DISCUSSION PAPER

[ACCOUNTING FOR CRYPTO-ASSETS: HOLDER AND ISSUER PERSPECTIVE]

[2020]

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Comments should arrive no later than [Comment Deadline Date]. EFRAG will place all comments received on the public record unless confidentiality is requested.

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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EXECUTIVE SUMMARY

Motivation for research

ES1 The EFRAG project on the accounting for crypto-assets (EFRAG crypto-project) is motivated by the growth potential, associated risks, increased regulatory attention and identified potential accounting gaps as elaborated upon below.

Growth potential, associated risks and increased stakeholder attention

ES2 Due to the inherent risk and growth potential of crypto-assets, at a global level, there has been heightened attention by different stakeholders on market developments and risks related to crypto-assets. These includes attention from regulators and policy makers whose purview is consumer protection, financial stability, market integrity and investor protection. For example, publications that are applicable for EU jurisdictions have been issued by the European Parliament (EP), European Central Bank (ECB), European Banking Authority (EBA), European Securities Markets Authority (ESMA), Financial Stability Board (FSB), International Organization of Securities Commissions (IOSCO) and Organisation for Economic Co-operation and Development (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 monitoring crypto-assets related developments.

ES3 There is a recognised need for the strengthening of regulatory oversight on crypto-assets activities as a precursor to crypto-assets becoming mainstream. The potential regulatory enhancement necessitates a parallel review and where needed the development of accounting requirements as part of the investor protection regime that can contribute to transparency and enhance information on entities exposure.

Potential accounting gaps

ES4 Addressing any potential gaps in the accounting requirements for crypto-assets can complement the enhancement of related regulatory requirements and oversight. In this regards, several National Standard Setters (NSS) from across the globe have issued accounting guidance. Concurrently, in 2018, the IASB decided to adopt a monitoring stance premised on its continued assessment of there being low prevalence of crypto-assets amongst IFRS reporting entities as confirmed in a November 2019 IASB staff paper on monitoring activities (IASB staff paper on monitoring activities[1]). The IASB staff paper provided an updated analysis showing that there is still limited prevalence of cryptocurrencies, with only 66 entities from across 10 countries having cryptocurrency holdings in their financial statements for the year ending 2018 and this is up from only 26 entities for the year ending 2017.

ES5 In 2019, the IFRS Interpretations Committee (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 issuer). Cryptocurrencies with no claim on the issuer (payment tokens and coins) represent a significant proportion of the overall crypto-assets market capitalisation. Some stakeholders have supported a monitoring stance by the IASB and emphasised that any risk mitigation and investor and consumer protection should be addressed through enhanced regulatory guidance particularly as these assets are yet to become mainstream for a majority of entities.

[1] https://www.ifrs.org/-/media/feature/meetings/2019/november/iasb/ap12j-implementation-matters.pdf

ES6 The EFRAG crypto-project has been conducted and this DP developed to ascertain whether there are sufficient reasons for the development of IFRS requirements for crypto-assets. Possible reasons for further development of IFRS requirements are further described below.

IFRS IC clarification excluded key areas

ES7 In clarifying[2] the accounting of cryptocurrencies with no claim on issuer, the IFRS IC considered the IFRS accounting requirements for intangible assets, inventory, cash and financial assets and decided that cryptocurrencies have the characteristics of either intangible assets or inventory, depending on the purpose of holding the cryptocurrency.

ES8 Nonetheless, holding of some crypto-assets where there is a claim on the issuer (e.g. some stable coins, security tokens, utility tokens) and the issuance of crypto-assets fell outside the scope of the IFRS IC clarification agenda decision. Several stakeholders including participants of the EFRAG crypto-project outreach have expressed the need for the IASB to broaden the scope of the IFRIC IC clarification.

Unaddressed issues and stakeholders expectations

ES9 Respondents to the IFRS IC agenda decision highlighted several unaddressed issues under current IFRS requirements for holders of crypto-assets as summarised in **paragraph ES19** below and discussed in detail in **Chapter 3**.

ES10 Consistent with feedback to the IFRS IC agenda decision, the December 2019 Accounting Standards Advisory Forum (ASAF) staff paper[3] on the 2020 IASB agenda consultation indicates that some stakeholders expect a review and revision of current IFRS requirements to allow appropriate accounting for crypto-assets (e.g. revision of IAS 38 *Intangible Assets* limiting its scope to intangible assets applied for business use and allowing accounting policy choice or the development of a standalone crypto-assets standard). Hence, the EFRAG research project can inform the IASB 2020 agenda consultation and the contents of a potential future IASB project.

Diversity in current practice

ES11 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) provided by the Canadian securities administrator in its response[4] to the IFRS IC tentative agenda decision.

ES12 As discussed in **Chapter 3: paragraph 3.38**, one stakeholder 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. It was hard for the EFRAG crypto-project team to readily obtain EU jurisdictions aggregate data on entities that are holders of crypto-assets and details of applied accounting methods across any such entities, but the indication of diversity in practice within other IFRS reporting jurisdictions is sufficient to indicate the need for IFRS clarification to help narrow or prevent the diversity in practice.

ES13 The 2019 IASB staff paper on monitoring activities affirms 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-*

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[2] https://www.ifrs.org/-/media/feature/meetings/2019/june/ifric/ap12-holdings-of-cryptocurrencies.pdf

[3] December 2019 ASAF Staff Paper, https://cdn.ifrs.org/-/media/feature/meetings/2019/december/asaf/ap1-agenda-consultation.pdf

[4] https://www.securities-administrators.ca/uploadedFiles/General/pdfs/LECAC_Cryptocurrency_HoldingsTADResponse.pdf

revaluation model; and *58% applying fair value through profit or loss (FVPL)*. That being said, it remains to be seen whether the 2019 IFRS IC clarification has reduced some of the noted diversity in practice.

Table 1: Diversity in practice in measurement of cryptocurrency holdings by entities

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 agenda decision

Updates could inform IFRS requirements for analogous transactions

ES14 Regardless of whether or not the innovation, growth and uptake of crypto-assets is sustained and whether or not they eventually become mainstream for institutional actors, issues that arise in accounting for crypto-assets could have broader implications. In reviewing the accounting for crypto-assets transactions under IFRS, consideration could be made on similarities and differences between crypto-assets and analogous areas for which IFRS Standards provide none or limited specific guidance including certain types of non-financial asset investments (such as commodities, emission rights, water rights and rights arising from loyalty programmes and similar schemes). An update to guidance in IFRS for crypto-assets could potentially inform the accounting for other non-financial asset investments.

Could affect potential IFRS reporters and IFRS entities counterparties

ES15 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:

- 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.
- 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). An OECD paper[5] published in 2019 that reviewed Initial Coin Offering (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 products that are founded on the basis of a network.
- 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).
- Finally, although the 2019 IASB staff paper on monitoring activities shows that there is an insignificant number of listed IFRS reporting entities with

[5] http://www.oecd.org/finance/ICOs-for-SME-Financing.pdf

cryptocurrencies holdings, it at least shows that there are some IFRS reporters with crypto-assets exposure and the number has grown from 2017 to 2018.

