and Know Your Customer (KYC) regimes (e.g., with the fifth Anti-Money Laundering Directive (AMLD5) becoming effective⁹¹ in 2020 across EU states), may make crypto-assets to be more traceable than fiat currency notes. Furthermore, Kataryzna (2019) citing an economist magazine article, highlights that crypto-asset laundering as a proportion of overall money laundering is still relatively insignificant⁹² (i.e. 3-4% of overall money laundering is via crypto-assets).

86 Kataryzna, C. 2019. Cryptocurrencies: Opportunities, Risks and Challenges for Anti-Corruption Compliance Systems, 2019 OECD Global Anti-Corruption and Integrity Forum. <http://www.oecd.org/corruption/integrity-forum/academic-papers/Ciupa-Katarzyna-cryptocurrencies.pdf>

87 See a) Medium.com-Falkon, S., 2017. *The Story of the DAO- Its History and Consequences*. Medium.com website. December, 24, 2017. <https://medium.com/swlh/the-story-of-the-dao-its-history-and-consequences-71e6a8a551ee>; b) New Scientist, 2017. *The End of Money: The story of bitcoin, cryptocurrencies and the blockchain revolution*. John Murray Learning.

88 Chainalysis, 2020. *The 2020 State of Crypto-Crime*. <https://go.chainalysis.com/2020-Crypto-Crime-Report.html>

89 The EFRAG and ANC Proactive Paper on the Definition of an asset – Lottery ticket is an asset/economic resource as it is the unconditional promise to participate in the draw and is capable of cash for their holder from being sold or by the holder winning the prize. <http://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FProject%20Documents%2F173%2FEFRAG%20staff%20paper%20on%20the%20definition%20of%20an%20asset.pdf>

90 Gietzmann, M., and Grossetti, F., 2019. Blockchain and Other Distributed Ledger Technologies: Where is the Accounting? *Bocconi University Working Paper*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3507602

91 A Decrypt article highlights that according to new licensing rules in the UK, the Netherlands and Austria, crypto-exchanges and custodians must register with their local regulator and comply with AML and KYC procedures to disclose their traders' identities and report suspicious activities. See Decrypt-Frost, L., 2020. *Germany recognises Bitcoin as a legal financial instrument*. Decrypt website, March 3, 2020. <https://decrypt.co/21148/germany-recognizes-bitcoin-as-a-legal-financial-instrument>

92 According to Europol statistics cited in an Economist article, around 3-4% of Europe's annual criminal taking is crypto-laundered (around USD 4.2-5.6bn), which in comparison to the overall money laundering practices accounts for 2-5% of GDP (around USD 800bn-2tn), and therefore is comparatively insignificant. See Economist, 2018. *Crypto-money laundering*. Online Economist website, April 26, 2018. <https://www.economist.com/finance-and-economics/2018/04/26/crypto-money-laundering>

EMERGING LEGAL PERSPECTIVE CONSIDERS CRYPTO-ASSETS TO BE PROPERTY

- 3.5 The lack of a legal definition of crypto-assets has tended to contribute to a lack of legal clarity on the nature and enforceability of crypto-assets arrangements. To help remedy this situation, in November 2019, the UK Jurisdiction Taskforce of the LawTech Delivery Panel⁹³ published an authoritative “*Legal statement⁹⁴ on crypto-assets and smart contracts*” (LawTech panel statement). The statement concludes that **crypto-assets can be considered to be property and related smart contracts are legally binding**. It disagrees with a view⁹⁵ held by some stakeholders that crypto-assets are outside the law.
- 3.6 The LawTech panel statement provides a perspective founded on common law and therefore may potentially be only applicable to the UK and similar common law jurisdictions. Nonetheless, the reasoning contained within the statement could potentially influence the development of legal positions on the subject across other jurisdictions.
- 3.7 The LawTech panel statement observes the following:
- a) Crypto-assets have novel and distinctive attributes including: the intangibility or digital representation of economic value; cryptographic authentication; use of a distributed transaction ledger; decentralisation; and rule by consensus;
 - b) Unlike physical property, crypto-assets are neither “things in action” nor “things in motion”;
 - c) Other digital assets (e.g., software, databases) can have in-built economic value and are typically applied as cash-generating assets in the normal course of business. In contrast, some crypto-assets such as cryptocurrencies with no claim on the issuer have no intrinsic value;
 - d) The digital information encoded within crypto-assets differs from digitised electronic information (e.g. electronics documents and other textual, visual and structured data). The latter can be replicated and shared by multiple users and therefore lacks digital scarcity. As such, electronic information does not qualify as property from a legal standpoint as it is hard to claim ownership of what can be readily shared. In contrast, crypto-assets have an attribute of exclusivity as each transaction yields unique data parameters that are exclusive to the holder resulting in their digital scarcity; and
 - e) The value of the crypto-asset is not in the information contained in the private key (i.e. a randomly generated 64 hexadecimal⁹⁶ digit number) which is no different from a password. It is in the conglomeration of the encoded public data, private key information and ecosystem system rules.
- 3.8 Taking account of the factors outlined in **Paragraph 3.7**, the LawTech panel statement concludes that crypto-assets should qualify as property as they have the following indicative⁹⁷ attributes of property:
- a) Definability or identifiability;

93 The LawTech Delivery Panel was established by the UK Government, the Judiciary and the Law Society of England and Wales.

94 As reported by legal firm Linklaters. See Linklaters, 2019. *UK confirms legal status of cryptoassets and smart contracts*. Linklaters website-linklaters.com, 18, November, 2019. <https://www.linklaters.com/en/insights/blogs/fintechlinks/2019/november/uk-confirms-legal-status-of-crypto-assets-and-smart-contracts>

95 The LawTech panel statement notes that some parties take the view that the design of crypto-assets means that there is no need for traditional legal rules or processes. Law might be considered irrelevant because dealings are effected by non-legally-binding consensus between users, because cryptographic authentication and validation using strong encryption methods makes dealings irreversible, and because decentralisation and disintermediation means that there is no responsible party who can be compelled to act at the direction of a court.

96 The commonly applied counting system is the decimal system consisting of ten possible numeric characters (i.e., 0 to 9). The hexadecimal system is based on 16 alphanumeric characters (i.e., 0 to 9 and A to F). There are other systems including the binary system consisting of two numeric characters (0,1). Computer processing is based on the binary system. The hexadecimal system is simply a relatively human reader-friendly representation that can be translated to and interacts well with the binary system. For example, a 64 hexadecimal number can be converted to a 256 (or 64 multiplied by 4) binary system number because each hexadecimal character has an equivalent of four-digit representation of a binary number. To illustrate, the character 1 in hexadecimal is equivalent to “0001” in a four-digit binary system representation and the character F in the hexadecimal system is equivalent to “15” in the decimal system and to “1111” in a four-digit binary system representation.

As noted in Appendix 1, cryptography, which is applied for creating digital signatures, verifying transactions, and validating and getting consensus for updates to the blockchain- includes the hexadecimal representation of private keys.

97 Property is not defined under common law.

- b) Exclusivity and control: putting aside situations of multi-signature private keys and intermediary holders, the holder of the private key has exclusive control of the crypto-asset;
 - c) Assignability: crypto-assets are capable of assumption by third parties; and
 - d) Certainty or Permanence: crypto-assets appear to be as permanent as financial assets, which may exist only until they are, for example, cancelled, redeemed, repaid or exercised.
- 3.9 There are also academic papers with a legal-oriented perspective that further analyse the characteristics of crypto-assets. For example, Chason⁹⁸ (2019) makes a useful comparison between bitcoin transactions and real estate title transfers. The author draws an analogy between the “chain of title” in respect of signatures on title deeds during the transfer of US-based real estate and founder-Nakamoto’s characterisation of bitcoins as a “chain of digital signatures”. Chason observes that bitcoin transactions have features that closely resemble grantor names, grantee names, legal descriptions, and signatures in real property deeds. Furthermore, he notes that through the proof-of-work consensus-based verification, the Bitcoin system replicates⁹⁹ important institutional aspects of real estate transactions, in particular recordation and title assurance.

FRAMEWORK FOR ANALYSING POSSIBLE HOLDERS’ ACCOUNTING APPROACHES

- 3.10 On the premise that crypto-assets are assets, the following questions arise for purposes of determining the appropriate accounting:
- a) What type of assets are they?
 - b) Are they a unique asset type, or do they fall within existing asset categories of IFRS requirements? And what ought to be the implications for recognition and measurement for crypto-asset holders?
 - c) Are current IFRS recognition and measurement requirements suitable for crypto-assets holders?
 - d) Are there special accounting considerations for holders on behalf of others?
 - e) Are there any unique accounting issues for holders that arise from the operational features of DLT platforms (e.g. forks)?
- 3.11 The analysis of the above questions guides the identification of possible accounting approaches. The analysis of possible accounting approaches is broken down into the following:
- a) The analysis of existing guidance informed by:
 - (i) Analysis of IFRS IC agenda decision on accounting for cryptocurrencies;
 - (ii) High-level analysis of NSS guidance for holders;
 - (iii) Review of accounting firms’ and academic literature; and
 - (iv) Outreach feedback.
 - b) The analysis of identified challenges related to recognition and measurement of crypto-assets:
 - (i) Analysis of unresolved issues following the IFRS IC agenda decision on cryptocurrencies;

⁹⁸ Chason, E. 2019. How Bitcoin Functions as Property Law, *Faculty Publications William & Mary Law School*. <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=2936&context=facpubs>

⁹⁹ Deeds to real property are recorded in a central repository (e.g., the public records office), which the parties (and the public) can search to determine title. When one grantor executes more than one deed covering the same property, recordation acts (race, notice, and race-notice) determine which grantee wins.

- (ii) Analysis of stakeholders' high-level expectations for the IFRS forthcoming agenda consultation;
- (iii) Review of accounting firms' and academic literature; and
- (iv) Outreach feedback.

EXISTING GUIDANCE FOR HOLDERS

3.12 The analysis of existing guidance for holders on own behalf is broken into:

- a) IFRS IC agenda decision; and
- b) NSS guidance.

IFRS IC AGENDA DECISION

- 3.13 In November 2018, based on an analysis and conclusion by the IASB staff that crypto-assets were not sufficiently prevalent amongst IFRS reporting entities, the IASB decided to monitor crypto-assets developments but not to undertake related standard-setting activity.
- 3.14 Subsequently, in March 2019, the IFRS IC issued a tentative agenda decision for public comment that clarified the accounting for cryptocurrencies. The final agenda decision¹⁰⁰ was issued in June 2019.

Scope of IFRS IC agenda decision

- 3.15 In its agenda decision, the IFRS IC described cryptocurrencies as crypto-assets with all the following characteristics:
- a) A digital or virtual currency recorded on a distributed ledger that uses cryptography for security;
 - b) Not issued by a jurisdictional authority or other party; and
 - c) Does not give rise to a contract between the holder and another party.

IFRS IC agenda decision analysis

- 3.16 The IFRS IC agenda decision clarifies that cryptocurrencies should be accounted for under IAS 2 when held for sale in the ordinary course of business or else they should be accounted for under IAS 38. The Committee observed that a holding of cryptocurrency meets the definition¹⁰¹ of an intangible asset in IAS 38 on the grounds that:
- a) It is capable of being separated from the holder and sold or transferred individually; and
 - b) It does not give the holder a right to receive a fixed or determinable number of units of currency (i.e. non-monetary asset).
- 3.17 IAS 38 defines an intangible asset as an identifiable non-monetary asset without physical substance. Cryptocurrencies are neither physical assets nor monetary assets based on the IAS 38 definition.
- 3.18 IAS 38 does not apply to intangible assets held for sale in the normal course of business, and such intangible assets should be accounted for in accordance with IAS 2. The IFRS IC observed that:

100 IFRS Foundation, October 2019, *Compilation of Agenda Decisions-Volume 1; Published by IFRS Interpretations Committee January 2019 to September 2019*. <https://cdn.ifrs.org/-/media/feature/supporting-implementation/agenda-decisions/agenda-decision-compilations/agenda-decision-compilation-volume-1.pdf?la=en>

101 Paragraph 8 of IAS 38 *Intangible Assets* defines an intangible asset as 'an identifiable non-monetary asset without physical substance'. Paragraph 12 of IAS 38 states that an asset is identifiable if it is separable or arises from contractual or other legal rights. An asset is separable if it 'is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability'. Paragraph 16 of IAS 21 *The Effects of Changes in Foreign Exchange Rates* states that 'the essential feature of a non-monetary item is the absence of a right to receive (or an obligation to deliver) a fixed or determinable number of units of currency'.

- a) IAS 2 applies if an entity holds cryptocurrencies for sale in the ordinary course of business; and
- b) If an entity is a broker-trader of cryptocurrencies, then it should consider the requirements of Paragraph 3 (b) of IAS 2 for commodities¹⁰² broker-trader who measure their inventories at fair value less costs to sell.

3.19 IFRS IC concluded that holding of a cryptocurrency is:

- a) **Not cash** based on the description of cash in Paragraph AG3 of IAS 32 whereby the IFRS IC is not aware of any cryptocurrency that is used as a medium of exchange and as the monetary unit in the pricing of goods or services to such an extent that it would be the basis on which all transactions are measured and recognised in financial statements; and
- b) **Not a financial asset** because it is not cash nor does it meet the definition of a non-financial asset under Paragraph 11 of IAS 32 because:
 - (i) It is not an equity instrument of another entity;
 - (ii) It does not give a contractual right to the holder; and
 - (iii) It is not a contract that will or may be settled in the holder's own equity instrument.

3.20 The IFRS IC agenda decision is consistent with the commentary in a 2016 publication by the Australian Accounting Standards Board (AASB)¹⁰³ (hereafter referred to as the 2016 AASB publication) and a 2018 publication by Chartered Professional Accountants of Canada (CPA Canada)¹⁰⁴. The AASB and CPA Canada publications also noted that cryptocurrencies are **not investment property** as they are not property as defined under IAS 40.

IFRS IC agenda decision conclusion

- 3.21 In summary, in clarifying the accounting of cryptocurrencies, the IFRS IC considered the accounting requirements for intangible assets, inventory, cash and financial assets and clarified that cryptocurrencies have the characteristics of either intangible asset or inventory depending on the purpose of holding the cryptocurrency.
- 3.22 The IFRS IC agenda decision also clarified disclosures requirements including the applicable IFRS 13 requirements if an entity measures its cryptocurrencies holdings at fair value and any other applicable disclosure requirements.

IASB staff-related observations

- 3.23 The IASB staff analysis of stakeholder comments to the IFRS IC agenda decision highlighted the following:
 - a) FVPL can be applied when cryptocurrencies are held under the broker-trader business model under IAS 2 Paragraph 3 (b);
 - b) If an entity is not holding cryptocurrencies for sale in the ordinary course of business and there is an active market, it can elect to measure its holdings at fair value applying IAS 38; and
 - c) Any entity holding cryptocurrencies must apply the applicable disclosure requirements in IFRS standards, and this could include fair value information to the extent that such information is relevant.

COUNTRY-SPECIFIC APPLICATION OF IFRS AND DIFFERENT NSS HOLDERS' GUIDANCE

- 3.24 A high-level analysis of NSS holders' guidance (both national GAAP and in jurisdictions that apply IFRS) affirms the view that there is diversity of requirements and underlying principles across jurisdictions. **Table 3.1** shows a breakdown of a selection of NSS guidance related to holders.

¹⁰² Commodities are not defined under IFRS. However, under US GAAP, a commodity has been defined as products whose units are interchangeable, are traded on an active market where customers are not readily identifiable, and are immediately marketable at quoted prices.

¹⁰³ Australian Accounting Standards Board, 2016. *Digital currency- A case for standard setting activity. A Perspective by the Australian Accounting Standards Board*. https://www.aasb.gov.au/admin/file/content102/c3/AASB_ASAB_DigitalCurrency.pdf

¹⁰⁴ CPA Canada, May 2018. *An introduction to Accounting for Cryptocurrencies*. <https://www.cpacanada.ca/en/business-and-accounting-resources/financial-and-non-financial-reporting/international-financial-reporting-standards-ifs/publications/accounting-for-cryptocurrencies-under-ifs>

Table 3.1: Selection of NSS Holders' Requirements

JURISDICTION	NATURE	MEASUREMENT
IFRS related Guidance		
Canada	<p>Assessment to qualify as an asset is necessary for each individual cryptocurrency for the following classification categories:</p> <ul style="list-style-type: none"> • Intangible assets • Inventory 	<p>IAS 38 <i>Intangible Assets</i></p> <p>Subsequent measurement: either at cost (cost method) or at fair value (revaluation method)</p> <p>IAS 2 <i>Inventories</i></p> <p>Lower of cost and net realisable value</p>
NSS Guidance		
France	<p>Excluding tokens with the characteristics of securities, the following are the classification categories, depending on the holders' business purpose:</p> <ul style="list-style-type: none"> • Tokens held for own use (recorded as an intangible fixed asset) • Tokens held as investments (specific investment category) 	<p><i>Intangible fixed assets</i></p> <p>Amortised over useful life (period of expected services)</p> <p><i>Tokens held as investments</i></p> <p>Fair value measurement</p> <p>Fair value gains or losses deferred until realisation</p> <p>In case of deferred loss position, provision to P&L for the amount</p> <p>Full disclosures on conditions of fair value determination due to current characteristics of markets</p>
Japan	<p>Uncertain whether legal property rights can be attached to virtual currencies. Nevertheless, they are seen as assets for accounting purposes.</p> <p>Seen as an independent category of assets.</p>	<p>Active market: FVPL,</p> <p>When there is no active market, measurement is required at historical cost, written down to expected disposal value (including zero) when the expected disposal value is less than the historical cost</p>
Lithuania	<p>Financial asset with the following classification categories, depending on the holders' business purpose:</p> <ul style="list-style-type: none"> • Investment: other investments • Held for payment: financial asset recorded as current assets 	FVPL
Slovakia	Short-term financial asset other than cash	Fair value
Switzerland	<p>Accounting policies are derived from the law (i.e. Swiss Code of Obligations) as there is no explicit guidance. The outreach feedback indicated that the following are the classification categories depending on the holders' business purpose:</p> <ul style="list-style-type: none"> • Financial asset (current assets or non-current assets) • Inventory • Intangible assets 	<p>Financial asset - Fair value</p> <p>Inventory - lower of cost or fair value</p>
Netherlands	<p>The following are the classification categories depending on the holders' business purpose:</p> <ul style="list-style-type: none"> • Intangible fixed asset • Inventory • Other investment 	<p>Intangible fixed asset: acquisition cost or at fair value</p> <p>Inventory: acquisition price</p> <p>Other investments: initial cost or fair value (through profit or loss or through OCI with recycling)</p>

- 3.25 The following observations can be made on the analysed NSS guidance.
- 3.26 Unlike the IFRS IC agenda decision, the scope of holders accounting issues addressed by NSS is broader than just cryptocurrencies with no claim on the issuer.
- 3.27 There are differences in the classification of crypto-assets across the NSS guidance, and in many cases, it depends on the business purpose of the holder. The classification of crypto-assets include:
- a) Unique or independent asset category (Japan ASBJ recognises crypto-assets as a unique asset);
 - b) Intangible asset category is usually applied for cryptocurrencies and utility tokens within different NSS guidance if these are deemed not to be held in the ordinary course of business;
 - c) Inventory category is usually applied for cryptocurrencies and some utility tokens within different NSS guidance if these are held in the ordinary course of business;
 - d) Financial asset (including long-term and short-term investment) category usually applied for security and asset tokens within different NSS guidance; and
 - e) Prepayment assets category usually applied for some utility tokens within different NSS guidance because a prepayment asset is recorded where an entity has paid for services before delivery of those goods and services.
- 3.28 Across the NSS guidance, country-specific application of IFRS and accounting firms' guidance, there are varied approaches towards the measurement of crypto-assets, including:
- a) FVPL if there is an active market (e.g. Japan);
 - b) Measurement that is based on the intention or business purpose of the holder (e.g. French guidance where measurement depends on if held for own use or held for investment);
 - c) Lower of cost or net realisable value when crypto-assets are recognised as inventories;
 - d) Cost or revaluation approach for subsequent measurement of crypto-assets recognised as intangible assets; or
 - e) Own accounting policy choice (IAS 8) suggested in accounting firms' guidance.
- 3.29 The rationale for classification of crypto-assets (cryptocurrencies, some utility tokens) as intangible assets within NSS guidance is consistent with the IFRS IC agenda decision (i.e. identifiable, separable non-monetary asset without physical substance that can be sold individually).
- 3.30 As noted in **Paragraphs 3.34**, the IASB has not clarified the accounting for crypto-assets that are not cryptocurrencies with no claim on the issuer (e.g. utility tokens, security and asset tokens). Accounting firm publications propose that the prepayment asset can be an appropriate classification for holders of some utility tokens and the financial asset can be the appropriate classification for holders of security and asset tokens.
- 3.31 In general, the NSS and accounting firms' guidance on appropriate asset classification (i.e. financial assets, non-financial investment, prepayment asset, intangible or inventory) seems to depend on either the holder intention or business purpose or the nature of crypto-asset. However, as noted in the accounting firm publications (E&Y), there is very limited guidance in IFRS on accounting for prepayment assets.
- 3.32 **Table 3.2** below provides a summary of possible initial and subsequent measurement approaches related to crypto-assets under the IFRS IC agenda decision, NSS and accounting firms' guidance.

Table 3.2: Summary of Initial and Subsequent Measurement Approaches Related to Crypto-Assets

	INITIAL MEASUREMENT	SUBSEQUENT MEASUREMENT	MEASUREMENTS IN CARRYING AMOUNT
Intangible assets (IAS 38) - Revaluation model (accounting policy choice but requires existence of active market)	Cost	Fair value less any accumulated amortisation and impairment	Movements above cost - Other Comprehensive Income (OCI) Movements below cost - Profit and loss
Intangible assets (IAS 38) - Cost model	Cost	Cost less any accumulated amortisation and impairment	Movements below cost - Profit and loss
Inventory (IAS 2) - Commodity broker-trader exception	Cost	Fair value less costs to sell	Profit and loss
Inventory (IAS 2) - Other	Cost	Lower of cost and net realisable value	Movements below cost - Profit and loss
Financial asset (IFRS 9)	Cost	FVPL or FVOCI or amortised cost	Movements above and below cost - Profit and loss or OCI
Prepayment asset	Cost	Subject to impairment testing under IAS 36	Movements below cost - Profit and loss
Non-financial asset investments (IAS 36) or commodities investment (IAS 8)	Cost	Cost or FVPL or FVOCI	Movements above and below cost - Profit and loss or OCI
Considered to be a unique asset (e.g. Japan)	Not prescribed	FVPL (active market) or historical cost ¹⁰⁴ (inactive market)	Movements above and below cost - Profit and loss

POSSIBLE AREAS FOR CLARIFICATION OR AMENDMENT OF IFRS REQUIREMENTS FOR HOLDERS

3.33 Standard setting for holders may be required in respect of:

- a) Crypto-assets excluded from the scope of the IFRS IC agenda decision;
- b) Unresolved challenges related to recognition and measurement of crypto-assets.

GUIDANCE ON CRYPTO-ASSETS OUTSIDE SCOPE OF IFRS IC AGENDA DECISION

3.34 As noted earlier, the IFRS IC agenda decision only addressed cryptocurrencies where there is no claim on the issuing party. There is a need for an enhanced understanding of the economic characteristics and accounting implications for crypto-assets that are not in the scope of the IFRS IC agenda decision (e.g. stablecoins, security and asset tokens, utility tokens, stablecoins and hybrid tokens).

UNRESOLVED RECOGNITION AND MEASUREMENT CHALLENGES

3.35 Notwithstanding the IFRS IC agenda decision, there are aspects of it that may need further clarification. For instance, the 2016 AASB publication points out that the term “held ordinarily in the course of business” has not been defined.

¹⁰⁵ Written down to expected disposal value (including zero) when the expected disposal value is less than the historical cost.

Furthermore, France's standard setter (ANC) observed that it may not be so easy for stakeholders to determine whether certain cryptocurrencies are in scope of the IFRS IC agenda decision as it may be challenging to ascertain if such cryptocurrencies have a claim on the issuer.

- 3.36 At a more fundamental level, different stakeholders including those who provided feedback to the EFRAG research outreach point to the following unresolved recognition and measurement challenges:
- a) There are gaps in IFRS guidance when intangible assets or commodities including some crypto-assets (cryptocurrencies with no claim on the issuer) are considered to be non-financial asset investments;
 - b) In part related to the gaps in IFRS guidance for non-financial asset investments, some of the measurement approaches under IAS 38 or IAS 2 may not always reflect the economic characteristics of crypto-assets that have trading or investment asset attributes;
 - c) There is need for consideration of when it is appropriate for some crypto-assets (utility tokens and security tokens that do not meet IAS 32 definition of financial assets) to be accounted for similar to financial assets;
 - d) The cash or cash equivalent definition in IAS 32 or IAS 7 may need to be updated;
 - e) The accounting for utility tokens and hybrid tokens needs clarification; and
 - f) Other issues that need clarification include holdings due to mining activities and barter exchanges.

Gaps in IFRS guidance when crypto-assets are considered non-financial asset investments

- 3.37 The 2016 AASB publication considers that the combination of IAS 38 requirements and those of IAS 2, which is effectively an IAS 38 scope exception for intangible assets "held in ordinary course of business", are not sufficient for cryptocurrencies as they do not provide requirements for the appropriate accounting of intangible assets or cash-like assets that are held as investments¹⁰⁶. Furthermore, the notion of "held in ordinary course of business" is not defined.
- 3.38 In effect, there are gaps¹⁰⁷ in IFRS requirements in respect of investments in intangible assets or commodity type investments that are not classified as financial instruments or inventory. The previously applicable IAS 25 was an all-inclusive standard that addressed the accounting for investments. IAS 25 was superseded as a result of issuing IAS 39 and IAS 40, and this left a gap in respect of the accounting for investments in intangible assets and for commodities held for investment purposes.
- 3.39 The 2016 AASB publication contends that in the same way that IFRS makes a distinction between the accounting for tangible assets held for investment purposes (IAS 40) and other tangible assets (IAS 16), the accounting for intangible assets should be subject to a similar distinction between those held for investment purposes from those that are held for other purposes (e.g. as cash-generating assets). That being said, the Basis of Conclusion paragraph BC5 of IAS 38 states that *'The Board concluded that the purpose for which an entity holds an item with these characteristics is not relevant to its classification as an intangible asset, and that all such items should be within the scope of the Standard.'*
- 3.40 Consequently, due to the gap in IFRS requirements, the application of IAS 8 might be required but this leads to the likelihood of diversity in practice. Some commentators propose¹⁰⁸ FVPL as appropriate for non-financial asset investments held for short term and FVOCI for those held for the long term. A World Gold Council publication¹⁰⁹, which provides

¹⁰⁶ There are different categories of intangible assets including:

- Intangible assets generating cash flows directly or indirectly, or from exploiting the intangible for own use (e.g. licensing of software, consumption use of water rights);
- Intangible assets used for trading (e.g., trading of emission rights);
- Intangible assets used as long-term investment.

¹⁰⁷ Except for some indirect guidance on gold, which is considered a commodity under IFRS 9 B.1

¹⁰⁸ IFRSbox, 2018, *How to account for investment gold under IFRS*. <https://www.ifrsbox.com/040-investment-gold-ifs/>

¹⁰⁹ World Gold Council, 2018. *Guidance for Monetary Authorities on the recommended practice in accounting for monetary authorities*. <https://www.gold.org/what-we-do/official-institutions/accounting-monetary-gold>

guidance on gold held as investments by monetary authorities, proposes their measurement at FVOCI. Prochazka¹¹⁰ (2018) suggests the application of either historical cost (i.e. when fair value cannot be reliably estimated as is the case for art collectibles) or FVOCI for other non-financial asset investments including cryptocurrencies.

- 3.41 Notwithstanding the conclusion in Paragraph BC5 of IAS 38, due to the perceived gap of IAS 38 in addressing the accounting treatment of intangible assets held as long-term investments; IAS 2 and IAS 38 may need to be updated to explicitly outline the appropriate measurement of intangible assets and commodities based on holding time horizon (i.e. either cost, FVPL or FVOCI). The requirements could also be updated to define “held in the ordinary course of business” that is used to exclude intangible assets from the scope of IAS 38.

Questions on relevance of some of the IAS 38 and IAS 2 measurement requirements for crypto-assets holdings

- 3.42 Several respondents¹¹¹ to the March 2019 IFRS IC tentative agenda decision expressed the view that both IAS 38 and IAS 2 were not written with cryptocurrencies in mind, particularly when considering their price volatility and use as investments. These respondents observed that the measurement requirements of IAS 38 and IAS 2 do not provide useful information. A variety of approaches to the appropriate measurement of cryptocurrencies were proposed by different respondents and these include:
- a) FVPL for cryptocurrencies in active markets (as required by the Japanese ASBJ);
 - b) FVPL for all cryptocurrencies;
 - c) Measurement should be based on the intention of the acquirer; or
 - d) Scope out cryptocurrencies from IAS 38 (proposed by IOSCO and some ASAF members in preparation for the December 2019 ASAF meeting) and have preparers develop own accounting policy choice.
- 3.43 One of the EFRAG research outreach participants indicated that in their jurisdiction, some holders are not satisfied with applying the intangible asset accounting model in IAS 38 to holdings of crypto-assets for the following reasons:
- a) These holders think that the cost model (cost less amortisation less impairment) is not representative of their business and that such accounting (particularly useful life and impairment) is judgmental and operationally challenging;
 - b) These holders also think that the revaluation model's use of other comprehensive income is not representative of their business. They also think that the model's reference to an “active market” is unhelpful as “active market” can be difficult for some holders to evidence. Issues related to identifying an “active market” are discussed in **Chapter 5**;
 - c) Some have questioned whether the exclusions in Paragraph¹¹² 7 of IAS 38 should be applied to crypto-assets as is the case for insurance contracts or expenditure on the exploration for, or development and extraction of, oil, gas and mineral deposits; and
 - d) Some holders prefer fair value through profit or loss measurement for crypto-assets because this measurement could better reflect the performance of their investments.
- 3.44 Similarly, the 2016 AASB publication concluded that although cryptocurrencies could be accounted for under IAS 2 or IAS 38, measurement under these two standards does not provide relevant information to users of financial statements and it proposed the need for standard setting for digital currencies. The publication points the following shortcomings of measurement requirements under IAS 2 and IAS 38 for purposes of accounting for crypto-assets:

¹¹⁰ Prochazka, D. 2018. Accounting for Bitcoin and Other Cryptocurrencies under IFRS: A Comparison and Assessment of Competing Models, *The International Journal of Digital Accounting Research*, Vol. 18. Pp 161-188. http://www.uhu.es/ijdar/10.4192/1577-8517-v18_7.pdf

¹¹¹ There were 16 of 20 respondents supported standard setting in addition to or instead of finalising the agenda decision.

¹¹² Paragraph 7 states that “Exclusions from the scope of a Standard may occur if activities or transactions are so specialised that they give rise to accounting issues that may need to be dealt with in a different way...”.

- a) Cost which is a measurement basis that can be applied under both Standards is a historical measurement and does not provide current information. Furthermore, amortisation reflects the pattern of consumption of held assets and this is irrelevant for items held for investment purposes;
- b) IAS 2 measures items on the “lower of cost and net realisable value” and this results in only decreases in value being recognised;
- c) Furthermore, net realisable value is an entity-specific value as it is determined as the estimated selling price in the ordinary course of business less estimated costs of completion and estimated costs to make the sale. Observable market prices would be more relevant than entity-specific measures when accounting for crypto-assets;
- d) In contrast to IFRS 13 guidance, which considers fair value measurements in inactive markets, IAS 38 only allows the revaluation approach when markets are active; and
- e) IAS 38 revaluation changes are not always reflected in profit or loss, meaning that related reported net income will not always faithfully represent the performance of crypto-assets that have cash-like features or are held for investment purposes.

3.45 Sixt and Himmer¹¹³ (2019) suggest that there are additional limitations of IAS 2 and IAS 38 measurement requirements in the context of cryptocurrencies:

- a) For assets that produce cash flows directly such as assets that are capable of being sold independently, the most relevant measurement is likely to be the one that reflects the present value of the future cash flows; and
- b) For assets or liabilities that are subject to variability in their cash flow, or whose values are sensitive to market risk and other factors (e.g. cryptocurrencies), the current value such as fair value or value in use is likely to be more relevant than a cost-based measure. And that fair value is preferable to value in use that is entity-specific.

3.46 Sixt and Himmer (2019) go further to demonstrate why the IAS 38 measurement approach is questionable by comparing the reporting outcomes of two popular crypto companies with similar transactions but with differing accounting policy choices, namely: Bitmain (Hong Kong) that applies the IAS 38 cost model; and Bitcoin Group Ltd (Australia) that applies the IAS 38 revaluation model. According to the authors, this results in incomparable financial statements and cash flow statements that do not give a true and fair view of cash flow from investing activities.

3.47 In summary, there is a concern that several stakeholders have articulated about not being able to recognise crypto-assets at FVPL. However, while reduced comparability of reporting by crypto-asset holders is likely to arise due to the options within IAS 38 and IAS 2, and IAS 38 does not allow fair value measurement when markets are inactive, it cannot be overlooked that both IAS 38 and IAS 2 allow fair value measurement where appropriate.

3.48 Furthermore, the revised Conceptual Framework requires the application of a measurement basis that provides users of financial statement information with relevant information. In this regard, the differing functional use by holders and varied economic characteristics of crypto-assets makes it difficult to come up with a single measurement basis that is appropriate for all crypto-assets in all circumstances.

Consideration of when crypto-assets ought to be accounted for as financial assets or as a unique asset similar to financial assets

3.49 IAS 32.11 defines a financial asset as being one of the following: cash; equity instruments of another entity (e.g. shares); contractual right to receive cash or another financial asset of another entity (e.g. trade receivable); contractual right to exchange financial assets or financial liabilities with another entity under potentially favourable conditions (e.g. foreign currency forward contracts with positive outcomes – derivative assets); or contract settled with a variable amount of own equity instruments.

¹¹³ Sixt, E. and Himmer, K., 2019. Accounting and Taxation of Crypto-Assets. Research Paper. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3419691 - see page 42.

- 3.50 On the basis of the IFRS definition of financial instruments, some security and asset tokens could qualify as financial assets. These could include: coins that are redeemable for precious metals; tokens backed by real estate; and equity-based tokens that have equity-like features (e.g., ownership rights or entitlement to share of profits). Furthermore, the economic rights and obligations of security and asset tokens are extensively documented either in a private purchase memorandum (PPM) or through a prospectus in similar manner to traditional capital markets securities. These issuance documents might refer to contractual cash flows, exposure to issuing entity benefits (discretionary dividend), voting rights or any residual interest in the issuing entity.
- 3.51 On the other hand, what are labelled as security tokens by issuers, may not always qualify to be accounted for as financial assets by holders under IFRS requirements; even though, in some cases, such tokens may have economic attributes similar to financial assets (risk, return and cash flow profile and functional equivalence to ordinary securities). Therefore, some stakeholders have proposed that there is a need to develop IFRS principles so that crypto-assets (liabilities) that are economically equivalent to financial instruments are, in all instances, accorded the appropriate accounting treatment.

Possible approaches to identify the economic substance of crypto-assets for accounting purposes

- 3.52 Given the limitation of issuers' description of crypto-assets (i.e. whether they label them as payment tokens, utility tokens or security tokens) for determining accounting requirements, an additional indicator of the economic substance that can guide the accounting approach for crypto-assets could be their regulatory classification. However, as outlined below, there are limitations in considering regulatory classifications for accounting purposes:
- a) As shown in **Table 3.3** below, there are varied definitions of securities across jurisdictions (e.g. the US versus EU). Crypto-assets including security, utility, and hybrid tokens are more likely¹¹⁴ to qualify as securities under the US legislation than they are under EU legislation. Maas (2019) concludes that it is harder to be deemed transferable securities under EU legislation than it is to be deemed as an investment contract under US regulation. He notes that the EU's regime proves attractive for issuers of non-fungible tokens (e.g. some utility tokens), as such tokens cannot be deemed standardised under a characteristics-based approach to the EU definition of transferable securities.
 - b) There could also be variation in the regulatory definition of securities or financial instruments across EU¹¹⁵ member states and this could lead to incomparable accounting if the classification of crypto-assets as financial assets was informed by country-specific definitions of securities.
 - c) Issue crypto-assets including security tokens might be considered as securities based on regulatory definitions within certain jurisdictions but this would not necessarily equate to their consideration as financial instruments under IFRS requirements (i.e. IAS 32 and IFRS 9 definitions).

¹¹⁴ An ESMA survey of national competent authorities (NCAs) published in January 2019 found that none of them classified utility tokens as securities whereas the US securities would likely classify them as securities. See European Securities Markets Authority, January 2019. *Annex 1: Legal qualification of crypto-assets- survey to NCAs*. 9 January, 2019- accessible through links to related documents in press release website. <https://www.esma.europa.eu/press-news/esma-news/crypto-assets-need-common-eu-wide-approach-ensure-investor-protection>

¹¹⁵ EU financial law definition of security is found in Article 4(1)(44) of MIFID II, and MIFID II requirements are transposed into country-specific requirements. As such there could be variation in the definition of financial instruments across the EU member states.

Table 3.3: Comparison of US and EU Definition of Securities/Financial Instruments

US LEGISLATION: MAIN CRITERION IS WHETHER IT IS AN INVESTMENT CONTRACT	EU LEGISLATION: MAIN CRITERION IS WHETHER IT IS A TRANSFERABLE SECURITY
<p>Criteria that classify an investment contract:</p> <ul style="list-style-type: none"> • A common venture <ul style="list-style-type: none"> - No individualised rights - Investors' funds are pooled - Income and expenses are distributed proportionally • Expectation of profit <ul style="list-style-type: none"> - Dividend, return, or payment • Managerial effort of others <ul style="list-style-type: none"> - Expectation of a person or group to carry out managerial or entrepreneurial efforts • Investment of money 	<p>Criteria that classify as a transferable security:</p> <ul style="list-style-type: none"> • A class of securities <ul style="list-style-type: none"> - No individualised rights - Set of identical, fungible objects • Functional equivalence with ordinary securities <ul style="list-style-type: none"> - Profit participation - Stake in partnership - Voting rights • Transferability and negotiability <ul style="list-style-type: none"> - Ownership transfer is possible - Security can be traded easily in a structured market setting - Relationship between issuer and investor is clearly defined through membership rights and monetary streams

Source: Lausen (2019)

3.53 An academic paper (Parrondo¹¹⁶, 2019) proposes another approach of assessing the economic substance of crypto-assets and whether the financial asset classification ought to be applied to these assets. Parrondo (2019) proposes four criteria for the classification of crypto-assets into the three main token types (payment, utility, and security tokens) for accounting purposes, namely:

- a) A legal claim against a counterparty;
- b) Existence of intrinsic value (e.g. the presence of well-defined token functionality);
- c) Token value stability; and
- d) Existence of investment risk and functional equivalence with ordinary securities (e.g., can grant financial rights to an investor such as equity, dividends, profit share, voting rights and buy-back rights).