Gaps arising due to national standard setter (NSS) guidance

ES16 A high-level analysis of a selection of jurisdictional guidance (both national GAAP and in jurisdictions that apply IFRS) shows diversity of requirements and underlying principles across jurisdictions. The diversity in requirements and underlying principles across different NSS guidance and some evidence of diversity in practice by holders within the jurisdictions further supports the case for reviewing existing IFRS requirements.

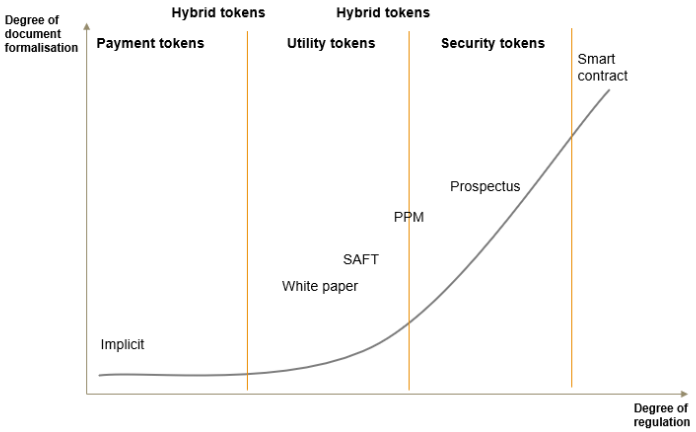
Key findings of EFRAG research project

ES17 *Prevalence of crypto-assets issuers and holder entities*: Consistent with the call by stakeholders for there to be evidence-based standard setting, the consideration of current and potential prevalence of crypto-assets transactions amongst IFRS reporting arises for purposes of assessing whether specific IFRS requirements for their accounting should be developed. There has been a notable decline of ICO based issuance during 2019. On a global basis, as highlighted in the 2019 IASB staff paper on monitoring activities, only a small number of large IFRS reporting companies have reported crypto-assets and related activities (i.e. 66 entities reported cryptocurrencies for year ending 2018) and a significant proportion of these holder entities are likely to be in intermediary roles (i.e., holders on behalf of others). Nonetheless, the potential for innovative market development (e.g. potential stable coins and central bank digital currencies (CBDC)), ongoing growth of blockchain based business models and enhancements to regulatory oversight may result in increased uptake and participation by mainstream institutions.

ES18 *Diversity of crypto-assets economic characteristics, rights, obligations and contractual arrangements*:

- 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 and this could in turn present accounting challenges.

Figure 1: Degree of formalised documentation across different crypto-assets



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

- The analysis of accounting issues 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 three 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) avoid these classifications when setting their guidance, as they consider such taxonomies to be static with the risk of obsolescence due to the ongoing and rapid innovation of the crypto-assets market.

- Nonetheless, the fundamental rights and economic characteristics of a broad spectrum of crypto-assets are in substance economically similar to existent "non crypto-assets" transactions (e.g., foreign currency holding, investment in commodities, holders of loyalty miles, emission rights). These fundamental characteristics are not fast moving and are unlikely to become obsolete economic features whether it is in relation to crypto-assets or to analogous transactions. Hence, for a subset of existing and next generation of crypto-assets, a taxonomy classification can have ongoing relevance for accounting standard setting purposes.
- Some of the aforementioned rapid innovation may be in the hybridisation of crypto-asset features (i.e. combination of multiple features within a crypto-asset product) and in the efficacy of technology mechanisms to fulfil economic functions rather than a change in their fundamental economic characteristics. Therefore, a taxonomy that clearly identifies fundamental distinguishing economic characteristics and rights could enable rather than blur the conceptual thinking about the appropriate required accounting for hybrid tokens. For instance, a taxonomy classification ought to enable conceptual thinking on how the bifurcation of component attributes could occur for accounting purposes and it also helps to identify the predominant component features of hybridised crypto-assets.
- The question on the nature of underlying rights and obligations is applicable for utility, security and hybrid tokens, but it is less relevant for cryptocurrencies including payment tokens where there is no legal or enforceable claim against any counterparty. **Appendix 2** has a granular breakdown of the fundamental distinctive rights for utility tokens and security tokens and gives some examples of crypto-assets that have these fundamental distinctive rights. The granular breakdown of rights can mitigate potential concerns that "utility tokens" and "security tokens" classification may be too broad for accounting purposes. It can also enable comparison to analogous "non-crypto-asset" transactions and thereafter consideration of the appropriate accounting treatment.

ES19 *Enhancing IFRS accounting guidance for holders*: Several areas have been identified where accounting requirements for holders under IFRS needs either clarification or enhancement going beyond the June 2019 IFRS IC agenda decision clarification on the accounting for cryptocurrencies.

- While not disagreeing with the essential conclusions of the 2019 IFRS IC clarification (i.e. IAS 38 *Intangible Assets* and IAS 2 *Inventories* are applicable for cryptocurrencies with no claim on issuer) - several stakeholders have in the past argued and continue to argue 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, cryptocurrencies are intangible assets as they are non-monetary assets and a digital representation of value but unlike most commonly known intangible assets (e.g. software, intellectual property, brands); they have some cash-like properties, have active markets and speculative/investment asset attributes

and they are not cash generating assets (i.e. do not have value in use[6]). The analysis within this DP pinpoints several unresolved recognition and measurement challenges and these can be summed up below as follows:

i) There is a need to go beyond the 2019 IFRS IC clarification that focused on cryptocurrencies with no claim on issuer and to address holdings of stable coins, utility tokens, security tokens and hybrid tokens (as per analysis in **Chapter 3:Paragraphs 3.28 to 3.30**)

ii) There are gaps in IFRS guidance when crypto-assets are considered to be non-financial asset investments (i.e. no guidance of when intangible assets or, commodities are held as investments) (see discussion in **Chapter 3: Paragraphs 3.32 to 3.35)**

iii) Measurement requirements under IAS 38 or IAS 2 may not always reflect the economic characteristics of crypto-assets that have speculative or investment asset attributes (see discussion in **Chapter 3: Paragraphs 3.36** to **3.42)**

iv) There may be need for a possible update of existing IFRS requirements for if/when crypto-assets (utility tokens, security tokens that do not meet current IFRS definition of financial instruments and hybrid tokens) held for investment purposes ought to either be classified as financial assets or accounted for similar to financial assets (see discussion in **Chapter 3: Paragraphs 3.43** to **3.49**)

v) 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. stable coins that are pegged to fiat currency on a 1:1 basis and any 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 such an update was to occur (see discussion in **Chapter 3: Paragraphs 3.50 to 3.55)**

vi) Accounting for hybrid tokens and utility tokens needs clarification. 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 (see **Chapter 3: Paragraphs 3.56 to 3.60).** For utility tokens, it can be challenging to consistently ascertain their business purpose as they bear both speculative/investment and functional/consumption value making it difficult to consistently implement classification based on business purpose. Furthermore, some of the functional or consumption rights of utility token holders are atypical tradeable rights (e.g. tradeable rights to: update network functionality; or contribute labour , effort, or resource to the system) and it may be difficult to determine their appropriate accounting based on a comparison to the accounting for analogous transactions. Finally, utility tokens can be classified as prepayment asset but there is limited IFRS guidance on this asset category **(see Chapter 3: Paragraphs 3.61 to 3.66)**

vii) Other areas that need clarification (holdings due to mining activities, barter exchanges through IFRS 15 *Revenue from Contracts* and other

[6] However, utility tokens can have value in use

items[7] that may need clarification but are not further discussed in this DP). (see **Chapter 3: Paragraphs 3.67 to 3.68)**

- In respect of entities that hold crypto-assets on behalf of others, technological features of crypto-assets (i.e. private keys and wallet arrangements) can impact how they are stored and managed during custodial arrangements. Accordingly, they can be indicative of who has economic control in such arrangements (i.e. principal versus agent) and needs to recognise the crypto-assets on the statement of financial position. But there are also other factors outlined in (**Chapter 3:Paragraphs 3.71 to 3.85**) 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 is need for clarification on this aspect too.