¹¹⁶ Parrondo, L., 2019. DLT-based tokens towards accounting regulation, *Working Paper*, UPF Barcelona School of Management. https://www.academia.edu/37339334/Blockchain-based_tokens_towards_accounting_regulation

Table 3.4: Parrondo's (2019) Proposed Classification of Tokens for Accounting Purposes

PROPOSED DETERMINANTS	PAYMENT TOKEN		UTILITY TOKEN (ALL STABLECOINS)	SECURITY TOKEN
	CRYPTO CURRENCY	STABLECOIN		
(1) Existence of legal right against a counterparty	NO	NO	YES	YES
(2) Existence of Intrinsic value	NO	NO	YES	YES
(3) Existence of Token-value stability	NO	YES	YES	NO
(4) Existence of Investment Risk	YES	NO	NO	YES

Unlike Parrondo (2019), who has stablecoins as either payment tokens or utility tokens, the classification taxonomy applied in this DP assumes that stablecoins can be payment tokens or security tokens and asset tokens or hybrid tokens.

3.54 As outlined in **Table 3.4**, Parrondo (2019) proposes that items treated as “utility tokens for accounting purposes” should have a legal claim against a counterparty, have intrinsic value¹¹⁷ and token value stability and their holding should not entail investment risk. While those considered to be “security tokens for accounting purposes (i.e. therefore potentially eligible to be treated as financial assets)” should have a legal claim against a counterparty, investment risk and functional equivalence with ordinary securities. This proposed classification, which is tailored for accounting purposes, could result in crypto-assets that are labelled as utility tokens by their issuers being considered¹¹⁸ as security tokens for accounting purposes (i.e. potentially eligible to be treated as financial assets). That being said, it will likely be quite difficult to operationalise these four criteria as it may, for example, be difficult to assess the notion of token value stability. It may also be difficult to ascertain the intrinsic value of tokens due to the typically embryonic state of business models employed by ICO issuing entities.

Implications for developing IFRS requirements for financial assets

3.55 As noted in **Paragraphs 3.52 to 3.54**, there are various indicators of whether crypto-assets are economically similar to financial assets. Correspondingly, there is a question of whether IAS 32.11 should be amended such that utility tokens or security tokens that have functional equivalence to equity or debt securities (e.g. rights to profit, stakes in partnership arrangements, voting rights, entitlement to entities’ cash flows) and are held for investment, but do not meet the IAS 32 definition of financial assets, ought to be able to:

- a) Qualify to be classified as financial assets; or
- b) Alternatively, accounted for similar to financial assets without being classified as such (i.e. as a unique asset category) under a newly developed Standard.

3.56 Different publications express differing viewpoints on the above issue (Paragraph 3.50) and these include:

- a) The 2016 AASB publication does not consider it appropriate to amend the IFRS classification of a financial asset as it will be altering well-established principles of financial instruments accounting. It instead proposes the development of a new standalone crypto-asset Standard and effectively treat crypto-assets as a unique asset with some cash like and investment asset properties but can also have attributes similar to either intangible assets or commodities or inventory.

¹¹⁷ Well-defined token functional value and the long-term justifiable value and usefulness of the utility token needs to be detailed in the technical description and business model of the white paper. Price volatility undermines the functionality of a utility token.

¹¹⁸ Parrondo (2019) observes that notwithstanding the label granted by their issuers, the potential for significant changes in the market value of utility tokens makes them similar to security tokens, and it is difficult to distinguish whether purchasers of utility tokens primary intent is to be speculators/investors by betting on a significant rise in the value of the utility token or to be potential customers and users of the issuing network. Similarly, issuers can have profit-making intent by issuing utility tokens with an anticipation of an opportunity to redeem these tokens at a profit should their value drop significantly.

- b) Sixt and Himmer (2019) suggest that an amendment of the definition of financial assets would be the best choice for enhancing IFRS requirements to allow the accounting of some crypto-assets (e.g. utility tokens that have predominantly investment value).
- c) Parrondo (2019) simply proposes additional guidance for security tokens, utility tokens and pre-functional tokens that bear investment risk but do not qualify as financial assets under current IFRS requirements.

Cash definition within IFRS may need updating

- 3.57 Several respondents to the IFRS IC agenda decision highlighted that the definition of cash under IFRS may be too restrictive and needs to be updated. Two respondents emphasised that the medium of exchange ought to be the defining characteristic of cash and questioned whether cryptocurrencies need to be a unit of account for recognition in the financial statements akin to a functional currency. A respondent observed that the implied definition of cash in Paragraph AG 3 of IAS 32 relates to the concept of functional currency and noted that cryptocurrencies are similar to foreign currency and as per Paragraph 8 of IAS 21 *The Effects of Changes in Foreign Exchange Rates* foreign currency is a currency other than the functional currency of the reporting entity. Hence, crypto-assets could be considered analogous to foreign currency holding.
- 3.58 Another aspect where questions of the classification of crypto-assets as either cash or cash equivalent could arise would be when some cryptocurrencies qualify as e-money under the jurisdictional regulatory definitions. For example, as highlighted in a January 2019 EBA report, there have been identified cases in some jurisdictions (UK, Malta) where some crypto-assets meet the definition of e-money¹¹⁹ due to there being a claim on an issuer. In addition, some stablecoins can be defined as e-money based on the ECB definition outlined.
- 3.59 Accounting clarification is also required in respect of CBDCs. There is the question of the equivalence of CBDCs with cash, its legal tender feature and whether or not a right to restitution will be granted to token holders. It is appropriate to address the required accounting considering the ongoing development of the CBDC concept and its potential implementation as a few monetary authorities (e.g. in China and France) have signalled their intention to move into this field in 2020. Furthermore, a 2019 BIS paper¹²⁰ highlighted that 80% of a sample of 60 central banks were considering CBDCs.
- 3.60 An additional question on accounting implications would arise were the Libra project to eventually create a privately issued stablecoin tied up to an underlying basket of currencies and other money market instruments issued by national Governments and central banks of different jurisdictions. In effect, if the Libra project were to come to fruition, it would result in a hybrid stablecoin combining the feature of a stablecoin and those of a CBDC.
- 3.61 The IASB staff paper¹²¹ on the IFRS IC final agenda decision acknowledges the need for a future review of the definition of cash under IFRS requirements. However, the IASB staff do not agree with the view that Paragraph AG 3 of IAS 32 relates to the definition of functional currency under IAS 21 *The effects of Changes in Foreign Currency Rates*.
- 3.62 In summary, an update to the IFRS definition of cash could be considered by the IASB. Yet, if such an update was to result in some crypto-assets (e.g. stablecoins that are pegged to fiat currency on a 1:1 basis) being classified as either cash or cash equivalent, it could have significant consequences. It could incentivise increased holdings of these crypto-assets by entities including financial institutions and this, in turn, will have implications on monetary policy and financial stability.
- 3.63 Furthermore, the March 2020 Banque de France working paper and the January 2020 IMF publication highlight risks to financial stability that could arise from stablecoins. These risks include default risk and liquidity risk for their issuers.

¹¹⁹ The 2019 EBA publication describes two examples including a Company A that wishes to create a blockchain-based payment network and issues a token in exchange for fiat currency and is pegged to the given currency. The token can be redeemed at any time, the actual payment on this network is the underlying claim against Company A or the right to get the claim redeemed.

¹²⁰ A survey of 60 central banks showed that 80% are engaged in work related to CBDC, and 40% had progressed from conceptual research to proof of concepts or experiments and 10% had developed pilot programs. See Bank of International Settlement, 2020. *Impending arrival- a sequel to the survey on central bank digital currency*, BIS Papers 107. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3535896

¹²¹ IFRS Foundation, 2019. IASB Staff Paper- June 2019 IFRS Interpretation Committee Meeting- Agenda Ref 12, Project- Holding of Cryptocurrencies, Topic- Agenda decision to finalise. <https://www.ifrs.org/-/media/feature/meetings/2019/june/ifric/ap12-holdings-of-cryptocurrencies.pdf>

Moreover, even though some private-sector issued stablecoins might be pegged to fiat currencies, they are nascent products that could be seen as differing from fiat currency due to their sometimes low¹²² survival rate.

Accounting for utility tokens and hybrid tokens need clarification

Utility tokens

- 3.64 As described in **Appendix 2**, some utility tokens can be seen as analogous to other well-known transactions (e.g. club memberships, loyalty cards, loyalty miles points, gift vouchers and timeshare rentals), as they are exchangeable for network goods or services. Other utility tokens bestow rights that may not be common with well known commercial transactions or where it may be challenging to readily determine the economic value proposition of the token (e.g. rights to update network functionality; or rights to vote on governance on software protocols).
- 3.65 The appropriate treatment of utility tokens could potentially be inferred from the accounting practices of analogous transactions, but as pointed out in **Paragraphs 3.37 to 3.41**, there are gaps in the IFRS guidance for non-financial asset investments and some of the functionality or rights (e.g. right to update network functionality) bestowed may not have readily identifiable analogous transactions.
- 3.66 Accounting firm publications propose that the prepayment asset can be an appropriate classification for holders of some utility tokens, but there is very limited guidance in IFRS on accounting for prepayment assets. In general, the NSS and accounting firms' guidance suggest that different asset classification categories (i.e. financial assets, non-financial investment, prepayment asset, intangible or inventory) can be applicable for utility tokens depending on either the holder intention/business purpose or nature of crypto-asset.
- 3.67 However, some stakeholders who provided input to the EFRAG research indicated that classification by business purpose including consideration of intended holding period can be difficult to implement and is prone to manipulation. It may also be seen as inconsistent with the view that the intrinsic value of utility tokens is driven by the network growth potential, as discussed in **Chapter 5**. In essence, utility tokens have two possible sources of economic value (functional utility value or value in use and financial upside value or value in exchange). Maas (2019) observes that as the functional value of a utility token increases with the growth of the network, the financial upside from holding such tokens to obtain trading or investment gains ought to decline over time. Thus, there is a view that utility tokens ought not to be considered as being held for investment purposes. Such a view is consistent with the assertion by Parondo (2019) that, by definition, crypto-assets that are classified as utility tokens for accounting purposes, ought not to have any investment risk (see **Paragraph 3.53**).
- 3.68 Furthermore, what are labelled as utility tokens by their issuers, are in many cases *de facto* hybrid tokens and present similar challenges to those described for holders of hybrid tokens in **Paragraphs 3.70 to 3.74**. As described in **Paragraph 3.54**, utility tokens can also be *de facto* security tokens for accounting purposes.
- 3.69 In general, there is a need for the clarification of the applicable IFRS for different types of utility tokens and/or development of principles of appropriate classification of utility tokens. For example, clarifying the extent to which the intention of holder versus intrinsic characteristics and nature of specific utility tokens should determine their accounting, and ascertaining the recognition and measurement of some of the more atypical rights such as rights to update the issuing network. As discussed in **Chapter 4**, there are similar issues in the accounting by the issuer of utility tokens (e.g. questions on the nature of performance obligations and nature of obligations towards holders of atypical rights).

Hybrid tokens

- 3.70 Holding hybrid tokens can pose accounting challenges as these tokens have multiple economic features and their predominant economic characteristic can change over time depending on the context and/or effective use by their holders. For example, difficulties can arise when a hybrid token is created that mainly functions as a cryptocurrency but has additional utility outside from its payment aspects.

122 The 2019 Blockdata publication shows that while there were 66 operational stablecoins in 2019, 24 had closed down since the first stablecoin was launched in 2014. However, most (17) of failed stablecoins were those that were commodities backed. See Blockdata.2019. *Stablecoins: An overview of the current state of stablecoins*. <https://download.blockdata.tech/blockdata-stablecoin-report-blockchain-technology.pdf>

- 3.71 To illustrate the difficulties in classifying tokens into fixed categories, Maas (2019) gives the example of a project called Syscoin¹²³. The project has created its own native blockchain and is created as a cryptocurrency, as it is mainly intended as a medium of exchange between peer-to-peer users. However, Syscoin has far more in-built functionality than just regular transactions, including on-chain governance through staking, a decentralised marketplace for goods, coin-mixing and an escrow and arbitration service, all of which can only be accessed with Syscoin. Moreover, 'master nodes' (nodes that consist of high-powered servers) receive a yearly 3-27% ROI, by holding 100,000 Syscoin. These fact patterns raise the following questions whilst considering economic characteristics and accounting requirements:
- a) Is this a predominantly a cryptocurrency, utility token or security token?
 - b) How much utility is required before a payment token becomes a utility token?
- 3.72 Other examples of hybrid tokens where accounting challenges may arise include:
- a) ETH which combines utility feature (i.e. used to run Decentralised applications also referred to as Dapps) and payment features since ETH is a commonly accepted crypto-currency; and
 - b) the Binance BNB coin, where there is a combination of utility (as the BNB can be used to pay transaction fees on the exchange) and security features (as Binance periodically burns or removes BNB coins from circulation as a way of redistributing part of its revenue to its token holders).
- 3.73 Several approaches to accounting are possible, including:
- a) One approach could be to consider the primary purpose for holding the token as the basis for classification. For example, if the primary purpose of holding the BNB is to pay for the transaction fees - on top of which holders are entitled to periodic distributions – but if holders are only looking for the security feature, this shall probably yield a security classification.
 - b) Another approach could be the bifurcation or componentisation of hybrid tokens. In this regard, some of the NSS guidance (e.g. France) proposes the need for the application of different sets of guidance for hybrid tokens. But it is not clear whether and which of the principles of multiple element contracts/transactions in IFRS 9, IFRS 15 or IFRS 16 would be applicable for hybrid tokens.
- 3.74 In the absence of clear IFRS guidance strictly defining the way to consider multiple features or to identify and cope with their primary feature, there is likely to be diversity in practice in the accounting for hybrid tokens. Therefore, there is need for clarifying guidance. Similar issues arise on the issuance of hybrid tokens, as discussed in **Chapter 4**.

Other issues for clarification

Initial recognition of crypto-assets acquired in barter/non-cash exchanges

- 3.75 When an entity acquires crypto-assets in exchange for cash, the initial recognition is at cost. A question could arise on the initial recognition when holder entities received the crypto-assets as compensation for goods, services or in exchange for other crypto-assets. Parrondo (2019) contends that IAS 16 and IFRS 15 should apply for crypto-assets acquired as compensation for offering goods and services (commercial barter transaction or non-monetary transactions). There is need for clarification on whether these indeed are the applicable standards.

Holding of crypto-assets due to mining activities

- 3.76 As elaborated in **Appendix 1** and **Chapter 2**, proof-of-work mining is one of the ways¹²⁴ that crypto-assets come into existence. Mining of crypto-assets is akin to the production/manufacturing of inventory or internal generation of intangible assets. Proof-of-work mining is a competition to solve a cryptographic puzzle during the validation of new blockchain transactions and it is open to all participants in the blockchain network. The winner gets rewarded with transaction fees and a block reward (units of the crypto-assets). Clarification on the following aspects of IFRS requirements is needed:

¹²³ <https://syscoin.org/>

¹²⁴ Other ways of becoming crypto-assets holders include: buying them with fiat currency; receiving them in a non-cash exchange (as compensation for goods or services or barter-like exchange with crypto-assets); airdrops and hard fork events.

- a) If IAS 38 is considered to be applicable based on the holder's business model, what would be the carrying value of mined crypto-assets?
- b) If IAS 2 is applicable, inventory is recognised based on costs of production or conversion costs (i.e. overheads and any labour costs). In **Chapter 5: Paragraph 5.16**, it is noted that for valuation purposes- *production cost per day = electricity cost x mining hours per day x hashing power¹²⁵ x average energy efficiency*. Prochazka (2018) notes that a question arises on how to comply with IAS 2.13 requiring the allocation of fixed production overheads (e.g. depreciation of equipment) based on the normal capacity of the production given the "winner takes all" feature of mining activities and there is no normal capacity of production. There is also a question of how to deal with the costs of unsuccessful efforts while participating in mining activities and whether such costs should be all expensed. Though IFRS 6 *Exploration for and Evaluation of Mineral Assets* is not applicable for crypto-assets, could its principles of treating successful versus unsuccessful efforts be applicable?
- c) Are other IFRS Standards (IFRS 11 and IFRS 16) applicable for the different mining business models described in **Appendix 1** (cloud-based or renting mining capacity)?

SUMMARY OF ACCOUNTING FOR HOLDERS

- 3.77 **Table 3.5** below outlines the assumptions of applicable accounting for different crypto-assets resulting from the above analysis of existing guidance and alternative approaches. The analysis is broken down by the classification taxonomy defined in **Appendix 2** without overlooking the inherent limitations of any taxonomy classification (e.g. classification categories may become obsolete, there are hybrid/multi-class tokens, etc).
- 3.78 The applicable accounting reflects the possible applicable accounting for crypto-assets and assumes that the combination of the function/business purpose and the economic nature including holder rights forms the conceptual basis for classification, recognition and measurement of different crypto-assets.

¹²⁵ Hashing power is the power that a computer or hardware uses to run and solve cryptographic puzzles (i.e. Hashing algorithms). A hash function is any mathematical function that can be used to map data of arbitrary size to fixed-size values. For example, the secure hash algorithm (SHA-256) that was invented by the US National Security Agency and first published on an open-source basis in 2001, is used in the cryptography applied whilst processing bitcoin transactions; transforms any data (i.e. structured, unstructured) into a fixed size consisting of 64 hexadecimal digits. For example, under the SHA-256 hashing function, a single character such as a comma or the content of all books in a library, will both have a 64-digit hash. See JP Morgan Commodity Center (2019) pages 17 to 21 explanation of hash & cryptography.

Table 3.5: Economic Characteristics, Rights, Possible Applicable Accounting and Possible Required Standard Setting.

HOLDING	ECONOMIC CHARACTERISTICS AND HOLDER RIGHTS	CLARIFIED OR ASSUMED APPLICABLE IFRS ACCOUNTING	PROPOSED APPROACHES TO ENHANCING IFRS AND/OR AREAS NEEDING CLARIFICATION (FURTHER ADDRESSED IN CHAPTER 6)
Payment tokens - cryptocurrencies with no claim on the issuer	<ul style="list-style-type: none"> • No claim on the issuer • Implied rights to exchange for equivalent goods and services with counterparties that accept 	<p>As per 2019 IFRS IC agenda decision, either IAS 38 or IAS 2 is applicable for cryptocurrencies with no claim on the issuer and they are classified as either intangible assets or inventory.</p> <p><u>Asset classification could depend on business purpose/holder intention</u></p> <ul style="list-style-type: none"> • Intangible assets • Inventory <p><u>Measurement depends on business purpose/holder intention</u></p> <ul style="list-style-type: none"> • Cost or revaluation model (for intangible assets) • Lower of cost or net realizable value or FVPL (for inventory) 	<p>CLARIFICATION</p> <ul style="list-style-type: none"> • Clarification of meaning of “no claim on the issuer” – that has been highlighted as an issue by some stakeholders <p>POSSIBLE DEVELOPMENT OF IFRS REQUIREMENTS</p> <ul style="list-style-type: none"> • Possible revision of IAS 2 and IAS 38 to exclude crypto-assets from scope and allowing preparers to develop accounting policy choice • Possible amendment of IAS 2 and IAS 38 measurement requirements to address investment or trading asset attributes of cryptocurrencies • Develop new standard that treats crypto-assets as a unique asset class
<p>E-money tokens- Crypto-assets with claim on the issuer that qualify as e-money</p> <p>Payment tokens- stablecoins including CBDCs</p>	<ul style="list-style-type: none"> • Fungibility, tradability and transferability • Claim on issuer, • implicit rights to exchange for equivalent goods and services with counterparties that accept 	<p><u>Asset type</u></p> <ul style="list-style-type: none"> • Financial asset <p><u>Measurement</u></p> <ul style="list-style-type: none"> • FVPL 	<p>POSSIBLE DEVELOPMENT OF IFRS REQUIREMENTS</p> <p>Consider providing explicit definition of cash or cash equivalent under IFRS and clarify whether crypto-assets that qualify as e-money based on jurisdictional definition and stablecoins that are pegged to fiat currency on a 1:1 basis can be classified as either cash or cash equivalent.</p>

Table 3.5 continued

HOLDING	ECONOMIC CHARACTERISTICS AND HOLDER RIGHTS	CLARIFIED OR ASSUMED APPLICABLE IFRS ACCOUNTING	PROPOSED APPROACHES TO ENHANCING IFRS AND/OR AREAS NEEDING CLARIFICATION (FURTHER ADDRESSED IN CHAPTER 6)
Security and asset tokens	<ul style="list-style-type: none"> • Fungibility, tradability and transferability • Contractual entitlement to ownership interest or control of the token issuer • Claim on issuer or delegated issuer delegated counterparty <p>POSSIBLE RIGHTS</p> <ul style="list-style-type: none"> • Revenue rights - rights to financial benefits from revenue streams of the issuer/operator • Debt - right to set cash flows from the economic activities of the issuer/operator • Profit sharing - right to financial profit from the economic activities of the issuer/operator • Rights similar to derivatives instruments (e.g. Reference to other crypto-assets as underlying, granting the holder an option to purchase one or more investment interests) • Rights to future tokens (e.g. Simple Agreement for Future Tokens) • Convertibility of a non-security token into a token or instrument with one or more investment interests • Property ownership rights, Usufruct- Right to fruit from property 	<p><u>Asset type</u></p> <ul style="list-style-type: none"> • Financial asset • Non-financial asset investment <p><u>Measurement possibly depends on intended holding period</u></p> <ul style="list-style-type: none"> • FVPL • FVOCI 	<p>CLARIFICATION</p> <ul style="list-style-type: none"> • Clarification on whether IFRS 9 with a financial asset classification is applicable for security and asset tokens. • Clarification on the accounting treatment of security and asset tokens that may not meet IFRS definition of financial instruments (financial asset) <p>POSSIBLE DEVELOPMENT OF IFRS REQUIREMENTS</p> <ul style="list-style-type: none"> • Possible update of IAS 32 definition of financial asset to include security and asset tokens that have functional equivalence to securities • Develop a new standard that treats crypto-assets as a unique asset and can allow holders of security and asset tokens to have an accounting treatment similar to financial assets

Table 3.5 continued

HOLDING	ECONOMIC CHARACTERISTICS AND HOLDER RIGHTS	CLARIFIED OR ASSUMED APPLICABLE IFRS ACCOUNTING	PROPOSED APPROACHES TO ENHANCING IFRS AND/OR AREAS NEEDING CLARIFICATION (FURTHER ADDRESSED IN CHAPTER 6)
Utility tokens	<ul style="list-style-type: none"> • Fungibility, tradability and transferability in some cases • Can include non-fungible tokens • Claim on issuer or delegated issuer delegated counterparty <p>POSSIBLE RIGHTS</p> <ul style="list-style-type: none"> • Rights to access products or services of Token Platform • Rights to purchase or sell existing or future products or services • Right to partial ownership of a product • Rights to mining activities • Rights to contribute labour, effort or resource to a system • Right to contribute, programme or create features of a system • Right to decide on products, services, functionalities to be offered or deleted within the Token Platform • Rights to vote on matters of governance, management and operation of Token Platform 	<p><u>Asset classification could depend on holders' business purpose and/or on the nature of the utility token (i.e. specific rights)</u></p> <ul style="list-style-type: none"> • Prepayment asset • Intangible assets • Inventory • Financial assets • Non-financial asset held as investments <p><u>Measurement depends on holders' business purpose</u></p> <ul style="list-style-type: none"> • Cost with impairment test (for prepayment asset) • Cost or revaluation model (for intangible asset) • Lower of cost or net realisable value or FVPL (for inventory) • FVPL or FVOCI (for financial asset and depending on intended holding period) 	<p>CLARIFICATION</p> <ul style="list-style-type: none"> • Clarification of the applicable IFRS for holders of different types of utility tokens and/or development of principles of appropriate classification of utility tokens (i.e. intention of holder versus intrinsic characteristics and nature of specific utility tokens) • Clarification of IFRS prepayment guidance <p>POSSIBLE DEVELOPMENT OF IFRS REQUIREMENTS</p> <ul style="list-style-type: none"> • Develop a new standard that treats crypto-assets as unique assets and recognition and measurement by holders of utility tokens will depend on business purpose and underlying rights
Hybrid tokens including some stablecoins	<ul style="list-style-type: none"> • Combination of utility, security or payment token features • Claim on issuer or issuer delegated counterparty 	<p>Accounting could depend on either the predominant nature of underlying rights and business purpose of holder or on the bifurcation of different underlying rights</p>	<p>CLARIFICATION</p> <ul style="list-style-type: none"> • Clarification of principles for the accounting for holders of hybrid tokens including principles of bifurcation. <p>POSSIBLE DEVELOPMENT OF IFRS REQUIREMENTS</p> <ul style="list-style-type: none"> • Develop a new standard that treats crypto-assets as unique assets and recognition and measurement of hybrid tokens will depend on business purpose and underlying rights. The new standard will outline principles of accounting by holders of hybrid tokens.

Table 3.5 continued

HOLDING	ECONOMIC CHARACTERISTICS AND HOLDER RIGHTS	CLARIFIED OR ASSUMED APPLICABLE IFRS ACCOUNTING	PROPOSED APPROACHES TO ENHANCING IFRS AND/OR AREAS NEEDING CLARIFICATION (FURTHER ADDRESSED IN CHAPTER 6)
Pre-functional tokens	Will convert to tokens (usually but not necessarily to utility tokens)	<p><u>Asset classification could depend on holders' business purpose and/or on the nature of the token it will convert to (i.e. specific rights)</u></p> <ul style="list-style-type: none"> • Prepayment asset • Intangible assets • Inventory • Financial assets • Non-financial asset investment <p><u>Measurement depends on holders' business purpose</u></p> <ul style="list-style-type: none"> • Cost with impairment test (for prepayment asset) • Cost or revaluation model (for intangible asset) • Lower of cost or net realisable value or FVPL (for inventory) • FVPL or FVOCI (for financial asset and depending on intended holding period) 	<p>CLARIFICATION</p> <ul style="list-style-type: none"> • Clarification of the applicable IFRS for pre-functional tokens including principles of appropriate classification of utility tokens (i.e. intention of holder versus nature of the tokens it will convert to). <p>POSSIBLE DEVELOPMENT OF IFRS REQUIREMENTS</p> <ul style="list-style-type: none"> • Develop a new standard that will outline principles of accounting by holders of pre-functional tokens.
SAFT typically issued with pre-functional tokens	Rights to future tokens and considered as securities	<p><u>Asset type</u></p> <ul style="list-style-type: none"> • Financial asset <p><u>Measurement</u></p> <ul style="list-style-type: none"> • FVPL 	<p>CLARIFICATION</p> <ul style="list-style-type: none"> • Clarification on whether IFRS 9 with a financial asset classification is applicable for all SAFTs. <p>POSSIBLE DEVELOPMENT OF IFRS REQUIREMENTS</p> <ul style="list-style-type: none"> • Develop a new standard that will outline principles of accounting by holders of SAFTs.

ISSUES RELATED TO HOLDERS ON BEHALF OF OTHERS

- 3.79 This section considers accounting by entities that hold crypto-assets on behalf of others (e.g. custodial service and wallet providers, exchanges and brokers) hereafter also referred to as intermediary holders.
- 3.80 Custodial or brokerage related holding of crypto-assets is similar to financial institutions holding digitally represented financial assets on behalf of its clients. But there are unique features to the nature of crypto-assets and how they are managed (e.g. unlike electronic fiat currency, crypto-assets can only be transferred by the holder of the private key) and this can have implications on economic control of these assets.

ACCOUNTING IMPLICATIONS OF INTERMEDIARY HOLDER EITHER HAVING A “PRINCIPAL OR AGENT” ROLE

- 3.81 The appropriate asset recognition needs an evaluation of whether the intermediary holder is a de facto principal or agent. Holders of crypto-assets on behalf of others could either have contractual arrangements:
- a) where the client has a direct ownership of the crypto-asset held (i.e. intermediary holder fulfils an agent role); or
 - b) that only represent the clients contractual right to the crypto-assets (i.e. intermediary holder fulfils a principal role).
- 3.82 **Table 3.6** below presents the accounting implications depending on whether the depositor client or the intermediary holder has economic control of the crypto-assets.

Table 3.6: Accounting Implications for the Bearer of Economic Control in an Intermediary Holding Arrangement

	DEPOSITOR CLIENT ACCOUNTING	CUSTODIAN OR INTERMEDIARY HOLDER ACCOUNTING
Situation 1: <i>Custodian or intermediary holder has economic control and bears significant risk and reward of crypto-assets</i>	Depositor client recognises an asset receivable tied to the value of the crypto-asset	Custodian or intermediary holder recognises crypto-assets as an asset and records a corresponding liability
Situation 2: <i>Depositor client has economic control and bears significant risk and reward of crypto-assets</i>	Depositor client recognises crypto-assets	Crypto-assets are off-balance sheet for the custodian or intermediary holder
Situation 3: <i>Custodian has legal control but depositor client bears risk and reward of assets¹²⁶</i>	It depends: if all factors considered, whoever is deemed to have economic control should recognise crypto-assets	It depends: if all factors considered, whoever is deemed to have economic control should recognise crypto-assets

DEPOSITOR CLIENT VERSUS INTERMEDIARY HOLDER: WHO HAS ECONOMIC CONTROL OF CRYPTO-ASSETS?

- 3.83 Economic control is the power to obtain the future economic benefits of an item while restricting the access of others to those benefits. Economic control and thereafter choice of accounting can depend on:
- a) Contractual terms and conditions (see Swissquote¹²⁷ example in **Appendix 1: Paragraph A1.40**);
 - b) Laws and regulation governing custodians in different jurisdictions;
 - c) How the custodian manages and stores the crypto-assets.
- 3.84 The combination of feedback from the EFRAG research outreach, advisory firm input, review of accounting firm publications (E&Y, KPMG and PwC)¹²⁸, NSS guidance (French guidance that is in development and Japanese guidance) and a recent AICPA practice aid¹²⁹ has shed some light on several factors that would need to be considered in determining

¹²⁶ Most common type of non-crypto-asset custodial arrangement in financial institutions.

¹²⁷ Swissquote, an online trading and financial services firm considers its cryptocurrencies holdings as off-balance sheet activities in its 2017, 2018 and 2019 annual reports based on contractual terms and economic substance of the arrangements. The Group assessed that these holdings would not fall within its bankruptcy estate and the 2018 report highlights the jurisdictional implications of segregation of holdings on the statement of financial position recognition.

¹²⁸ Ernst and Young, August 2018. *Applying IFRS, Accounting for Holders of Crypto-Assets*. [https://www.ey.com/Publication/vwLUAssets/EY-applying-ifs-accounting-by-holders-of-crypto-assets/\\$File/EY-applying-ifs-accounting-by-holders-of-crypto-assets.pdf](https://www.ey.com/Publication/vwLUAssets/EY-applying-ifs-accounting-by-holders-of-crypto-assets/$File/EY-applying-ifs-accounting-by-holders-of-crypto-assets.pdf) KPMG, November 2018. *Institutionalization of cryptoassets: Cryptoassets have arrived. Are you ready for institutionalization?* <https://assets.kpmg/content/dam/kpmg/us/pdf/2018/11/institutionalization-cryptoassets.pdf> PwC, December 2019. *Cryptographic assets and related transactions: accounting considerations under IFRS*. <https://www.pwc.com/gx/en/audit-services/ifs/publications/ifs-16/cryptographic-assets-related-transactions-accounting-considerations-ifs-pwc-in-depth.pdf>

¹²⁹ AICPA, 2019. *Accounting and Auditing Digital Assets – Practice Aid*. <https://www.aicpa.org/content/dam/aicpa/interestareas/informationtechnology/downloadabledocuments/accounting-for-and-auditing-of-digital-assets.pdf>

who has economic control on the crypto-assets. To determine whether the intermediary holder has economic control, the following factors should be considered as indicators (i.e. no single factor is determinative):

- a) Are there legal or regulatory frameworks applicable to the intermediary holder and depositor client (within the jurisdiction of the reporting entity) and does the framework specify the owner of the crypto-asset?
- b) Do the terms of the contractual arrangement between the depositor client and the intermediary holder indicate whether the client depositor will pass title, interest, or legal ownership of the crypto-asset to the intermediary holder?
- c) Does the intermediary holder have the right (explicit or implicit under contract terms, law or regulation) to sell, transfer, loan, encumber or pledge the deposited crypto-assets for its own purposes without depositor client consent or notice or both?
- d) What are the rights of depositor clients in the event of bankruptcy, liquidation, or dissolution of the custodian? Would the deposited crypto-assets be isolated from creditors? If not, do the clients have a preferential claim in such circumstances?
- e) Can the depositor client transfer the crypto-assets to another exchange or to its own wallet?
- f) Does the depositor client have the ability to withdraw the deposited crypto-asset at any time and for any reason? If not, what contingencies are associated with the rights to receive the deposited crypto-asset? Are there technological or other factors that would prevent timely withdrawal notwithstanding contractual, legal or regulatory rights?
- g) Are there side agreements affecting the rights and obligations of the depositor client and the custodian?
- h) Are there “off-chain” transactions recorded outside of the underlying blockchain that should be considered?
- i) Do depositor clients bear the risk of loss if the deposited crypto-asset is not retrievable due to in case of loss of the private keys by the third party, either due to operational breach or cybersecurity attack, theft or fraud? To the extent restitution rights apply, it would be an indicator that the intermediary holder ought to recognise a corresponding liability due to the depositor client on their balance sheet.
- j) Could the depositor client be impeded by the custodian in any way from receiving all economic benefits of controlling crypto-assets, including price appreciation?
- k) Is the crypto-asset held in a multi-signature wallet and if so, what are the signatures required to execute a transaction? Who holds the key to the multi-signature wallet and how is ownership evidenced through any applicable arrangements?
- l) Are the depositor clients’ crypto-assets held separately or are they commingled with those of other depositor clients? Below (**Paragraphs 3.85 to 3.87**) is an elaboration of implications and the indicators of whether depositor clients crypto-assets are held separately.
- m) Which party is entitled to the benefit in the case of a hard fork? Below (**Paragraphs 3.88 to 3.93**) is an elaboration of who benefits from hard forks.

Are clients crypto-assets held separately or commingled?

- 3.85 As noted above, the intermediary holder’s segregation of depositor clients’ crypto-assets, as opposed to the commingling of depositor clients crypto-assets with those of other clients, is an indicator that the depositor client has economic control.
- 3.86 The EFRAG research outreach highlighted that in some jurisdictions such as France and Switzerland, the ability to segregate depositor clients crypto-assets is considered to be determinative of whether the intermediary holder recognises crypto-assets on their statement of financial position. The Swiss Financial Market Supervisory Authority has a general rule that to allow off-balance sheet treatment the crypto-assets need to be clearly separable per customer and that a pooled wallet set-up with a separate ledger is not sufficient for off-balance sheet treatment.

3.87 As identified in the December 2019 PwC publication, the following factors are indicators of segregation of depositor clients crypto-assets by the intermediary holder:

- a) Whether the rights and obligations of the entity and its depositor clients are set out in a contract or white paper (if any); whether the rights and obligations are contractually enforceable; and whether external legal opinions are available as evidence. Enforceability is assessed in the context of specific laws and regulations addressing crypto-assets, to the extent that such laws and regulations exist, and in the context of other laws and regulations where they do not.
- b) Whether there is a reconciliation between the crypto-assets held by the entity on behalf of the depositor clients and the individual holdings of each depositor client, as reflected in their account statement. Similarly, whether there is a reconciliation between the transactions in crypto-assets carried out in the market and the orders executed on behalf of the individual depositor clients, to assess whether each transaction could be attributed to the relevant depositor client. Also, how frequently such reconciliation is performed.
- c) Traceability to a dedicated blockchain address (not all transactions can be individually traced to a dedicated blockchain address). If the crypto-asset is traceable to a dedicated blockchain address of the depositor client, this is more likely to indicate segregation.
- d) Whether the crypto-assets are held in an account/wallet of the entity or at a third party, and whether the third party keeps a record of crypto-assets held on behalf of depositor clients. If the crypto-asset is held in an account/wallet at a third party, this is more likely to indicate segregation.
- e) Whether the entity holds depositor clients' crypto-assets in hot or cold wallets. An entity might allow depositor clients to hold some amounts in a hot wallet for frequent trading, and some other amounts from the same depositor client in a cold wallet for safe-keeping. Whether the depositor client or the entity holds and is able to use the private key to the wallet might also be relevant. If the crypto-assets are held in cold wallets, and the private key is held and can only be used by the depositor client, this is more likely to indicate segregation.

Does the depositor client or the intermediary holder benefit from DLT hard forks?

3.88 Blockchain represents a record of all transactions (i.e. ledger) and this record is either kept by all network participants (i.e. for permissionless networks) or some of the network participants (i.e. for permissioned or private permissionless networks). The cryptographic rules (i.e. software protocol) for recording transactions gets updated as new transactions occur. The updated software protocol for recording transactions requires consensus from a majority of network participants.

3.89 A soft fork is an update to the blockchain protocol; however, one version (assumed to be the updated or new version) is supposed to be adopted by the majority and will become the dominant one. In effect, a fork creates two sub-versions of the initial blockchain and related crypto-asset as the next state and can be soft (maintaining the compatibility of the two new versions of the software) or hard (making them incompatible).

3.90 A hard fork occurs when, at a point in time, there is a disagreement amongst network participants about the required DLT software protocol updates and thereafter one or more alternative software protocols¹³⁰ is enacted for purposes recording subsequent transactions. A hard fork is currently only applicable to cryptocurrencies.

3.91 Consequently, on occurrence of a hard fork, the intermediary holder of a cryptocurrency coin will have the original cryptocurrency coin and an additional alternative cryptocurrency coin. In effect, after a hard fork, the intermediary holder is left with an existing asset (which could be less¹³¹ in worth than before) and a new asset.

¹³⁰ Examples of forks in the Bitcoin DLT are the creation of Bitcoin ALL, Bitcoin Cash Plus, Bitcoin Smart, Bitcoin Interest, Quantum Bitcoin, Bitcoin Lite, Bitcoin Ore, Bitcoin Private, Bitcoin Atom, Bitcoin Pizza, Bitcoin Gold and Bitcoin Diamond.

¹³¹ In July 2017, bitcoin miners and mining companies representing roughly 80% to 90% of the network's computing power voted to incorporate a program that would decrease the amount of data needed to verify each block and went with a "Solution 1". Less than a month later in August 2017, a group of miners and developers initiated a hard fork and went with a "Solution 2" that better addressed the scaling problem. The resulting currency, called "bitcoin cash", increased the block size to 8 Mb in order to accelerate the verification process to allow a performance of around 2 million transactions per day. On February 10, 2019, **Bitcoin Cash was valued at \$122.45 to Bitcoin's \$3,605.01.**

- 3.92 One of the EFRAG research outreach participants indicated awareness of an intermediary holder who had sudden possession of new tokens during hard forks (i.e. hard fork dividend) and had the right to decide whether or how to distribute the new tokens. Another participant indicated that it depends on which hard fork, was a new crypto-asset created and was it valuable, did the client request for it. The participant was only aware of Paymium being online when the fork of Bitcoin and Bitcoin Cash occurred. Paymium did not automatically provide its clients with the created alternative cryptocurrency but did so only on a case-by-case basis for clients that had made a request.
- 3.93 A question could arise on the effective rights of the clients who deposited the pre-forked crypto-asset with the intermediary holder (e.g. exchange). A consultancy firm that provided specialist advice to the EFRAG research noted the following:
- a) In practice, there is usually a clear policy from crypto-exchanges in event of occurrence of hard forks that guides the decision on whether to list either both of the forked crypto-assets (i.e. pre-fork updated version and alternative version to pre-fork updated version) or only one of the two.
 - b) In the latter case, depositors of the pre-forked crypto-asset are left with the choice to redeem or to have their holding converted in the newly forked crypto-asset. Should the exchange refuse to list the forked crypto-assets, the depositor of the pre-forked crypto-asset has no other choice than removing its holding from the exchange and seeking alternative repositories (e.g. own wallet or another exchange).
 - c) According to the consultancy firm, in practice, forks (hard or soft) have not resulted in crypto-assets with differing features than the pre-forked one. Accordingly, the occurrence of a fork has tended to not materially change the rights potentially attached to crypto-assets.

OTHER HOLDER ACCOUNTING ISSUES

POSSIBLE EFFECTS ON BANKING SECTOR PRUDENTIAL CAPITAL

- 3.94 During the EFRAG research outreach, some stakeholders pointed out that in determining the prudential regulatory capital of banks, intangibles assets (e.g. cryptocurrencies) ought to be deducted from own funds (Common equity-Tier 1 capital). A working paper by Gola and Caponera¹³² (2019) who work for the Bank of Italy, expresses a similar understanding based on the Capital Requirement Regulation (CRR)- Article 4(1)(115). The reason for exclusion from Tier 1 capital being that banks cannot readily liquidate intangible assets (per accounting classification) in the event of losses or increasing risk. Consequently, the classification of cryptocurrencies as intangible assets, i.e., as per the IFRS IC agenda decision, could potentially discourage banks' holding of crypto-assets other than for trading purposes. A similar situation arose with the introduction of IFRS 16, where there was a clarification by the Basel Committee that for regulatory capital determination purposes, the holding of "right of use" leased assets was to be treated as being equivalent to owning the underlying leased assets. This regulatory clarification negatively affected banking entities' undertaking of leasing transactions that would be deemed equivalent to ownership of intangible assets. However, unlike the situation that arose during the adoption of IFRS 16, and due to the insignificance of banking entities' current holdings of cryptocurrencies, there is unlikely to be any material impact on current levels of prudential capital as a result of cryptocurrencies being classified as intangible assets.
- 3.95 Similarly, there could be prudential capital and systemic risk implications, if the classification of crypto-assets were to change to either financial instruments or cash. For example, if crypto-assets were classified as cash, they would have zero capital requirement and could be used as collateral for other transactions with the effect that the capital requirement on those transactions would also be zero. This could contribute to undercapitalisation of banks and be a source of systemic risk especially when considering that crypto-assets are typically more volatile than the zero- risk-weighted fiat currencies that are normally classified as cash.

¹³² Gola, C., and Caponera, A., 2019. Policy issues on crypto-assets, *Universita Cattaneo Working Papers*. https://www.bancaditalia.it/pubblicazioni/gef/2019-0484/Policy_issues_on_crypto_assets.pdf

POSSIBLE ADDITIONAL DISCLOSURES

- 3.96 As highlighted in **Paragraph 3.22**, the IFRS IC agenda decision also clarified disclosures requirements including the applicable IFRS 13 requirements if an entity measures cryptocurrencies at fair value and the disclosure requirements applicable to holdings of cryptocurrencies (e.g., IAS 2, IAS 38, IFRS 13). These disclosure requirements necessitate that preparers disclose fair value information to the extent that such information is relevant.
- 3.97 Nonetheless, some stakeholders have made proposals for specific disclosure requirements related to holders, and some of these may overlap with the implied disclosure requirements communicated by the IASB (see preceding paragraph). For instance, the 2018 CPA Canada publication and Sixt and Himmer (2019) propose the following holders related disclosures as possible additional disclosures, if considered material:
- a) The types of crypto-assets shown in the financial statements, its important characteristics and the purpose of holding (e.g., investing, buying of good and services);
 - b) The number of units of the crypto-assets held at year-end;
 - c) The accounting policy for them and how this was determined;
 - d) The most important features of crypto-assets-like rights acquired; and
 - e) Entities adopting a cost approach under IAS 38 should consider disclosing the fair value of the respective crypto-assets held. In addition, fair value changes after reporting date (non-adjusting events) and historical information on the volatility of the crypto-asset should also be considered irrespective of whether they are accounted for at cost or at revaluation under IAS 38.

CONCLUDING REMARKS AND OBSERVATIONS

- 3.98 The accounting classification and measurement by holders of crypto-assets can be determined through a combination of considering the business purpose of holding the crypto-asset and/or the underlying economic characteristics (i.e. the asset type is determined by function and nature). This is the approach taken by the IFRS IC agenda decision and most of the analysed NSS guidance (i.e. except for the Japanese guidance where crypto-assets are considered a unique asset type).
- 3.99 In the preceding sections, and in **(Table 3.3)**, several areas have been identified where accounting requirements under IFRS need either clarification or enhancement. While not disagreeing with the essential conclusions of the IFRS IC agenda decision on the accounting for cryptocurrencies (i.e., they are intangible assets or inventory), several stakeholders have observed that crypto-assets are a unique type of asset and the current measurement requirements under IAS 38 and IAS 2 were not developed with crypto-assets in mind. For instance, unlike most commonly known intangible assets (e.g. software, intellectual property, brands), cryptocurrencies have some cash-like and trading or investment asset properties, have active markets and they are not internal cash-generating assets (i.e. do not have value in use). The analysis within this DP pinpoints at several unresolved recognition and measurement challenges and these can be summed up as follows:
- a) There is need to extend clarification for holders beyond cryptocurrencies with no claim on the issuer (i.e. for stablecoins, utility, security and hybrid tokens);
 - b) There are gaps in IFRS guidance when crypto-assets are considered to be non-financial investments (i.e. intangibles or commodities as investments);
 - c) Measurement under IAS 38 or IAS 2 may not always reflect the economic characteristics of crypto-assets that have trading or investment asset attributes;
 - d) There is a need for clarification on and possible update for if/when crypto-assets can be classified as financial assets;

- e) Cash or cash equivalent definition under IAS 7 may need to be updated to include some crypto-assets but only after considering the possible implications on monetary policy and financial stability;
- f) The accounting for utility and hybrid tokens needs clarification; and
- g) There are several other areas that need clarification including: accounting for holding on behalf of others (intermediary arrangements); and accounting for holdings due to mining activities and barter exchanges.

3.100 **Table 3.7** below summarises some of the indicators of economic control in an intermediary holding arrangement described in earlier paragraphs. As noted, no single factor is determinative of which party has economic control.

Table 3.7: Implications of Indicative Factors

INDICATORS THAT DEPOSITOR CLIENT HAS ECONOMIC CONTROL OF CRYPTO-ASSETS	INDICATORS THAT INTERMEDIARY HOLDER HAS ECONOMIC CONTROL OF CRYPTO-ASSETS
<ul style="list-style-type: none"> • Legal contract or jurisdiction regulatory framework stipulates intermediary holder is the agent • Client crypto-asset is segregated in a separate wallet • Restriction on use and transfer of crypto-assets by the intermediary holder • Client bears the risk of loss (i.e. no restitution) in the event of theft, hacking • Client can benefit from a hard fork event 	<ul style="list-style-type: none"> • Client crypto-asset are commingled with other clients crypto-assets • Client rights are unsecured in event of bankruptcy, liquidation or dissolution of intermediary holder entities • Intermediary holder has the ability to borrow, sell, transfer, loan, encumber or pledge the deposited crypto-assets for its own purposes without depositor client consent • Intermediary holder bears loss in the event of theft, hacking and client can get restitution • Intermediary holder can benefit from a hard fork event

3.101 There is no explicit guidance within IFRS on the accounting treatment of entities in a principal versus agent type relationship in respect of crypto-assets holdings. Issues on principal versus agent accounting arise across different IFRS standards and clarification related to the requirements for crypto-assets should be provided to ensure consistency in how these matters are addressed across different IFRS standards.

3.102 Due to the diversity of contractual arrangements and the existence and content of jurisdictional regulatory requirements in respect of third party holding of crypto-assets, it would be helpful to have IFRS guidance clarifying if/when custodial holding should be on- or off-balance sheet. In summary, there is need for clarification of IFRS requirements for accounting by holders on behalf of others including on the following:

- a) Clarifying the application of indicative criteria to determine which party (depositor client versus intermediary holder) has economic control of the crypto-assets;
- b) Clarifying which IFRS respectively applies for the depositor client that records an asset receivable and the intermediary holder (IAS 2, IAS 38, IFRS 9); and
- c) Clarifying whether the custodian credit risk exposure should be considered when determining the value of the receivable asset.

3.103 **Chapter 6** analyses the possible accounting standard-setting approaches for both holders and issuers of crypto-assets.

CHAPTER 4: ISSUERS ACCOUNTING

- 4.1 This DP is focused on issuer accounting alongside holders' accounting as there can be symmetry in issuer and holder considerations (e.g. for some tokens holder rights can be issuer obligations). The focus of this chapter is on identifying areas of issuer accounting that either need enhancement and clarification within current or future IFRS requirements.
- 4.2 In contrast to holders' accounting where at least the IFRS IC issued clarification for accounting by holders for a subset of crypto-assets (i.e. cryptocurrencies with no claim on the issuer) has been published, issuers' accounting is unaddressed. There is also less NSS guidance (i.e. addressed by fewer NSS) related to issuers than that related to holders. Nonetheless, some respondents to the IFRS IC agenda decision and participants in the EFRAG research outreach stated the need for clarification or guidance on accounting for issuances and related topics.

ISSUERS (ICOs) OVERVIEW

- 4.3 As explained in **Appendix 1**, an ICO is a means of raising funds for an existing or future crypto-asset project by issuing tokens (also referred to as digital tokens) to subscribers/potential investors. Despite recent declining trends, as discussed in **Appendix 1**, ICO funding has been a growing source of funding for some business sectors.
- 4.4 When an ICO is undertaken, the issuer (ICO entity) receives consideration which can be in the form of fiat currency, crypto-assets (e.g., Bitcoin and Ether being two of the popular crypto-assets used in ICO exchange transactions) or a combination of fiat currency and crypto-assets.
- 4.5 Each ICO will generally have unique terms and conditions. Furthermore, as highlighted by the 2019 Cambridge CAF publication and Kaal's (2018) review of top 25 ICO jurisdictions (**Appendix 3**), ICOs are either unregulated or are subject to a lack of regulatory clarity in several jurisdictions, including in cases where implicit regulation is in place. This contributes to their varied terms and conditions. It is therefore crucial for issuers (and particularly potential investors) to review the white paper or underlying documents accompanying the ICO token issuance, and to understand what exactly is being offered to investors. For investors in particular, in situations where rights and obligations arising from a white paper or their legal enforceability are unclear, legal advice might be needed to determine the relevant terms.
- 4.6 As noted in **Appendix 2**, token issuers vary greatly depending on the type of crypto-assets involved but also within a given category of crypto-assets. Contractual obligations are not relevant in the absence of identifiable issuers or issuance of payment tokens with no claims attached to the issuer. Looking at utility tokens issuers, obligations from the issuers will be limited to those formalised in their white paper or arising from legally enforceable requirements, but they will mostly not be legally binding in the absence of applicable regulatory framework. However, as noted in **Paragraph 4.15** below, there can be constructive obligations for utility tokens. Lastly, issuers of security tokens will be required to comply with the mandatory/discretionary contractual arrangements disclosed in their PPM or prospectus.
- 4.7 The varied design and purpose of crypto-assets have a direct impact on the commitments and obligations undertaken by an issuer of crypto-assets at initial issuance date (through an ICO or other types of initial offering) and in subsequent periods as the obligations of the issuer can change over the life of the crypto-asset.
- 4.8 Depending on judgments made about the economic substance of tokens being issued, some tokens might be considered to be securities or they could also be seen as similar to product sales. As discussed in **Chapter 3: Paragraph 3.52**, the classification as securities or financial instruments varies across jurisdictions (e.g. EU versus the US).

IF AND WHAT TYPE OF OBLIGATIONS ARISE ON CRYPTO-ASSETS ISSUANCE?

- 4.9 For the purposes of determining which existing IFRS requirements might apply and to assess the related accounting issues, it is necessary to determine the obligations, if any, that exist between the issuer and the holder of the crypto-assets.
- 4.10 The question regarding the type of obligation only arises for the issuance of crypto-assets where the holder has a claim against the issuer. The Conceptual Framework definition of a liability is provided in the section below. The type of obligations that arise are also depicted in a flowchart diagram later in this chapter (**Paragraph 4.77, Figure 4.2**) and can be summarised as follows:
- a) Different obligations can arise including those that are either claims on issuer entities, issuer entities' constructive obligations or performance obligations. These obligations can arise from the issuance of utility tokens, security tokens, hybrid tokens and pre-functional tokens.; and
 - b) There are no obligations arising from the issuance of crypto-assets where there is no claim on the issuer or any counterparty (e.g. cryptocurrencies including payment-only tokens). Such issuance results in income for the issuing entity.

Conceptual framework definition of a liability

- 4.11 For a crypto-related liability to be recognised in the financial statements, it must meet the definition of a liability under the Conceptual Framework.
- 4.12 The Conceptual Framework defines a liability as:
- A liability is a present obligation of the entity to transfer an economic resource as a result of past events.*
- 4.13 The Conceptual Framework states that an obligation is a duty or responsibility that an entity has no practical ability to avoid. A present obligation exists as a result of past events if (1) the entity has already obtained economic benefits, or taken action; and (2) as a consequence, the entity will or may have to transfer an economic resource that it would not otherwise have had to transfer.
- 4.14 Many obligations are established by contract, legislation or similar means and are legally enforceable by the party (or parties) to whom they are owed. However, the obligation to transfer economic benefits may not only be a legal one. A liability in respect of a constructive obligation may also (have to) be recognised where an entity, on the basis of its past practices, has created a valid expectation in the minds of the concerned persons that it will fulfil such obligations in the future. The obligation that arises in such situations is sometimes referred to as a 'constructive obligation'.
- 4.15 In the context of ICO or similar offerings, in some cases, the obligation is a contractual or legal obligation based on a contractual agreement between the issuer and the investor or another party and/or applicable regulation. However, in other cases, the obligation might be a constructive obligation based on a valid expectation the issuer might have created in the minds of the investors or other parties.
- 4.16 Therefore, if it is established that there is either a contractual legal obligation or a constructive obligation, a liability under the Conceptual Framework will be recognised.

Recognition as a liability or contingent liability

- 4.17 The IASB removed from its previous Conceptual Framework, issued in March 2018, the previously applicable threshold for the recognition of a liability (i.e., probable that any future economic benefits will flow from the entity; and that it has a value that can be reliably measured). The Conceptual Framework now states that a liability is recognised only if it provides users of financial statements with useful information, namely information about the liability that is relevant and provides a faithful representation concerning the liability. This is a key deciding factor when determining whether a liability should be recognised.

- 4.18 Similar to other obligations of the entity, users will need information about the amount, timing and risks associated with an entity's crypto-liabilities. The economic characteristics and nature of obligations associated with the issued crypto-assets guide the choice of applicable IFRS Standard. If none of the existing IFRS requirements is considered applicable, an entity would be required to consider whether to recognise a crypto-liability under the principles established in the Conceptual Framework.
- 4.19 Under current IFRS requirements, if an obligation meets the definition of a liability but fails to meet the recognition criteria, it is classified as a contingent liability under IAS 37. A contingent liability is not presented as a liability in the statement of financial position but is instead disclosed in the notes to the financial statements.
- 4.20 In cases where crypto-assets with a claim on the issuer (e.g. utility tokens) are held for investment purposes, it might be difficult to establish the likelihood of the issuer entity having to fulfil an obligation or alternatively the likelihood might be so uncertain that it is not appropriate to recognise an obligation (when recognition would not provide a faithful representation and would not serve as useful information to users). In such cases, disclosure might be a more useful way to inform users of the 'potential' but uncertain obligations of an entity issuing crypto-assets.
- 4.21 In the event of uncertainty on which IFRS specifically applies to a crypto-related liability, an entity would need to turn to IAS 8 and use its judgement in developing and applying an accounting policy that results in information that is relevant to users in their decision-making process and produces reliable information in the financial statements.
- 4.22 When applying the guidance under IAS 8, an entity shall refer to, and consider the applicability of, the following (in descending order): (1) the requirements in IFRSs dealing with similar and related issues; and (2) the definitions, recognition and measurement concepts outlined in the Conceptual Framework. When applying judgement in developing and applying an accounting policy, the Conceptual Framework also states that management may also consider the most recent pronouncements of other standard-setting bodies that use a similar conceptual framework to develop accounting standards, other accounting literature and accepted industry practices, to the extent that these do not conflict with (1) and (2) above.

APPLICABLE IFRS STANDARD FOR ICO ISSUANCE (AND SIMILAR OFFERINGS)

- 4.23 In the absence of clarification by the IASB, the preliminary conclusion of this research, informed by accountancy firm publications and feedback from the EFRAG research outreach, is that ICO issuers can apply one or a combination of the following IFRS Standards:
- a) IFRS 9 – as a financial liability likely to be applicable for issuance of security and asset-based tokens;
 - b) IAS 32 – as an equity instrument likely to be applicable for issuance of security and asset-based tokens;
 - c) IFRS 15 – as a prepayment for future goods or services (for example access to a platform) likely to be applicable for issuance of utility tokens to holders that can be considered potential customers; and
 - d) IAS 37 – as an obligation leading to a provision (such as a constructive obligation) is likely to be applicable for issuance of utility tokens to holders that may not qualify as contract customers.
- 4.24 Assuming that there is no exchange transaction, and the issuer has not undertaken a commitment (explicit or implicit) to the holder or other party, the issuer would recognise the credit side of the journal entry as a gain/income in profit or loss.
- 4.25 Some security and asset-backed tokens have distinct features of securities and one could readily conclude that their issuance results in financial liabilities (they represent a contract to buy or sell a non-financial item that can be settled net in cash or another financial instrument, or by exchanging financial instruments) for the issuing entity. Hence issuers of these tokens would likely apply IFRS 9 for recognition and measurement of the financial liabilities and IAS 32 for the presented classification.

- 4.26 However, it is less clear which IFRS requirements would apply for the issuance of hybrid type tokens and how they should be classified under IFRS. Hybrid tokens have multiple features (which could include equity and liability features), can be used for multiple purposes by different holders and their underlying obligations can change over time. These different features and degree of uncertainty contribute to the challenge of identifying the appropriate accounting treatment by issuers of hybrid tokens. Certain hybrid-type tokens might contain embedded derivatives and IFRS 9 might be applicable. Nonetheless, clarification on how to classify (equity or liability under IAS 32) and account for the hybrid features, and their potential changes over time, might be useful.
- 4.27 There is currently an emerging trend, especially in the US, to develop and trade crypto-asset derivatives (such as futures contracts) in which case the guidance in IFRS 9 might apply - directly or by analogy. But the accounting approaches for the issuance of other hybrid tokens may be less straightforward. Yet feedback from the EFRAG research outreach indicated that hybrid tokens are widespread (i.e. besides cryptocurrencies, many tokens have hybrid features). In effect, the accounting for hybrid tokens issuance is an aspect that needs clarification.
- 4.28 The application of IFRS 15 also raises a number of challenges where it would be helpful to have IFRS clarification. A key issue is the determination of the timing of revenue recognition and outstanding performance obligations (i.e. the timing of transfer of control of network goods and services from issuers to holders of tokens, etc.). The applicability of IFRS 15 is premised on the existence of enforceable implicit and/or explicit contracts with customers. However, as described in **Appendix 2: Paragraphs A2.11 to A2.40**, there can be a challenge with the enforceability of rights and obligations associated with issued tokens. In particular, there is an overall lack of contractual enforceability and legal evidence of the issuer obligations related to some of the issued utility tokens.
- 4.29 Similarly, other questions that need IFRS clarification are: if and when does IAS 37 become applicable for crypto-liabilities? what crypto-related obligations qualify for recognition as a provision? and under what circumstances or point in time should such provisions be derecognised?
- 4.30 The views from accounting firms on which IFRS Standards might apply to ICO issuance and related issues and NSS guidance are discussed in the following sections.

EXISTING ACCOUNTING FIRM AND NSS ISSUER ACCOUNTING GUIDANCE

- 4.31 There is a notable variation in accounting treatment by issuers across EU jurisdictions with some EU countries having developed specific ICO accounting guidance (following the development of local regulatory requirements for ICOs), and other EU jurisdictions recommending or requiring local GAAP accounting requirements which are often in line with or similar to tax accounting.
- 4.32 EU countries with specific accounting requirements include France and Lithuania. One such country outside of the EU is Japan, where an exposure draft on the accounting requirements for ICOs and STOs is expected in the first half of 2020.
- 4.33 Another useful point of reference for ICO issuer accounting is the guidance within accounting firms' publications including a December 2019 PwC publication¹³³ (referred to in the rest of this chapter as PwC publication). Reference is also made to other accounting firm publications that covered issuance accounting to varying degrees.
- 4.34 In the paragraphs below is an overview of the
- a) Analysis of accounting firms' publication guidance; and
 - b) Existing NSS guidance.

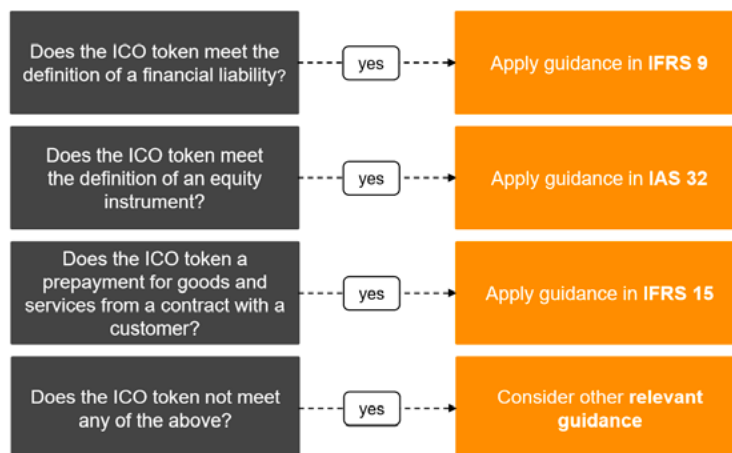
¹³³ PwC, December 2019. *Cryptographic assets and related transactions: accounting considerations under IFRS*. <https://www.pwc.com/gx/en/audit-services/ifrs/publications/ifrs-16/cryptographic-assets-related-transactions-accounting-considerations-ifrs-pwc-in-depth.pdf>

ACCOUNTING FIRMS' PUBLICATION GUIDANCE

Accounting for ICOs by the issuer

- 4.35 The PwC publication provides the following possible analysis framework (**Figure 4.1**) of accounting models to consider when determining the nature of, and accounting for, the issued ICO token, noting that consideration of the contract terms is needed, to understand the nature of the ICO token issued and the obligations of the issuer.

Figure 4.1: Framework for Issuer Accounting



Source: PwC publication

Financial liability

- 4.36 An issuer of an ICO token should assess whether a token meets the definition of a financial liability under IAS 32.¹³⁴
- 4.37 If the ICO token is a financial liability, the accounting would follow the applicable guidance in IFRS 9. Many ICO tokens will not meet the definition of a financial liability, but there are situations where the terms and conditions might provide for a refund of proceeds up to the point of achieving a particular milestone. There might be situations in which the contract creates a financial liability at least up to the point at which the refund clause falls away.

Equity instrument

- 4.38 IAS 32 defines an equity instrument as any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Typically, ICO tokens do not provide the holders with such a residual interest. For example, they do not give the holders rights to residual profits, dividends, or entitlement to proceeds on winding up or liquidation. These ICO tokens might therefore lack the characteristics of an equity instrument. Careful consideration is needed to assess whether the rights to the cash flows only relate to a specific project or whether, in substance, they provide rights to residual cash flows of the ICO entity.

Revenue transaction/prepayment for goods and services

- 4.39 The ICO entity should consider whether the ICO token issued is in substance a contract with a customer that should be accounted for under IFRS 15. IFRS 15 would apply if (1) the receiver of the ICO token is a customer; (2) there is a 'contract' for accounting purposes, and (3) the performance obligations associated with the ICO token are not within the scope of other IFRS Standards.

¹³⁴ Specifically, an entity would consider the definition in IAS 32, which states that a financial liability is:

- A contractual obligation to deliver cash or another financial asset to another entity or to exchange financial assets or financial liabilities with another entity under conditions that are potentially unfavourable to the entity; or
- Certain contract that will or might be settled in the entity's own equity instruments, such as those that violate the principle stated in paragraph 11 of IAS 32 (commonly known as the 'fixed-for-fixed' principle).

- 4.40 To determine whether a contract with a customer exists, an ICO entity should consider whether the white paper, purchase agreement and/or other accompanying documents create “enforceable rights or obligations”. The ICO entity also needs to determine if a contract with a customer exists under IFRS 15.
- 4.41 In many circumstances, ICO issuers might use the consideration received in the ICO to develop and maintain a software platform (often an integral part of the issuers’ future business model). The ICO token could provide the holder with access to the platform which might be operated as part of the entity’s ordinary activities. This might result in the holders meeting the definition of ‘customers’, from the perspective of the ICO entity. In this case, the proceeds from the ICO could be revenue of the issuing entity, which will likely be initially deferred (deferred payments).
- 4.42 Determining the performance obligations, how they are satisfied and the period over which to recognise revenue will be judgemental and will depend on the specific facts and circumstances of the ICO offering.

Other relevant guidance

- 4.43 PwC notes that when an IFRS Standard cannot be identified, the hierarchy in IAS 8 should be considered in determining the appropriate accounting treatment for crypto-assets. PwC is of the view that even if the arrangement does not give rise to a financial instrument or a promise to deliver goods or services to a customer, there is likely to be a legal or constructive obligation to the subscriber. This might result in the issuer recognising a provision in accordance with IAS 37.

Other ICO related issues

- 4.44 The PwC publication considers the accounting for the following ICO-related issues:

- a) Pre-sale agreements (SAFTs);
- b) Own ICO tokens exchanged for third-party services; and
- c) Own tokens exchange for employee services.

Pre-sale agreements (SAFTs)

- 4.45 As explained in **Appendix 2 Paragraph A2.38**, a Simple Agreement for Future Tokens (SAFT) is simply a pre-ICO token issuance allowing entities to attract seed investors and lock-in funding in private sales prior to a public ICO sale.
- 4.46 The SAFT issuer will typically settle the SAFT using an ICO token price that is discounted by a predefined amount (for example, a 10% discount to the ICO token price at issuance). Thus, on a successful ICO, the SAFT investor will receive a number of tokens equal to the value of what was originally invested, plus a return equal to the specified discount on the ICO token. In some cases, an investor acquires the right for participation in the issuing company activities.
- 4.47 The terms of a SAFT can vary, impacting the accounting treatment. Factors to consider include (but are not limited to) the characteristics/features that the tokens will have, and the rights to which the future holders will be entitled. Typically, the SAFT terminates if the ICO does not happen on or by a stated date, the entity is required to return to the investor the amount originally invested (or a portion thereof).

Accounting for pre-functional tokens and SAFTs

- 4.48 A key accounting question is whether the pre-functional token represents a financial liability. This could be the case when the issuing entity is required to return to the investor the amount originally invested or a portion thereof, if the platform/product fails to be developed.
- 4.49 On the other hand, if the tokens underlying the SAFT represent a prepayment for future goods or services the question is whether IFRS 15 should be applied, or whether the consideration received should be recognised as a prepayment (in

case it is outside the scope of IFRS 15). If the pre-functional tokens clearly entitle the holder to future goods and services, those tokens would not be considered a financial instrument¹³⁵.

- 4.50 However, on the basis that the occurrence of a successful ICO is beyond the control of the entity, and the characteristics of the tokens to be issued might be unclear, some might view the SAFT as containing a financial obligation, because it represents a contractual obligation to deliver cash if the ICO does not occur by the stated date. In such a case, the SAFT might be viewed as a financial liability of the issuer in accordance with IAS 32 at initial recognition. There might also be other embedded features which require further assessment, such as embedded derivatives based on the specific terms of the arrangement.

Own ICO tokens exchanged for third-party services/employee services

- 4.51 Some issuers of ICO tokens might choose to keep some tokens generated through the ICO, to use as a means of payment for goods or services. The generation of ICO tokens for own use does not generate proceeds for the ICO entity. The act of generating ICO tokens is not, in itself, an exchange transaction.
- 4.52 Some argue that generating ICO tokens is similar to a retail store printing vouchers for discounts on future purchases at the store and not distributing them to customers. Therefore, according to PwC, it seems appropriate that such an event would not be considered for accounting purposes. This situation changes once the vouchers are provided to third parties in exchange for consideration – or, in accounting terms, once an exchange transaction takes place.

Third-party services

- 4.53 Sometimes, ICO tokens are provided to third parties for services, such as developing a platform. To determine the appropriate accounting, it is important to obtain a clear understanding of the economic substance of the exchange between the issuer and the third party.
- 4.54 PwC in its publication provides the following examples on possible approaches to applying existing IFRS Standards to own ICO tokens exchanged for third-party services:
- a) If the payment is to develop software, there is a question about whether the costs should be capitalised as part of the intangible, based on the applicable IFRS guidance, or expensed (for example, research and development guidance under IAS 38); and
 - b) The credit side of the entry is determined by the obligations that the ICO entity incurred as a result of issuing the ICO tokens. This assessment determines the applicable IFRS Standard. For example, where the ICO tokens provide an entitlement promise to deliver future goods or services to a customer (such as a discount on future services provided by the ICO entity), the credit side of the journal entry should be determined based on IFRS 15. In this case, the revenue from providing the ICO tokens should be measured at the fair value of the goods and services received by the ICO entity.

Employee services

- 4.55 Some ICO entities might reward their employees in the form of a specific number of tokens generated through the ICO. IAS 19 *Employee Benefits* or IFRS 2 *Share-based Payment*, might need to be considered based on the characteristics of the ICO tokens generated. The EFRAG research found that rewarding employees, as well as founders of the ICO start-up entity, with ICO tokens, is very common in the ICO environment. In some cases, employees are remunerated mainly in crypto-assets, of which ICO tokens would comprise a sub-set of their remuneration.
- 4.56 According to PwC, unless the ICO tokens meet the definition of an equity instrument of the ICO entity (that is, a contract that has a residual interest in the assets of the ICO entity after deducting all of its liabilities), the arrangements would not meet the definition of a share-based payment arrangement under IFRS 2. Instead, they would fall within the scope of IAS 19 as a non-cash employee benefit (issued at cost or fair value).

¹³⁵ It is usually not a contract “to buy or sell a non-financial item that can be settled net in cash or another financial instrument, or by exchanging financial instruments, as if the contracts were financial instruments”. [IFRS 9 para 2.4].

EXISTING NSS GUIDANCE

- 4.57 There are at least two EU countries, France and Lithuania, that have developed specific accounting guidance for ICO issuers and related issues. However, there could be other EU developments in this space at the time of writing this DP. Outside of the EU, Japan is also developing ICO guidance.
- 4.58 A number of other EU countries have development/adapted local GAAP accounting guidelines that are either consistent or deemed acceptable for tax purposes. These local GAAP guidelines are not analysed in this DP due to differences in tax regimes across jurisdictions and due to the lack of a full picture on the different jurisdictional tax-related requirements.

FRANCE

- 4.59 The Loi Pacte in France passed into law in the summer of 2019, includes a comprehensive legal framework for ICO issuers and businesses dealing with tokens which are legally defined. The accounting regulation developed by France's accounting standard setter (ANC) was published in 2018 and is summarised below.
- 4.60 When developing the accounting regulation, it was decided not to classify tokens between security/currency/utility, considering the lack of consistent definitions and the pace at which the underlying technology is evolving making any definition of a token short-lived and subject to ongoing changes.

Accounting for ICOs by the issuer

- 4.61 The accounting treatment of the tokens will depend on the rights and obligations associated with the token and on the commitments made by the ICO issuer regarding each token category issued as expressed in the white paper of the ICO and any other relevant document. ICO issuing entities are required to distinguish between tokens featuring characteristics of securities and other tokens.
- 4.62 The accounting regulation further specifies that unissued (unsubscribed) tokens should not be recognised in the statement of financial position and would be disclosed in the notes to the financial statements.
- 4.63 No specific accounting requirements were developed for tokens featuring characteristics of securities. Given that such tokens have similar characteristics similar to securities and equity instruments (such as shares and bonds), the accounting treatment follows standards for similar financial instruments under the French accounting framework.

Other tokens

- 4.64 The issuing entity will recognise consideration for other tokens based on the amount paid by subscribers - net of VAT or similar taxes, if any (these are recognised separately). The issuing entity will recognise a liability for the consideration received in an ICO based on the commitments/obligations associated with the token issued and recognise revenue in profit and loss based on the delivery of goods or services, as follows:
- a) If tokens have features similar to debt, they are recognised as "loans and similar debts";
 - b) If the tokens represent services to be provided or goods to be delivered in the future, they will be recognised as "prepaid income". Payment/exchange tokens (this is, regular cryptocurrencies) will fall into this category, even though most typically would not represent any future service or good. More broadly, all cryptocurrencies (including bitcoin and ethers) will qualify as "tokens" under this regulation, and not only tokens issued by a specific company following an ICO. The issuer will recognise income in profit or loss according to the delivery of goods or services; or
 - c) If the issuer has no implicit or explicit obligation to the token holders, the funds collected by the issuer will be recorded as income in profit or loss.
- 4.65 If the tokens have a hybrid feature (for example, utility token plus security features), the accounting will be based on the two separate features.

- 4.66 The issuer will need to disclose various information concerning the issuance, the rights and obligations attached to the tokens, the accounting principles applied with respect to the issued tokens, unissued tokens, the tokens' market value as at the end of the period and other relevant information concerning the impacts of the tokens in case of conditions and disclaimers attached to tokens.

Pre-functional tokens and Own tokens exchanged for third-party/employee services

- 4.67 The French guidance discusses the accounting for pre-functional tokens and SAFT agreements when they are refundable.
- 4.68 The French guidance states that for tokens allocated to employees and other contributors to the activities of the issuer at privilege conditions and ICO issuer must recognise a discount by reference to the price paid by independent parties (or market value in case of absence of subscription to the ICO open to such parties at the date of token allocation).

LITHUANIA

- 4.69 The accounting by the ICO entity is premised on whether ICO tokens are in circulation (issued) or not and also on the rights and obligations arising from the tokens. Issued tokens are tokens that the ICO token has launched to the public and which it does not keep for own purposes.
- 4.70 Similar to the French accounting guidelines on ICO issuance, the Lithuania guidelines state that the value of tokens circulated during an ICO depends on the commitments and obligations undertaken by the ICO issuer to the purchaser of the tokens, the rights or powers granted to the holders of the tokens, and the period of the use and liquidity. The Lithuanian guidelines explain that, usually, all essential ICO conditions, including the rights granted to the purchasers of the tokens, commitments of the issuer and other terms and conditions should be specified in the white paper that accompanies the ICO and could be considered as a prospectus equivalent to when issuing securities.
- 4.71 The issuing entity must record a liability depending on the rights granted to holders of the ICO tokens. Guidance is provided in relation to:
- a) accounting for pre-ICO expenses; and
 - b) accounting for ICO issuance.

Accounting for pre-ICO expenses

- 4.72 An ICO is often carried out by issuing tokens by the issuing entity in exchange for another crypto-asset or, in rare cases, for fiat currency.
- 4.73 Before undertaking an ICO, the ICO entity must decide which platform it will use to launch the ICO, obtain the necessary licences for ICO purposes, prepare a white paper for their circulation, create a Smart Contract corresponding to appropriate login protocols and perform other work. During this preparatory period, the costs of the company are covered from the own capital of the company or borrowed capital. If these costs do not meet the definition of "Intangible assets" under local GAAP, they are recognised as expenses. If costs satisfy the requirements for recognition as intangible assets, they may be shown as intangible assets.

Accounting for the ICO issuance

- 4.74 ICO tokens that are not circulated (issued) during an ICO (and remain the property of the issuers) are recognised in the financial statements only when the active market of token stabilises. As explained in Paragraph 4.51, some ICO issuers choose to keep some tokens generated through the ICO to use as a means of payment for goods or services or employee services.
- 4.75 The rights granted to the purchasers of tokens by the ICO entity may be the same as the rights of the holders of securities. Therefore, the liabilities of an issuer of tokens will depend on the nature of the rights granted. They may be

similar to the rights of the holders of debt, equity instruments or other financial instruments. The issuer recognises a liability if it has an obligation or commitment to the holder:

- a) Payment tokens: these tokens generally do not grant clear rights in the future for their holders to get a specific service, goods or assets from the company circulating them. The consideration received by the issuing entity of such tokens may be designated for the establishment of the payment platform and its ongoing functioning – in this case, the issuer recognises a liability as a payment received in advance (prepayment). The liability is derecognised once the issuer commitments or obligations towards the holders have been fulfilled;
- b) Security tokens: the right granted to the purchasers of ICO tokens may be the same as the rights of the holders of securities. Therefore, the accounting by the issuer of a security token may be similar to the rights of the holders of debt, equity instruments or other financial instruments under local Lithuanian GAAP; and
- c) Utility tokens: the issuer recognises a liability for the obligation to the holder of the tokens for goods or services to be provided in the future; the issuer must assess whether the liability is fixed or variable.