ES20 *Enhancing IFRS accounting guidance for issuers*: Due to poor documentation and limited regulatory oversight over the issuance of most crypto-assets- with the exception of those that are treated as equivalent to issuance of securities- identifying the precise nature of obligations of the issuer (in for example an Initial Coin Offering "ICO") is one of the challenges in identifying the accounting implications for issuers of crypto-assets. The review of national standard setter 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 clarification. As summarised in **Chapter 4- Paragraphs 4.81 to 4.88**, areas for clarification or amendment of issuer guidance (ICO and similar offerings) may include the following:

- Clarification on the classification of issuance of security and similar tokens and eligibility for classification under IFRS 9, particularly for hybrid tokens and those with features that may change over time
- 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. In effect, there can be a question of if the utility token issuer and holder arrangement is equivalent to a customer contract within the scope of IFRS 15? Other utility tokens' issuance related clarification questions 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 performance obligations and the pattern of revenue recognition if a customer contract exists, particularly as performance obligations may change over time as the predominant character (speculative/investment versus consumption) may change over time? what is the nature of obligation towards holders of atypical tradeable rights (e.g. tradeable rights to: contribute labour, resource to the system; or update network functionality)? Do constructive obligations exist?
- Clarification of circumstances on the applicability of IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* is needed (when for instance the issuer determines that IFRS 15 is not applicable and it does not have a financial liability under IAS 32 and does not apply IFRS 9 *Financial Instruments*).

[7] Other items not addressed in this DP include holders as a result of minting, airdrops, hard fork events, proof of stake coins. Another issue identified not further addressed in this DP is the unit of account for impairment testing should entities apply IAS 38.

- Another area for clarification is the appropriate IFRS requirements for the issuance of hybrid tokens with multiple features, used for multiple purposes and whose obligations may change over time and be uncertain.
- Finally, there are a number of ICO issuance (and similar offerings) related issues (i.e. accounting treatment of airdrops or free tokens; entities holding of issued own tokens for use in exchange for third party services or employment services; and issuance costs) identified in NSS guidance that need further examination of accounting implications. There are also issues highlighted in accounting firm guidance including: pre-sale agreements (SAFTs and pre-functional tokens).

ES21 *Emergent valuation considerations*: The existence of mechanisms for price discovery and reliable valuation of crypto-assets issuance and acquisition transactions (i.e. active markets and robust valuation approaches) is necessary for their faithful representation within financial statements. During the EFRAG crypto-project outreach, there was an indication of the difficulties that some stakeholders faced in identifying active markets 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. 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 features particularly in respect of assessing the intrinsic value of utility tokens, which is typically derived from the issuers network growth potential.
- These emergent valuation methodologies also provide further insight on the nature and sources of 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.
- There is also indicative guidance from accounting firm publications on the determination of active markets for crypto-assets. The importance of identifying active markets is reinforced by a CBV Institute research paper[8] 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 (Vontobel[9]) shows that the crypto-assets are only recognised based on Level 1 fair value. However, anecdotal evidence provided by other stakeholders in Europe indicates that Level 3 fair values are quite common.
- As noted in **Chapter 5, paragraphs 5.45** and **5.46**, there is 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 trading; 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-

[8] Singh, T.K. and Tylar, J. CBV Institute, 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
[9] https://www.vontobel.com/siteassets/about-vontobel/downloads/2018-12-31_gv_annual-report_en.pdf 9
Page 182 of the 2018 Vontobel Annual Report

exchanges (i.e., do these features alter the definition of active market for crypto-assets).

ES22 *Implications of potential market development:* The following are the conclusions of the EFRAG research on potential market developments:

- Institutionalisation of crypto-assets is only starting and more traditional players such as investment funds and traditional banking are expected to step in, adding to the current needs for regulatory clarity and NSS guidance.
- There are varied expectations on possibilities of greater uptake of crypto-assets across different jurisdictions but with consensus that greater institutional uptake would depend on: enhancements to regulation/oversight and other trust building mechanisms; enhanced scalability and interoperability of networks; increased processing speeds of crypto-asset transactions; and price stability of crypto-assets. Greater uptake will translate to increased use of IFRS requirements and a need to ensure that related IFRS requirements are fit for purpose and applied consistently to economically similar transactions.
- The research has identified some technology driven features of the next generation of crypto-assets that may enhance the scalability of related platforms and increase their uptake (e.g. application of Ricardian smart contracts that are legally enforceable and development of cross-chain interoperability). 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.

ES23 *Expected enhancement to crypto-assets related regulation complements consideration of accounting requirements*: There is heterogeneity and sometimes a lack of clarity on the applicable regulatory framework for crypto-assets across different jurisdictions. Regulatory requirements range from those that implicitly cover crypto-assets to those that have explicit and bespoke crypto-asset requirements. There is also variation on what activities (e.g. issuance, brokerage) and crypto-asset categories (e.g. type of tokens) fall within regulatory perimeters. For example, while utility tokens can be considered as securities under the US Securities and Exchange Commission requirements, an ESMA survey[10] of national competent authorities published in 2019 showed that none of them had utility tokens being classified as securities in their jurisdiction. The product design of some of the issued crypto-assets (e.g. utility tokens) has sometimes been done with the intention of avoiding the applicable securities regulation. Finally, there is an expectation by stakeholders including those who participated in the EFRAG crypto-project outreach that there should be a strengthening of investor and consumer protection in response to a number of scams and the notable high failure rate of past ICO issuances. Enhanced regulatory definitions would complement and potentially help to inform the development of related crypto-asset accounting requirements.

Possible approaches to the development of IFRS requirements

ES24 **Paragraphs ES19, ES20** and **ES21** summarise areas for possible clarification and amendments of IFRS requirements for holders and issuers of crypto-assets. Should the IASB determine that there is a sufficient case for developing IFRS requirements beyond the 2019 IFRS IC clarification, the following key principles for would be appropriate:

- An emphasis on economic substance as well as underlying rights and obligations is necessary when thinking of the appropriate accounting for

[10] ESMA, 2019 - Annex 1: Legal qualification of crypto-assets – survey to NCAs (January 2019) https://www.esma.europa.eu/search/site/crypto

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 of future proofing accounting requirements particularly as the fundamental economic functions of crypto-assets (i.e. means of payment, investment/speculative roles, and network functional and consumptive value) are likely to remain the same.