OTHER ISSUES RELATED TO ICO ISSUANCE

4.76 Additional specific issues that needed further analysis including:

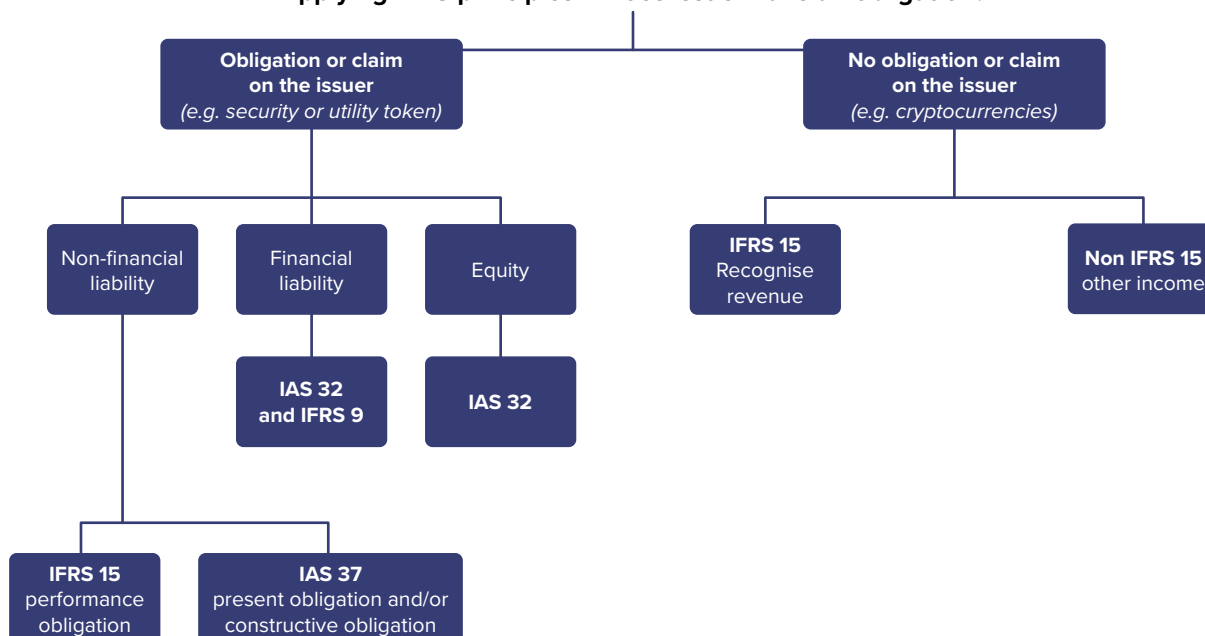
- a) ICO issue costs: accounting for ICO issue costs incurred by the issuer including development costs associated with setting up a platform to launch an ICO. These are analogous to IPO costs. The guidelines under Lithuanian GAAP address this issue and account for issue costs either as intangible assets (if they meet the definition) or as expenses recognised immediately in profit or loss. Lithuanian GAAP does not differentiate between issue costs incurred for different types of tokens;
- b) Own ICO tokens: accounting for crypto-assets that remain in the property of the issuer of the ICO (also often the founder of the crypto-asset) and are not placed in circulation. The PwC publication discusses this issue and provides accounting guidelines under IFRS; and
- c) Airdrops: accounting for “airdrops” (i.e. crypto-assets given away for free in an ICO (or subsequent to the ICO)).

SUMMARY OF APPLICABLE ACCOUNTING FOR ISSUERS AND AREAS FOR CLARIFICATION

4.77 The identified possible applicable accounting for the issuance of crypto-assets can be summarised in **Figure 4.2** below:

Figure 4.2: Summary of Applicable Accounting for Issuers

Applying IFRS principles – Does issuer have an obligation?



Source: EFRAG

4.78 Table 4.1 below outlines the assumptions of applicable accounting for different crypto-assets based on the above analysis of existing guidance. The applicable accounting reflects the identified possible applicable accounting for crypto-assets and any gaps identified in IFRS that need clarification or amendment to IFRS.

Table 4.1. Obligations, Possible Applicable Accounting and Possible Required Standard Setting.

ISSUED CRYPTO-ASSET	ISSUER OBLIGATIONS	ASSUMED APPLICABLE IFRS ACCOUNTING	AREAS NEEDING CLARIFICATION OR AMENDMENT TO IFRS
Cryptocurrencies (payment tokens) with no claim on the issuer	<ul style="list-style-type: none"> None However, need to consider whether the transaction is an exchange transaction 	<ul style="list-style-type: none"> Recognise revenue under IFRS 15 or Gain in profit or loss 	Determining whether or not the transaction would fall under the scope IFRS 15 may need clarification
E-money tokens: cryptocurrencies and utility tokens that qualify as e-money and some emergent stablecoins	<ul style="list-style-type: none"> Claim on the issuer, implicit obligations 	<ul style="list-style-type: none"> Recognise revenue under IFRS 15 when issuer meets obligation(s) 	Identifying the obligation(s) at issuance date and period over which obligation(s) is(are) met may need clarification
Security and asset tokens	<ul style="list-style-type: none"> Contain characteristics that are similar to securities, could have claim on the issuer 	<ul style="list-style-type: none"> Recognise a financial liability under IAS 32 and IFRS 9 	<ul style="list-style-type: none"> Determining whether it is a financial liability under IAS 32 and IFRS 9 may need clarification

Table 4.1. continued

ISSUED CRYPTO-ASSET	ISSUER OBLIGATIONS	ASSUMED APPLICABLE IFRS ACCOUNTING	AREAS NEEDING CLARIFICATION OR AMENDMENT TO IFRS
Utility tokens	<ul style="list-style-type: none"> Claim on the issuer, explicit and implicit obligations 	<ul style="list-style-type: none"> Recognise revenue under IFRS 15 when issuer meets obligation(s) and/or Recognise a provision (such as a constructive obligation) if the transaction falls outside of the scope of IFRS 15 	<ul style="list-style-type: none"> Identifying the obligation(s) at issuance date and period over which obligation(s) is(are) met may need clarification Identifying whether to apply IAS 37 in case the transaction is not within the scope of IFRS 15
Hybrid tokens with multiple features including some stablecoins	<ul style="list-style-type: none"> Claim on the issuer, explicit and implicit obligations combined with no claim (in case of payment feature) 	<ul style="list-style-type: none"> Accounting based on a combination of cryptocurrency (payment token) and utility token 	<ul style="list-style-type: none"> Same clarifications as for payment tokens and utility tokens
Pre-functional tokens and SAFT	<ul style="list-style-type: none"> Claims on the issuer will depend on the type of token – payment/ security/utility 	<ul style="list-style-type: none"> Accounting will depend on the type of pre-functional token issued and the issuer obligations 	<ul style="list-style-type: none"> Needs clarification
Free tokens, issuance costs, unissued tokens, reacquired tokens	<ul style="list-style-type: none"> Requires further examination and clarification 	<ul style="list-style-type: none"> Requires further examination and clarification 	<ul style="list-style-type: none"> Requires further examination and clarification

CONCLUDING REMARKS AND OBSERVATIONS

- 4.79 The diversity of crypto-assets with varied and sometimes unique economic features, rights and obligations can make it difficult to assess which IFRS Standard should be applied for their issuance by reporting entities.
- 4.80 The analysis in this chapter has shown that the possible applicable IFRS Standards for the issuance of crypto-assets are IFRS 9, IAS 32, IFRS 15 and IAS 37 albeit crypto-assets are not explicitly referred to within these standards. Furthermore, the accounting principles within the French and Lithuanian local GAAP ICO guidance detailed above are consistent with the conclusion of applicable IFRS accounting standards for issuers of crypto-assets.
- 4.81 There are various aspects of the possible applicable IFRS Standards that need clarification as described below.

AREAS OF EXISTING IFRS THAT NEED CLARIFICATION OR AMENDMENT

- 4.82 As noted in **Paragraphs 4.26 to 4.29** and summarised in the table in **Paragraph 4.78**, there are a number of issuer accounting areas that would likely need clarification or amendment to existing possible applicable IFRS Standards.
- 4.83 The areas that need clarification include classification of security and similar tokens and accounting under IFRS 9, particularly for tokens with hybrid features, and those with features that change over time. IFRS 9 was not written with crypto-assets in mind. Furthermore, as noted in **Chapter 3 Paragraph 3.51**, although security tokens might have similarities to equity instruments (such as shares), they might not in all cases qualify as financial instruments under the existing IFRS definition. Clarification or amendment might therefore be needed. Similar consideration will arise in relation to a financial liability when assessing whether a crypto-liability qualifies as a financial liability under IAS 32.

- 4.84 As mentioned in **Paragraph 4.28**, and confirmed by the existing accounting firm and NSS guidance, the application of IFRS 15 also raises a number of challenges. For instance, the applicability of IFRS 15 for issuance of tokens (i.e. when issued tokens such as utility tokens entitle holders to network goods and services) under circumstances where there may be questions on the contractual existence and enforceability of the arrangements between the issuing entity and holder (the customer).
- 4.85 As described in **Appendix 2**, some utility tokens can have features that are similar to vouchers, loyalty points or casino poker chips that are exchangeable by the holder for goods or services. For example, they are similar to an entity sells vouchers that entitle customers to future meals at specified restaurants selected by the customer or the holder of casino chips can pay for gambling services. There can be uncertainty on: the contractual obligations (e.g. are the nature of issuer-holder arrangements equivalent to contracts with customers); and which entity bears the performance obligation and ought to recognise income or revenue when the holders of utility tokens exchange them for network access, goods or services.
- 4.86 IFRS 15 provides guidance whether such contracts fall under IFRS 15 and can also help determine whether an entity is a principal or an agent. The question is whether this guidance would apply to utility tokens that are issued by an entity and entitle the holder to specific goods or services. Similar to the application challenges in IFRS 15, it may be difficult to determine whether an entity has the ability to direct another party to provide the service on its behalf (and is, therefore, a principal) or is only arranging for the other party to provide the service (and is, therefore, an agent).
- 4.87 Another issue, also common when applying IFRS 15, is identifying the nature of the performance obligations and the period over which the goods or services related to obligations will be delivered. For example, the nature of the entity's performance obligation(s) may not be known until the customer makes its choice. A similar issue will arise in the context of utility tokens, especially because a holder may either use the token (for its utility) or acquire it for investment purposes. In addition, utility tokens may have hybrid and multiple features, and its obligations may change over time.
- 4.88 Furthermore, as described in **Appendix 2** and the discussion of challenges by holders of utility tokens in **Chapter 3: Paragraphs 3.64 to 3.69**, some utility tokens bestow on their holders what may be atypical rights from a commercial standpoint (e.g. rights to update network functionality). A question could arise on what, if any, are the performance obligations of the issuer in respect of such atypical rights.
- 4.89 Similarly, clarification of circumstances for the applicability of IAS 37 (for instance when there is a constructive obligation) is needed in relation to the application of IAS 37 to crypto-related provisions.
- 4.90 Finally, as explained in **Paragraph 4.76**, there are a number of ICO issuance related issues identified in the NSS guidance (i.e. airdrops or free tokens, accounting treatment of entities holding issued own tokens and issuance costs) that need further examination of accounting implications under IFRS requirements. There are also issues highlighted in the accounting firm guidance that merit further examination and clarification under IFRS requirements including: pre-sale agreements (including SAFTs); own (not issued) ICO tokens (that are used for example to exchange for third-party services or employee services); and disclosure in respect to unissued tokens.

APPROACH TO CLARIFYING, AMENDING OR DEVELOPING NEW IFRS REQUIREMENTS

- 4.91 **Chapter 6** outlines possible approaches to clarify, amend or develop new IFRS requirements for issuers (and holders) of crypto-assets. The approaches acknowledge that there can be similar considerations in the accounting for holders and issuers of some crypto-assets (e.g. rights and obligations of utility tokens) and it makes sense that the approaches (regardless of which one is selected) should jointly consider the areas of clarification for holders and issuers.
- 4.92 The above issues (summarised in **Paragraphs 4.82 to 4.90**) could be the focus of IFRS clarification or amendment regarding the accounting for issuers.
- 4.93 One of the options considered in **Chapter 6** is that in case of no amendment to IFRS requirements and in the event that there are gaps in the applicable IFRS Standards for certain fact patterns related to issuance of crypto-assets, entities should apply IAS 8, which requires an entity to apply judgement in developing a suitable accounting policy that results in information that is relevant and reliable. In making this judgement, an entity needs to consider the requirements in

Paragraphs 10 to 12 of IAS 8 on whether to develop an accounting policy based on existing IFRSs dealing with similar issues, the definitions and principles in the Conceptual Framework as well as recent pronouncements of other standard-setting bodies. This approach is in line with the view outlined by accounting firm publications and feedback from the EFRAG research outreach.

- 4.94 The development of a new, standalone crypto-assets (liabilities) Standard is another option that could be considered by the IASB to encompass the accounting for crypto-liabilities and other issuance-related topics.

CHAPTER 5: CRYPTO-ASSETS VALUATION

- 5.1 A chapter on valuation is included in this DP because the faithful representation of transactions related to crypto-assets (liabilities) within financial statements depends on their appropriate valuations, which in turn depends on the availability of mechanisms for price discovery (e.g. active markets) and the existence of suitable valuation approaches.
- 5.2 The question of appropriate valuation arises due to the unique and/or multiple element characteristics of different crypto-assets and the novel features of business models of entities that issue crypto-assets. For instance, most entities raising capital through ICOs are at the initial stages of development, often not even operating businesses but just funding ideas. The expected pay-off from an ICO token depends on the intention of token holders either as customers or investors. For example, utility tokens which grant their holders access to the token's ecosystem, product or service, may result in token being holders more akin to customers than investors.
- 5.3 At the same time, once tokens are listed on an exchange, they can be sold in the secondary market by both customers and investor holders. Thus, the expected return from tokens (whether issued in an ICO or bought in a secondary market) could be a combination of the value derived from the ecosystem of the token, prospects of future profit distribution and the future resale price. Thus, traditional asset pricing methods might not be appropriate to value a token for an ICO process (or thereafter). In other words, there can be overlaps in characteristics and valuation approaches applied for traditional asset classes, but there are also unique features that may necessitate different valuation methodologies.
- 5.4 Furthermore, the feedback to the EFRAG research outreach indicated that stakeholders in some jurisdictions struggle to identify active markets and therefore it is necessary to have a sense of how entities may be determining value in the absence of active markets. Some argue that an active market for a crypto-asset exists only when crypto-fiat exchanges published by reliable sources exist.
- 5.5 Finally, an examination of the valuation methodologies can provide further insight on the nature and sources of the underlying economic value of crypto-assets in a manner that is helpful for thinking about the nature of the asset (e.g. their intellectual property and other intangible asset features) and the corresponding appropriate accounting requirements.

CRYPTO-ASSETS VALUATION METHODOLOGIES

- 5.6 The literature on valuation methodologies for crypto-assets is in early stages of development. A 2018 EC report¹³⁶ highlights first attempts made towards developing a theoretical framework around crypto-currency valuation. It notes that as an example, Bolt and van Oordt (2016) developed an economic framework to analyse the value of a crypto-currency. These researchers applied Fisher's (1911) quantity relation to how the value of a crypto-currency responds to changes in the speculative position of investors. Their theoretical framework shows that three elements are important for its value:
 - a) The current value of the crypto-currency to make payments;
 - b) The decision of forward-looking investors to buy crypto-currency, thereby effectively regulating its supply; and
 - c) The elements that jointly drive future consumer adoption and merchant acceptance of crypto-currency.
- 5.7 The EC report describes this model as one of many possible models. One of the complexities not captured by this model relates to transaction costs which include the costs to reward miners for maintaining the networks. The report acknowledges that the blockchain technology and related crypto-assets are still in the early stages of development, making it hard to derive a robust methodology for their valuation.

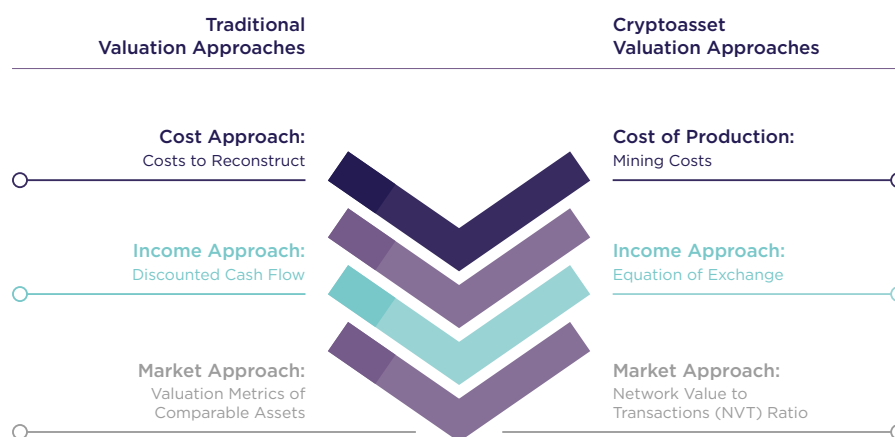
¹³⁶ European Commission, May 2018. *European Financial Stability and Integration Review 2018*. https://ec.europa.eu/info/sites/info/files/european-financial-stability-and-integration-review-2018_en.pdf

- 5.8 More recently, the 2019 CBV Institute research publication¹³⁷ (CBV Institute report) provides an analysis of suitable valuation approaches for crypto-assets. The CBV Institute report affirms that despite the recent and rapid proliferation of the crypto-asset market, there is still significant ambiguity in professional communities about the valuation techniques available and applicable for crypto-assets. The report aims to fill that void by providing a meaningful and practical synthesis of select valuation thought leadership related to crypto-assets.
- 5.9 The CBV Institute report examines three valuation approaches frequently included in the crypto-asset valuation discourse:
- a) Cost of Production;
 - b) Equation of Exchange; and
 - c) Network Value to Transactions Ratio.
- 5.10 The CBV Institute report also provides a list of (yet evolving) valuation considerations in respect of each. The report's valuation framework and valuation approaches are discussed below.

CBV INSTITUTE REPORT - VALUATION FRAMEWORK

- 5.11 The CBV Institute report explains that their research identified a number of parallels to existing valuation theories, particularly in relation to the valuation of intellectual property (IP) as follows:
- a) A pronounced similarity between certain characteristics of crypto-assets and IP. For example, IP is described as a non-monetary asset "that manifests itself by its economic properties. It does not have physical substance but grants rights and economic benefits to its owner..." These same qualities are equally applicable to some crypto-assets as noted in **Chapter 3**; and
 - b) The crypto-asset valuation approaches examined in this paper are analogous to the three approaches commonly advanced in traditional valuation approaches that are recognised within accounting literature including IFRS Standards (i.e. cost approach, income approach and market approach).
- 5.12 The CBV Institute report highlights parallels between emergent crypto-asset valuation approaches and the aforementioned traditional valuation approaches (see **Figure 5.1**).

Figure 5.1: Traditional vs. Crypto-Asset Valuation



Source: CBV Institute report

¹³⁷ CBV Institute- Singh, T.K. and Tylar, J., 2019. *Decrypting Crypto: An Introduction to Crypto-assets and a study of select valuation approaches*, Journal of Business Valuation. <https://cbvinstitute.com/wp-content/uploads/2019/12/DecryptingCrypto-Final-DIGITAL-VERSION.pdf>

COST OF PRODUCTION

Valuation theory

- 5.13 The CBV Institute report notes that one of the intuitive crypto-asset valuation approaches is Adam Hayes' Cost of Production method. Under this approach, the cost of producing or mining a crypto-asset (specifically, bitcoin, in Hayes' research) may provide an indicator of its lower bound value.
- 5.14 Hayes' proposed methodology falls neatly under the cost approach from IP valuation, under which one estimates the cost to reconstruct the subject asset assuming that "no prudent buyer would pay more for IP rights than the cost to construct a substitute of equal desirability and utility."
- 5.15 Under the Hayes' methodology, miners, operating in a competitive market and incentivised by the expectation of profits, will continue to produce (or mine) only as long as the variable cost of production is less than or equal to the market price of the mined coin. The Cost of Production approach, therefore, seeks to estimate the cost to produce (or mine) on a per coin basis.
- 5.16 Under the cost of production valuation method, the first step in determining a miner's production costs on a per coin basis involves calculating daily production costs. The CBV Institute report cites the following calculation: – production cost per day = electricity cost x mining hours per day x hashing power x average energy efficiency. They provide an example of how this calculation is applied.

Valuation considerations

- 5.17 The Hayes' Cost of Production approach in the CBV Institute report is, perhaps, one of the most straightforward crypto-asset valuation methodologies.
- 5.18 However, it adds that, while the Cost of Production approach certainly helps identify the building blocks of value, practitioners should be aware of certain of its limitations:
 - a) Lack of applicability under proof-of-stake (PoS) consensus and transaction validation mechanism;
 - b) Transaction fees not considered;
 - c) Non-monetary incentives of miners not considered;
 - d) Mining centralisation mainly because miners tend to capitalise on economies of scale, which can lead to a degree of centralisation and has the potential to impact both the market price of the coin and the miner's cost to produce it; and
 - e) Cost ≠ Value.

Equation of exchange

Valuation theory

- 5.19 The second valuation approach explored in the CBV Institute report is Chris Burniske's Equation of Exchange, which, based on existing literature, seems to be frequently applied in valuing utility tokens. Burniske's valuation approach is similar to the classic discounted cash flow (DCF) method (an income-based approach) frequently used in the valuation of businesses and IP.
- 5.20 Furthermore, the CBV Institute report explains that under the typical DCF analysis, an asset's value is determined by discounting the future expected cash flows based on a risk-adjusted rate of return. However, utility tokens do not directly generate cash flows, and therefore it is hard to ascertain the intrinsic value for token holders in the traditional sense. Burniske assumes that the economic utility of a token holder is instead correlated with the economic value of the associated network ecosystem (i.e. which is somewhat akin to a public company's market capitalisation). Burniske characterises this measure as "current utility value" (CUV).

- 5.21 In a similar fashion, Burniske and Tatar¹³⁸ (2017) examine the fundamentals of valuing crypto-assets. They consider the white paper to be the starting point for valuation and identify the factors influencing the intrinsic value of crypto-assets including network associated factors such as the community and the marketplace that naturally develops around the asset. They note that there are two kinds of value that the community places on any kind of crypto-asset: utility value which is similar to the CUV referred to in the CBV Institute report (see preceding paragraph) and investment value.

Valuation considerations

- 5.22 The CBV Institute report concludes that Burniske's Equation of Exchange shares many characteristics with traditional cash flow valuation approaches. However, the report states that practitioners should be aware of certain critical nuances in its application, including the following:
- a) Cash Flow v. Current Utility Value;
 - b) Model Inputs: Garbage In, Garbage Out; and
 - c) Different Discounting Methodology.

Network Value to Transactions Ratio

Valuation theory

- 5.23 The third approach examined by the CBV Institute report is the Network Value to Transactions (NVT) ratio, a market-based valuation approach first introduced by Willy Woo. This approach requires that the value-relevant metric evaluated in the valuation is "daily transaction volume".
- 5.24 The components of the NVT ratio are as follows:
- a) The numerator, the crypto-asset's network value, is akin to a public company's market capitalisation (i.e. the total market value of all coins or tokens in circulation); and.
 - b) The denominator, daily transaction volume, measures the crypto-asset's on-chain transaction volumes, expressed in fiat currency. In contrast to the P/E ratio where the denominator represents a company's earnings, many crypto-assets do not generate cash flows. Therefore, the daily transaction volume is used as a proxy for earnings and represents the value flowing through the network on a given day.

Valuation considerations

- 5.25 The NVT ratio, one of the most popular crypto-assets market-based valuation approaches, may provide a methodology to evaluate or test the fundamental value of crypto-assets. However, the CBV Institute research paper notes that, at present, there are a number of limitations of which practitioners should be mindful, including the following:
- a) Lack of historical data;
 - b) Several variants of the initial NVT ratio; and
 - c) Challenges in identifying meaningful comparators.

CBV Institute report conclusion on valuation approaches

- 5.26 The CBV Institute report concludes that the three valuation approaches examined herein are still in the initial stages of development and, given the various noted limitations, are likely to continue to undergo significant refinement as the crypto-asset market matures. Nevertheless, their respective contributions to the crypto-asset valuation discourse have been significant. Specifically, the approaches highlight a set of new and important factors that valuation practitioners should consider, such as:

138 Burniske, C. and Tatar, J. 2017. *Cryptoassets The Innovative Investor's Guide to Bitcoin and Beyond*. McGraw-Hill Education.

- a) Is the crypto-asset a digital coin or a digital token?
- b) If a digital coin, what type of consensus mechanism does the crypto-asset employ to validate transactions? What value implications do arise as a result?
- c) What does the crypto-asset allow a user to do? Is it a general means of payment across different networks or a grant of access?
- d) What product/service will the crypto-asset provision and is it useful?
- e) What are the value drivers?

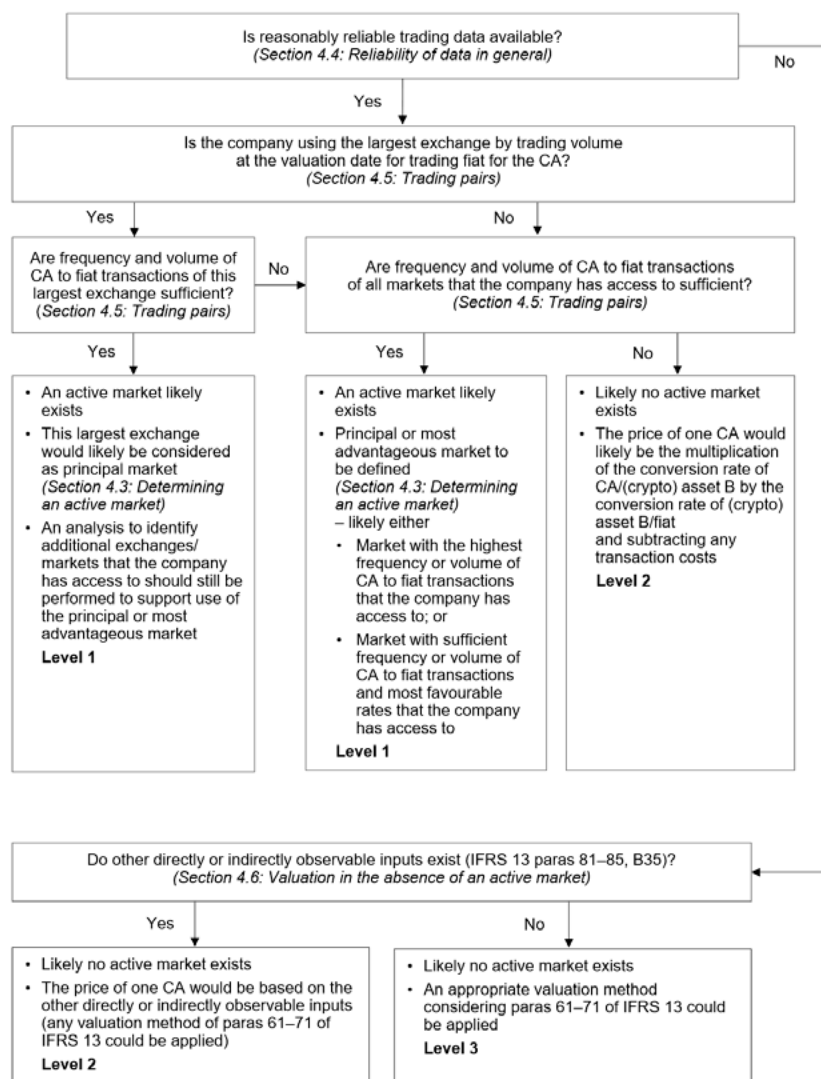
OTHER FAIR VALUE CONSIDERATIONS FOR CRYPTO-ASSETS

- 5.27 The EFRAG research outreach feedback indicated that there is still a great concern in relation to measurement at fair value of crypto-assets. Overall, there is significant judgement involved in determining the fair value applicable to the valuation of crypto-assets, i.e. whether a specific market has sufficient liquidity and arm's length activity to constitute an active market as defined in IFRS 13.
- 5.28 Some respondents to the outreach referred to the insights provided in the PwC publication and the challenges encountered, especially given that markets for crypto-assets are rapidly evolving, determining the fair value can be complex:
- a) Many crypto-assets show a high intra-day volatility of prices;
 - b) There might be several markets for a particular crypto-asset that meet the definition of an active market under IFRS 13, and each of those markets might have different prices at the measurement date. Determining the principal market for the asset might be challenging; and
 - c) Establishing whether an active market exists might be challenging because crypto-assets are frequently traded primarily into other crypto-assets, as opposed to fiat currencies. Some respondents to the EFRAG outreach viewed these non-fiat exchanges as a constraint to meeting the definition of an active market.
- 5.29 The PwC publication considers the following:
- a) The fair value hierarchy of IFRS 13 Fair Value Measurement;
 - b) Determining an Active Market;
 - c) Valuation in the absence of an active market; and
 - d) Disclosures.

THE FAIR VALUE HIERARCHY OF IFRS 13

- 5.30 Fair values under IFRS 13 are divided into a three-level fair value hierarchy (level 1 (active market), level 2 (observable inputs) and level 3 (unobservable inputs)).
- 5.31 Generally, IFRS 13 gives precedence to observable inputs over unobservable inputs. If a valuation is not based on level 1 inputs at the reporting date (for example, because there is not an active market at the date or time of reporting), the value will need to be determined using a valuation model. The objective in such valuations should be to estimate what the exit price of the entity's position at the valuation date would be.
- 5.32 The PwC publication provides the following decision tree (**Figure 5.2**) to help determine a valuation method.

Figure 5.2: Determining Valuation Method



Source: PwC publication

DETERMINING AN ACTIVE MARKET

- 5.33 The first step in considering the fair value of a crypto-asset is to determine if an active market exists for that crypto-asset at the measurement date (in other words, whether a level 1 valuation can be performed). IFRS 13 defines an active market as one “in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis”.
- 5.34 A benchmark for evaluating the depth of a market could include active trading days within a given time period. The average daily turnover ratio, which is calculated by dividing the average daily trading volume by the total amount of crypto-assets outstanding, is a metric for volume that could also be considered. IFRS 13 does not define specific thresholds on frequency and volume to determine if an active market exists. This means that the conclusion requires professional judgement.
- 5.35 In some cases, there might be several markets for a particular crypto-asset that meet the definition of an active market, and each of those markets might have different prices at the measurement date. In these situations, IFRS 13 requires the entity to determine the principal market for the asset.

- 5.36 Furthermore, the principal market will be the market with the greatest volume and level of activity for the relevant crypto-asset which the entity holding the crypto-asset can access. IFRS 13 also states that if there is not a clear principal market (i.e., because there are several markets with approximately the same level of activity), the default is to the most advantageous market within the group of active markets to which the entity has access with the highest activity levels. Determining a principal market for crypto-assets might be difficult.
- 5.37 The PwC publication further informs that other issues that arise in determining if there is an active market are:
- a) In some cases, there might be significant price fluctuations between markets. These could result in a difference between the price in the principal (or most advantageous) market and the actual price received, and hence in day one gains or losses, when using a fair value model. The existence of such price differences would not, of itself, be an indicator that there is no active market; and
 - b) Some crypto-assets aim to be backed by a fiat currency – for example, for one crypto-asset token to represent the value of US\$1. However, because these crypto-assets are not considered to be a foreign or functional currency under the definition of IAS 21, they are treated no different to other crypto-assets with regard to determining if an active market exists.

VALUATION IN THE ABSENCE OF AN ACTIVE MARKET

- 5.38 As mentioned in **Paragraph 5.4**, determining an active market under IFRS 13 is not straightforward, with some sharing the view that an active market for a crypto-asset exists only when crypto-fiat exchanges published by reliable sources exist. It is therefore necessary to have a sense of how entities may be determining value in the absence of active markets.
- 5.39 Many crypto-assets will not have an active market as described by IFRS 13, so they will need to be valued using a valuation technique. In determining an appropriate valuation technique, IFRS 13 indicates that the technique should be appropriate in the circumstances, and it should maximise the use of relevant observable inputs and minimise the use of unobservable inputs.
- 5.40 For a crypto-asset, observable inputs might include information obtained on bilateral transactions outside an active market, certain quotes from brokers, and other information, given that many markets are still unregulated.
- 5.41 In general, a valuation model should be applied consistently from period to period. The market for crypto-assets is evolving rapidly, so valuation techniques used by market participants are also likely to evolve. IFRS 13 permits an entity to change valuation techniques (or change weightings amongst multiple valuation techniques) where the change results in a measurement that is equally, or more, representative of fair value, in the circumstances. Such factors include: changes in the market conditions; new markets; and new information. All these factors are key considerations for crypto-assets and the markets in which they operate which are continuously evolving.

CONCLUDING REMARKS AND OBSERVATIONS

- 5.42 The EFRAG research has established that there is an emergence of valuation methodologies tailored for crypto-assets. The new valuation methodologies are comparable to and have some overlapping attributes with the traditional valuation approaches recognised within accounting literature including IFRS standards (i.e. cost, income and market-based approaches) but also have differentiated feature particularly in respect of assessing the intrinsic value of utility tokens, which is typically derived from the issuing network's growth potential.
- 5.43 These emerging valuation methodologies also provide further insight on the nature and sources of the underlying economic value of crypto-assets in a manner that is helpful for thinking about the nature of these assets (e.g. their intellectual property and other intangible asset features) and the corresponding appropriate accounting requirements. Ultimately, the appropriate approach will depend on the specific facts and circumstances of the crypto-asset being measured. Furthermore, the fact that crypto-assets are still in an experimental phase, increases the likelihood of volatility of their market price/fair value. This could also affect the selection of an appropriate valuation approach.

AREAS OF EXISTING IFRS THAT NEED CLARIFICATION OR AMENDMENT

- 5.44 There is also indicative guidance from accounting firm publications on challenges to determine an active market for crypto-assets, which is a first and essential step in considering the fair value measurement under IFRS 13.
- 5.45 The importance of identifying active markets is further made apparent by the CBV Institute report that reviewed the reporting practices of 32 holder entities in a particular jurisdiction (Canada) and found that a majority of the studied companies applied either Level 1 or Level 2 fair values. Similarly, the review of the financial statements of a Switzerland-based financial institution (Vontobel¹³⁹) shows that its crypto-assets are only recognised based on Level 1 fair value.
- 5.46 However, some of the participants in the EFRAG research outreach indicated that determining an active market under IFRS 13 is not straightforward; with some sharing the view that an active market for a crypto-asset exists only when crypto-fiat exchanges with prices published from reliable sources exist. It is therefore necessary to clarify how an entity should determine fair value in the absence of active markets.
- 5.47 There are also unique features associated with crypto-assets markets that need to be considered, including: 24/7 trading¹⁴⁰; multiple crypto-exchanges versus few traditional exchanges; significant pricing variances across sources; and the ability for crypto-crypto in addition to crypto-fiat currency exchanges. There could be a question of the accounting implications of these unique features. For example, should these features affect the definition of an active market?

APPROACH TO CLARIFYING, AMENDING OR DEVELOPING NEW IFRS REQUIREMENTS

- 5.48 Chapter 6 outlines possible approaches to clarify, amend or develop new IFRS requirements for holders and issuers of crypto-assets. The possible options consider the development of application guidance for areas that need clarification or amendments to existing IFRS Standards. Both these choices could address clarification of issues on fair value measurement, such as active market, in case the IASB decides that fair value measurement is the appropriate measure for crypto-assets and crypto-liabilities.
- 5.49 It also considers the development of a new standard to address the accounting for crypto-assets. Although IFRS 13 considers several ways to determine a meaningful fair value (Level 1, Level 2 and Level 3), as noted earlier in **Paragraphs 5.8 to 5.10**, the EFRAG research has identified the emergence of other valuation methodologies tailored for crypto-assets. The development of valuation guidance for crypto-assets and crypto-liabilities would need to consider parallels to these other crypto-specific valuation methods and toolkits that have emerged and/or continue to emerge.

¹³⁹ https://www.vontobel.com/siteassets/about-vontobel/downloads/2018-12-31_gv_annual-report_en.pdf Page 182 of the 2018 Vontobel Annual Report.

¹⁴⁰ Forex markets are also 24/7.

CHAPTER 6: POTENTIAL DEVELOPMENT OF IFRS REQUIREMENTS FOR CRYPTO-ASSETS (LIABILITIES)

6.1 Building on the issues identified in **Chapters 3, 4 and 5**, this chapter outlines considerations and possible approaches for the potential clarification and/or development of IFRS requirements.

KEY PRINCIPLES

ANALYSIS OF ECONOMIC SUBSTANCE INCLUDING RIGHTS AND OBLIGATIONS

- 6.2 To develop accounting requirements for crypto-assets transactions, there ought to be the ability to describe and categorise crypto-asset transactions of a similar economic nature (i.e. transactions ought to be capable of being standardised).
- 6.3 However, as noted in the introduction section and **Appendix 2**, there is diversity in types, relative opacity of rights and obligations and an ongoing and rapid innovation of crypto-asset products. **Appendix 3** also highlights the heterogeneous regulatory approaches that are applied worldwide and that there is no consensus or harmonisation in the classification taxonomies applied by regulators across different EU jurisdictions and globally.
- 6.4 The combination of these factors could result in some stakeholders thinking that there are so many “moving and unknown” parts associated with crypto-assets transactions and considering such fluidity as not conducive for developing explicit accounting requirements for these transactions at this point in time. However, a counterargument to such a view is that the combination of IFRS requirements and the Conceptual Framework ought to also be able to address innovative, early-stage transactions.
- 6.5 Additional reasons supporting the consideration and possible development of IFRS requirements for crypto-assets are as follows:
- a) As noted in **Appendix 3**, a 2019 Cambridge CAF publication¹⁴¹ on the regulatory landscape of crypto-assets, which reviewed the classification of crypto-assets across 23 jurisdictions, found that 32% of them make a distinction and have an explicit classification for different crypto-assets.
 - b) The existence of taxonomies, which are at least applied by some regulators, means that a similar categorisation of crypto-assets ought to be also possible for accounting standard-setting purposes. Some stakeholders have argued against current taxonomies that classify crypto-assets into three main categories (i.e. payment tokens, utility tokens and security tokens) with the view that these categories are static and risk being overtaken by innovation and they do not take full account of the hybrid features of crypto-assets.
 - c) However, a taxonomy classification does not assume the existence of pure or exclusively utility or security or payment tokens. It instead depicts the primary function and predominant economic attribute of tokens. It does not preclude the analysis of exceptions and grey areas.
 - d) Furthermore, the fundamental rights and economic characteristics for various types of crypto-assets are in substance economically similar to existing “non crypto” transactions (e.g., foreign currency holding, investment in commodities, holders of loyalty miles, emission rights). These fundamental economic characteristics are unlikely to become obsolete for either crypto-assets or similar analogous transactions. Hence, a taxonomy classification can have ongoing relevance for the accounting for crypto-assets (liabilities) and similar transactions.

¹⁴¹ Cambridge Center for Alternative Finance, April 2019. *Global Cryptoasset Regulatory Landscape Study*. https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2019-04-ccaf-global-cryptoasset-regulatory-landscape-study.pdf

- e) Some of the noted rapid innovation may be in the hybridisation of crypto-asset features and in the technology mechanisms used to fulfil economic functions rather than being a change in their fundamental economic characteristics. Hence, ongoing innovation ought not to limit the usefulness of a taxonomy classification that distinguishes key economic features, rights and obligations. Besides, a taxonomy classification could facilitate the conceptual thinking about the appropriate required accounting for hybrid tokens. For instance, on how the bifurcation of component attributes could occur for accounting purposes and to identify the predominant component features of hybridised crypto-assets.
 - f) The possible role of a classification taxonomy in developing accounting requirements is further discussed in **Appendix 2**. In addition, **Appendix 2 Paragraphs A2.40 to A2.50** outlines a granular breakdown of the distinctive rights for utility tokens and security tokens and provides illustrative examples of crypto-assets that have these fundamental distinctive rights. The granular breakdown and focus on rights can mitigate potential concerns that utility tokens and security tokens classification may be too broad for accounting purposes.
- 6.6 Overall, there is no reason why a suitable classification taxonomy cannot be developed or adapted from existing taxonomies to serve as a starting point for the case by case consideration of crypto-assets' economic characteristics prior to determining their appropriate accounting.