- 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 (i.e. held crypto-assets classification ought to be determined after considering both their function/business purpose and nature). Classification by function and/or nature is the approach within the IFRS IC clarification on cryptocurrencies and with most of the analysed NSS guidance (i.e. except for the Japan guidance where crypto-assets are considered to be a unique asset type). However, as some stakeholders continue to pose questions on whether IFRS requirements meet the varied characteristics of crypto-assets, a key question that remains is whether crypto-assets (current and next generation) are a unique asset type with a need for the amendment or development of new IFRS requirements.
- 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.

ES25 Furthermore, in **Chapter 6:** and through the analysis below, there is an evaluation of the following different options for the possible development of IFRS requirements, should the IASB decide that there is a sufficient case for doing so including after considering the current and potential implications for IFRS reporting entities and considering the areas for possible clarification and amendments of IFRS requirements summarised in **Paragraphs ES19, ES20 and ES21**. These options are not necessarily mutually exclusive and are summarised below

Option 1 (only extending the IFRS IC clarification)-short-term solution

ES26 The IFRS IC clarification could be extended to topics where there is need for clarification including those that have been identified in this DP such as the accounting for holders (stable coins, utility tokens, hybrid tokens, security tokens that may not meet the IFRS definition of a financial asset and holdings due to mining activities and barter exchanges and holders on behalf of others); accounting for issuers (utility tokens, hybrid tokens, security tokens that may not meet the IFRS definition of either a financial liability or equity); and valuation related issues.

ES27 Such an approach could provide some timely answers and would be consistent with the IASB decision to mainly have a monitoring stance at this stage due to crypto-assets not being prevalent amongst IFRS reporting entities. However, an extended IFRS IC clarification can only be seen as a short-term solution and it will unlikely address the more fundamental questions about the appropriate accounting of crypto-assets after taking account of their unique economic characteristics (e.g. for cryptocurrencies that are intangible assets but also have cash like and speculative asset properties).

Option 2 (narrow scope amendment of existing applicable IFRS Standards to allow accounting policy choice) -short-term solution

ES28 This option would be to have a narrow scope amendment of applicable IFRS Standards (e.g. IAS 2, IAS 37, IAS 38, IFRS 9 and IFRS 15) to exclude crypto-assets from their scope and to allow the different accounting treatment of crypto-assets through the development of own accounting policy (IAS 8). This would be

appropriate in cases where preparers may deem that applicable standards are not reflecting the economic attributes of their crypto-assets transactions or where there is uncertainty and need for clarification of applicable standard principles (e.g. accounting by holders on behalf of others, hybrid tokens, holdings from barter transactions, mining activities and other areas where there is uncertainty on how existing IFRS Standards apply).

ES29 Through IAS 8, preparers would be able to make reference to similar IFRS Standards, other NSS guidance and the Conceptual framework to determine the appropriate recognition and measurement of crypto-assets. Excluding cryptocurrencies (a subset of crypto-assets) from the scope of IAS 38 has also been proposed by some stakeholders (IOSCO[11] and Canadian Securities Administrators[12] in their response to the 2019 IFRS IC clarification). It will be a relatively easy change to implement compared to Option 3 which may need the amendment of multiple existing applicable IFRS Standards. However, its disadvantage is that it could contribute to or entrench any existing diversity in practice. There may also be an unresolved debate on whether crypto-assets are that different in their economic substance from other transactions within the scope of applicable standards so as to justify the ability of preparers to choose a different accounting treatment.

Option 3 (amendment of existing applicable IFRS Standards)- medium to long-term solution

ES30 Another option is the possible amendment of applicable IFRS Standards to clarify or enhance identified unresolved areas in accounting for crypto-assets. This approach could address noted gaps within existing IFRS including the lack of guidance for some intangible assets, commodities and other assets that are investments. The following IFRS Standards could be considered for amendment (IAS 2, IAS 38 for holders; IFRS 15, IAS 37 for issuers; and IAS 32, IFRS 9, IFRS 13 for both holders and issuers).

ES31 However, it can be challenging to amend several related Standards at the same time. Such an approach could need an even longer due process than the development of a new standard. It could also result in “disruptive” amendments of established definitions within existing standards (e.g. financial instruments/financial asset/financial liability and cash) in a manner that has unintended consequences and necessitate a broadening of scope to review possible impacts on all transactions that may affected by the individual standards being amended.

Option 4 (Development of a new IFRS standard that addresses crypto-assets) - medium to long-term solution

ES32 The development of a new stand-alone comprehensive IFRS standard addressing the accounting for crypto-assets is another possible option. The following are arguments in favour of this approach:

- The gaps in existing IFRS in respect of the unique nature or noted multiple economic characteristics of crypto-assets can be addressed;
- Various holder and issuer accounting issues that need clarification including those identified in this DP can be addressed in a more effective manner within a stand-alone standard;
- There are symmetrical considerations between the accounting for holders and issuers of certain crypto-assets (e.g. utility tokens, security tokens). This

[11] https://www.iosco.org/library/comment_letters/pdf/IFRIC-17.pdf

[12] https://www.securities-administrators.ca/uploadedFiles/General/pdfs/LECAC_Cryptocurrency_HoldingsTADResponse.pdf

makes it efficient to address these issues within a stand-alone standard and cross reference other applicable IFRS Standards (e.g. IFRS 9) where necessary.

- Requirements being located within one standard enables ease of access by preparers and other stakeholders;
- A stand-alone standard that provides requirements when crypto-assets are treated as non- financial asset investments could in some circumstances be applied by analogy to other investment transactions where is no IFRS guidance.
- A stand-alone standard will avoid the need to retrospectively amend existing IFRS that are deemed to be effectively working for a wide universe of assets (IFRS 9 for financial instruments).

ES33 The downsides of developing a stand-alone crypto-assets standard are as follows:

- crypto-assets are not yet pervasive amongst IFRS reporting entities;
- There is a risk of obsolescence of the new standard as these are a particular type of transactions. For instance, the pace of innovation could result in crypto-assets being superseded by other digital assets that are not based on cryptographic technologies and are not crypto-assets;
- a lengthy due process is required to develop a new standard;
- There is the risk that a new standard would neither fit well nor complement the current suite of standards as it may localise to one standard what are effectively cross-cutting issues;
- There is a concern that has been aired by some stakeholders that a unified standalone crypto-assets standard may signal that accounting standard setters are legitimising these inherently risky products and could potentially bear the blame for a future market failure (i.e. IASB reputation risk).

ES34 However, there are a few counterarguments to the latter concern. First, this concern could then be also extended to the other options (i.e. providing IFRS IC clarification, amending existing IFRS or developing a broader standard that caters for gaps in accounting for crypto-assets and analogous transactions). It would imply the need for the IASB to entirely ignore addressing any requirements for accounting for crypto-assets until a point that these transactions may become mainstream and acceptable. Besides, through the IFRS IC clarification, the IASB has begun explicitly addressing the accounting for a significant proportion of crypto-assets (i.e. cryptocurrencies). It is now more a question of whether this clarification is sufficient.

ES35 Second, the responsibilities for investor and consumer protection falls under the purview of regulatory bodies. Numerous credible regulators, policy makers and governments across the globe (including the EP, ECB, EBA, ESMA and FSB) are actively monitoring and addressing these aspects. Hence the development of accounting standards can contribute to enhanced transparency by reporting entities that are legitimately involved in crypto-assets transactions in a manner that complements the regulatory efforts to ensure investor protection.