HOLDER AND ISSUER CLASSIFICATION CORE PRINCIPLES

- 6.7 **Consideration of holder business purpose:** as concluded in **Chapter 3**, the asset classification should be determined through the combined consideration of the business purpose for holding crypto-assets and their underlying economic characteristics. In other words, held crypto-assets classification should be determined by their function and nature. Classification by function and nature is the approach within the IFRS IC agenda decision on cryptocurrencies and within most of the analysed NSS guidance (i.e. except for the Japan guidance where crypto-assets are considered to be a unique asset type).
- 6.8 **Consideration of nature of obligation:** as concluded in **Chapter 4**, accounting by issuers should be based on their determination of whether there is an obligation and on the nature of the obligation. There is need to consider whether the IFRS requirements sufficiently capture the obligations that can arise from issuance of crypto-assets or whether such issuance gives rise to any unique obligations that necessitate the amendment or development of new IFRS requirements.

POSSIBLE APPROACHES TO THE CLARIFICATION OR DEVELOPMENT OF IFRS REQUIREMENTS

- 6.9 The following are considered to be plausible options for either the clarification or development of IFRS requirements.

OPTION 1: NO AMENDMENTS TO IFRS REQUIREMENTS

- 6.10 Under this option, there will be no change in applicable IFRS Standards. In effect, preparers can apply these Standards including having to develop own accounting policy (IAS 8).

OPTION 2: AMEND AND/OR CLARIFY EXISTING IFRS STANDARDS

- 6.11 Possible clarification or amendments of existing IFRS Standards could be done in the following ways:
- a) **Provide clarifying guidance on specific fact patterns:** topics that may need clarification are summarised in **Paragraphs ES24 to ES28** in the **Executive Summary** section and detailed in **Chapters 3, 4 and 5** and include the following:
 - (i) Accounting by holders on behalf of others in all applicable holders Standards (IAS 8 could be currently applicable);
 - (ii) Applicable accounting for utility and hybrid tokens with atypical rights including on how to apply the principles of bifurcation and guidance for prepayment assets (IAS 1, IAS 8, IFRS 9 and IFRS 15 could be currently applicable);

- (iii) Determining the carrying value of holdings from barter transactions (IAS 16, IFRS 15 could be currently applicable);
 - (iv) Determining the carrying value of holdings from mining activities (IAS 2, IAS 38, IFRS 11 and IFRS 16 could be currently applicable);
 - (v) Circumstances that may affect eligibility for IFRS 9 for holders and issuers, and IFRS 15 and IAS 37 for issuers; and
 - (vi) Identification of active crypto-asset markets as defined in IFRS 13.
- b) **Narrow scope exclusion amendment:** have a narrow scope amendment that excludes crypto-assets from the scope of applicable Standards (e.g. include crypto-assets in scope exclusions outlined in IAS 2.2-3 and IAS 38.2-7) and effectively allow preparers to develop their own accounting policy. Excluding cryptocurrencies (a subset of crypto-assets) from the scope of IAS 38 has also been proposed by some stakeholders (IOSCO and Canadian Securities Administrators in their responses¹⁴² to the IFRS IC agenda decision) and was suggested¹⁴³ by some ASAF members in respect of the December 2019 session on the forthcoming IASB agenda consultation.
- c) **Amend IFRS requirements:** update of applicable IFRS Standards to make them address possible gaps in IFRS requirements. Possible amendments could include:
- (i) An update of IAS 2 and IAS 38 requirements to explicitly address situations where commodities or intangible assets including eligible items (e.g. cryptocurrencies with no claim on the issuer) that are held as trading or investment assets. BC5 of IAS 38 states that the business purpose is not relevant for the classification as intangible assets. However, some stakeholders (e.g. 2016 AASB publication) have proposed the need for a distinction - similar to that made for the accounting for tangible assets - between the accounting treatment of intangible assets held as cash-generating assets within a business and those held as investments.
- The amendments to IAS 2 and IAS 38 could address the appropriate measurement of intangible assets or commodities held as investments based on the holding time horizon (cost, FVPL or FVOCI). Furthermore, the notion of “held in the ordinary course of business” that is used to exclude intangible assets from scope of IAS 38 ought to be defined (see **Paragraphs 3.33 to 3.36** for further discussion).
- (ii) An update of IAS 38.72 to allow FVPL in addition to FVOCI under the revaluation model when it is applied for the measurement of eligible items (e.g. cryptocurrencies with no claim on the issuer) and/or to still allow FVOCI when there is no active crypto-assets market. This could potentially address shortcomings in current measurement requirements for cryptocurrencies highlighted by some stakeholders including those who participated in the EFRAG outreach (see **Paragraphs 3.37 to 3.48** for further discussion).
 - (iii) An update of IAS 32.11 to include items such as crypto-assets (e.g. utility tokens, hybrid tokens, some security tokens¹⁴⁴) that have investment asset attributes and functional equivalence to securities but do not qualify as financial instruments for accounting purposes. The alternative to an update of IAS 32.11 would be a new standalone Standard that treats crypto-assets as a unique asset that is similar to but is not a financial asset (see **Paragraphs 3.49 to 3.56** for further discussion).
 - (iv) An amendment of items considered to be cash equivalent in IAS 7.6 or that provides an explicit definition of cash going beyond the implicit definition in Paragraph AG3 of IAS 32. This amendment may be needed because within IFRS requirements there is a description of items that can be considered cash equivalents, but there is no explicit definition of cash. An explicit definition of cash and cash equivalent could potentially result in the inclusion of the following crypto-assets as either cash equivalents or cash: stablecoins that are pegged to fiat currency on a 1.1 basis; and cryptocurrencies that qualify as e-money under jurisdictional definitions.

¹⁴² IOSCO (2019) and CSA (2019)

¹⁴³ IASB ASAF (2019)

¹⁴⁴ Security tokens would be expected to qualify as financial instruments for accounting purposes. They can have functional equivalence to equity and debt (e.g. rights to profit) but not have the same legal and contractually enforceable rights as traditional securities and could fail to meet the IAS 32 definition of financial asset, financial liability or equity.

The current restrictive classification of items as either cash or cash equivalent could be seen as a gap in IFRS requirements, especially if one considers that technology-driven developments including the advent of private sector stablecoins and CBDCs may change the commonly understood definition of money. But there is also need to consider the risks to monetary policy and financial stability highlighted in a March 2020 Banque de France working paper¹⁴⁵ that could be exacerbated if stablecoins were to be classified as either cash or cash equivalents in financial statements (see **Paragraphs 3.57 to 3.63** for further discussion).

- 6.12 The pros and cons of each of the above approaches to addressing IFRS Standards are further analysed in **Table 6.1** below. It may be easier to enact a narrow-scope amendment to exclude crypto-assets from IAS 2 and IAS 38 and have preparers effectively develop their own accounting policy than it would be to amend the requirements of these Standards. However, the main disadvantage of having preparers develop their own accounting policy is that it could contribute to or entrench the diversity in current practice. There may also be a question of whether crypto-assets are that different, in their economic substance, from other transactions within the scope of applicable standards so as to justify the development of own accounting policy.

OPTION 3: A NEW IFRS STANDARD ON CRYPTO-ASSETS (LIABILITIES) OR DIGITAL ASSETS (LIABILITIES)

- 6.13 This option will be to develop a new standalone Standard for crypto-assets (liabilities) on the premise that they are unique assets.
- 6.14 A new IFRS Standard can address the multiple issues on different topics on crypto-assets (liabilities) including those that are summarised and intended to be addressed under Option 2.
- 6.15 At the same time, crypto-assets are not the only use case of blockchain technology. There are extended blockchain-based applications (e.g. in supply chain management and financial services) that may also qualify as assets (liabilities) and/or whose transactions may have novel features that necessitate a review of existing accounting requirements.
- 6.16 Therefore, the scope of a new Standard could, where needed, go beyond crypto-assets (liabilities) as defined in this DP. It could encompass a broader category of digital assets (liabilities) (e.g., non-fungible digital assets founded in the virtual reality world such as virtual land¹⁴⁶, virtual houses, virtual collectibles such as crypto-kitties¹⁴⁷) and extended applications of blockchain/DLT technologies. It may also include non-fungible smart contracts that can be sold and/or charge fees¹⁴⁸ to perform certain economically valuable tasks. For example, AXA's fuzzy insurance smart contract¹⁴⁹ that links the Ethereum blockchain to a flight traffic database and automatically compensates travellers who are policyholders if their flight is delayed.
- 6.17 That being said, unlike crypto-assets (liabilities) that have significant transactions history and evidence of being monetisable, it is hard to readily identify whether extended blockchain applications are assets or liabilities according to the Conceptual Framework definition, and/or if they give rise to any novel accounting issues. Furthermore, they may have dissimilar economic characteristics to crypto-assets (liabilities). Therefore, if a new and broader Standard for digital assets (liabilities) were to be developed, there will need to be careful consideration of its appropriate scope.
- 6.18 **Table 6.1** below further analyses the above three options including a non-exhaustive outline of the pros and cons related to each of these options.

¹⁴⁵ Banque De France - Melachrinou, A., and Pfister, C. 2020. *Stablecoins A Brave New World?*, March 2020 Working Paper 757. <https://publications.banque-france.fr/sites/default/files/medias/documents/wp757.pdf> - This paper highlights that risks that would arise from wholesale and retail stablecoins, including those from the private sector and central banks.

¹⁴⁶ Cointelegraph.com - Pirus (2017) article

¹⁴⁷ Cryptokitties are non-fungible tokens of virtual cat images possessing non-replicable distinctive features due to their being recorded on the blockchain and they have value due to their digital scarcity enabled by blockchain technology. Evidence of their economic value is that in 2018 there was an investor that was willing to pay USD170,000 for a crypto-kitty.

¹⁴⁸ Users of smart contracts usually pay a fee for computation performed on the blockchain computer for the smart contract. Ethereum network fees are measured in units called "gas" but ultimately charged in ether.

¹⁴⁹ Medium.com-Clement, A. 2019. *fuzzy by AXA: Ethereum Smart Contracts in Detail*. Medium.com website. May 24, 2019. <https://medium.com/@humanGamepad/fuzzy-by-axa-ethereum-smart-contract-in-details-40e140a9c1c0>

Table 6.1: Summary of Considerations in Assessing Possible Approaches to Clarification or Development of IFRS Requirements

POSSIBLE APPROACHES TO CLARIFICATION OR DEVELOPMENT OF IFRS REQUIREMENTS	REASONS FOR POSSIBLE APPROACH TO CLARIFICATION OR DEVELOPMENTS OF IFRS REQUIREMENTS	CONSIDERATIONS
Option 1: No amendment to IFRS Standards		
No change to applicable IFRS Standards, preparers apply applicable IFRS or develop own accounting policy where needed	<p>May consider that there is not sufficient evidence on the accounting limitations.</p> <p>Crypto-assets (liabilities) are not yet pervasive among IFRS entities.</p>	<p>Pros</p> <ul style="list-style-type: none"> Currently, crypto-assets (liabilities) are not pervasive amongst IFRS reporting entities. Therefore, not amending existing IFRS Standards nor issuing a new Standard might be the best choice in the current early stages of market development as it allows market maturation before decisions on appropriate accounting requirements can be made. <p>Cons</p> <ul style="list-style-type: none"> Retains situation where stakeholders may lack clarity on the applicability of IFRS Standards in accounting for crypto-assets (liabilities). Leaves some unresolved aspects in the recognition and measurement of crypto-assets (liabilities) that may need standard-setting activities. Effectively encourages own accounting policy and contributes to diversity in practice.
Option 2: Possible clarification or amendment of existing IFRS Standards		
Application guidance can be developed for specific fact patterns	<p>Areas that may need IFRS IC agenda decision are identified in Chapters 3, 4 and 5 (e.g., accounting by holders on behalf of others, applicable accounting for utility tokens with atypical rights, principles of bifurcation for hybrid tokens, carrying value of holdings from barter transactions, carrying value of mining activities, circumstances that may affect eligibility for IFRS 15 and IAS 37 for issuers, identification of crypto-assets active markets). These are summarised in Executive Summary Paragraphs ES24 to ES28.</p>	<p>Pros</p> <ul style="list-style-type: none"> Currently, crypto-assets (liabilities) are not pervasive amongst IFRS reporting entities. Therefore, not amending existing IFRS Standards nor issuing a new Standard might be the best choice in the current early stages of market development as it allows market maturation before decisions on appropriate accounting requirements can be made. Can reduce diversity in current practice. <p>Cons</p> <ul style="list-style-type: none"> Leaves some unresolved aspects in the recognition and measurement of crypto-assets that may need standard-setting activities.

Table 6.1. continued

POSSIBLE APPROACHES TO CLARIFICATION OR DEVELOPMENT OF IFRS REQUIREMENTS	REASONS FOR POSSIBLE APPROACH TO CLARIFICATION OR DEVELOPMENTS OF IFRS REQUIREMENTS	CONSIDERATIONS
Possible narrow-scope amendment to exclude crypto-assets from the scope of IAS 2 or IAS 38 and to effectively allow the development of own accounting policy as the default choice in accounting for eligible crypto-assets (e.g. cryptocurrencies with no claim on issuer)	<p>Chapter 3 - Paragraphs 3.37 to 3.48 highlight the following gaps in existing IFRS requirements for the accounting for crypto-assets that are classified as non-financial assets and are held for investment</p> <ul style="list-style-type: none"> • IAS 2 and IAS 38 requirements were not written with crypto-assets in mind. They do not explicitly address intangible assets, commodities and other non-financial assets that are held as investments. • IAS 2 and IAS 38 allows fair value measurement (FVPL is allowed under IAS 2 for crypto-assets held in the ordinary course of business and FVOCI is allowed under IAS 38 revaluation method), but these Standards also allow measurement approaches (net realisable value, cost) which some stakeholders claim do not result in decision-useful information due to the economic characteristics of crypto-assets with trading or investment asset attributes. • IAS 38 revaluation approach not applicable when there is no active market for crypto-assets. 	<p>Pros</p> <ul style="list-style-type: none"> • Easier to implement scope exclusions than amending the requirements of IAS 2 and IAS 38. • Avoids disrupting existing requirements. • Can lead to timely response to stakeholder needs. <p>Cons</p> <ul style="list-style-type: none"> • Requiring development of own accounting policy choice as the default accounting approach will contribute to diversity in practice. • Crypto-assets transactions are not pervasive amongst IFRS reporting entities to an extent that justifies the amendment of IAS 2 and IAS 38. • One justification for possibly excluding crypto-assets from the scope of IAS 2 and IAS 38 is that they have trading or investment asset attributes and some stakeholders consider FVPL to be their appropriate measurement approach. However, a narrow-scope amendment intended to allow FVPL measurement for crypto-assets could be perceived as being based on an implicit assumption that fair value measurement is the appropriate, single measurement for all financial instruments. And such an assumption is inconsistent with the mixed measurement approach required under IFRS.
Possible amendment to IAS 2 and IAS 38 requirements to explicitly address situations where commodities or intangible assets- that could include some crypto-assets (e.g. cryptocurrencies with no claim on issuers)- are held as investments	<p>Chapter 3 - Paragraphs 3.37 to 3.48 highlight the following:</p> <ul style="list-style-type: none"> • Same reasons as for a narrow-scope amendment to exclude crypto-assets from scope of IAS 2 and IAS 38 • The previously applicable IAS 25 was superseded by IAS 39 and IAS 40, leaving a gap in IFRS literature for the accounting of non-financial assets that are held as investments including commodities, emission trading rights and water rights 	<p>Pros</p> <ul style="list-style-type: none"> • Can enhance the accounting for crypto-assets and other non-financial asset investments that may fall within the scope of IAS 2 and IAS 38. <p>Cons</p> <ul style="list-style-type: none"> • Crypto-assets transactions are not pervasive amongst IFRS reporting entities to an extent that justifies the amendment of IAS 2 and IAS 38. • Likely to have lengthy due process.

Table 6.1. continued

POSSIBLE APPROACHES TO CLARIFICATION OR DEVELOPMENT OF IFRS REQUIREMENTS	REASONS FOR POSSIBLE APPROACH TO CLARIFICATION OR DEVELOPMENTS OF IFRS REQUIREMENTS	CONSIDERATIONS
Possible amendment to IAS 38 requirements to allow fair value measurement for intangible assets when markets are inactive and FVPL when intangible assets have investment asset attributes	Chapter 3 - Paragraphs 3.42 to 3.48 highlight that the IAS 38 revaluation model does not allow fair value measurement when there is no active market for crypto-assets and FVOCI is not representative of crypto-assets with trading or investment asset attributes.	<p>Pros</p> <ul style="list-style-type: none"> Amending IAS 38 to explicitly address the measurement shortcomings (i.e. not allowing fair value measurement) when there is no active market can be applicable to eligible crypto-assets (e.g. cryptocurrencies with no issuer claim) and a broad set of other intangible assets. <p>Cons</p> <ul style="list-style-type: none"> Crypto-assets transactions are not pervasive amongst IFRS reporting entities to an extent that justifies the amendment of IAS 38. Likely to have lengthy due process.
Possible amendment to IAS 32 to broaden the crypto-assets that can be classified as financial assets by holders or financial liabilities by issuers	Chapter 3 - Paragraphs 3.49 to 3.56 highlight that <ul style="list-style-type: none"> Some crypto-assets (utility tokens and some security tokens) may qualify as securities according to regulatory definitions and/or be held for investment purposes but not qualify to be classified as financial instruments under IAS 32 definitions. IAS 32 definition of financial asset/liability or equity may exclude crypto-assets with functional equivalence to financial instruments (utility, hybrid and some security tokens that may have functional equivalence to shares with rights to issuer profit but are not shares as they do not have ownership or voting rights). 	<p>Pros</p> <ul style="list-style-type: none"> Can result in comparable accounting between items that qualify as financial instruments under IAS 32 and crypto-assets that have functional equivalence to financial instruments. <p>Cons</p> <ul style="list-style-type: none"> Can be disruptive to the well-established definition of financial instruments, which is based on enforceable contractual terms. Changing the existing definition of financial instruments may result in unintended consequences. Likely to have lengthy due process.

Table 6.1. continued

POSSIBLE APPROACHES TO CLARIFICATION OR DEVELOPMENT OF IFRS REQUIREMENTS	REASONS FOR POSSIBLE APPROACH TO CLARIFICATION OR DEVELOPMENTS OF IFRS REQUIREMENTS	CONSIDERATIONS
Possible amendment of IAS 7 and IAS 32 to update the definition of cash equivalents or cash	<p>Chapter 3 - Paragraphs 3.57 to 3.63 highlight the following reasons for the possible update in the definition of cash or cash equivalents</p> <ul style="list-style-type: none"> • IAS 7 lists what is included under cash but does not have a definition of cash, IAS 32 includes cash in the definition of financial assets and gives implicit definition in Paragraph AG 3 • Why shouldn't stablecoins that are pegged to fiat currencies on a 1:1 basis be considered as cash? • Why shouldn't crypto-assets that qualify as e-money based on jurisdictional definitions be treated as cash? • Why shouldn't entities that accept and use crypto-assets as a means of payment for goods and services consider them as equivalent to foreign currency and accounted for under IAS 21? • Innovation may result in critical mass uptake of crypto-assets as a means of exchange making them more cash-like. 	<p>Pros</p> <ul style="list-style-type: none"> • Opportunity to further develop the definition of cash or cash equivalent within IFRS literature even if such a definition were to preclude any crypto-assets from being considered as either cash or cash equivalent. • Could address the accounting implications of CBDCs. <p>Cons</p> <ul style="list-style-type: none"> • Question of whether crypto-assets present a disruptive enough innovation to necessitate a definition of cash or cash equivalent. IFRS requirements may be perceived as robust enough without a definition of cash. • A definition of cash that includes crypto-assets could be seen as legitimising on what are generally considered to be risky products. • Could have adverse economic consequences (e.g. undermine monetary policy and financial stability). • Premature as there is yet to be sufficient uptake of crypto-assets as a means of payment to justify the amendment of IAS 7 or IAS 32. • If treated as equivalent to foreign currency, changes in fair value would be treated as change in foreign exchange under IAS 21 and this may lead to reporting that is confusing for users of financial statements.

Table 6.1. continued

POSSIBLE APPROACHES TO CLARIFICATION OR DEVELOPMENT OF IFRS REQUIREMENTS	REASONS FOR POSSIBLE APPROACH TO CLARIFICATION OR DEVELOPMENTS OF IFRS REQUIREMENTS	CONSIDERATIONS
Option 3: Issuance of new crypto or digital assets (liabilities) Standard		
Development of new standalone Standard that explicitly addresses crypto-assets (liabilities) or digital assets (liabilities)	All the reasons articulated above for the clarification or amendment of IFRS Standards and the view that crypto-assets (liabilities) are unique can justify a new standalone Standard for crypto-assets.	<p>Pros</p> <ul style="list-style-type: none"> • Could comprehensively provide relevant recognition, measurement, presentation and disclosure requirements for all crypto-assets (liabilities), including addressing all areas that need clarification or enhancement. • Could potentially inform or provide principles for accounting for non-financial asset investments. • There are similar considerations in accounting for crypto-assets holders and issuers that are best addressed through a standalone Standard. • Avoids retrospectively amending existing IFRS Standards in a manner that can be disruptive to existing Standards. <p>Cons</p> <ul style="list-style-type: none"> • Crypto-assets (liabilities) are not sufficiently pervasive to justify the development of a standalone Standard. • Crypto-assets could be considered not to be a separate type of asset as they result from arrangements that embody rights and obligations like any other contractual agreement. • A standalone crypto-assets/digital assets Standard could be perceived as legitimising and enabling the development of risky products. • Lengthy due process before a new standard can be developed. • Risk that a new Standard would neither fit well nor complement the current IFRS Standards as it may localise cross-cutting issues.

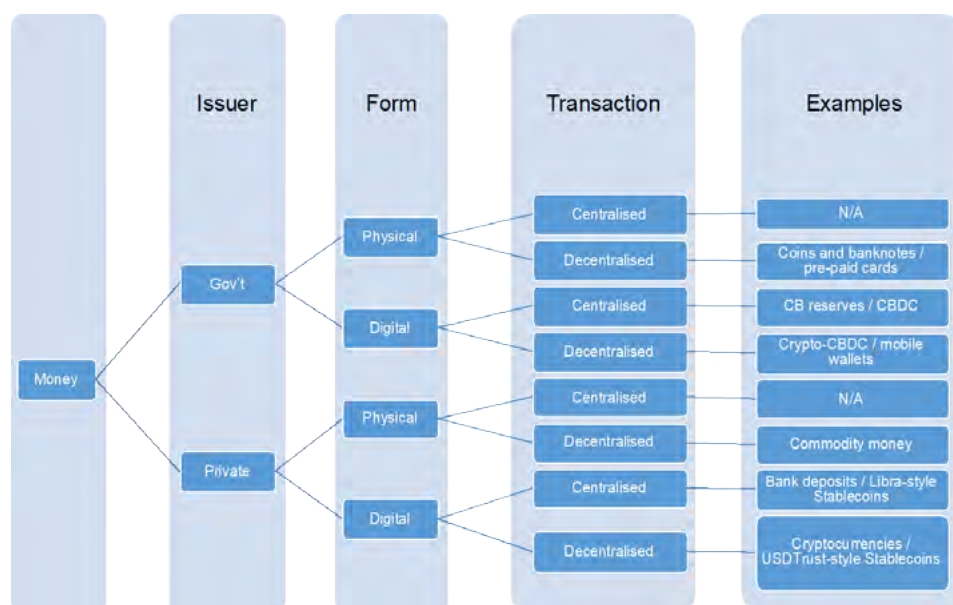
CHAPTER 7: IMPLICATIONS OF POTENTIAL MARKET DEVELOPMENTS

- 7.1 The preceding chapters assess the accounting issues raised by the current generation of crypto-assets. To conclude this DP, this chapter assesses possible implications of potential market developments that may, in turn, have implications on the extent of application of IFRS requirements.
- 7.2 As noted earlier, crypto-assets are currently insignificant in scale relative to mainstream currencies and asset classes (e.g. equities, bonds and commodities). Hence, this section also aims to identify factors that could potentially contribute to greater institutionalisation of crypto-assets. This could be factors that could influence a critical mass of adoption of certain crypto-assets as a means of payment. Or, if any, factors that could incentivise and enhance possible large size entities' participation in the blockchain token economy. Greater uptake by institutions translates to increased applicability of IFRS requirements and strengthens the case for the review of existing IFRS requirements.
- 7.3 Finally, this chapter assesses whether there is any indication of technology-driven innovation and/or features of the next generation of crypto-assets and digital assets that may necessitate unique accounting treatment.

SCALABILITY POTENTIAL

- 7.4 As depicted in **Figure 7.1** below sourced from the European Parliament publication, some stablecoins and CBDCs are increasingly considered as being part of the taxonomy of money.

Figure 7.1: A Taxonomy of Money (Adapted from Bruegel and EP)¹⁵⁰



Source: Bruegel updated from Claeys et al (2018). Note: CBDC = central bank digital currency.

- 7.5 Feedback to the EFRAG research outreach showed that there are varied expectations across different jurisdictions regarding the current and potential acceptance of crypto-assets as a means of payment for goods and services; ranging from scepticism on the need for a payment system in crypto-assets to their acceptability in some countries as a means of payment even without legal tender status. The varied feedback is consistent with the reported findings of a 2019 ING global survey that assessed consumer knowledge, preferences and expectations around cryptocurrencies. The survey

¹⁵⁰ European Parliament, November 2019, *The Future of Money- Compilation of Papers*. [http://www.europarl.europa.eu/RegData/etudes/STUD/2019/642364/IPOL_STU\(2019\)642364_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2019/642364/IPOL_STU(2019)642364_EN.pdf)

shows varied expectations across EU and global (US, Australia) countries, albeit that the common finding is that most consumers do not expect cryptocurrencies to become mainstream, viable alternatives to fiat currency in the near future.

7.6 The EFRAG research outreach feedback and different publications highlight the following factors that are needed to stimulate the uptake of crypto-assets:

- a) **Enhancing trust:** as noted in **Chapter 2: Paragraph 2.18**, the lack of regulatory and legal clarity and the sometimes-inadequate regulatory requirements and oversight activities is seen as a deterrent towards institutional market players including mainstream SMEs and large entities increasing their involvement in crypto-assets transactions. There is a general view that increased uptake on crypto-assets activities would to a large extent depend on regulatory developments including stronger and more reliable customer and investor protection related oversight activities;
- b) **Increasing scalability, processing efficiency and sustainability:** the EFRAG research outreach feedback indicated that the limited scalability and relatively low processing speed of crypto-asset transactions is perceived as being an impediment to their greater uptake. The lack of legal tender status and the technological limitations of the trading and validation process, results in a much lower volume of transactions for cryptocurrencies than is the case for the platforms for processing traditional fiat currencies.

For example, the 2018 FSB publication notes that Bitcoin and Ethereum (when used as a means of payment) can add a maximum of seven and 20 transactions per second to their respective ledgers. In contrast, PayPal manages on average 193 transactions per second and the credit card company Visa can process 16,671 transactions per second. Furthermore, the high price volatility and low liquidity of cryptocurrencies limits their capacity to serve as either a store of value or unit of account. Lastly, there are concerns about the long-term viability and sustainability of energy-intensive¹⁵¹ 'mining'-based systems if the size of the crypto-assets market grows;

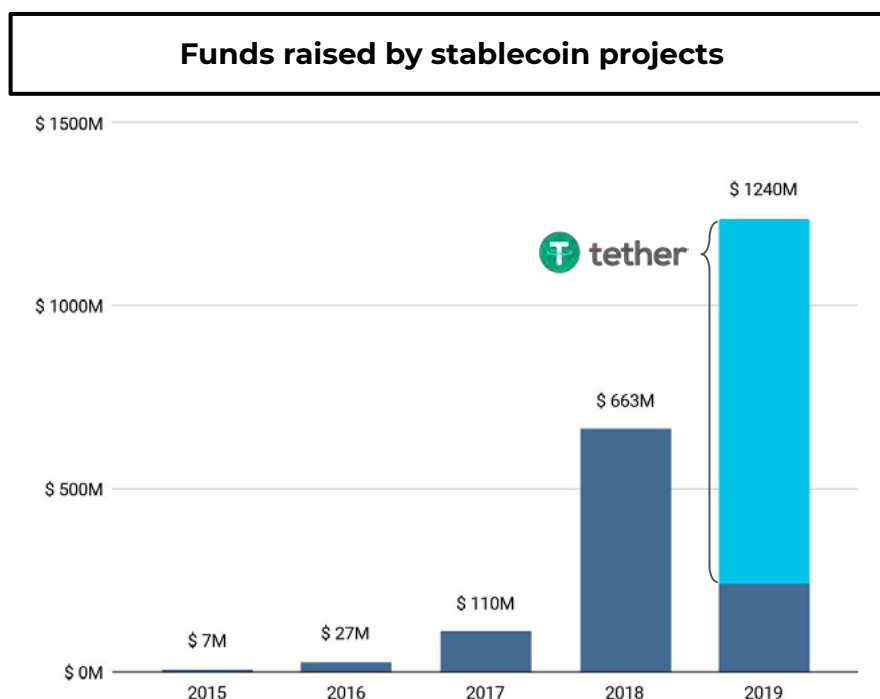
- c) **Strengthening network governance:** the 2018 FSB publication highlights that the decentralisation of DLT platforms and lack of or inadequate governance can make it difficult to resolve the technological limitations or errors associated with these platforms. For example, returns to scale in mining can lead to the creation of concentrated mining pools that have substantial control over a crypto-asset. In other cases, there may be concentrated governance structures around network nodes or software standards. In effect, inadequate governance may also lead to uncertainty and "hard forks" by a subset of miners. Hence, strengthening of mechanisms for network governance is needed for increased uptake of crypto-assets;
- d) **Mechanisms of credible price discovery and reliable valuation of crypto-assets transactions as addressed in Chapter 5;**
- e) **Availability of Institutional grade data:** currently, unlike in more mature markets such as equities or fixed income, there are no rules about what data needs to be reported. The availability of such data is a prerequisite for increased institutional investor market participation; and
- f) **Price stability and risks to financial stability:** further described below.

151 According to data reported by Digiconomist, estimates of bitcoin mining annual electricity consumption (60.74 TWh per year) is a bit more than the annual electricity consumption of Greece (59.3 TWh). Each bitcoin transaction consumes as much electricity (512.34 KWh) as an average US household does for 17.32 days and has a carbon footprint of 243.36 kg CO₂ similar to 608,401 VISA transactions or 40,560 hours of watching youtube (see <https://digiconomist.net/bitcoin-energy-consumption>)

QUEST FOR PRICE STABILITY

- 7.7 Different reasons have been suggested for the volatility of the prices of crypto-assets, which in turn limits their capacity to serve as a medium of exchange and store of value. As noted in earlier chapters (**Paragraph 1.10**), some crypto-assets (e.g. cryptocurrencies with no claim on the issuer) are deemed to have no intrinsic value (or ‘floor value’) and their price depends exclusively on the confidence that market participants have in the ecosystem. Yet because these are the early days of crypto-assets existence, they are attractive to holders who seek short-term gains. At the same time, these assets are often subjected to panic selling due to the fickle confidence and limited product knowledge of the market participants that primarily seek a quick and high return. Another reason for the volatility is that their fixed supply makes their market price sensitive to changes in demand- as there is no mechanism for a corresponding change in supply to offset the effects of a change in demand. Herein lies the role of the variety of stablecoins that have been designed to address the noted volatility of the earlier generation crypto-assets. Stablecoin attributes are further discussed in **Appendix 2**.
- 7.8 According to a December 2019 OECD publication¹⁵² on “Crypto-assets in Asia”, stablecoins only comprised 1.5% of the market value of crypto-assets in 2018. However, the May 2019 ECB publication notes that some observers believe they may become mainstream in the near future and this is evidenced by the upsurge in their issuance from 2016 to 2019. A 2019 Blockdata publication¹⁵³ highlights that 119 stablecoin projects have been announced since 2017 and 2019/2020 may be the biggest years for new ones coming live.
- 7.9 **Figure 7.2** highlights the trend of rising funds raised by stablecoin projects led by tether that raised USD 1 billion through an IEO. Evidence that the noted upward trend is ongoing is included in a May 2020 Coindesk article¹⁵⁴, which reported that stablecoins had surged by over 70% in two months at the time of the article, as more cryptocurrency traders were choosing to trade altcoins using dollar-backed stablecoins instead of bitcoin, thanks to the relative price stability of the former.

Figure 7.2: Stablecoins Issuance Trends



Source: 2019 Blockdata Publication

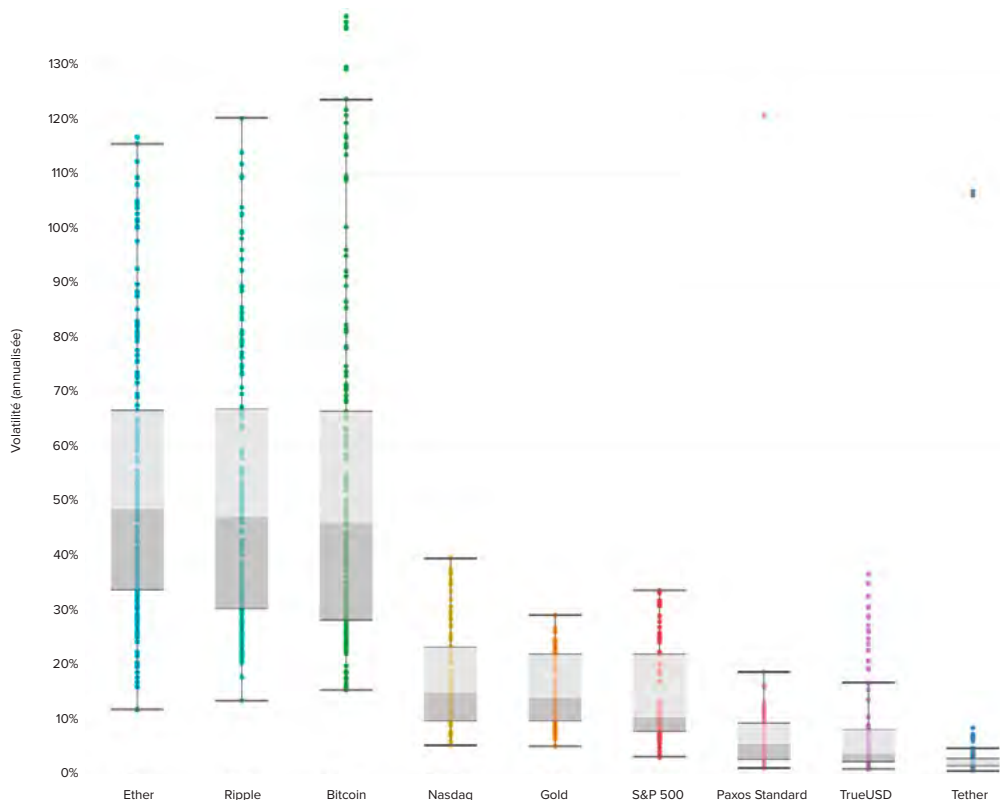
152 OECD, 2019. *Crypto-assets in Asia, Consumer attitudes, behaviours and experiences*. <https://www.oecd.org/countries/philippines/2019-cryptoassets-in-asia.pdf>

153 Blockdata, 2019. *Stablecoins: An overview of current state of stablecoins*. <https://download.blockdata.tech/blockdata-stablecoin-report-blockchain-technology.pdf>

154 Coindesk- Voell, Z., 2020. *Stablecoin Supply Breaks \$10B as Traders Demand Dollars over Bitcoin*. Coindesk.com. May 12, 2020. <https://www.coindesk.com/stablecoin-supply-breaks-10b-as-traders-demand-dollars-over-bitcoin>

- 7.10 There is evidence (see **Figure 7.3** below) that stablecoins are less volatile than mainstream asset classes and other crypto-assets. The chart shows that the annualised price volatility, from June to December 2019, of stablecoins (Tether, TrueUSD, and Paxos Standard) was less than that of mainstream asset classes (Nasdaq, Gold, and S&P 500) and that of other crypto-assets (Ethereum, Ripple, and Bitcoin). The latter category was the most volatile.

Figure 7.3: Volatility of Stablecoins versus Other Asset Classes



Source: 2020 Banque de France Publication

VIABILITY OF THE DECENTRALISED, DISINTERMEDIATED OBJECTIVE

- 7.11 Notwithstanding the recent coming to market of different types of stable coins, some of the EFRAG outreach participants observed that for this recent generation of crypto-assets to be successful, they would need to be launched and controlled by a central authority such as a Central Bank. These respondents considered that centralised control was a necessary feature for crypto-assets to be both trusted and scalable. Incidentally, a 2018 Bruegel policy contribution paper (Demertzis and Wolff, 2018) and Mowat Centre's publication (Urban and Pineda, 2018) note¹⁵⁵ that the launching of the latest generation of crypto-assets and applications of DLT technology (i.e. stablecoins, some altcoins and extended blockchain applications) has seen a return to more centralised systems. These two publications observe that the "full decentralisation" transaction processing model has become less effective with the popularity and growth of network usage. The relative ineffectiveness of decentralised networks is due to their energy inefficiency from mining activities, slower speed and lower scalability. Furthermore, a few mainstream financial institutions have forayed or been experimenting with the application of DLT technology based on centralised control. For example, as highlighted in the

¹⁵⁵ The noted shift back to centralised networks is noted in: a) Bruegel-Demertzis, M. and Wolff, G.B., September 2018. *The economic potential and risks of crypto-assets: Is a regulatory framework needed?* Policy Contribution, Issue no 14. https://bruegel.org/wp-content/uploads/2018/09/PC-14_2018.pdf; and b) Mowat Centre-Urban and Pineda, D., 2018. *Inside the Black Boxes: A policy maker's introduction to block chain, distributed ledger technology and the "Internet of Value"*. Mowat Centre- Munk School of Global Affairs and Public Policy. https://www.academia.edu/37254619/Inside_the_Black_Boxes_A_policymaker_s_introduction_to_blockchain_distributed_ledger_technology_and_the_Internet_of_Value

January 2020 IMF report, in early 2019, JP Morgan launched JPM coin based on blockchain technology that enables transfer of payments amongst its institutional clients. Similarly, UBS has Utility Settlement coin and Japanese bank-MUFG has MUFG coin.

- 7.12 However, permissioned-network-based crypto-assets could be considered to be inconsistent with the 'decentralised control' objective that motivated the permissionless-network-based crypto-assets innovation in the first place. The innovation of bitcoin was prompted by a desire to democratise the participation in the network and to create a currency that was not subject to centralised control by authorities or by entities whose business model is predicated on centralised control. Furthermore, as pointed out in a 2019 Binance research¹⁵⁶ opinion piece, due to their restricted application, it is unlikely that permissioned-network stablecoins such as JPM coin will disrupt and dominate the stablecoin market.
- 7.13 In effect, the "censorship resistance" of transactions, which underpins decentralised, blockchain technology applications is, at least, still considered by some stakeholders to be a desirable feature of an alternative monetary or representation of digital value system. Hence, there is bound to be an ongoing search for a DLT-based application that is efficient, sustainable, scalable and trustworthy without surrendering the benefits of decentralisation envisioned at the time of bitcoin's launch.