ES36 Finally, the role of accounting standard setting ought to be to, in a neutral manner, develop requirements that reflect reporting entities' economic transactions. Standard setting should mainly be influenced by the significance of transactions for legitimate IFRS reporting entities and should not preclude a focus on particular transactions undertaken by reporting entities due to the associated risks of such transactions. Besides as argued in **Paragraph 3.4** in the assessment of whether crypto-assets are assets; the abuse, theft and risky nature associated with crypto-assets can occur with other recorded assets (e.g. untraced fiat currency). Not to mention that a different form of reputational risk for the IASB could also arise if it

does not address the noted diversity in practice and stakeholder confusion on the applicability of existing IFRS requirements.

Option 5 (Development of new IFRS Standard that addresses crypto-assets and analogous transactions)- medium to long-term solution

ES37 There is the option of developing new standards whose scope of coverage extends beyond crypto-assets. The following are two possibilities of broader standards that could be considered:

- A new standard on non-financial asset investments (intangibles, commodities, emission rights and water rights); and/or.
- A new standard focused on both digital assets (i.e. including crypto-assets) and digitised or tokenised assets that are underpinned by blockchain or other DLT technologies or other next generation technology platforms but are not defined as crypto-assets (e.g. CBDC). It could also include smart contracts that can be sold and/or charge fees[13]to perform certain economically valuable tasks. For example, it can include: AXA's fizzy insurance smart contract[14] that links the Ethereum blockchain to a flight traffic database and automatically compensates travellers who are policyholders if their flight is delayed; and smart contracts that can verify order fulfilment and initiate customer payment. Digital assets can also include digital art/ collectibles (e.g. the crypto-kitties that have been highly valued[15] at different points in time in the past and are non-fungible tokens of virtual cat images possessing non-replicable distinctive features due to their being recorded on the block chain).

The arguments in favour of developing a broader new standard are that:

- It will have the advantage of enhancing IFRS requirements for different types of transactions.
- Not having a specific focus on crypto-assets and instead focusing on a broader category of transactions is likely to ensure long term relevance and it is one way of enhancing and future proofing IFRS standards (i.e., a new standard of non-financial assets will also be relevant for the next generation of non-financial assets investments and/or a different new standard on digital and digitised assets could be relevant for current and next generation of these assets).
- It can allow the minimisation of the crypto-assets' associated risk (i.e. due to abuses in their application) that could potentially lead to reputation risk for the IASB were it to develop a new stand-alone crypto-assets standard.

ES38 However, there would be the following disadvantages with this approach:

- Were the focus of a new standard to be on non-financial asset investments, there would be several other unresolved issues including the question on the appropriate measurement of cryptocurrencies and other crypto-assets taking account of their cash like and speculative asset attributes.
- On the other hand, if the focus on the development of a standard for digital and digitised assets could be seen as developing accounting that is not technology neutral and does not focus on "substance over form". Neither the

[13] Users of smart contracts usually pay a fees for computation performed on the block chain computer for the smart contract. Ethereum network fees are measured in units called "gas" but ultimately charged in ether.

[14] https://medium.com/@humanGamepad/fizzy-by-axa-ethereum-smart-contract-in-details-40e140a9c1c0

[15] Digital data is usually not scarce as it can be easily recreated/copied. The value of unique digital cat images (cryptokitties) arises from their digital scarcity that is enabled by block chain 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.

underlying technology nor the fact that they have a digital nature rather than physical form should dictate their accounting, only their economic substance should do so. As far as the EFRAG crypto-project team is aware, the application of blockchain technologies has not created any assets that cannot be seen as fitting within the intangible assets, inventories, commodities, financial instruments or art and collectibles categories. Nonetheless, as noted by some stakeholders in respect of crypto-assets, existing IFRS Standards were not written with digital assets in mind and there can be unique features of these assets that existing IFRS requirements do not cater for.

- Due to the breadth and complexity of analogous transactions, the development of a standard on broader transactions is likely to have a lengthier due process than the development of a new standard focused only on crypto-assets standard.

Preliminary conclusion on approach to IFRS development

ES39 This DP seeks constituents views on which of the above options they consider that the IASB could adopt as a short-term solution and/or medium to long term solution, should it decide that there is a sufficient case for further developing IFRS requirements. Based on the above analysis and the detailed analysis in **Chapter 6: Table 6.1**, the preliminary conclusion of the EFRAG crypto-project team, subject to amendment after EFRAG TEG members input is stated below.

ES40 Possible short-term solution: The following could possibly be considered by the IASB as a short-term solution (i.e. a combination of option 1 and 2):

- An extended IFRS IC clarification on selected issues including those that could have broad implications (e.g. whether stable coins that are 1:1 pegged to fiat currency and other crypto-assets that qualify as electronic money under jurisdictional definitions can be classified as either cash or cash equivalents) and on where transactions are likely to be or become more widespread among entities (e.g. holders on behalf of others by financial institutions; and ICOs and similar offerings issuance by SMEs); and
- A narrow scope amendment of existing applicable IFRS Standards (e.g. IAS 2 and IAS 38) to exclude crypto-assets from their scope and to allow preparers to develop their own accounting policy (IAS 8)

ES41 Medium- to long-term solution: If there is sufficient evidence of crypto-assets becoming mainstream, the development of either a unified, standalone crypto-asset standard or a broader standard on digital and digitised assets could be the medium to long-term solution. The development of either a standard on only crypto-assets or a broader standard on digital and digitised assets could include when they are held as short or long-term investments and could potentially address some of gaps in IFRS requirements for non-financial asset investments. The development of a standalone standard is likely to be more efficient than either amending multiple individual applicable IFRS Standards or only developing a new standard for non-financial asset investments that only addresses one of the perceived gaps in existing IFRSs in respect of crypto-assets.

ES42 This preliminary conclusion by the EFRAG crypto-project team aligns with the description of stakeholder expectations in the 2019 December ASAF meeting staff paper[16] on the 2020 IASB agenda which shows that some stakeholders still expect a review and revision of crypto-assets related IFRS requirements including revision of IAS 38 definition of intangibles so that only intangibles of business use are in scope and allowing development of accounting policy for investments in crypto-assets (IAS 8) in the near term; and the development of a new crypto-assets standard in the long term.

[16] December 2019 ASAF Staff Paper, https://cdn.ifrs.org/-/media/feature/meetings/2019/december/asaf/ap1-agenda-consultation.pdf

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 [Submission date].

[Question 1- General question related to accounting for both holders and issuers]-

Q1. As detailed in **Chapters 3** and **4**, this DP proposes that there is need to address accounting topics not in scope of the 2019 IFRS IC clarification 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 2019 IFRS IC clarification on cryptocurrencies? Please explain

[Question 2- Questions specific to accounting for crypto-assets holders]-

Q2.1 In **Chapter 3: Paragraphs 3.3** to **3.4**, this DP concludes that crypto-assets are assets in accordance with the definition of the IFRS revised Conceptual Framework- as they are *a resource controlled by the entity as a result of past events and from which future economic benefits are expected*.

Do you have views on whether or not crypto-assets meet the accounting definition of assets? Please explain

Q2.2 This DP (**Chapter 3: Paragraphs 3.32** to **3.35**) has identified that applicable IFRS Standards for crypto-assets holders (IAS 2, IAS 38 and IFRS 9) do not address situations where crypto-assets are considered to be held as non-financial asset investments. Furthermore, as outlined in **Chapter 3: Paragraphs 3.36** to **3.42** 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 speculative or investment asset attributes.

Do you have views on the noted limitations of IAS 2 and IAS 38 towards the recognition and measurement of crypto-assets, namely of: not addressing non-financial asset investments, and their measurement requirements in some circumstances not reflecting economic characteristics of crypto-assets? Please explain

Q2.3 This DP (**Chapter 3: Paragraphs 3.43** to **3.49)** has identified that there may be need to clarify when utility tokens, security tokens and hybrids tokens that have speculative asset attributes and functional equivalence to ordinary securities can be classified as financial instruments (i.e. financial assets for holders or financial liabilities or equity for issuers).

Do you have views on whether additional clarification on when classification of utility tokens, security tokens and hybrid tokens as financial assets is needed and if not, which alternative standards may be applicable? For example, clarification of when a property backed token may be a financial asset, investment property or intangible asset? Please explain

Q2.4 This DP (**Chapter 3: Paragraphs 3.50** to **3.55**) has identified that the definition of cash or cash equivalents may need to be updated to include some of the stable coins that are pegged to fiat currency on a 1:1 basis, cryptocurrencies that qualify as e-money and

CBDC-although the latter are not included in this DP's definition of crypto-assets. 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

Q2.5 This DP (**Chapter 3: Paragraphs 3.71** to **3.85**) 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 holdings due to hybrid tokens, utility tokens, barter transactions and proof-of work mining activities (**Chapter 3: Paragraphs 3.56** to **3.68**). 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, among other issues, there is a question of measurement of atypical tradeable rights (e.g. rights to: update network functionality; and contribute resources and effort to system) and lack of IFRS guidance for prepayment asset.

Do you agree that the aforementioned areas need clarification in IFRS requirements as has been identified in this DP ? Please explain **[Question 3- Specific to accounting for crypto-assets issuers]**

Q3.1 This DP concludes (**Chapter 4 paragraphs 4.11 to 4.16**) that a crypto-liability meets the definition of a liability under the IASB's Conceptual Framework, when it is a legal, contractual or constructive obligation.

Do you have views on whether or not crypto-liabilities meet the definition of liabilities under the IASB's Conceptual Framework? Please explain

Q3.2 This DP (**Chapter 4: paragraphs 4.22 to 4.28)** informs 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 to account for crypto-related liabilities by ICO issuers (and issuers of similar offerings)? Please explain

Q3.3 The DP (**Chapter 4 paragraph 4.27**) highlights a number of areas that could pose concerns with the application of IFRS 15 for an entity issuing crypto-assets through an ICO (or similar offering).

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

Q3.3 The DP (**Chapter 4 paragraphs 4.24 and 4.28**) highlights a number of areas that could pose concerns with the application of IAS 37 for an entity issuing crypto-assets through an ICO (or similar offering).

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

Q3.4 Other potential application issues

Are there other areas when applying existing IFRS Standards to issuance of crypto-assets that you consider might pose application issues? Please explain

[Question 4- Questions specific to crypto-assets valuation]

Q4.1 The DP (**Chapter 5 paragraphs 5.44 and 5.45**) observes that, when consideration 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?

Q4.2 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 absent 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 5 -Possible approaches to development of IFRS requirements]

Q5.1 The DP in **paragraphs ES 24 to ES 42** of the executive summary section, analyses several possible options to developing IFRS requirements. As a preliminary conclusion it proposes

- short term solution: a narrow scope amendment of applicable IFRS to exclude crypto-assets from applicable standards (e.g., IAS 2 and IAS 38) and to allow preparers to develop own accounting policy choice for areas where current requirements do not result in useful information; and an extended IFRS IC clarification on the relatively significant areas of crypto-assets transactions (e.g. whether stable coins that are pegged 1:1 to fiat currency and crypto-assets that qualify as electronic money under jurisdictional definitions can be defined as cash or cash equivalent, holders on behalf of others and issuers accounting)
- medium to long-term solution the development of a unified standard standalone standard on either crypto-assets or on digital and digitised assets in the medium to long term should there be evidence of crypto-assets becoming mainstream amongst IFRS entities

If you consider that there is a sufficient case to further develop IFRS requirements for crypto-assets, what do you consider to be the most appropriate solution to developing IFRS requirements in the short term versus medium to long term ?

[Question 6 -General question]

Q6.1 ***Do you have other comments on the accounting for holders, issuers or valuation of crypto-assets and related activities?***

CHAPTER 1: INTRODUCTION

Overview of crypto-assets

1.1 There is no legal or commonly accepted definition of crypto-assets. For the purposes of this DP, crypto-assets, including coins and tokens, are defined as *a cryptographically secured digital representation of value or contractual rights created, transferred and stored on some type of distributed ledger technology (DLT) network (e.g. Blockchain[17])*. Their characterisation as "crypto-assets" arises due to the underlying cryptographic technology. In some jurisdictions, they are also defined 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*." The latter definition focuses on distinguishing crypto-assets from fiat currencies bearing in mind that some central banks are considering issuing digital money through the cryptographic process, such digital money would not be deemed to be crypto-assets for the purposes of this DP.

1.2 Crypto-assets can be issued and transacted on either decentralised or centralised networks. The economic relationship between the token issuer and holder 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 the token issuer who generally has majority ownership in the token supply (e.g. Ripple's XRP).

1.3 Although the markets are fast-evolving, the two most common type of crypto-assets are Bitcoin and Ether that are both on decentralised networks. Bitcoin was the first crypto-asset launched in 2009. It was developed by Satoshi Nakamoto, its pseudonymous creator and 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.

1.4 It was against this backdrop that Nakamoto proposed a solution in the form of an 'electronic cash system' that replaced centralised payment systems like banks and governments in favour of a peer-to-peer payments network supported by blockchain online ledger.

1.5 At the time of invention, several digital-cash schemes, including DigiCash and e-gold, had failed, or were nearly failing. But whereas some had tried to create the electronic equivalents of bills and coins, bitcoins only exist as entries in a distributed, shared ledger called the "blockchain" that contains the history of every transaction in the coin, and copies of it are held on many computers around the world. In effect, unlike conventional currencies and earlier digital ones, bitcoins do not need trusted third parties to handle flows of money or a "central bank" to issue it. However, the economic utility and value of cryptocurrencies has also been questioned by numerous critics and market commentators including eminent economist Nouriel Roubini positing that they are nothing more than a passing fad[18].

[17] There are other DLT platforms apart from Blockchain including: Directed Acyclic Graph (DAG); Radix (Tempo) is a public trustless decentralised ledger; Hashgraph, and Holochain.

https://www.datadriveninvestor.com/2019/02/14/what-are-the-different-types-of-dlts-how-they-work/

[18] https://blogs.cfainstitute.org/investor/2019/03/06/nouriel-roubini-on-shitcoin-the-mother-and-father-of-all-bubbles/

1.6 Subsequent to 2009, crypto-assets have grown significantly both in number and in overall market capitalisation albeit dominated by a few cryptocurrencies (i.e. Bitcoin which has 54% market share and the top 5 cryptocurrencies have 75% of market share). According to Frost & Sullivan[19], the growth of the global crypto-assets industry revenue grew by 230.8% between 2013 and 2017. There has been also 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 USD 18,000 during 2017, with a significant loss of value with a low of near USD 3,200 during 2018 before having some recovery and closing 2019 at near USD 7,200.