RISKS TO FINANCIAL STABILITY

- 7.14 An October 2018 FSB publication concluded that crypto-assets did not pose risks to global financial stability at the time of that publication. This assessment in part reflected the small size of crypto-asset markets relative to the broader financial system. The FSB also noted that this assessment could change if crypto-assets were to become significantly more widely used or interconnected with the core of the financial system.
- 7.15 Corresponding to the increased issuance of stablecoins in 2019 and rising prospects of CDBC's, the December 2019 IMF publication and March 2020 Banque de France publication highlight the risks to financial stability that could arise from stablecoins. The IMF publication highlights that stablecoins are subject to the market, credit and default risk of the issuer, as collateral (such as bank deposits) may not be segregated from other assets of the issuer and thus both could be commingled if the issuer files for bankruptcy.
- 7.16 The March 2020 Banque de France working paper highlights the risks to financial stability that could arise from their use for wholesale banking and retail purposes. This paper highlights that Wholesale stablecoins such as JP Morgan-JPM coin not backed by central bank deposits present residual credit risk and increase systemic risk by increasing the interconnectedness between large financial institutions and large firms at the global level. The use of retail stablecoins, especially if it were to be widespread, possibly leading to the crowding out of legal tender fiat currencies, would raise difficulties for the conduct of monetary policy, both in terms of the transmission mechanisms and implementation.

IMPLICATIONS OF TECHNOLOGY INNOVATION

- 7.17 Finally, there is a question of whether ongoing innovation in DLT and crypto-asset product design may evolve in a manner that has both economic and accounting implications in the near future. For example, whether the next generation of crypto-assets may have features that reinforce the view that they are unique assets (i.e., and possibly strengthen the case for a new bespoke IFRS standard).
- 7.18 Some EFRAG research outreach participants pointed to features that could impact on the scalability of DLT networks and economic benefits that network participants derive. But it is difficult to assess whether these features will change the nature of underlying crypto-assets and required accounting. The highlighted features include the following:

¹⁵⁶ Binance Research, 2019. *Can JPM Coin Disrupt the Existing Stablecoin Market?* Binance.com website, March 1 2019. <https://research.binance.com/en/analysis/jpmcoin>

- a) Greater application of Ricardian contracts¹⁵⁷ (i.e., smart contracts with legal content) and programmability of assets including increased sophistication of tasks coded into smart contracts. Ricardian contracts could enhance the enforceability of crypto-assets obligations. Incidentally, as noted in **Chapter 3: Paragraphs 3.5 to 3.8**, following a consultative process in 2019, the UK Jurisdiction Taskforce announced¹⁵⁸ that smart contracts are legally binding, and this could influence similar stances in other jurisdictions;
- b) Ongoing enhancement of digital autonomous organisations (DAOs): DAOs can be seen as a form of organisational innovation where tasks are automated and governance is decentralised and in the hands of network participants. Their essential feature is that operating rules are programmed and automatically applied and enforced when the conditions specified in the software are met. This differentiates them from traditional organisations, whose rules form guidelines that someone within the organisation must interpret and apply. Following the 2016 DAO tokens hacking incident¹⁵⁹ where an equivalent of USD 70 million was stolen due to a programming error, there has been ongoing enhancement and innovation in DAO-based products and features.

Examples of successful DAO-based¹⁶⁰ crypto-assets include Dash a cryptocurrency and Digix Gold a gold-backed stablecoin. Other use cases include:

- (i) UK-based Nexus Mutual¹⁶¹, a co-operative offering mutual insurance without needing a firm to perform administrative tasks instead the essential tasks (e.g. assessment and approval of claims) are determined by network participants who are holders of Nexus Mutual (NXM) tokens. A detailed description of the process for participating in the claims assessment process including related incentives and compensation can be found in the white paper¹⁶² or the link to the footnote¹⁶³ article;
- (ii) Swiss-based Aragon network¹⁶⁴ supports the creation of hundreds of DAOs provides a platform for running them and provides supporting applications (budget management, fundraising, voting on projects and juror adjudication of disputes). For example, in early 2020 there was an opportunity for holders of Aragon network tokens (ANT) to exchange these for the newly minted Aragon Network Jury (ANJ) tokens that could be staked for the right to perform jury duties¹⁶⁵ in exchange for a fee;
- c) Improvements in network governance and “proof-of-stake” based validation of transactions;
- d) Cross-chain interoperability: there are many blockchains and other DLT platforms supporting the more than 5,000 crypto-assets. These platforms are fragmented and operate in silos tailored for particular use cases. Efforts towards enhancing the interoperability of blockchain networks could enhance ease of use and scalability of networks; and
- e) Quantum computing capacity, which if realised, will result in significant enhancement to current computing capacity (processing speed and problem-solving capacity). Quantum computing¹⁶⁶ presents both a threat and an opportunity for the cryptographic process that underpins crypto-assets transactions.

157 EOSCanada.com-Archambault, M., 2018. *Introduction to Ricardian Contracts*. Eoscanada.com website. May 18, 2018. <https://www.eoscanada.com/en/introduction-to-ricardian-contracts>

158 Linklater (2019)

159 Hacking incident is further detailed in: a) Medium.com-Falkon (2017) article; b) New Scientist (2017)

160 Cointelegraph. *What is DAO*. Cointelegraph.com website. <https://cointelegraph.com/ethereum-for-beginners/what-is-dao>

161 <https://nexusmutual.io/>

162 Nexus Mutual White Paper: A peer-to-peer discretionary mutual on the Ethereum blockchain. https://nexusmutual.io/assets/docs/nmx_white_paper_v2_3.pdf

163 Nexus Mutual- Use Cases- Outlines of the various ways in which it is possible to participate in the Nexus Mutual platform. <https://nexusmutual.gitbook.io/docs/use-cases>

164 <https://aragon.one/>

165 Coindesk- Baker, P. 2020. *DAO Platform Aragon Begins Recruiting Jurors for Tokenized ‘Court’*. Coindesk.com website. January 7, 2020. <https://www.coindesk.com/dao-platform-aragon-begins-recruiting-jurors-for-tokenized-court>

166 Medium.com- Tioga Capital Partners, 2019. *The Quantum Threat to Crypto Asset Ownership*. Medium.com website, November 6, 2019. <https://medium.com/@tiogacapital/https-medium-com-tiogacapital-the-quantum-threat-to-crypto-asset-ownership-43bbd3997fb9>

CONCLUDING REMARKS

- 7.19 Damodaran (2017) notes the intense competition in the crypto-space with the likelihood of winners and losers, albeit being difficult to predict which particular crypto-asset could become mainstream in the long-term. He suggests that to foster the ability of either the current or future generation of crypto-assets to be viable alternatives to fiat currencies, there is need for crypto-designers to focus on enhancing their transacting capacity (e.g. increasing processing speed, enhancing security and governance, and ensuring low transaction costs) rather than on their use as investment or trading assets. **Paragraph 7.18** reflects the possible enhancements to crypto-assets occurring within the DLT/blockchain operating framework. that may bolster their usability and enable them to become mainstream.
- 7.20 However, there are also dissenting voices on the promises of the blockchain-based digital currencies including in a paper¹⁶⁷ by Dr Douglas Jackson the founder of e-gold (a failed digital currency backed by gold that existed from 1996 to 2008). Dr Jackson observes that the design and functioning of the latest generation of crypto-assets is in effect a repudiation of the original imperatives that underpinned the blockchain and Bitcoin invention. For example, due to wastefulness and massive redundancy, there is a trend of some crypto-assets shifting away from all nodes having to store all records (i.e. shifting away from decentralised, distributed ledgers). Other crypto-assets do not conform to the idea of the absence of the trusted parties. Dr Jackson's paper suggests development is in place of a gold-backed alternative virtual currency (Gold Standard) that is based on a centrally administered and highly distributed system but does not depend on blockchain technology.
- 7.21 In summary, it is possible that the ongoing innovation may result in crypto-assets becoming mainstream. At the same time, there is differentiated positioning and a focus on targeted market segments by some crypto-assets (e.g. Ripple-XRP is focused on financial services' payment systems; Ether focuses on facilitating smart contract transactions). While other crypto-assets including bitcoin, numerous altcoins and some of the stablecoins, are competing to become a broadly accepted and viable retail virtual currency that can be an alternative to fiat currencies. The competition on the latter aspect is intense and it possibly also includes threats from non-blockchain virtual currencies (e.g. ideas similar to e-gold, which pre-dated bitcoin). However, it is beyond the scope of the EFRAG research to foretell the outcome of the varied competitive forces at play or to assess the viability of the crypto-assets market.
- 7.22 Finally, as observed by Urban and Pineda (2018), expectations about the possibilities of DLT-based (blockchain) technologies have not been exempt from what is described as the Gartner technology "hype cycle"- whereby inflated expectations are typically followed by disillusionment before the market matures on a more steady basis. These authors note that *"new technologies are often buffeted by inflated expectations based on imperfect understandings, speculation and the simple inability to predict the future that even the most visionary innovators cannot avoid"*. The 2017 ICO wave and the price of bitcoin reaching near 20,000 USD could have represented inflated expectations that were subsequently corrected. But it remains unclear whether with the ongoing experimentation in the crypto-space, there are bound to be several more boom and bust' cycles prior to the possible mainstreaming of the market. **Overall, it is difficult to predict the timing and journey to the possible maturity of the crypto-assets market and if that will ultimately translate to a greater uptake of related transactions by IFRS reporting entities.**

¹⁶⁷ Jackson (2020)

APPENDIX 1: CRYPTO-ASSETS (LIABILITIES) ACTIVITIES

A1.1 This appendix includes:

- a) A detailed definition and description of the economic characteristics of ICOs and other offerings (STOs and IEOs). It also provides data on the prevalence and trends of ICOs and other offerings; and
- b) A detailed description of key features of custodial processes (i.e. wallets, private and public keys) that could impact economic control and data on growth trends of wallets.

ICOs AND OTHER TYPES OF OFFERINGS

KEY ECONOMIC FEATURES AND RISKS OF ICOs

A1.1 The term ICO has been derived from the term IPO (initial public offering) whereby a private firm lists its shares on a public stock exchange. However, unlike an IPO process in which a company is required to comply with strict and costly registration procedures prescribed by securities regulators, to the extent that crypto-assets are not classified as securities, the ICO process remains either unregulated or subject to unclear regulation across a large number of countries.

ICOs versus IPOs

A1.2 The ICO process has both similarities and differences with an IPO process for companies that list on traditional stock exchanges. In both cases, investors exchange fiat currency (or crypto-assets in case of an ICO) for shares (digital tokens in case of an ICO) that have monetary value and are traded on a secondary market. However, there are important differences.

- a) As highlighted by the 2019 Cambridge CAF study and Kaal (2018), the ICO issuance market is either unregulated or it is subject to a lack of regulatory clarity in several other jurisdictions, even in cases where they may be implicit regulation (see **Appendix 3**). In contrast, the IPO market is more mature and follows a strict process defined by regulation whereby compliance can be costly and mandatory, and governed by security regulators to protect the interest of investors. With an ICO, there is usually little information about the issuer (developer) undertaking the ICO, and none of the documents voluntarily shared by the issuer, such as the white paper, need to be audited or independently verified. This is why an ICO can be issued quickly compared to an IPO which can take months to complete due to the auditing process, internal control and governance implementation, registration process and other requirements.
- b) ICOs are more similar to a crowdfunding model than to an IPO. Unlike shares in a company, crypto-asset tokens typically do not provide any form of control over the issuing company. Instead, they are viewed as contributions to develop a project to which the token holder will be entitled to goods and/or services if they hold utility tokens. However, some crypto-asset tokens have security-like features and are considered to be securities by security regulators in some jurisdictions. In addition, some tokens are issued as security tokens.
- c) Unlike IPOs that are generally conducted by companies with well-established technologies and products, the vast majority of ICOs are for projects that are at a very early stage of development; and only a few of these entities have pre-existing products making ICOs a much riskier investment than IPOs.
- d) Unlike securities issued through an IPO, tokens issued in an ICO tend to be mainly utility tokens and they typically do not include voting rights, anti-dilution protections and other features that are typical of a security issued in an IPO and are not subject to the more rigorous governance and audit requirements that oversee the entity conducting the ICO.

ICO risks

- A1.3 One of the key risks of ICOs is the high failure rate, but there are other risks including those arising from the limited transparency of white papers issued during ICOs and the absence of legally binding and enforceable contractual agreements. As mentioned above, the enforceability of the white papers remains an open question.
- A1.4 Inadequate regulation and poor documentation increase the likelihood of ICOs failing and investors losing their capital. A study by Satis Group (2018), an ICO advisory firm, found that around 78% of ICOs issued in 2017 were identified as scams or failed. However, applying a different yardstick to measure the success of ICOs, Adhami et al (2018) highlight that 81% of a sample of 253 ICOs that were examined, successfully closed their offering.
- A1.5 Overall, the evidence indicates that ICOs can be labelled as failed for a number of reasons, the main reason being not having reached the minimum funding goal, in which case the common, but not universal, practice is to refund the contributors. A failed ICO may also be the result of a security flaw such as a hack attack which subsequently results in the suspension of the token distribution.
- A1.6 An academic working paper¹⁶⁸ concludes that disclosure and the information environment of crypto-asset token issuers are positively associated with the likelihood of successfully completing an ICO and with the amount of money raised (dollar amount or equivalent).

ICO measurement and valuation issues

- A1.7 Due to their novel characteristics, estimating the value of crypto-asset tokens that are issued during an ICO is fraught with challenges that are further elaborated on in Chapter 5 that focuses on measurement and valuation issues.

OVERVIEW OF ISSUER ACTIVITIES

ICOs

- A1.8 An ICO is a means of raising funds for a current or future crypto-asset project by issuing digital tokens to potential investors. The first ICO occurred in 2013 with the issuance of Mastercoin (rebranded as Omni in 2015). Only a few ICOs occurred in the early years due to the then existing technical constraints towards launching an ICO. In 2015, the ICO process was streamlined with the introduction of the crypto-asset Ethereum that introduced a standardised platform for launching ICO tokens (referred to as the ERC20).
- A1.9 The Ethereum network's fundraising effort was one of the first significant examples of this new type of capital formation (around USD18 million was raised) and paved the way for the ICO boom that would peak in 2018. It also represented a milestone for blockchain technology as the Ethereum distributed ledger added the smart contract functionality, which allowed for the processing of automated workflows, and not solely for the recording of digital assets' transactions, as was the case for the networks supporting the first generation of crypto-assets (e.g., network supporting bitcoin and litecoin). Ethereum has since become the platform of choice for ICOs because it is the dominant smart contract-enabled network. As noted in **Chapter 1: Paragraph 1.15**, as at December 2019, 83% of 3,240 decentralised applications were on the Ethereum platform.
- A1.10 The issuer of an ICO will typically publish an information document referred to as a "white paper". This document (which is unaudited) provides information about the tokens (crypto-assets) being issued in the ICO. However, as highlighted in **Appendix 2: Paragraphs A2.13** and **A2.14**, white papers have less information than prospectuses, are of varied quality and often do not have enough information on the purpose of the offering nor do they have sufficient detail of the rights and obligations between the issuer and the holder (potential holder) of the crypto-asset.

168 Bourveau, B., De George, E.T., Ellahie, A., and Macciocchi, D., 2018. Initial Coin Offerings: Early Evidence on the Role of Disclosure in the Unregulated Crypto Market. *Working Paper, Columbia University, London Business School and Utah University*. https://www.marshall.usc.edu/sites/default/files/2019-03/thomas_bourveau_icos.pdf

- A1.11 Different research indicates that the EEA countries that rank in the Top 10 for ICO activity are UK, Switzerland, Estonia and Germany. ICOs also occur in multiple industries, although publicly available data indicates that financial services lead the issuance volume.

Emergence of STOs and IEOs

- A1.12 The crackdown on a few ICOs by security regulators, coupled with some of the risks and security issues associated with ICOs, has resulted in the rise of other forms of token offerings such as STOs and IEOs. STOs and IEOs started to attract high levels of investor attention in 2019 and are expected to continue to attract investor interest as they are regulatory compliant.

STOs

- A1.13 STOs are the mechanism for issuance of security tokens, which are similar in nature to traditional securities as they provide an economic stake in a legal entity. In 2019, STOs started picking up mainly because of the increasing oversight and regulation on ICOs in some jurisdictions and also because of potential loss in investor confidence in ICOs.
- A1.14 Despite the concerns in ICOs, a study issued by crypto-assets research organisation Inwara¹⁶⁹ found that in 2018 the number of STOs in any quarter is much smaller than the corresponding number of ICOs. In the United States and well as several other jurisdictions, STOs are deemed to be securities and are subject to securities regulations.

IEOs

- A1.15 IEOs provide a framework in which the exchange hosting the IEO acts as an intermediary between the developers and issuers of the crypto-assets and the investors and contributors (those that buy the crypto-assets when they are first issued).
- A1.16 Unlike an ICO (which is managed by the project developers), an IEO is managed on a cryptocurrency exchange platform on behalf of the IEO issuer. The exchange will conduct a screening of the company wanting to undertake the ICO as well as conduct the necessary know your customer (KYC) checks as dictated by regulatory requirements or on a voluntary basis. IEOs began in 2018 and present a more secure form of investing in initial offerings of a crypto-assets as investors can rely on the due diligence performed by the exchange hosting the IEO offering. A number of IEOs have recently taken place on the Binance exchange.
- A1.17 According to a report published in May 2019 by ICObench.com, there have been 42 IEOs raising USD 266 million as at the end of April 2019. Almost half of these funds were raised by IEOs in Singapore and Hong Kong. IEOs in the EU have raised less than USD 50 million (mainly Estonia, Bulgaria, Germany and Switzerland).

Rationale for ICOs – issuer and investor perspectives

- A1.18 ICOs have a number of benefits from the issuer's perspective when compared to other established forms of raising funds including IPOs:
- a) *Low cost of funding:* ICOs have become an important source of low-cost funding in the crypto-asset market by avoiding intermediaries and payment agents.
 - b) *Easier access to secondary markets and quick liquidity:* ICOs provide liquidity that start-ups can obtain in a short period of time. Presuming ICO investors receive their tokens as planned, secondary market trading will commence as soon as the project lists its token on cryptocurrency exchanges. In contrast, VC-funded projects remain relatively illiquid until funds become available, either upon an exit through a sale or an IPO. Investors have to wait before being able to monetise their investment.

169 Inwara.com: *Blockchain and Crypto Annual Report 2018*. https://www.inwara.com/report/annual-report-2018/#STO_Landscape_2018

c) *Builds the potential customer base*: as investors have the opportunity to get in on the “ground floor” of a project, they also provide the start-up with a community of potential users for its blockchain product when it goes live. Adhami¹⁷⁰ et al (2018) analysed 253 ICOs between 2014 and 2017 and showed that ICO tokens granted contributors the rights to access platform services in 68% of cases. The VC model does not offer the same multi-purpose possibility (i.e. of acquiring investors who are also potential customers).

A1.19 ICOs have a number of benefits from the investor’s perspective when compared to other established forms of raising funds including IPOs:

a) *Attractive returns*: many ICOs have offered significant returns to investors; which according to some studies, have seen average returns of 179% from the ICO price to the first day’s opening market price, over a holding period that averages just 16 days. Benedetti and Kostovetsky (2018) conclude that tokens are sold in ICOs at a significant discount to their market price (and a much greater discount than IPOs) generating at least an 82% average abnormal return for the investor (weighted by capital invested).

b) *Investment is accessible to wide pool of potential investors*: arguably an advantage ICOs possess vis-à-vis VCs is that virtually everyone can invest in the majority of ICOs. In contrast, VCs usually require a substantial initial outlay and tend to serve the wealthier investor segments, including institutions such as hedge funds, private equity firms and high net worth individuals.

ICOS PREVALENCE AND TRENDS

Approach and limitations of analysis

A1.20 The prevalence and trends analysis is based on data from multiple sources, including specialised crypto-asset web aggregators, which highlights developments and trends within the ICO market¹⁷¹, and academic and non-academic research papers.¹⁷²

A1.21 There are limitations to the data obtained from crypto-assets-related websites. The EFRAG research has identified differences in the available data and often it is difficult to explain why differences exist although it seems that in some the differences relate to different basis of presentation (for example in a particular year, the data could relate to ICOs issued or ICOs that raised funds). Furthermore, the periods examined by the various studies and data reports vary and it is not always possible to provide a consistent period analysis of data for the purpose of this DP. To mitigate these noted limitations and provide both a comprehensive and likely to be representative trend analysis, this DP is based on data from different sources.

Key findings

A1.22 Since 2014, the ICO market has raised approximately USD 24.7 billion through to the end of Q1 2019 with the completion of over 5,000 ICO projects in over 50 countries.¹⁷³ According to data from ICObench, almost half of the amount raised – approximately USD 12-14 billion was raised in 2018, of which more than 60% was raised in the first half of the year. However, a report published by the European Central Bank (May 2018) highlights that funds raised by ICOs in 2018 amounted to EUR 19 billion. One explanation for the different levels of funding reported by different sources is the general lack of consistent data on ICOs and the parameters used to source the data.

A1.23 Data from ICObench shows that ICO growth has been declining since the second half of 2018 compared to the first half of 2018, in terms of amount of money raised (dollar amount or equivalent) and number of ICOs undertaken. One of the reasons for this decline, was that ICOs tend to attract a significant number of holders who do so for trading purposes. In 2018, there was a significant drop in the market prices and valuation of crypto-assets prompted by the significant

170 Adhami, S., 2018. Why do businesses go crypto? An empirical analysis of Initial Coin Offerings, *Journal of Economics and Business*. <https://re.public.polimi.it/retrieve/handle/11311/1056221/292387/JEP%20published%20ICOs.pdf>

171 The data sources include CoinDesk, CoinmarketCap, ICObench, and icodata.io. Where available ICO data that is specific to the EU is highlighted in the DP.

172 Data obtained from the following research papers: a) Satis Group, 2018 *Cryptoasset Market Coverage Initiation: Network Creation*, Research paper. https://research.bloomberg.com/pub/res/d28giW28tf6G7T_Wr77aU0gDgFQ; b) Adhami et al (2018) ; and c) Bourveau et al (2018).

173 Data from ICOBench website

decrease¹⁷⁴ in the prices of bitcoin and ether, which was followed by the decline in market value of all other crypto-assets (also referred to as altcoins) and this impacted the overall demand for crypto-assets issued through ICOs.

- A1.24 According to data from ICObench, the number of completed ICOs continued to decline in 2019. To some extent, ICOs are being replaced by IEOs. Crypto-assets prices remain highly volatile, and at this stage, it is hard to say how this might affect ICOs issuance trends. Some respondents to the EFRAG outreach were of the view that despite the slowdown, they did not think the ICO market was 'over'. Some believe that 2020 will be a year of 'wait and see', as many jurisdictions, within the EU and beyond, take a more serious look at implementing crypto products regulation.
- A1.25 In December 2019, the EC has launched a public consultation¹⁷⁵ on an EU regulatory framework on crypto-assets. The Commission accepted responses from EU citizens, competent authorities, and market participants within the crypto-asset and financial services sector until 19 March 2020. In order to promote the availability of digital finance in Europe, the Commission is working towards a new Digital Finance Strategy for the EU. This is largely due to digitalisation which is already transforming the financial system and the provision of financial services to Europe's businesses and citizens. This public consultation, along with the consultation on digital operational resilience, will lay down the groundwork for the Commission's future initiatives on crypto-asset regulation in the EU. It will additionally allow the Commission to further promote research on how blockchain could be used across sectors. Furthermore, this will ensure appropriate regulation is in place to cover the potential risks involved.
- A1.26 Research indicates that ICOs today not only present a significant challenge to VCs as far as blockchain start-up financing is concerned, but they are attracting considerably more investor interest. According to Crunchbase (an investor data platform), funding from ICOs has exceeded VC finance in the last few years for projects in the blockchain sector. In the 14 months to February 2018, Crunchbase observed that blockchain start-ups raised nearly USD1.3 billion in traditional VC rounds worldwide; compared to USD4.5 billion raised by ICO projects.
- A1.27 Based on data analysed at to the end of 2018, the top five jurisdictions by ICO funds raised are the United States, British Virgin Islands, Singapore, Switzerland and the United Kingdom. Other EU countries ranking in the top 10 are Estonia and Germany. Data from ICObench (as at November 2019), shows that the United States continued to lead the countries that raised the most funds in 2019 with Singapore leading the most successful ICOs with the highest number of the projects that had raised funds.

STORAGE AND CUSTODIAL SERVICES

OVERVIEW OF STORAGE AND CUSTODIAL ACTIVITIES

- A1.28 There are different ways to store and safeguard crypto-assets. A holder can store its crypto-assets:
- a) In its own crypto-asset wallet, either acquired or set up on the internet; or
 - b) Use a custodial service provider.
- A1.29 A crypto-asset wallet is a software program secured by private and public keys and interacts with various blockchain networks to enable users to send and receive crypto-assets and monitor their balances. The following features are central to understanding the concept of a crypto-asset wallet and how crypto-assets are safeguarded.
- a) Wallets can be created using Internet software services and the information can be placed on any computer or mobile device.

¹⁷⁴ The price of bitcoin dropped from its peak of approximately USD 20, 000 in early 2018 to approximately USD 3,000 in December 2018 and has since recovered to approximately 9,200 as at end of June 2020. Bitcoin prices extracted from <https://www.blockchain.com/explorer> and Coinmarketcap.

¹⁷⁵ European Commission, December 2019. *Consultation document: An EU framework for markets in crypto-assets*. https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/2019-crypto-assets-consultation-document_en.pdf

- b) Wallets can send and receive crypto-assets to any other crypto-asset wallet without the need for the transaction to be recorded or processed by a third party (such as a bank). Thus, transactions are anonymous to anyone other than the transacting parties.
- c) Each wallet is accessible only through the use of a cryptographic algorithm that sets the password called public and private keys.
- d) The commonly used wallets are referred to as (1) cold storage and (2) hot storage.
- e) Wallets can be safeguarded using custodial (third parties) and non-custodial services (self-custody).

A1.30 The data from a December 2018 Cambridge CAF publication portrays the use of different types of custodial services including cold storage and hot storage facilities. However, the data lacks granular information related to the EU.

KEY ECONOMIC FEATURES AND RISKS

Keys and wallets

A1.31 Crypto-assets might be held by an entity or other party by acquiring or setting up a crypto wallet. In such cases, the holder will control the public and private keys.

Public and private keys

A1.32 In a given public address a crypto-asset balance can be viewed by anyone who knows the address, although the identity of the address owner is not recorded on the blockchain.¹⁷⁶ An article published in December 2018 by Chainanalysis *Mapping the Universe of Bitcoin's 460 million Addresses*, reports that the Bitcoin blockchain has over 460 million (public) addresses on its network, although only 172 million are economically relevant — they are controlled by people or services who currently own bitcoin.

A1.33 In cryptography, a private key is similar to a bank account password, security token and account number combined into one and is used as an address to receive crypto-assets. The private key allows the owner of the crypto-assets (or any holder that knows the private key) to open a crypto-asset wallet and send crypto-assets to another address (public key). Private keys provide a high level of security. Private keys (like public keys) typically involve a complicated and difficult to remember password.¹⁷⁷

A1.34 Knowledge of the private key equals control of the crypto-assets in the corresponding address(es). It is important to note that many crypto-asset holders — via online wallets or exchanges — do not have access to their private keys. This makes them fully dependent on the proper functioning, security and backup procedures of online wallets or exchanges, as well as the integrity of the wallet designers to effectively manage private keys. From a counterparty risk perspective, if a user does not have control of the private key, it could be seen as 'a creditor' of the private key holder.

A1.35 Once a crypto-asset transaction is made, it is not possible to reverse it, as no entity is allowed to alter signed transactions on the blockchain. Furthermore, if a private key is lost it is not possible to recover any crypto-assets connected to that lost private key. There are a number of safety concerns linked to private keys.

- a) First, private keys are a prime target for hackers, especially if kept in online wallets (hot wallet storage). This occurs not only with individual users but also with exchanges that, other than trading services, also hold crypto-assets on behalf of customers (custodial services). An example is the case of Mt. Gox (a Japanese exchange), at that time the world's leading Bitcoin exchange, which reported a loss of approximately 850,000 bitcoins belonging to customers and the company in 2014. The exchange subsequently went bankrupt.

¹⁷⁶ For example, this is how a Bitcoin public key looks like (it always starts with 1): 1EHNa6Q4Jz2uvNExL497mE43ikXhwF6kZm

¹⁷⁷ In Bitcoin, a private key is a 256-bit number, which can be represented one of several ways. Here is a private key in hexadecimal - 256 bits in hexadecimal is 32 bytes, or 64 characters in the range 0-9 or A-F. For example, this is how a typical Bitcoin private key might look (it always starts with 5) - 5Kb8kLf9zgWQnogidDA76MzPL6TsZZY36hWXMssSzNydYXYB9KF

- b) A second concern is the loss of the private key. The loss of crypto-assets due to owners (or exchanges holding on behalf of owners) forgetting their private keys has become quite common, hence a reliable storage and recovery mechanism is essential. A recently reported case was the death of the CEO of a Canadian exchange (Quadrigacx) who was the only person with the cryptographic keys to access approximately USD 145 million of cryptocurrencies kept in cold storage to mitigate the risk of hacks.

Crypto-asset wallets

- A1.36 Crypto-asset wallets have evolved over time to support a number of technical and commercial services and the increased demand for more secure safe-keeping of crypto-assets. The commonly used wallets to store crypto-assets are cold storage and hot storage. These types of wallets can be used either by an exchange or by an individual user.
- A1.37 There are trade-offs involved in choosing between a cold wallet and a hot wallet. Cold wallets are generally more cumbersome to access, and usually involve longer waiting times to undertake a transaction. Hot wallets are internet wallets and are usually faster and grant quicker access to the funds. However, cold wallets are a safer means of storing the private keys for the crypto-assets.
- a) Cold storage - Cold storage is an offline wallet for storing customers' private keys, which allows access to and control over the customers' crypto-assets. With cold storage, the digital wallet is stored on a platform that is not connected to the internet. Methods of cold storage include various forms of hardware wallets (for example the Nano Ledger). Cold storage is generally considered a safer form of storing private keys, since cold wallets are less vulnerable to internet and network-based theft and hacking and require physical access. Generally speaking, cold storage is used to store larger amounts of crypto-assets and for users that need to access funds less frequently. Some crypto-asset exchanges provide cold storage facilities
- b) Hot wallet storage - Hot wallets refer to keeping private keys on an online device. Examples of hot wallets are web-based, desktop and mobile wallets running on connected machines. Hot wallets are generally used to store smaller amounts of crypto-assets and are generally suited to users that trade more frequently.

Crypto-assets held on behalf of third parties

- A1.38 Crypto-assets might also be held by a custodian (such as a trading platform or a bank or similar financial institution).
- A1.39 Trading platforms hold assets for their clients in their own wallets. They generally have access to clients' private keys and therefore also have the power of disposal over third-party assets. As the trading platform accepts money or cryptocurrencies from clients and transfers them to other clients, thereby acting as an intermediary, it can be considered to be providing a service relating to payments, which is a regulated activity in some EU and other jurisdictions. More traditional custodial providers, such as banks or similar financial institutions, typically only safekeeping services. However, it might be that some financial institutions provide a combination of custodial and trading services. **The implications of the terms of custodial services on the resulting accounting treatment are further discussed in Chapter 3.**
- A1.40 An example of third-party custodial services for crypto-assets is Swissquote, a financial institution registered in Switzerland that started to provide cryptocurrency trading and custodial services in 2017. The following is an extract taken from the Swissquote 2017 annual report¹⁷⁸ indicating that these holdings are treated as off-balance sheet activities as they would not fall within its bankruptcy estate and do not meet definition of asset and liability. The same situation is reflected in the 2018 and 2019 annual reports¹⁷⁹:
- 'Since 2017, the Group offers cryptocurrencies trading services to its clients. In that context, the Group keeps the holdings in cryptocurrencies acquired by its clients in custody either directly or with a third-party custodian. The Group holds all cryptocurrencies credited to the client accounts solely as nominee (fiduciary basis) on behalf of its clients, which remain*

¹⁷⁸ Swissquote 2017 Annual Report, Page 38 (https://resources.swissquote.com/sites/default/files/2019-03/annual_report_h2-2017.pdf?ga=2.44781796.1135511599.1594623501-317939117.1594623501)

¹⁷⁹ Swissquote 2018 Annual Report (Page 38) and 2019 Annual Report (Page 35). (<https://s3.amazonaws.com/imagerelay-assets/client/2958/assets/79309984/SQ-Annual-Report-2019.pdf?AWSAccessKeyId=AKIAJVLMP7IIZCRKAFSQ&Expires=1594637968&Signature=%2BhMcav5K7q5rFRtu2cRYvZ5bHjI%3D&response-content-disposition=inline>)

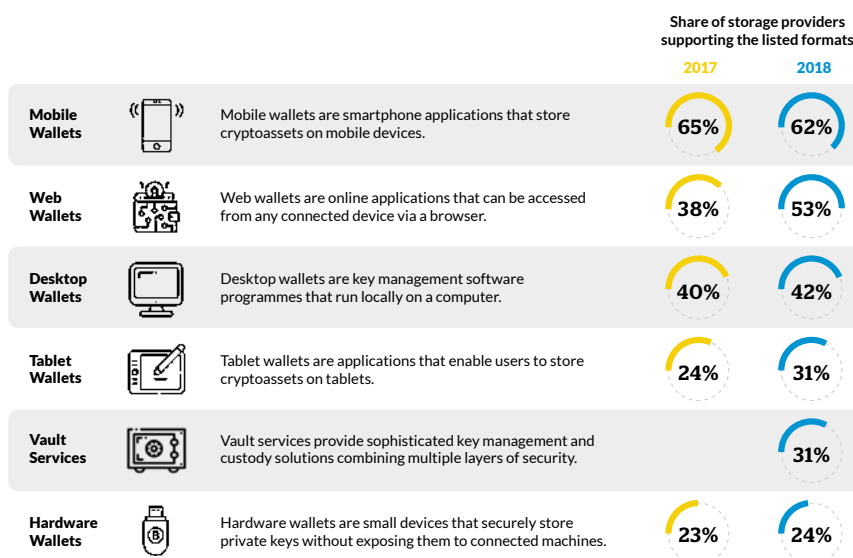
the legal and beneficial owner of such holdings. The Group itself has no direct claim to the cryptocurrencies, as they are assets belonging to its clients. When analysing the contractual terms and economic substance of the arrangements in place, the Group determined that (i) it must not record these holdings on its statement of financial positions because they would not fall within the bankruptcy estate of the Group and (ii) the general IFRS definitions of an asset and liability were not met.'

PREVALENCE AND TRENDS

Crypto-asset wallets

- A1.41 The 2017 Cambridge CAF study (**Figure 8.1**) indicates that at the time of publication, mobile wallets were the most common way of holding crypto-assets; although support was increasing for web wallets.
- A1.42 **Figure 8.1** illustrates the global trend (i.e. 2017/2018 change) in the use of storage options supported by crypto-asset storage providers.

Figure 8.1: Trends in Storage Options of Crypto-Storage Providers

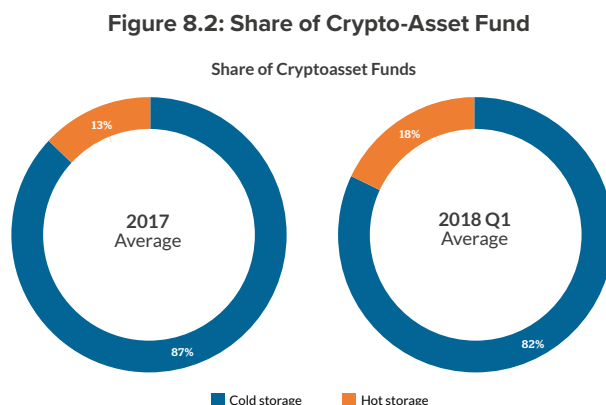


Source: 2017 Cambridge CAF study

- A1.43 **Figure 8.1** shows the global evolution of wallet options between 2017 and the second quarter of 2018. Mobile and web wallets (hot wallets) are the most widely offered storage formats, though cold storage vault services (cold wallets) have gained in popularity in late 2017 with the influx of institutional investors. As previously mentioned, cold wallets offer a safer storage option than hot wallets.
- A1.44 The 2017 Cambridge CAF publication shows that large storage providers support an average of three of the above types, compared to an average of two storage types supported by small wallet providers. Storage-only service providers are more likely to specialise in a particular activity, as opposed to multi-segment entities that provide a range of crypto-asset services.

Cold storage versus hot storage

A1.45 **Figure 8.2** indicates that the share of funds in cold storage in 2018 has slightly decreased over 2017.



Source: 2017 Cambridge CAF publication

MINING AND OTHER TRANSACTION VALIDATION ACTIVITIES

A1.46 Mining is a process of establishing consensus to verify and confirm transactions within a DLT environment. It occurs during the update of new transactions on the distributed ledger (e.g. blockchain) and entails the solving of cryptographic puzzles by individuals and/or entities that are network participants. Solving the puzzle (i.e. first participant to solve) is a pre-requisite for updating transactions on the blockchain distributed ledger. Mining is also part of the process of increasing the overall supply of crypto-assets in circulation.

A1.47 The validation of transactions of different crypto-assets while updating their respective blockchains mainly¹⁸⁰ occurs through “proof-of-work” or a “proof-of-stake” consensus mechanisms that determine how the miner or validator is selected to create a new block and how it will be rewarded for maintaining the distributed ledger.

PROOF-OF-WORK (PoW) VALIDATION

A1.48 Under PoW, miners in the blockchain network compete to solve the cryptographic puzzle (cryptographic hash function) in order to validate the transaction and create a new block in the blockchain. A new unit of cryptocurrency is created on solving the puzzle. Below is an elaboration of different aspects of PoW:

- a) **Examples and key features:** intensive computing and electricity consumption¹⁸¹ required to solve puzzles used for some cryptocurrencies (Bitcoin, Litecoin) but not for others (Ripple and Stellar) - which use other mechanisms, such as voting, to create new units of currency and update the blockchain. Feedback during the EFRAG research outreach indicated that PoW is currently the dominant form of validation with one respondent stating that it is applied for 80% of cryptocurrencies versus 20% for other consensus mechanisms such as Proof-of-Stake (PoS). However, there is a view that going forward, PoS will become more widespread. For example, this will be due to Ethereum, which begun an ongoing process of switching from PoW to PoS in 2017 and also due to blockchains such as Cosmos and Tezos that apply the PoS.
- b) **Compensation:** the miner who completes the work first earns transaction fees and a predetermined number of newly created unit of the cryptocurrency (referred to as “block reward”). The combination of transaction fees and block rewards is meant to compensate miners for the significant hardware and electricity costs involved in solving blockchain

¹⁸⁰ As noted in Ecklund and Beck (2019), there are other consensus mechanisms. For example, Practical Byzantine Fault Tolerance (PBFT) is the consensus algorithm for Ripple-XRP and delegated-PBFT is the consensus algorithm for NEO.