1.7 Despite their growing significance, crypto-assets remain relatively immaterial compared to mainstream asset classes (e.g. equity, fiat currency). Notably, a recent ECB report highlights that the market cap of crypto-assets is equivalent to 1% of euro-area GDP, 4% of market capitalisation of technology giants FAANG[20], 1.2% of Euro-area M1 money supply and 0.8% M3 money aggregates. Furthermore, recent ECB and FSB publications state that they do not pose systemic risk. They are also primarily owned by retail clients or individuals rather than by institutions.

Diversity of crypto-assets

1.8 Crypto-assets vary widely in design and purpose. In some cases, crypto-assets represent securities, such as shares in a company. However, more often, crypto-assets serve some cryptocurrency or functional use that is unregulated, such as prepayment for access to a product or service that is to be developed using funds raised in the Initial Coin Offering (ICO) and similar offerings such as Initial Exchange Offerings (IEO's) and Securitised Token Offerings (STO's).

1.9 In many cases crypto-assets have different combinations of claims and rights that can change over the life of the crypto-assets. This creates a significant challenge for accounting purposes in terms of which standard to apply and how to classify a crypto-asset.

1.10 As detailed in **Appendix 2:**, crypto-assets can be distinguished based on

a) *Economic function*: Crypto-assets have differing characteristics that range from pure payment-type cryptocurrencies (such as bitcoin), to digital tokens (such as utility tokens that entitle the holder to a pre-defined good or service from an identifiable counterparty), hybrids that include both payment and utility features and stable coins (that aim to provide price stability).

b) *Ownership of hosting network platform & coins versus tokens*: Another distinction is the one made between coins and tokens which 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 (e.g. payment token, utility token, security/asset token and other tokens including hybrid tokens) resides on top of another blockchain. Examples of coins include: bitcoin which resides on the Bitcoin blockchain, ether on Ethereum, waves on WAVES and XRP on Ripple. An example of a token would be Gemini dollar, which is a payment token that resides on the Ethereum blockchain. That being said, there is no consensus on the definition of coins or tokens and there are other definitions of coins and tokens. In many cases, the terms coins and tokens are used interchangeably.

[19] Frost and Sullivan

[20] Facebook, Apple, Amazon, Netflix and Google (FAANG)

c) *Whether or not they are not centralised networks*: As noted bitcoin is on a decentralised network while XRP is on a centralised network.

1.11 At the time of writing approximately 5.000 different crypto-assets were traded or listed on various crypto-asset exchanges with a total market cap of USD 198 billion.[21] The purpose and application of crypto-assets vary significantly and can change since their initial launch. Many crypto-assets have been issued through what is referred to as an ICO, while others are traded or exchanged for fiat currencies or other crypto-assets after issuance on specialised trading platforms.

1.12 Adding to the volume dimension and diversity of crypto-assets currently on the market is the absence of a harmonised classification taxonomy at both an EU and global basis. This creates room for significant accounting and regulatory diversity and interpretation amongst market participants. It is also important to assess the fitness for purpose of accounting and regulatory framework as the functionality, terms and conditions of crypto-asset continue to evolve.

Objectives and scope

1.13 Through the development of this DP, the EFRAG crypto-project 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 identify 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) While the EFRAG crypto-project had initially intended to focus on problem definition as a first phase (phase 1) to be followed by accounting solutions development (phase 2); the research findings and recent and forthcoming developments, including the issuance of guidance by several NSS, has prompted the DP to go beyond only focusing on the problem definition and to also formulate and propose initial next steps for IFRS standard setting development. In this regard, the DP outlines the areas where IFRS clarification or enhancement is needed and to a limited extent presents a preliminary view on the approach that could be taken by the IASB.

c) To enable stakeholders to give feedback on the above two objectives of the DP. Depending on constituents feedback, the focus of the research may then be on detailing specific proposals for the IASB to consider and to address any areas where there are gaps in the IFRS accounting for crypto-assets and analogous transactions.

1.14 The scope of the EFRAG crypto-project includes the following crypto-assets categories that are further enumerated upon in **Appendix 2:**

a) Cryptocurrencies (coins and payment tokens);

b) Security and asset tokens;

c) Utility tokens;

d) Other types of tokens (e.g. hybrid tokens, pre-functional tokens)

[21] 4924 items Coinmarketcap as at 12 December 2019.

1.15 Furthermore, in the context of considering the issuance, buying, holding and selling of crypto-assets, the EFRAG crypto-project considered the following crypto-assets related activities:

a) Crypto-assets issuers: ICO's and similar offerings;

b) Crypto-assets holder entities on own behalf and on behalf of others: Payment services, investment and other holding objectives (e.g. access to distributed network goods and services);

c) Crypto-assets ecosystem related services and activities: Storage and custodial services and mining activities.

1.16 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.

1.17 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

1.18 The EFRAG crypto-project 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 issuer).

b) If necessary, a second discussion paper may be developed later that focuses on outstanding issues related to crypto-assets including more detailed analysis of accounting solutions.

Methodology

1.19 As noted above, in conducting the research, to fulfil the objectives of the EFRAG crypto-project 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.

1.20 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

1.21 The EFRAG crypto-project 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.

1.22 The literature review helped to identify issues related to accounting for crypto-assets.

1.23 To identify prevalence and trends of crypto-assets activities; the EFRAG crypto-project team sourced data related to ICOs from data aggregator publicly available databases.

1.24 The EFRAG crypto-project 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 limited prevalence of crypto-assets amongst IFRS reporting entities.

1.25 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 that is 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;

f) Inconsistencies and lack of comparability of key data points (e.g. number and market capitalisation of crypto-assets, failure rate of ICOs) across different data aggregators/databases.

"Outreach" phase

1.26 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 crypto-project.

1.27 This resulted in the participation (telephone interviews) and/or written feedback from 25 experts with diverse functional backgrounds and type of organisations and from 13 different countries including some leading markets.

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

1.28 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 crypto-project preliminary findings and enhance understanding on the accounting guidance and regulation that is applicable in different jurisdictions.

c) To corroborate the EFRAG crypto-project preliminary findings on the prevalence of issuers and entities that are holders of their own account and on behalf of others.

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.

1.29 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.

1.30 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 in the analysis across all the chapters in this DP.

1.31 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 necessitate their consideration as a unique type of assets under IFRS Standards and NSS guidance.