¹⁸¹ Bitcoin miners have 13,000 times more combined number crunching power than the world's largest 500 biggest super computers. The difficulty of the cryptographic puzzle is adjusted to incentivise the desired level of participation in mining activities. The difficulty has mostly gone upwards; since the first application-specific integrated circuits (ASIC) chips were introduced in early 2013, it has increased by a factor of 10,000.

algorithms. Block rewards are granted after 99 new blocks are created. The 2017 Cambridge CAF publication showed that transaction fees are at a magnitude of about 10% of the value of block rewards and that their proportion of total compensation has been on an upward rising trend. The trend of a rising proportion of transaction fees is not surprising as there can be a pre-determined possible supply of crypto-assets units. For instance, there is a pre-determined possible 21 million bitcoins and the supply in circulation as at beginning of July 2020¹⁸² is approximately 18.4 million. Furthermore, the block reward is halved every 210,000 blocks or roughly every four years. In 2009, the block reward was 50 bitcoins for updating each block. It was 25 bitcoins in 2013, 12.5 bitcoins in 2018, and 6.25 bitcoins for each updated block from May 2020. Correspondingly, transaction fees will likely become the main compensation for validating transactions once it is no longer possible to compensate through block rewards.

- c) **Risks:** the improbable but not impossible¹⁸³ “51% attack”. To create a fraudulent transaction, a rewrite of the blockchain would be required, and this can only occur if an individual or entity has controlling interest (i.e. more than 50%) control of all computers in the distributed network. According to Coin metrics, it would cost \$425 million in equipment and electricity to stage such an attack.

PROOF-OF-STAKE (PoS) VALIDATION

A1.49 In this system, typically no new units of crypto-assets are created during the validation and update of transactions on the network because the total supply of the crypto-asset units has been pre-mined by the developer and is already in circulation. Under the PoS approach, network participants are selected to validate transactions and update the blockchain based on the proportion of cryptocurrencies held and staked against the total amount staked by all those in the network. There is no need to compete to solve the algorithm, and therefore, validators require a lower return. Below is an elaboration of different aspects of PoS validation:

- a) **Examples and key features:** Peercoin, Nxt, Blackcoin and Shadowcoin. Because no cryptographic puzzle needs to be solved for the creation of a new block, PoS is not as computationally intensive as PoW.
- b) **Compensation:** the validator earns transaction fees for validating the block. If the selected validator authenticates a fraudulent transaction or does not complete the validation, it forfeits a portion of its initial stake. The computing power is a lot less compared to a Proof-of-work system because only one validator is involved.
- c) **Risks:** with a PoS, the attacker would need to obtain 51% % of the cryptocurrency to carry out a 51% attack. The proof-of-stake avoids this ‘tragedy’ by making it disadvantageous for a validator with a 51% stake in a cryptocurrency to attack the network. Although it would be difficult and expensive to accumulate 51% of a reputable digital coin, it would not be in the interest of a validator with 51% stake in the coin to attack a network which she/he holds a majority share. If the value of the cryptocurrency falls, this means that the value of his holdings would also fall, and so the majority stake owner would be more incentivised to maintain a secure network.

NOTABLE TRENDS OF MINING BUSINESS MODELS

A1.50 The EFRAG research outreach feedback indicated that proof-of-work mining activities are likely undertaken by mainly individuals but that there are/have been entities engaging in mining activities (e.g., Antpool, Bitfury and the now-bankrupt KnC miners). An outline of mining business models (**Table 8.1**) included in the 2017 Cambridge CAF publication shows that mining can be done through owned equipment, shared ownership (mining pools) or by renting mining capacity (cloud-based). The profitability of proof-of-work mining activities currently largely depends on the cost of operations (i.e. cost of electricity and computational capacity) and on the value of block rewards which depends on the price of the crypto-assets and number of units rewarded as transaction fees are only about 10% of total compensation. However, the profitability equation is bound to change should transaction fees become an increased proportion of overall compensation as envisioned.

182 <https://www.blockchain.com/en/charts/total-bitcoins>

183 As mining pools have gotten bigger, it is not inconceivable that one of them might amass enough capacity to mount a 51% attack. Indeed, in June 2014 one pool, GHash.IO, had the bitcoin community running scared by briefly touching that level before some users voluntarily switched to other pools.

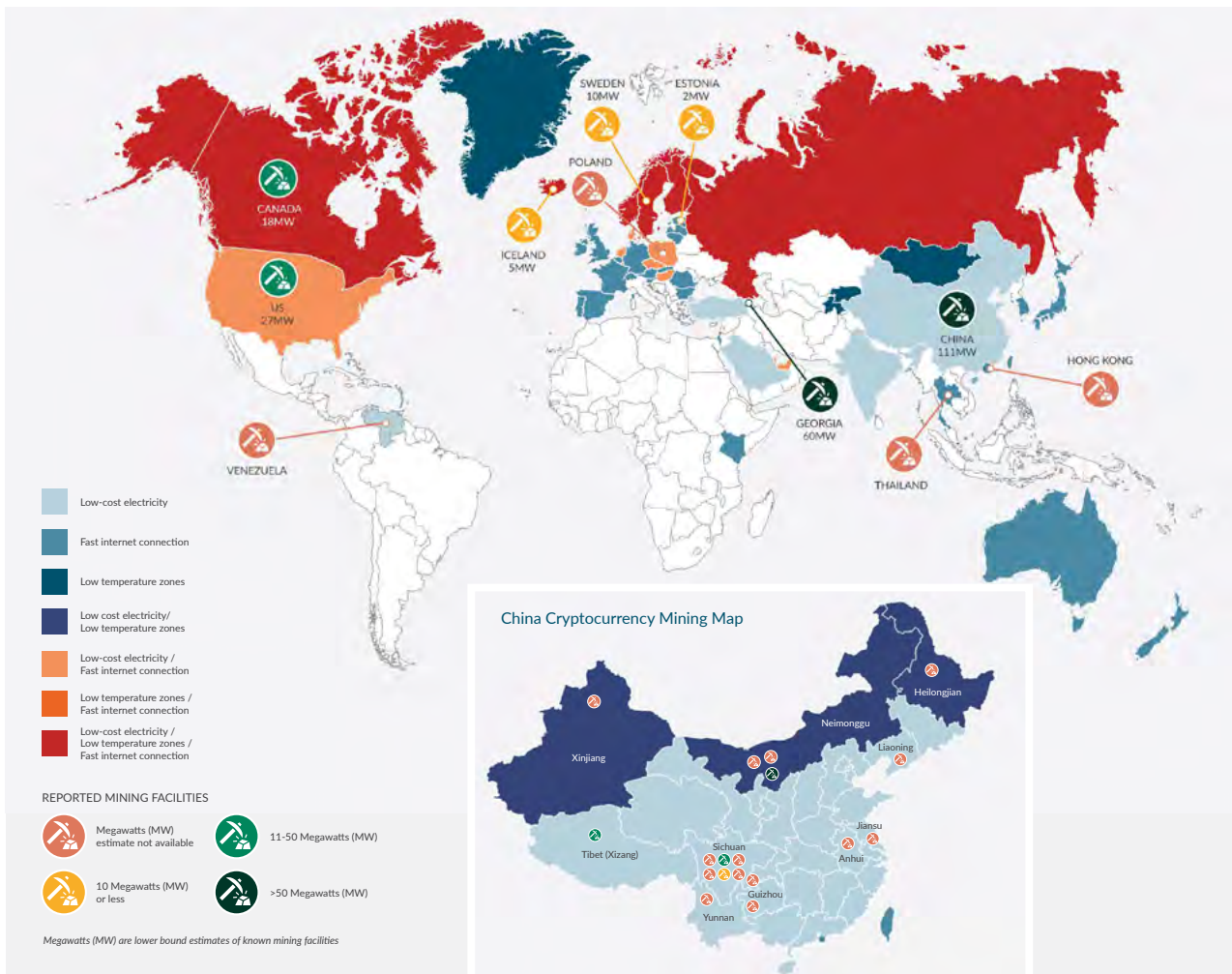
Table 8.1: Mining Business Models

TYPE OF ACTIVITIES/ACTORS	DESCRIPTION
Mining	Individuals and organisations using their own mining equipment to process transactions and earn the mining reward and transaction fees
Mining pool	Combines computational resources from multiple miners to increase the likelihood and frequency of finding a new block, and then distributes mining rewards among participating miners based on proportion of contributed computational resources
Mining hardware manufacturing	Organisations designing and building specialized mining equipment
Cloud mining services	Organisations renting out hashing power to customers
Remote hosting services	Organisations hosting and maintaining customer-owned mining equipment

Source: 2017 Cambridge CAF publication

A1.51 The outreach feedback and geographical attribute data (i.e. cost of electricity, speed of internet connection, ambient temperature) provided by the 2017 Cambridge CAF publication (**Table 8.3**) also shows that proof-of-work mining activities hardly or unlikely to be pervasive within a majority of EU jurisdictions with exceptions being Poland and Nordic countries such as Sweden.

Figure 8.3: Geographical Spread of Mining Activities



2017 Cambridge CAF Publication

APPENDIX 2: ECONOMIC CHARACTERISTICS, RIGHTS AND OBLIGATIONS

OVERVIEW OF ECONOMIC CHARACTERISTICS AND ROLE OF TAXONOMY

- A2.1 Due to the variety and sometimes hybrid economic characteristics of crypto-assets, it is challenging to readily identify all their unique economic characteristics, rights and obligations.
- A2.2 Correspondingly, a taxonomy that classifies and distinguishes different types of crypto-assets based on common characteristics can be indicative of the economic characteristics and asset type and facilitate the analysis of appropriate accounting for different crypto-assets. A suitable taxonomy is in place if it effectively distinguishes crypto-assets based on their technical layer, purpose, underlying asset, functionality and legal status.
- A2.3 In a generic sense, crypto-assets can fulfil three key distinctive and archetypal economic functions, namely:
- a) Serve as a means of exchange (payment);
 - b) Provide investment value (akin to a security); and
 - c) Confer economic benefits related to participation in network configuration or consumption of network products or services (utility).
- A2.4 Variants of the above three archetypal economic functions are commonly reflected in the taxonomies for crypto-assets used in regulator, legal firm, accountancy firm and academic literature.
- A2.5 As noted in earlier chapters, it cannot be overlooked that any chosen taxonomy is by definition static and will likely have limited usefulness over time. To begin, any categorisation of types of crypto-assets risks becoming obsolete due to ongoing innovation in features and technological developments. In addition, there are limitations with any bright-line categorisation, particularly for hybrid tokens that serve different purposes depending on different holders or whenever their “best use” for each holder evolves over time. For example, at its inception, Ether constituted a way to provide access to a technology platform (and it remains a means of accessing smart contracts). However, its increased use as a medium of exchange has impacted its use as a means of access. For these reasons, some NSS (e.g. France- accounting standard setter-ANC) have either avoided or only had minimal reference to the distinctive categories within a commonly applied taxonomy (i.e. payment tokens, utility tokens, security tokens) when developing their accounting guidance.
- A2.6 Nonetheless, for the purposes of this research, a taxonomy-based distinction provides a useful starting point for assessing economic characteristics, rights and obligations and thereafter facilitates the analysis of related accounting and regulatory requirements. It should not be overlooked that the noted rapid innovation may be in the hybridisation of crypto-asset features and in the form and efficacy of technology mechanisms used to fulfil economic functions rather than being a change in their fundamental economic characteristics. Besides, a taxonomy helps to identify specific crypto-assets where accounting challenges may arise due to hybrid characteristics. What is essential is to apply the taxonomy as an initial step of identifying the distinguishing economic characteristics of different crypto-assets and to thereafter, further evaluate the characteristics, rights and obligations on a case-by-case basis. Examples of rights associated with different crypto-assets are provided in **Paragraphs A2.44 to A2.51**.

TAXONOMY APPLIED IN DP

- A2.7 For the purposes of this project, the below eight categories of crypto-assets (also broadly referred to as digital tokens) outlined form the basis of analysis. These categories are not always mutually exclusive.
- i) Payment tokens including cryptocurrencies with no claim on the issuer;

- ii) Security and asset tokens (investment tokens);
- iii) Utility tokens;
- iv) Hybrid tokens;
- v) Stablecoins that can also be classified as payment tokens or security tokens or asset tokens or hybrid tokens;
- vi) E-money tokens (a category applied by the UK FCA);
- vii) Pre-functional tokens; and
- viii) Simplified Agreement for future tokens (SAFTs) - as outlined below, SAFTs are linked to crypto-assets and are securities.

A2.8 As noted, there are three key economic functions (payment, investment, utility) but the breakdown into eight categories also enables the definition and distinctive analysis of issues related to stablecoins and e-money tokens, notwithstanding that these two categories of crypto-assets could also be payment or security or hybrid tokens. There is also an awareness that pure-pay utility or security tokens hardly exist and that the applied classification often simply reflects the predominant economic attribute of the token. This is no different from the classification of a purchased ticket to a popular sporting contest event as a prepayment asset prior to the event to reflect the predominant economic feature of the ticket even though the ticket may have an active secondary market that would make it akin to an investment or trading asset.

A2.9 There are other classification taxonomies. For example, Sixt and Himmer (2019) have a category of consumer tokens whose description sounds similar to what is described elsewhere as utility tokens. These authors further sub categorise consumer tokens into voucher tokens (e.g. rights to products or services) and work tokens (e.g. rights to contribute labour). They also classify and further disaggregate security tokens into equity tokens, debt tokens and revenue tokens. Another academic paper¹⁸⁴ (Lausen, 2019) identifies a 14-category taxonomy.

A2.10 The variety of taxonomy classification approaches shows that there is no single taxonomy that is the right one and superior to others for analytical purposes and there is room to develop or tailor any existing taxonomy to be appropriate for accounting purposes.

DOCUMENTATION OF RIGHTS AND OBLIGATIONS AND TYPES OF CONTRACTUAL ARRANGEMENTS

A2.11 The combination of high diversity of crypto-assets, high velocity of transactions, numerous types of stakeholders and lack of regulatory guidance created room for heterogeneous practices when it comes to the source and depth of content and extent of formalisation of crypto-assets rights and obligations.

A2.12 Accordingly, there is a spread/continuum on the extent of formalisation and robustness of documentation of rights and obligations associated with crypto-assets.

A2.13 Starting from the absence of explicit formalisation up until very explicit information disclosure documents enforced by law or code, the spectrum is as follows:

- a) Implicit to the market (algorithm-based);
- b) White paper;
- c) Contract (e.g. SAFT type);
- d) Private Placement Memorandum (PPM);

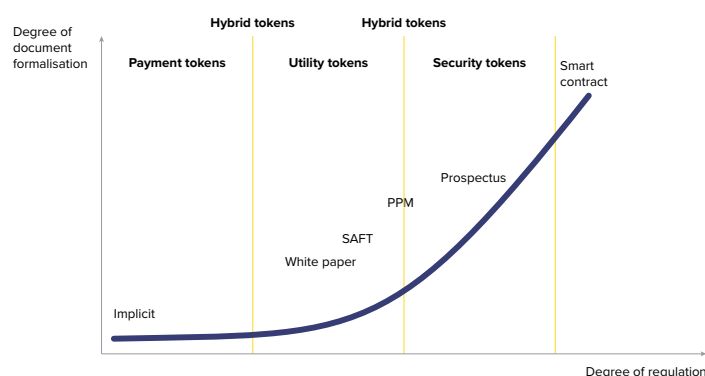
¹⁸⁴ Lausen, J., 2019. Regulating Initial Coin Offerings? A Taxonomy of Crypto-Assets. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3391764

- e) Prospectus; and
- f) Smart contracts.

A2.14 **Figure 9.1** is a diagrammatic portrayal and the description below is an outline of rights associated with different types of crypto-assets

- a) Payment tokens including cryptocurrencies with no claim on the issuer: there is usually an implicit contract between participants and no explicit documentation of rights and obligations.
- b) Security and asset tokens: economic rights and obligations are extensively documented either in a PPM or a Prospectus as in traditional capital markets. These might refer to contractual cash flows, exposure to issuing entity benefits (discretionary dividend), voting rights or any residual interest in the issuing entity.
- c) Utility tokens: rights and obligations of holders/issuers are typically documented in a white paper. In the absence of regulatory guidance, there is variation in the robustness, accuracy and quality of white papers.
- d) Hybrid tokens: due to hybrid characteristics, there are additional challenges to understand the effective rights and obligations attached to these tokens, as they are spread amongst implicit market conventions and explicit information disclosures documents with a variable level of formalisation.

Figure 9.1: Documentation and Regulation of Issued Crypto-Assets



Source: Developed based on EFRAG research outreach

ECONOMIC CHARACTERISTICS, RIGHTS AND OBLIGATIONS OF DIFFERENT CRYPTO-ASSETS

PAYMENT TOKENS INCLUDING CRYPTOCURRENCIES

- A2.15 These refer to tokens issued through the DLT platform but have no claim against any issuer. Cryptocurrencies share several characteristics of fiat money (i.e. fungibility, tradability, divisibility and transferability) but unlike fiat currency, are not backed by any central authority, do not have legal tender status and have no claim on any counterparty.
- A2.16 They can fulfil the three functions of money/fiat currency (means of exchange, store of value and unit of account) in the blockchain economy and only to a very limited extent fulfil the functions of fiat currency outside of the blockchain economy.
- A2.17 The limitation of cryptocurrencies as a means of exchange arises due to their lack of legal tender status and due to the technological limitations of the trading and validation process, which results in a much lower volume of transactions for cryptocurrencies than is the case for the platforms for processing traditional fiat currencies.

Implicit cryptocurrencies' rights

A2.18 In the absence of any explicit contractual arrangements between the decentralised network managing the issuance of cryptocurrencies and their holders, combined with the absence of the legal tender feature, no formal rights can be attached to payment tokens. However, market participants in payment tokens would be aware of the implicit contractual arrangements embedded within the consensus mechanism/protocol governing the issuance of these tokens.

SECURITY AND ASSET TOKENS

A2.19 Security tokens are crypto-assets that are similar in nature to traditional securities. They can provide an economic stake in a legal entity: sometimes a right to receive cash or another financial asset, which might be discretionary or mandatory; sometimes the ability to vote in company decisions and/or bestow a residual interest in the entity. The value of a security token is derived from the success of the entity. The main difference between security tokens and traditional securities is that the rights of security tokens are written into smart contracts, and the tokens are traded on a blockchain-powered exchange.

A2.20 Asset tokens are crypto-assets that derive their value from something that does not exist on the blockchain, instead, they are a representation of ownership of physical assets (e.g. natural resources such as gold or oil). The inherent value of asset tokens is based on their underlying assets. Asset tokens are sometimes referred to as “tokenised assets” or “digitised assets”.

Security and asset tokens rights

A2.21 Economic rights attached to security tokens are more easily identifiable as they directly refer to some expected revenue streams, whether mandatory (in the case of debt like underlying) or discretionary (in the case of dividend streams of equity-like underlying) or cash flows from an underlying asset such as real estate.

A2.22 In addition, the existence of a comprehensive regulatory framework for traditional financial instruments and securities laws helps to ensure information disclosures requirements that can inform investors on the economic rights and obligations attached to them.

A2.23 Examples of contractual rights and obligations attached to security and asset tokens include but are not limited to:

- a) Rights to revenue streams;
- b) Governance rights;
- c) Residual interest in the net assets of the issuing entity;
- d) Ownership rights;
- e) Conversion rights;
- f) Rights to investment funds;
- g) Rights to real-world assets.

UTILITY TOKENS

A2.24 Utility tokens' predominant economic function is to either grant access to existing or yet to be developed future products or services of a blockchain-based network platform or to contribute to network capabilities. These tokens play a pivotal role in launching new platforms, attracting potential customers and network participants and are designed to align the interest of both users and owners of the platform.

A2.25 Putting aside their representation or form as digital tokens, some of the utility tokens that grant holders access to network products and services can be seen as similar in their features to non-crypto-asset transactions (e.g. gift vouchers, loyalty

miles points, store credits, application program interface (API) keys¹⁸⁵, membership subscriptions, timeshare rental or casino poker chips that are exchangeable by the holder for goods or services). They may also act as the internal network currency. Hence, Sixt and Himmer (2019) also describe these type of utility tokens as voucher tokens.

A2.26 Other utility tokens, broadly speaking, grant their holders the right to contribute to network capabilities (e.g. right to develop network functionality). Hence, Sixt and Himmer (2019) describe some of these are work tokens.

Utility token rights

A2.27 While the absence/presence of information disclosures document is quite clear in the case of payment/security tokens respectively, things are much more of a grey area when it comes to utility tokens.

- a) A first critical aspect to consider is that utility token issuance is not a regulated activity in most jurisdictions. Accordingly, the information disclosures documents (i.e. white papers) are not legally binding. Therefore, the potential rights attached to these tokens are not “legal rights” as such, even if some enforcement mechanisms might apply on a case-by-case basis.
- b) The second critical aspect is the significant diversity in the rights attached to utility tokens which can be as broad as the creativity of the issuing entity and the complexity of the expected business model of the underlying platform.

A2.28 While significant diversity exists in practice, it is possible to identify different key categories of rights that might be attached to them. These rights revolve around the actions that token holders are allowed to perform on the underlying platform or the benefits that they can obtain from it. The following rights can be identified from existing literature:

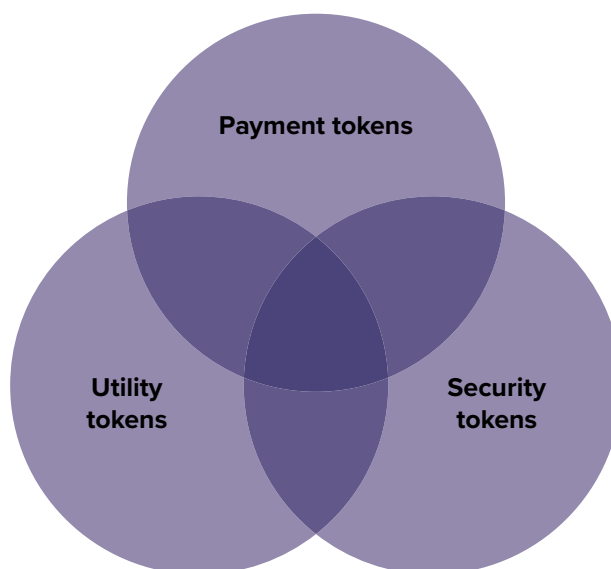
- a) Access rights: allow token holders to access the platform or a network or to effectively pay the existing transaction fees to use the platform;
- b) Payment rights: give the right to token holders to pay for products or services available on the underlying platform - act as a platform-dedicated medium of exchange;
- c) Transaction validation/blocks creation rights: specific to Proof-of-Stake and gives the right to holders to stake or validate blocks and obtain returns from it;
- d) Governance rights: allow token holders to influence the decision-making process and evolution/development of the underlying platform;
- e) Contribution rights: refer to rights of holders to play some roles in maintaining the platform but different from governance or validation rights; and
- f) Discretionary revenues rights: in some cases, holders can be entitled to discretionary revenues from the underlying platform but without any kind of voting rights attached.

HYBRID TOKENS

A2.29 As depicted in **Figure 9.2** below, there are hybrid tokens with or overlapping multiple characteristics (e.g. having utility token, payment token and security token features at the same time). They can be used for different purposes by their owners during the holding period. And at a point in time, specific hybrid tokens can be used for different purposes by different users.

¹⁸⁵ An application programming interface (API) key for Google cloud services grants direct access to its functionality and at the same time holders can gift a key, sell a key to some other person.

Figure 9.2: Main Crypto-Assets Categories



Hybrid tokens rights

A2.30 Rights and obligations attached to hybrid tokens broadly vary depending on:

- a) The effective hybridisation (mix of payments/utility/security features); and
- b) How the predominant feature of the hybrid token effectively materialises (over time vs depending on the use by token holders).

A2.31 As an example of an area for discussion, a critical point for the classification of tokens is whether or not a product or service is available at the time of issuance. In the absence of product or service, these tokens are usually qualified as security tokens, and the substance of the issuance is considered as a fundraising activity even if the tokens are not providing any residual interest in the issuing entity nor any rights of ownership or claim on the issuer.

A2.32 In all cases, the rights and obligations attached to hybrid tokens will reflect the above considerations and earlier described rights attached to the different types of token taken individually. The exact fact patterns will drive the analysis which output will rely on significant judgement in the absence of clear regulatory guidance.

STABLECOINS

A2.33 A stablecoin is a crypto-asset backed by real-world assets, fiat currencies and in some special cases other cryptocurrencies. Stablecoins attempt to solve the problem of high volatility. The linkage of the crypto-asset to a stable asset is to hedge against the impact of price volatility and is intended to incentivise trust in payment tokens as a means of payment. Analogies can be drawn between the intent underlying the issuance of stablecoins and the role that the gold standard had in inculcating trust in currencies during the 19th century and parts of the 20th century. As outlined in the 2019 UK FCA guidance and a March 2020 IOSCO publication¹⁸⁶, there are different types of stablecoins including:

- a) Fiat currency backed stablecoins;
- b) Other cryptocurrency backed stablecoins;
- c) Asset-backed stablecoins; and

¹⁸⁶ IOSCO, March 2020. *Global Stablecoins Initiatives*. Public Report. <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD650.pdf>

d) Algorithmically stabilised coins (i.e. an algorithm that either increases or decreases the supply of coins to minimise the price volatility of the crypto-asset).

A2.34 Not every stablecoin will necessarily fit into a single classification category and the full spectrum of stablecoins consists of diverse product features. For example, they can be a derivative, a unit in a collective investment scheme, a debt security, e-money, or another type of specified investment. In addition, the 2019 Binance research article analysing the JPM coin, distinguishes between first-generation stablecoins that primarily aimed to reduce price volatility and second-generation stablecoins that aimed to increase transparency into the first generation of stable coins. The article viewed JPM coin as a precursor to a third-generation of stablecoins aimed at particular market segments (e.g. financial institutions for JPM coin).

E-MONEY TOKENS

A2.35 E-money tokens is a classification category that is proposed in the guidance of the UK FCA issued in July 2019 and not usually applied in the taxonomy of other literature. It encompasses tokens that meet the definition of e-money including there being a claim on the issuer. Some stablecoins, payment, utility and security tokens can qualify¹⁸⁷ as e-money based on jurisdictional authorities' definitions.

A2.36 A May 2019 ECB definition considers that crypto-assets do not qualify as "electronic money"¹⁸⁸ under the Second Electronic Money Directive (EMD2) - as they are not and do not represent a claim on the issuer. The ECB definition also does not consider crypto-assets to be "scriptural money"¹⁸⁹. However, a January 2019 EBA report highlights that there are cases where some crypto-assets could qualify as electronic money - as has been identified by five national competent authorities including Malta and the UK.

PRE-FUNCTIONAL TOKENS

A2.37 Direct-token pre-sales' or pre-functional tokens are tokens that are transferable via a protocol on the DLT network but cannot yet offer utility on the network. Effectively, these are tokens issued before the network is launched and will typically convert to utility tokens once the network is active.

A2.38 There can be uncertainty on whether pre-functional tokens are in substance equivalent to a security or to product sales. They could be considered as equivalent to pre-network launch product sales that should be available for any consumer. But in some jurisdictions (e.g. US), pre-functional tokens are typically issued with accompanying Simple Agreements for Future Tokens (SAFTs) and are only open only for accredited investors thus SAFTs seem to be considered as securities.

SIMPLIFIED AGREEMENTS FOR FUTURE TOKENS (SAFTS)

A2.39 SAFTs are agreements that represent their holders' rights to future tokens. SAFTs relate to pre-functional tokens, are only available in some jurisdictions and considered as equivalent to issued securities. SAFTs bifurcate the securities and token components of a transaction while preserving the many benefits associated with ICOs" and keeping the utility component (the "functional token" that is not likely to be a security) separate from the security-like component (the "non-functional token").

LEGAL OBLIGATIONS RELATED TO CRYPTO-ASSETS ISSUERS

A2.40 Obligations from token issuers vary greatly depending on the type of crypto-assets involved but also within a given category.

¹⁸⁷ EBA describes two examples including a Company A that wishes to create a blockchain-based payment network and issues a token in exchange for fiat currency and that is pegged to the given currency. The token can be redeemed at any time. The actual payment on this network is the underlying claim against Company A or the right to get the claim redeemed.

¹⁸⁸ ECB defines e-money as electronically stored monetary value as represented by a claim on the e-money issuer, which is issued on receipt of funds, for the purposes of making payment transactions, and which is accepted by a natural or legal person other than the electronic money issuer.

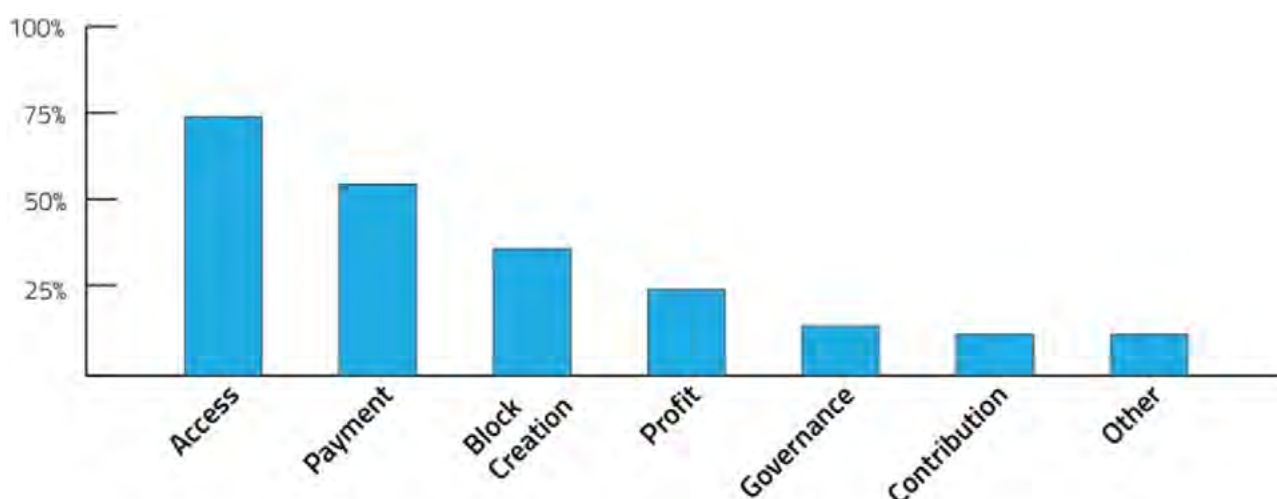
¹⁸⁹ Scriptural money means deposit balances held on account at a credit institution or a central bank, or electronic money.

- a) In the absence of identifiable issuers, contractual obligations are not relevant in the case of payment tokens.
- b) Looking at utility tokens issuers, obligations from the issuers will be limited to those formalised in their white paper but will mostly not be legally binding in the absence of an applicable regulatory framework. However, as noted in **Chapter 4**, there can be constructive obligations associated with utility tokens.
- c) Lastly, issuers of security token will be required to comply with the mandatory/discretionary contractual arrangement disclosed in their PPM or prospectus.

AGGREGATE DATA ON ISSUED TOKEN RIGHTS

A2.41 A 2017 Smith+Crown website article¹⁹⁰ published a profile of token rights associated with ICOs worth over USD 30,000 issued between 2014 and 2017. As depicted in **Figure 9.3** below, access rights are the most common, while governance and contribution rights are the least common. The article observes that latter rights are typically connected to complicated organisational structures and niche use cases related to the blockchain token economy. Projects that have these types of rights are difficult to design and harder for ICO participants to understand.

Figure 9.3: ICOs Issuance Rights



Source: 2017 Smith+Crown website article

A2.42 Adhami et al's (2018) review of a sample of 253 ICOs from 2014 to August 2017 gives a similar picture to the Smith+Crown article. Their review found the following frequency of tokens granted to contributors:

- a) Right to access platform services (68.0%);
- b) Profit rights (26.1%); and
- c) Governance powers (24.9%).

A2.43 Similarly, a November 2018 Autorité Des Marchés Financiers (AMF) publication¹⁹¹ highlights its analysis of the characteristics of 83 ICOs or planned ICOs in France. It found that 74 of the projects (89%) are either related to payment or access of service rights (i.e. utility tokens) and five of the projects (6%) have characteristics of security tokens.

¹⁹⁰ Smith+Crown, 2017. *Token Rights: Key Considerations in Crypto-Economic Design*. Smith+Crown website. March 30, 2017. <https://perma.cc/2TDF-V8BW>

¹⁹¹ Autorité Des Marchés Financiers (AMF)- Le Moign, C., November 2018. *French ICOs- A New Method of Financing?* https://www.amf-france.org/sites/default/files/contenu_simple/lettre_ou_cahier/risques_tendances/French%20ICOs%20-%20A%20New%20Method%20of%20Financing%20.pdf

ILLUSTRATIVE EXAMPLES OF CRYPTO-ASSETS BASED ON HOLDER RIGHTS

A2.44 **Table 9.1** below provides examples of different types of crypto-assets with different associated holder rights. These were identified from the feedback to the EFRAG research outreach and from different publications (e.g. the Law firm-Debevoise & Plimpton December 2016 publication; April 2020 European Parliament publication; 2019 Binance research article; Smith + Crown website article (2017); the 2019 Blockdata publication; the 2018 Oliver Wyman publication; the 2019 ESMA survey of NCAs; 2019 EP Publication; the 2019 OECD publication; Hacker and Thomale (2018); Maas (2019); Morabito (2017); and Parrondo (2019)).

Table 9.1: Illustrative Examples of Crypto-Assets

TYPE AND ASSOCIATED RIGHTS	EXAMPLES OF CRYPTO-ASSETS
Payment tokens-Cryptocurrencies (coins)	
No legal claim on the issuer but implied rights to exchange for goods, services and other assets with counterparties that accept	Bitcoin, Ether, Litecoin, Monero, Spectrecoin, Verge, Dash and Z-cash. Centralised networks: Ripple, Alastria, Partici and Utility Settlement coins
Utility tokens	
Utility (rights to goods and services, voucher-like) tokens	
Rights to access discounted fees, products or services of Token Platform	RLC, VeChain, Nexus coin, Million coin, Filecoin (provides access to unused storage capacity), Golem Network Token-GNT (used to rent computing power), BAT (provides access to advertising space), Ox, Civic, Augur, Gamecredits, First blood (used for gaming services), Powerledger (POWR - used to buy and sell energy on the platform), Paragoncoin (used for Paragon brick and mortar working space), Tutellus (EdTech platform)
Rights to purchase or sell existing or future products or services or partial ownership of a product	Must protocol token, Monolith token, 2Gether (financial platform)
Utility (right to contribute to network) tokens	
Rights to mining activities or block creation activities	Tezos, Livepeer token
Right to contribute, programme or create features of a system or contribute to a value-adding action for the network or market that is being built	Dock, Maker DAO token, Blockstack (provides the building blocks for a new type of decentralised internet its users may navigate), Dfinity (can serve as deposits for proposing and joining the system infrastructure or creating nodes that could be managers), Factom (FCT used to buy rights to update factoid platform), Status network token (SNT -fuels a decentralised notification, governance of the Status client, along with curation of user-generated on the network)
Rights to contribute labour, effort or resource to a system, and potentially be rewarded for it - can be active work or passive work where holders can be rewarded based on sharing data about them	RLC, GNO, LINK, SNX, Chronobank, Nexus Mutual tokens-NXM (holders can participate in insurance claims assessment and approval)
Right to create or decide on products, services, functionalities to be offered or deleted within the Token Platform or vote on matters of governance, management and operation of the Token Platform	Tezos, MKR, Aragon network tokens support multiple applications (budget management, fundraising, voting on projects, juror adjudication of disputes)
Security and asset tokens	
Contractual entitlement to ownership interest or control of the token issuer	Documo, Digishare token, FINOM (FIN - grants rights to: receive dividends; a portion of company assets; and participate in community management)

Table 9.1 continued

TYPE AND ASSOCIATED RIGHTS	EXAMPLES OF CRYPTO-ASSETS
Revenue or profit rights - rights to financial benefits from revenue streams or profits of the issuer/operator	Bankera "BNK" (right to receive weekly commission paid out in ETH), VMC coin, TradeCloud, DGD, LGO, TKN, ICONOMI, Polybius Bank (PLBT - grants rights to receive 20% of distributable profit of a financial year)
Debt - right to set cash flows from the economic activities of the issuer/operator	Rokkex token
Rights similar to derivatives instruments (e.g. Reference to other crypto-assets as underlying, granting the holder an option to purchase one or more investment interests)	Crypto-derivatives including stablecoins backed by other assets and crypto-assets. See examples of other cryptocurrency backed stablecoins
Rights to future tokens (e.g. Simple Agreement for Future Tokens)	Investors received SAFTs for utility tokens - Filecoins granting them a right to Filecoins at network launch.
Convertibility of a non-security token into a token or instrument with one or more investment interests	ICN
Right to investment funds	The DAO, Blockchain Capital's - BCap token and SPICE VC
Traditional asset tokens, Property ownership rights, Usufruct- Right to fruit from property	Maecenas (art is tokenised), Nivaura (bonds are tokenised), ICX
Hybrid tokens	
Utility-security hybrid tokens	NEO, Binance BNB, Crypterium (CRPT)
Payment-security hybrid tokens	Neumark-NEU
Utility-payment hybrid	Ether
Utility-payment-security hybrid tokens	Syscoin, PAquarium (PQT)
Stablecoins¹⁹²	
Fiat currency backed stablecoins	TrueUSD, Tether, Stasis Euro (EURS), Gemini dollar, CarbonUSD, USD Coin, PaySend, Noku, Paxos Standard, eToro, Steem dollars
Other cryptocurrency backed stablecoins	Dai, AlchemyBite, Synthetix, Steem power, Maker, Terra
Asset-backed stablecoin	Digix DAO and Ekon (backed by gold), Swissrealcoin (Swiss real estate backed), Hellogold, Onegram
Algorithmically stabilised stablecoins	Terra, Karbo

SELECTION OF ILLUSTRATIVE FACT PATTERNS RELATED TO EXAMPLES

Illustrative utility tokens

A2.45 In one of the largest ICOs (over 250 million USD raised), Filecoins were issued by Filecoin, which is a decentralised storage network built on the blockchain. Holders can use Filecoins to pay for storage or distribution of data, and Filecoin miners earn Filecoins for providing storage to clients.

A2.46 The BAT white paper¹⁹³ outlines the business model and value proposition of BAT tokens aimed at redressing users' negative experiences of advertisements on the internet (i.e. too many forced, irrelevant ads). BAT holders using the

¹⁹² A 2019 Blockdata publication highlights that only 66 stablecoins are operational, 134 in development including the Libra concept, and 26 have closed. <https://download.blockdata.tech/blockdata-stablecoin-report-blockchain-technology.pdf>

¹⁹³ Basic Attention Token 2018 White Paper. *Basic Attention Token Blockchain Based Digital Advertising- Brave Software*. March 13, 2018. <https://basicattentiontoken.org/> (click "view white paper" to access)

Brave browser can enrich their overall experience by using tokens to add advertisements or other attention-based services on the Brave platform. BAT tokens effectively align advertising companies and end-user incentives.

Table 9.2: Business Model Excerpt from BAT White Paper

PRESENT ECOSYSTEM	BAT TOKEN AND PAYMENTS
User frustration over loading time	Fast loads
Walled gardens	Free software, open source infrastructure
Bandwidth wasted	Low bandwidth overhead
Screen clutter	Uncluttered screen
Irrelevant ads	Ads tuned to user interests
Security issues	No malware
Viewability problems/attribution	Secure attribution/attention score
Advertiser uncertainty about delivery	Perfect delivery certainty
CPM/click based	Attention-based
Reader attention not valued	Reader is paid for attention
Publisher revenues lowering	Larger publisher revenues
Expensive ad buys due to middlemen	Efficient ad buys
Complex/expensive viewability metrics	Simple/free viewability metric
User's privacy violated	Perfect user privacy

Source: BAT White Paper

Illustrative hybrid tokens

- A2.47 *Utility-security hybrid*: Binance BNB coin that has the combination of utility (as the BNB can be used to pay transaction fees on the Binance exchange) and security features (as Binance redistributes part of its revenue to its token holders).
- A2.48 *Utility-security hybrid*: Crypterium (CRPT) tokens issued to help build up a “cryptobank”. The token can be used to pay for cryptobank transaction services. Holders have a right to receive a monthly share of revenues derived from transactions.
- A2.49 *Utility-payment-security hybrid*: PQT tokens were issued with the objective of building the world’s largest aquarium. PAquarium promises to pay 20% of the operational profit to holders on an annual basis, token holders have voting rights on location; a certain amount of holding gives life-time access to the aquarium.
- A2.50 *Utility-payment-security hybrid & stablecoin*: STEEM issued by social media and content-focused Steem blockchain consists of Steem Power and Steem dollars. Steem Power can be exchanged with other cryptocurrencies and Steem Power allows holders to obtain equity-light rights. Steem dollars are stablecoins pegged at 1:1 to the USD.
- A2.51 *Utility-payment-security hybrid*: Syscoin issued on its own native blockchain and was created as a cryptocurrency mainly intended as a medium of exchange. Syscoin blockchain has on-chain governance through staking, a decentralized marketplace for goods, coin-mixing and an escrow and arbitration service, all of which can only be accessed with Syscoin. Moreover, ‘master nodes’ (nodes that consist of high-powered servers) receive a yearly 3-27% ROI, by holding 100,000 Syscoin.

APPENDIX 3: RELATED REGULATION

A3.1 The economic characteristics of different crypto-assets (e.g. whether or not they are either economically equivalent to securities or fiat e-money) can influence on the type of regulation that is applied to them across different jurisdictions- and can influence the requirements related to the issuance, secondary trading and holding of crypto-assets. Consequently, the prevailing regulatory requirements can be indicative of the economic characteristics of different crypto-assets.

OVERVIEW OF REGULATORY RESPONSES

HETEROGENOUS REGULATORY APPROACHES

A3.2 The 2019 Cambridge CAF publication and the January 2020 IMF publication highlight varied regulatory approaches across jurisdictions related to different activities (issuance, brokerage and trading, asset custodial and segregation). The IMF publication highlights that although 64% of regulators have identified a gap in crypto-assets regulation, only 30% have addressed the gap. The perceived gap in the regulatory framework for crypto-assets was much higher than that of other FinTech areas (i.e., algorithmic trading, lending with artificial intelligence, robo-advisors, mobile payment services, insurance, peer to peer lending).

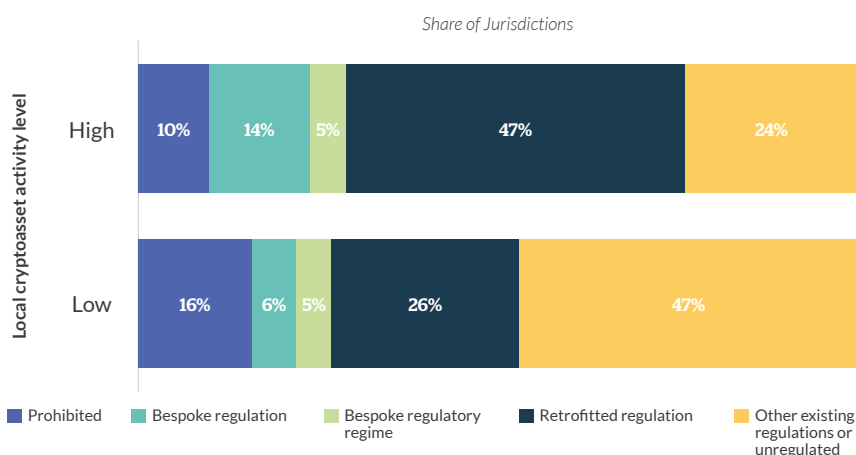
A3.3 The varied regulatory approaches across jurisdictions include:

- a) Lack of regulation;
- b) Implicit within existing regulation with the application of existing laws or regulations to crypto-asset activities (e.g., China, Hong Kong, Switzerland, US);
- c) Retrofitted regulation where there is an amendment of existing laws to include crypto-asset activities (e.g., Australian-AML regulation, EU-AML regulation, Japanese Payment Services Act);
- d) Bespoke regulation where new law or regulation is enacted to regulate crypto-asset activities (e.g. French AMF allows the optional Visa application for ICOs, Malta-Virtual Financial Services Act.); and
- e) Outright prohibition (China, South Korea ban on ICOs).

A3.4 The 2019 Cambridge CAF publication (**Figure 10.1**) shows that a high proportion of jurisdictions have either none, implicit or retrofitted regulation (i.e. 71% for high activity level jurisdictions and 73% for low activity jurisdictions). Furthermore, a June 2019 IMF publication¹⁹⁴ notes that some regulators have created special regulatory frameworks for crypto-assets while most are taking a case-by-case approach. Only a few jurisdictions have provided specific guidance as to the types of licenses that are required, and the parts of the regulatory framework that are triggered by different types of activities with crypto-assets.

¹⁹⁴ IMF, June 2019. *FinTech: The Experience So Far, Policy Paper*. <https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/06/27/Fintech-The-Experience-So-Far-47056>

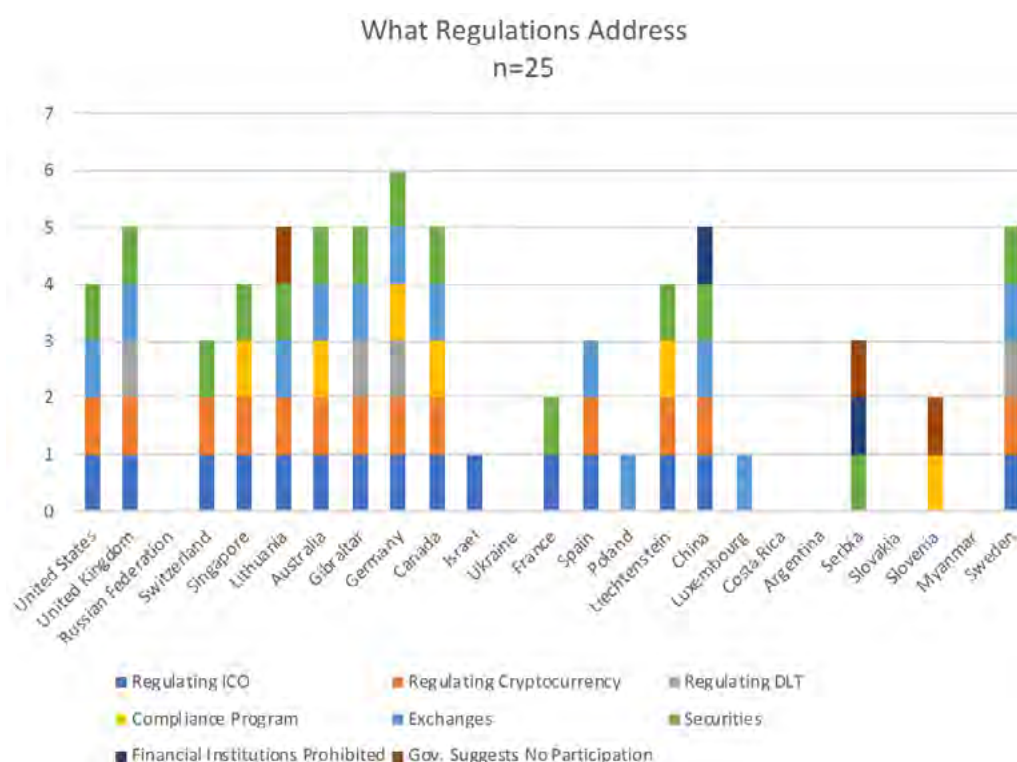
Figure 10.1: Heterogenous Approaches to Regulation Across Jurisdictions



ACTIVITIES WITHIN REGULATORY PERIMETERS

A3.5 Through **Figure 10.2** and other presented data¹⁹⁵, Kaal (2018) highlights the scope and extent of regulation on crypto-assets related activities across the Top 25 ICO jurisdictions. Kaal's analysis shows that ICOs are to a varied extent regulated in 15 of the top 25 ICO jurisdictions, and only light and implicit regulation is in place in ten of these jurisdictions.

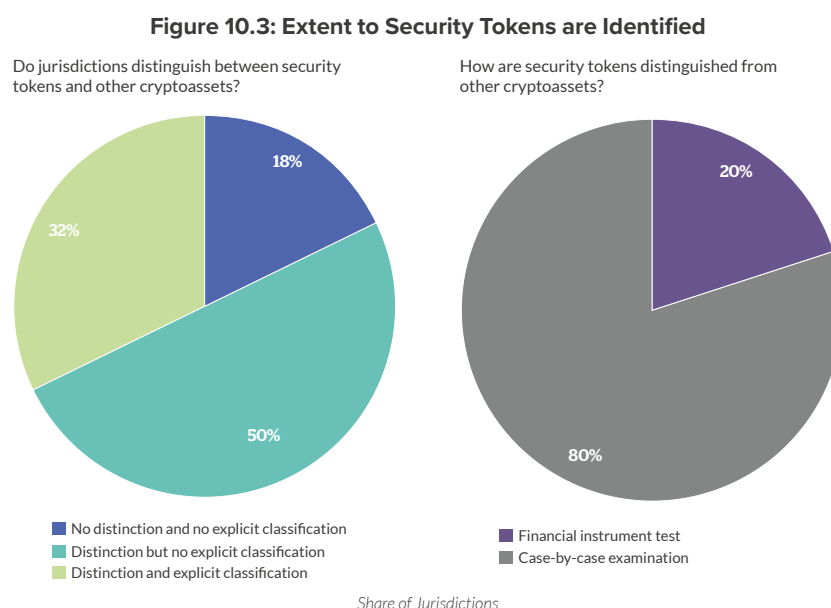
Figure 10.2: Regulated Activities in Top ICOs Markets



¹⁹⁵ Kaal, W.A., 2018. Initial Coin Offerings: The Top 25 Jurisdictions and their Comparative Regulatory Responses, *Working Paper, University of Saint Thomas School of Law*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3117224

CLASSIFICATION TAXONOMIES

A3.6 The 2019 Cambridge CAF publication also showed varied practices in the application of classification taxonomies. The analysis of 23 jurisdictions (**Figure 10.3**) showed that only 32% had a distinction and explicit classification distinguishing security tokens from other crypto-asset tokens and that determination of whether crypto-assets are financial instruments is typically (i.e. 80%) done on a case-by-case basis.



A3.7 Only four of the 23 selected jurisdictions do not explicitly distinguish between security tokens and other crypto-assets, primarily due to two opposing logics: either the distribution of crypto-assets is prohibited (e.g. China's ban on ICOs), or the absence of a token classification framework is expected to help jurisdictions stay flexible and keep abreast with the emergence of new types of crypto-assets (e.g. Bermuda and Thailand). Of the jurisdictions analysed, 32% have created a clear classification framework for crypto-assets. In general, existing frameworks tend to divide crypto-assets into three main categories (payment tokens, utility tokens and security tokens).

EXAMPLES OF REGULATORY CONTENT RELATED TO CRYPTO-ASSETS CATEGORIES

A3.8 **Consumer protection and market integrity regulation:** overarching consumer protection and market-integrity oriented requirements (KYC and AML) are in place in many jurisdictions. An example is the EU fifth Anti-Money Laundering Directive (AMLD5) that became effective in January 2020. According to new licensing rules of some jurisdictions (e.g. the UK, the Netherlands and Austria), crypto-exchanges and custodians must register with their local regulator and comply with AML and KYC procedures to disclose their traders' identities and report suspicious activities.

A3.9 **Applicability of securities regulation:** there are differences across countries on whether issued crypto-assets are considered to be securities (financial instruments/investment contracts). The June 2019 IMF publication notes that for most jurisdictions that have stated that securities legislation would apply to securities-like assets, the practicalities remain unclear and many questions unanswered. For instance, if and to what extent securities regulation will be applied to each of the aspects of crypto-assets issuance, offer, trading, and intermediation is generally not discussed.

A3.10 Furthermore, several academic papers (Maas, 2019 and Hacker and Thomale, 2018) conclude that there is a higher likelihood for issued crypto-assets being categorised as securities in the US than the EU. Maas (2019) concludes that it is harder to be deemed transferable securities under EU legislation than it is deemed to be an investment contract under

US regulation. He notes that the EU's regime proves attractive for issuers of non-fungible tokens, as such tokens cannot be deemed standardised under a characteristics-based approach within the EU definition of transferable securities.

A3.11 Below are a few examples of securities regulations across different jurisdictions sourced from participants in the EFRAG outreach and different publications (i.e., the 2019 American Bar Association publication; 2019 and 2020 IMF publications; Annunziata, 2019; Kaal, 2018; Maas, 2019; Maume and Fromberger, 2019; and Hacker and Thomale, 2018):

- a) **EU general:** in an EU context the guiding securities regulation include MiFID 2, the Transparency Directive, Market Abuse Directive, European Market Infrastructure Regulation (EMIR) and the Prospectus Regulation. But ultimately the applicable regulation depends on the transposition of the EU wide requirements into national legislation.
- b) **France:** the Loi Pacte effective in 2019 provides for the possibility for token issuers to apply for a Visa from the AMF prior to any offering to the public. The AMF approval necessitates that issuers publish information documents in compliance with AMF requirements. These documents must include detailed information such as a description of the project, rights conferred by the tokens, the legislative court in case of disputes, and the economic purpose and use of the funds collected during the offer. The AMF makes a distinction between utility tokens and security tokens. The AMF concludes that because certain crypto-assets derivatives can qualify as financial contracts, they are subject to regulations applicable to financial instruments. Crypto-derivatives are considered to be securities.
- c) **Germany:** in March 2018, the BaFin issued an advisory letter stating that it will assess on a case-by-case basis whether an ICO token constitutes: a) a financial instrument as per MiFID II; b) a security within the meaning of the German Prospectus Act; or c) a capital investment within the meaning of the German Capital Investment Act. Crypto-derivatives are considered to be securities. In March 2020, BaFin confirmed the classification of cryptocurrencies as financial instruments and not e-money.
- d) **The UK:** the UK FCA issued guidance in July 2019 and stated that security tokens should be regulated under securities regulation and the determination is done on a case-by-case basis. Crypto-derivatives are considered to be securities.
- e) **The Netherlands:** the Dutch Central Bank (DNB) and the Dutch Authority for the Financial Markets (AFM) have provided guidance for qualification as a financial instrument. According to the AFM, only in certain cases cryptocurrencies (i.e. crypto-assets as defined in this DP) qualify as a "security" and hence as a "financial instrument" under the DFSA, for example, when the holder of the cryptocurrency has a right to receive dividends from the issuer of the cryptocurrency or when the cryptocurrency resembles "traditional" securities such as bonds
- f) **Malta:** the Virtual Financial Asset Act (VFAA) creates a specific regime for crypto-assets. The Malta Digital Innovation Authority regulates the offer of virtual assets, which are any crypto-assets not qualifying as either electronic money, financial instruments, or virtual tokens (akin to utility tokens). The Virtual Financial Assets Bill focuses on the regulatory framework applicable to ICOs and regulation of certain service providers involved in activities related to ICOs. It also outlines the regulatory framework that will apply to cryptocurrency exchanges.
- g) **Austria:** the related securities regulation requirements are as follows:
 - (i) **Securities Supervision Act:** if an ICO offers rights comparable to those offered by securities - for example, voting rights, shares in profits, tradability, interest payments - the coins and tokens may constitute "financial instruments" and require a license.
 - (ii) **Capital Markets Act:** if coins or tokens grant holders certain proprietary rights - for example, rights to a claim, membership rights or conditional rights, dividends, repayment - against the ICO organizer, they may qualify as investments within the scope of the Act, thus requiring organizers to publish a prospectus pursuant to the Act. If a company publicly offers investments or securities in virtual currencies, or in companies investing in virtual currencies, then the company must publish a prospectus in accordance with the Act.
- h) **Spain:** in February 2018 the Banco de Espana and the Comisión Nacional del Mercado de Valores (CNMV) issued "Considerations" on cryptocurrencies and ICOs, which offered initial guidance about the consequences of ICOs from

approaches or regulatory developments at the national, European or the regulatory standpoint, and are subject to potential coordinated approaches or regulatory developments at the national, European or international level.

- i) **Sweden:** the Swedish regulatory authority finansinspektionen (FI) controls the regulation around ICOs and cryptocurrency. The FI has taken the stance that ICOs are investment products that may be traded.
- j) **Switzerland:** the EFRAG research outreach obtained the following feedback in respect of regulation in Switzerland:
 - (i) There is no specific regulation addressing ICOs in Switzerland; as they fall, inter alia, under general contract law and criminal law. STOs fall within the financial market law, as they are - by definition - securities. In January 2020, the new Financial Services Act (FinSA) will come into effect and introduce harmonised prospectus requirements. Issuers of financial instruments including STOs will be required to provide qualified information to the investors. As of now, there is no¹⁹⁶ regulated exchange in Switzerland listing and trading security tokens.
 - (ii) The Swiss Federal Council adopted a report on the legal framework for blockchain and DLT in the financial sector, addressing gaps in current Swiss legal framework in dealing with the specific digital character of (security) tokens and proposing amendments to mitigate them. In effect, the report proposes the introduction of so-called “DLT Rights” that will make it easier to tokenise shares and other financial instruments (from a private law perspective).
- k) **US:** the regulation of crypto-assets in the US falls under the purview of several regulatory bodies including the Commodity Futures Trading Commission (CFTC), SEC and Department of Treasury Financial Crimes Enforcement Network (FinCEN). Virtual currencies (i.e. cryptocurrencies with no claim on the issuer) including bitcoin are defined by the CFTC as a commodity under the commodity exchange act. They are not considered as a security for the purposes of US securities regulations. However, if an investment vehicle holds virtual currencies, regardless of it being a commodity, it is considered as an issuer of securities and falls within the scope of the SEC, unless it is exempted.

In July 2017 the SEC provided guidelines on how they would view ICOs by issuing a report that concluded the DAO tokens issued in 2016 were securities. There is a fairly broad definition of securities through the application of the *Howey test*¹⁹⁷, whereby utility tokens are likely to be considered¹⁹⁸ investment contracts eligible for securities regulation. The Howey test is applied to determine whether: money was invested; a profit expected; and the expected profit depends on the efforts of others and if that is the case then the issuance is an investment security.

- l) **Canada:** in August 2017, the CSA published CSA Staff Notice¹⁹⁹ 46-307 on Cryptocurrency Offerings, which outlines how securities law requirements may apply to ICOs, initial token offerings (ITOs), cryptocurrency investment funds and the cryptocurrency exchanges trading these products. Staff Notice 46-308 reiterated the CSA's views, adding that many purported ‘utility’ tokens were not eligible to be exempt from securities laws, therefore requiring both a prospectus and the registration of the securities issuer.

Applies a test (pacific coin test) that is similar to the US SEC Howey test, whereby an ICO would be subject to securities regulation if it involves: an investment of money in a common enterprise and has an expectation of profit to come significantly from the efforts of others. The CSA also applies the following four-factor test in determining whether a cryptocurrency must be registered as security:

¹⁹⁶ This is due to the fact that only licensed and regulated exchanges are allowed to list securities, and Security Tokens respectively. SIX, the operator of the Swiss stock exchange, is building a fully regulated crypto exchange, the Swiss Digital Exchange (SDX). Once approved by the Swiss Financial Market Authority, FINMA, SDX will be capable to handle tokens and, hence, will be allowed to list Security Tokens. First services of SDX are expected to be rolled out mid-2019. So far, it has not been communicated when the full-service portfolio of SDX will be available.

¹⁹⁷ The 1946 case- *SEC v Howey* considered the case of a hotel operator in Florida that sold interests in a citrus grove to its guests. The operator claimed that it was selling *real estate* rather than *securities*. However, these sales also included service contracts for Howey-in-the-Hills Service, Inc., to manage the grove property on the new owner's behalf — and these “optional” service contracts were heavily advertised as being a lucrative investment. In ruling that this did, in fact, constitute the sale of a security, the Supreme Court created the aptly named “**Howey Test**”: **a set of jointly sufficient conditions required for a given asset to be considered a security**. See SFOX, 2018. *What Are Utility Tokens, And How Will They Be Regulated?* sfox.com, SFOX blog. December 29, 2018. <https://blog.sfox.com/what-are-utility-tokens-and-how-will-they-be-regulated-89cfb6bb2a45>

¹⁹⁸ SEC Chairman Jay Clayton in testimony to the Senate in 2018 claimed that there is no token issuance that he did not consider to be a security

¹⁹⁹ Canada Securities Administrators (CSA), August 2017. *CSA Staff Notice 46-307 Cryptocurrencies Offerings*. https://www.osc.gov.on.ca/documents/en/Securities-Category4/csa_20170824_cryptocurrency-offerings.pdf

- (i) Soliciting a broad base of investors, including retail investors;
- (ii) Using the internet, including public websites and discussion boards, to reach a large number of potential investors;
- (iii) Attending public events, including conferences and meetups, to actively advertise the sale of the coins/tokens; and
- (iv) Raising a significant amount of capital from a large number of investors.

The CSA has also developed a regulatory sandbox specifically for Fintech companies to stay in compliance. The regulatory sandbox allows a fast track for registration or exemption depending on the circumstances. The thought behind the regulatory sandbox is to allow a flexible process for complying with the current regulations.

m) **Japan:** security tokens are treated as securities and regulated under the Electronic Record Transfer Rights (Financial Instruments and Exchange Act-FIEA). The FIEA is to be amended to define and regulate crypto-assets designated as investment-type tokens, which are regarded as securities. According to the January 2020 IMF publication, the FIEA and the Payment Service Act (highlighted in Paragraph A3.13) are expected to come into force by June 2020.

n) **Singapore:** in 2017, the Monetary Authority of Singapore (MAS) issued a notice stating that if a token constitutes a product regulated under securities laws administered by the MAS, the offer needs to comply with the applicable securities laws. The applicable Singaporean law for offers of securities is contained in the Securities and Futures Act (SFA). The key definition of a security is a “capital markets product,” which is defined as “any securities, futures contracts, contracts or arrangements for the purposes of foreign exchange trading ... and such other products as MAS may prescribe as capital markets products”.

The MAS included six case studies in its release, providing guidance for typical and non-typical token sales. According to Maume and Fromberger (2019), although the MAS labelled the case studies as not indicative, conclusive, or exhaustive, the case studies are deemed the MAS’ views. For example, tokens comparable to shares would be considered securities (Case 2), while tokens granting access to company services would not (Case 1).

o) **Australia:** the Australian Securities and Investment Commission (ASIC) is the regulatory body for cryptocurrency in Australia. ICO providers must comply with ASIC regulations issued in September 2017, which provide guidance for ICO regulation based on the underlying transaction taking place on the platform. If an ICO/cryptocurrency falls under the Corporations Act, additional disclosures are triggered. For instance, an ICO might trigger a disclosure requirement if the ICO is a managed investment scheme. Other possible triggers of the Corporations Act occur if the ICO is being offered as a share of a company, as a directive, or as a non-cash payment.

A3.12 **Utility tokens related regulation:** even though, in many jurisdictions, utility tokens may escape the net of securities regulation due to their failure to be classified as security tokens, the Financial Stability Board acknowledges the need for supervision and regulatory surveillance of utility tokens. In some jurisdictions (e.g. the US, Japan) utility tokens are regulated under payment services or securities regulation. There is also rather rare bespoke regulation related to utility tokens (e.g. Anguilla) that defines utility tokens and affirms their unique characteristics²⁰⁰.

A3.13 **Pre-functional tokens related regulation:** pre-functional tokens that convert to utility tokens at a future date with accompanying Simple Agreements for Future Tokens (SAFTs) that are open only for accredited investors seem to be considered to be securities in some jurisdictions (e.g. the US). But these tokens could also be considered as being simply pre-network launch product sales that should be available for any consumer. It is not clear whether there is a common view on the appropriate categorisation and regulation of pre-functional tokens.

²⁰⁰ The definition in the Anguilla legislation effectively considers that a utility token is any token that does not bestow functional equivalence to securities (e.g. holders do not have ownership or equity interest; they are not entitled to share of profits, revenues, assets, and liabilities; the utility token does not grant holders legal status as creditor). The legislation further describes utility token features including that the holder of these tokens has a contractual right: to access or use a Utility Token Platform; access or use or purchase, lease or rent existing or future products and/or services; vote on matters of governance, management and operations of the Utility Token Platform.

A3.14 **Eligibility for e-money related regulation:** consumer protection and market-integrity-oriented requirements (e.g. KYC and AML requirements) will generally apply for items considered to be e-money. As shown by the following examples, across jurisdictions, there are varied definitions of e-money and related regulatory oversight:

- a) The ECB publication implies that crypto-assets would fall outside the scope of application of the payments services regulation. However, the EBA pointed to the existence of fact patterns in jurisdictions (UK and Malta) that would result in certain crypto-assets falling under e-money related regulation. The EBA highlighted feedback from five competent authorities of cases that would qualify as e-money.
- b) The Bank of France does not consider cryptocurrencies to constitute money or legal tender, but they may qualify as “intangible movable property” under French civil law.
- c) Despite a 2018 court of appeal ruling to the effect that bitcoin was not a financial instrument, the German Federal Financial Supervisory Authority (BaFin) considers cryptocurrencies that have the character of cash to be a financial instrument. In March 2020, BaFin confirmed the classification of cryptocurrencies as financial instruments and not e-money.
- d) In 2013, the Dutch Ministry of Finance concluded that cryptocurrencies are neither e-money nor financial products within the meaning of the Dutch Financial Supervision Act (DFSA).
- e) Switzerland does not have an e-money regime.
- l) Japan regulates crypto-assets including crypto-assets with no issuer such as bitcoin, those where the issuer exists but has no obligation (“rightless tokens”) and those where the issuer exists and has obligations such as providing goods or services in the future (utility tokens) under the Payment Services Act.

A3.15 **Unregulated tokens** in several jurisdictions (e.g. UK, Netherlands) most cryptocurrencies and utility tokens are considered as unregulated tokens as they do not meet the definition of e-money or securities.

APPENDIX 4: GLOSSARY OF TERMS

TERM	DESCRIPTION
Airdrops	Issuance of tokens for free by platform developers/ICOs issuers. It is one of the ways that crypto-assets get into circulation.
Altcoins	Different characterisations. Some authors describe altcoins as crypto-assets not issued on the Bitcoin network. A more expansive description is any crypto-asset other than bitcoin.
Binary and hexadecimal systems	The commonly applied counting system is the decimal system consisting of ten possible numeric characters (i.e., 0 to 9). The hexadecimal system is based on 16 alphanumeric characters (i.e., 0 to 9 and A to F). There are other systems including the binary system consisting of two numeric characters (0,1). Computer processing is based on the binary system. The hexadecimal system is simply a relatively human reader-friendly representation that can be translated to and interacts well with the binary system. For example, a 64 hexadecimal number can be converted to a 256 (or 64 multiplied by 4) binary system number because each hexadecimal character has an equivalent of four-digit representation of a binary number. To illustrate, the character 1 in hexadecimal is equivalent to "0001" in a four-digit binary system representation and the character F in the hexadecimal system is equivalent to "15" in the decimal system and to "1111" in a four-digit binary system representation.
Blockchain	<p>One type of distributed ledger technology (DLT) in which details of transactions and smart contracts are recorded on the ledger in the form of blocks of information. Transactions result in new blocks being added to the blockchain via a computerised process (i.e. cryptographic process).</p> <p>For example, the bitcoin blockchain gets updated with a new block of transactions approximately every ten minutes. According to the Blockchain.com website, as at 2 July 2020- 11 am CET, the blockchain consisted of 637,320 blocks (i.e. all blocks since inception in 2009), with the latest block comprising of 2,263 transactions worth USD 53.5 million or 5,808 bitcoins. There have been 538 million recorded transactions and over 18.4 million out of a possible 21 million bitcoins in supply.</p>
Blockchain token economy companies	<p>Companies business models that entail participation or blockchain-based decentralised ecosystems.</p> <p>A blockchain-based token economy has emerged, driven by the explosive growth in the value and variety of crypto-assets.</p>
Burning of crypto-assets	Burning of coins is the process by which digital currency miners and developers can remove tokens or coins from circulation, thereby slowing down inflation rates or reducing the total circulating supply of coins.
Crypto-asset platform developer	Crypto-assets developers on own platform (e.g. Bitcoin, Ethereum).
Crypto-asset and crypto-liabilities	<p>In this DP, "<i>crypto-assets</i>" are defined as a digital representation of value or contractual rights created, transferred and stored on some type of distributed ledger technology (DLT) network that are authenticated through cryptography.</p> <p>"<i>crypto-liabilities</i>" are defined as obligations that arise from the issuance of crypto-assets that create a present obligation for the issuing entity to transfer or grant access to an economic resource in digital or non-digital form. Other definitions from EU AML Directive, IMF, ECB and FATF are summarised in the Introduction section.</p>
Cryptography/ Cryptographic	<p>The conversion of data into private code using encryption algorithms, typically for transmission over a public network.</p> <p>Cryptography is applied in the overall process of updating crypto-assets transactions on the blockchain including through generating digital signatures, verifying the authenticity of transactions, and ensuring via consensus mechanisms/algorithms that there is no "double spend".</p>

TERM	DESCRIPTION
Crypto-asset 'coin versus token'	<p>One distinction between a coin and token is that a coin is issued on the crypto-asset developer's platform (e.g. bitcoin on Bitcoin blockchain, ether on the Ethereum blockchain), waves on Waves, ripple on XRP whereas a token can be issued on another network platform (i.e. where a token issuer does not own the hosting platform). For example, Gemini dollar, Filecoin and Documo were issued on the Ethereum blockchain.</p> <p>Another distinction is that coins refer to bitcoin and alt-coins, which were issued originally with the main purpose to serve as "currency," that is, with money and payments-related functions. Tokens have more functions than coins, for example, permitting the coin holders to participate in the service provided or the returns offered by the token issuer.</p>
Decentralised applications (Dapps)	A decentralised application is a computer application that runs on a distributed computing system. DApps have been popularised by distributed ledger technologies such as the Ethereum Blockchain, where DApps are often referred to as smart contracts.
Digital autonomous organisation (DAO)	The decentralised autonomous organisation (DAO) is an organisation created by developers to automate decisions and facilitate crypto-asset-based transactions. It is a form of organisational innovation where tasks are automated and governance is decentralised and in the hands of network participants. Their essential feature is that operating rules are programmed and automatically applied and enforced when the conditions specified in the software are met. This differentiates them from traditional organisations, whose rules form guidelines that someone within the organisation must interpret and apply and governance or management is resident within the organisation.
Digital asset and digitised assets	<p>A digital asset is an electronic record in which an individual has a right or interest. They do not exist in physical form. The electronic record is the asset.</p> <p>A digitised asset is an asset (which may be a security or physical asset) the ownership of which is represented in an electronic record (e.g. ownership of real estate represented on a digital ledger). It is an electronic record of ownership of the asset.</p> <p>Digital and digitised assets are represented on an electronic ledger that is not necessarily a blockchain. The process of digitising assets is also referred to as "tokenisation".</p>
Distributed ledger technology (DLT)	Technology that allowed a repeated digital copy of the ledger of transactions. DLT is built upon public-key cryptography (publicly known and essential for identification) and confidential private-keys, which are used for authentication and encryption during transactions (i.e. transfer of funds). Blockchain is one type of DLT but there are others (DAG, Tempo).
Distributed consensus mechanism	The process of network participants within a DLT environment of agreeing on one state or result in the distributed ledger.
FinTech	Technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services.
Fork	<p>A fork is a change to the DLT protocol that can arise for several reasons (e.g. security, or if part of the community wants to take the project in a different direction). Hard fork creates two versions of the protocol and an additional alternative crypto-asset. Examples of forks in the Bitcoin DLT are the creation of Bitcoin ALL, Bitcoin Cash Plus, Bitcoin Smart, Bitcoin Interest, Quantum Bitcoin, Bitcoin Lite, Bitcoin Ore, Bitcoin Private, Bitcoin Atom, Bitcoin Pizza and Bitcoin Gold.</p> <p>A soft fork is also an update to the blockchain protocol; however, one version (assumed to be the updated or new version) is supposed to be adopted by the majority and will become the dominant one.</p>
Fungible tokens versus non-fungible tokens	Fungible tokens are easily replaced by identical tokens while non-fungible tokens are not easily replaced by identical tokens because they offer unique characteristics and are digitally scarce. Most crypto-assets are fungible tokens, but some utility tokens may be non-fungible tokens.

TERM	DESCRIPTION
Initial coins offerings (ICOs) and other similar offerings such as Security token offerings (STOs) and Initial exchange offerings (IEOs)	<p>ICOs: an operation through which companies, developers raise capital for their projects in exchange for crypto-assets. It is one of the key mechanisms for the supply or issuance of crypto-assets. Issuers sell a predefined number of digital tokens (coins) directly to the public in exchange for cryptocurrencies or fiat currencies.</p> <p>STOs: sale of tokens with features comparable to normal securities (i.e., fully regulated and approved) within at least one jurisdiction.</p> <p>IEOs: an ICO (STO), which is exclusively conducted on the platform of a cryptocurrency exchange. IEOs are administered by the crypto-exchange on behalf of the issuing company, which seeks to raise funds with its newly issued tokens.</p>
<p>Mining-based consensus mechanism – Proof-of-work (PoW)</p> <p>Validators-based consensus mechanism - Proof-of-stake (PoS)</p>	<p>Mining is a process of establishing consensus to verify and confirm transactions within a DLT environment. It occurs during the update of new transactions on the distributed ledger (e.g. blockchain) and entails the solving of cryptographic puzzles by individuals and/or entities that are network participants. Solving the puzzle (i.e. first participant to solve) is a pre-requisite for updating transactions on the blockchain distributed ledger. Mining is also part of the process of increasing the overall supply of crypto-assets in circulation.</p> <p>PoW requires a cryptographic process and is an energy and computational power-intensive process that tends to occur in jurisdictions with cheap electricity. PoW validation is open to all participants in the network.</p> <p>PoS is a form of consensus mechanism within a DLT environment that requests network participants to demonstrate ownership of a pre-defined crypto-asset. Participants can mine or validate block transactions according to their ownership of crypto-assets. Hence, only participants with ownership stakes in the network can undertake PoS.</p> <p>There are other consensus mechanism algorithms (e.g. Practical Byzantine Fault Tolerance (PBFT) that is used as the consensus algorithm for Ripple-XRP and NEO uses a delegated-PBFT)</p>
Nodes	These are the computers connected to the distributed network that keep track of and process data transactions
Off-chain and On-chain transactions	On-chain transactions are those that are recorded on the blockchain
Open source software	Open-source software is a type of computer software in which source code is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software to anyone and for any purpose.
Peer to peer	The mode of use of a network in which each of the connected parties has the same rights and which allows a direct exchange of services without resorting to a central server, the term is used to describe such a network
Permissioned DLT	<p>A DLT network in which only those parties that meet certain requirements are entitled to participate in the validation and consensus process.</p> <p>A further distinction can be made between private and public permissioned DLT.</p> <p>For the private permissioned network, there is an architect or owner that decides who can participate and which node will run the consensus process. An example is IBM's Hyperledger Fabric and R3's Corda.</p> <p>For the public permissioned network, everyone has access to the full transaction history, but a restricted number of nodes can participate in the blockchain's consensus mechanism.</p>
Permissionless DLT	A public permissionless DLT network is one in which virtually anyone can have access to the full transaction history and become a participant in the validation and consensus process (e.g. Bitcoin, Ethereum). A private permissionless network is where everyone can be a participant in the consensus process but permission is needed to access full transaction history.
Private key	The private key is required to send crypto-assets. Anyone with the key has sole access to the funds. The private key enables the creation of a unique digital signature for each transaction.
Public key	The public key is the identifier that allows receipt of transferred crypto-assets.
Pre-functional tokens	Direct-token pre-sales' or pre-functional tokens are tokens that are transferable via a protocol on the DLT network but cannot yet offer utility on the network. Effectively, these are tokens issued before the network is launched and will typically convert to utility tokens once the network is active.

TERM	DESCRIPTION
Simplified agreements for future tokens (SAFTs)	<p>SAFTs are agreements that represent their holders' rights to future tokens. SAFTs are only available in some jurisdictions (e.g. the US) and are typically classified as securities.</p> <p>SAFTs work by "bifurcating the securities and token components of a transaction while preserving the many benefits associated with ICOs" and keeping the utility component (the "functional token" not as likely to be a security) separate from the security-like component (the "non-functional token").</p>
Smart contracts and Ricardian contracts	<p>Smart contracts are computer programs that are capable of carrying out the terms of an agreement between parties without the need for human coordination or intervention (e.g. an insurance smart contract that initiates payment if there is a flight delay).</p> <p>A Ricardian Contract is a document that outlines the intentions and the actions that will be undertaken. The Ricardian Contract is the best effort to record the agreement; smart contract is the execution of the said agreement.</p> <p>In addition to crypto-assets, some blockchain platforms also support smart contracts. The most prominent smart contract platform is Ethereum.</p>
Taxonomy	System of grouping objects of common interest in a domain based on common characteristics.
Crypto-asset classification taxonomy (as noted, there is diversity in classification taxonomies applied)	<p>Below are elements of commonly applied categorisation of digital tokens (crypto-assets):</p> <ul style="list-style-type: none"> • <i>Payment tokens that are cryptocurrencies with no claim on the issuer.</i> • <i>Stablecoins that can also be classified as payment tokens or security and asset tokens or hybrid tokens.</i> • <i>E-money tokens (proposed by the UK FCA but not yet a widely applied categorisation):</i> defined as e-money based on jurisdictional definitions and can overlap with the other categories of tokens. • <i>Security and asset tokens:</i> tokens with specific rights and obligations similar to specified investments (equity, debt, unit investment). • <i>Utility tokens:</i> tokens that can confer a variety of network-associated rights including granting holders access to a current or prospective product or service. • <i>Other (hybrid tokens and pre-functional tokens).</i>
Tokens	<p>As noted above, tokens are crypto-assets residing on existing other blockchain and not on developers blockchain.</p> <p>French Loi Pacte definition: a token constitutes any intangible asset representing, in digital form, one or more rights, which can be issued, recorded, stored or transferred by means of a DLT making it possible to identify, directly or indirectly, the owner of said asset.</p>
Wallet provider (Hot wallet and cold wallet)	A firm that offers storage services to holders of crypto-assets and these could be online (hot wallet) or offline (cold wallet).

APPENDIX 5: BIBLIOGRAPHY

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APPENDIX 6: ACKNOWLEDGEMENTS

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