Structure of the Discussion Paper

1.32 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 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 accounting standards development** – *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: Background: Crypto-asset activities; outlines details of ICO, custodial services and mining activities

(ii) Appendix 2: Background: Details and examples of economic characteristics, rights and obligations;

(iii) Appendix 3: Regulatory requirements; outlines regulatory requirements across different jurisdictions

(iv) Appendix 4: Bibliography; and

(v) Appendix 5: Glossary of terms

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 has a summary on the significance of crypto-assets issuance and holder entity activities with a more detailed analysis in **Appendix 1.**

2.2 This chapter also has a summary of the assessment of economic characteristics and rights and obligations, as these inform the analysis of accounting by both holders and issuers with a more detailed analysis included in **Appendix 2.**

Significance of crypto-assets issuance activities

Issuance – ICO's and similar initial offerings

2.3 As background material on the issuance activities**, Appendix 1** has a detailed definition and description of the key economic features of ICO's and similar initial offerings activities such as IEO's and STO's. The data and analysis on the prevalence and trends of ICO activities was gathered during the EFRAG crypto-project's desktop research and outreach to crypto-assets experts. Some key findings include the following:

a) The ICO market began in 2014 and has experienced rapid growth, raising a total of approximately USD 24.7 billion up to the end of Q1 2019 with the completion of over 5000 ICO projects in over 50 countries. European Economic Area (EEA) countries that rank[22] 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 leads 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). In the 14 months to February 2018, blockchain start-ups raised[23] nearly USD1.3 billion in traditional VC rounds worldwide; compared to USD4.5 billion raised by ICO projects.

c) During the EFRAG crypto-project outreach, there was indication of a substantial decline in ICO activity in 2019, within and outside of the EU. This is mainly because of the increased regulatory scrutiny of ICOs and a move towards STO's that are subject to securities regulations, and IEO's which are generally subject to a higher level of 'third party' scrutiny than ICO's.

2.4 Despite the recent decrease in ICO's, outreach participants did not consider the decline in ICO's 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 of ICO's and similar offerings.

[22] The top five jurisdictions are the United States, British Virgin Islands, Singapore, Switzerland and the United Kingdom.
[23] According to Crunchbase database.

Significance of crypto-assets holder entities' & mining activities

Crypto-assets holder entities

2.5 Except for the data in the 2019 IASB staff paper on monitoring activities, the 2019 CBV publication and 2019 CSA comment letter response to the IFRS IC clarification, it proved easier for the EFRAG research to obtain aggregate data from academic and other publications related to issuance than it was to obtain aggregate data on holder entities (i.e. on own account and account of others). Difficulties in obtaining data related to holder entities simply reflects that these entities are not widespread because of the early stage of market development where regulatory oversight is not at the level of robustness necessary to attract institutional investors. Furthermore, there are limited and quite niche use cases of crypto-assets on blockchain platforms. Consequently, crypto-assets holdings tends to be dominated by retail investors or individuals.

2.6 Consistent with the findings of the 2018 and 2019 analysis by the IASB staff and the observations made in different publications (EBA, ECB), this research concludes that only a small number of large IFRS reporting companies have crypto-assets exposure or holdings. Nonetheless, the EFRAG crypto-project's outreach feedback and review of literature, identified some entities in Australia, Canada, France, Hong Kong and Switzerland that either only had crypto-assets activities or also reported on their crypto-assets holdings.

2.7 Although it was challenging to obtain aggregate data that could precisely depict the trends and extent of pervasiveness of holder entities, feedback from the EFRAG crypto-project outreach indicated that a significant proportion of holder entities are financial institutions in intermediary roles providing services to retail investors in a specialist sense or as part of a broader offering (i.e. intermediary holders of crypto-assets on behalf of others). This feedback is consistent with the findings of the January 2019 EBA report[24], which 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 crypto-assets' underlyings;

e) Lending to entities dealing directly or indirectly with crypto-assets;

f) Providing exchanges services for crypto-assets to fiat currencies or for other crypto-assets.

2.8 Furthermore, the 2019 ESMA publication[25] estimates that there are 200 global crypto-assets trading platforms albeit that the largest platforms are outside the EU and are in the US and Asia.

2.9 As part of background information on intermediary holders including custodial service providers, **Appendix 1:** has a detailed description of key technological features of custodial services that have economic control implications (i.e. private key, different types of wallets) and some aggregate trend data on wallets.

[24] 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
[25] 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

Mining activities

2.10 As detailed in **Appendix 1**, some but not all[26] crypto-assets (e.g., bitcoin, litecoin) have additional units becoming part of their available supply through an "electricity energy and computational power" intensive process of validating new 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 pre-determined possible supply of crypto-assets units. For instance, there is a predetermined possible 21 million bitcoins and the supply in circulation as at mid-February 2020[27]is approximately 18.22 million.

2.11 The EFRAG crypto-project outreach feedback indicated that proof of work mining currently comprises about 80% of crypto-asset transactions, are likely being 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). The outreach feedback 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 proof of work 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.

2.12 **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 is growing as a proportion of compensation to the miners.

2.13 Therefore, due to the lack of evidence of pervasiveness and changing business model where proof of work validation may become less significant, the accounting for crypto-asset mining activities is not considered in this DP as a primary area of focus but similar to custodial services, it is only analysed where it has a bearing on some of the issues that need clarification related to the accounting by holders of crypto-assets (see **Chapter 3 Paragraph 3.68**).

Prevalence of cryptocurrencies amongst IFRS entities

2.14 The 2019 IASB staff paper on monitoring activities on cryptocurrencies highlights the following data on cryptocurrencies, which represents a subset of crypto-assets. The data shows that only 66 IFRS reporting entities had holdings of cryptocurrencies and 4 engaged in ICO issuance as shown in the Tables below. It is not clear how different the picture would be if the full universe of crypto-assets and not just cryptocurrencies were analysed.

[26] 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. voting) and Ethereum has been shifting away from proof of work mining

[27] https://www.blockchain.com/en/charts/total-bitcoins

Cryptocurrencies holding-source 2019 IASB staff paper

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**

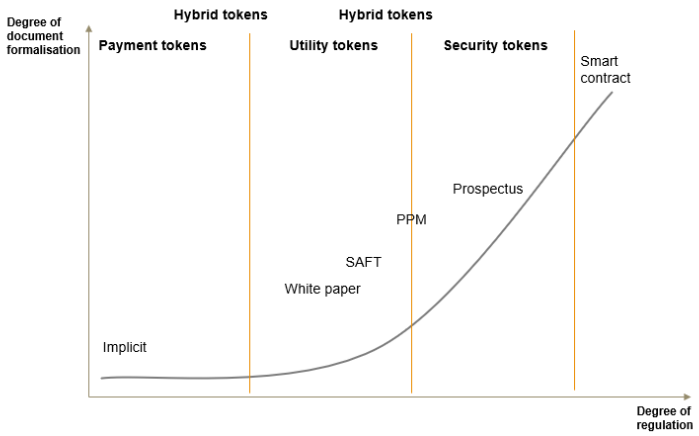
ICO issuance-source 2019 IASB staff paper

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
Australia	1	-
Canada	1	-
Japan	1	1
Thailand	1	-
Total	**4**	**1**

Overview of economic characteristics, rights and obligations

2.15 **Appendix 2:** has a detailed description of the economic characteristics, rights and obligations of crypto-assets. The analysis shows that there is a spectrum and diversity in the level of formalisation of rights and obligations associated with crypto-assets. 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** has details of the taxonomy categories (cryptocurrencies including payment tokens, utility tokens, security and asset tokens, e-money tokens, hybrid tokens, pre-functional tokens and SAFTs). It also has a granular breakdown of the fundamental distinctive rights for utility tokens and security tokens and illustrative examples across different categories of crypto-assets.

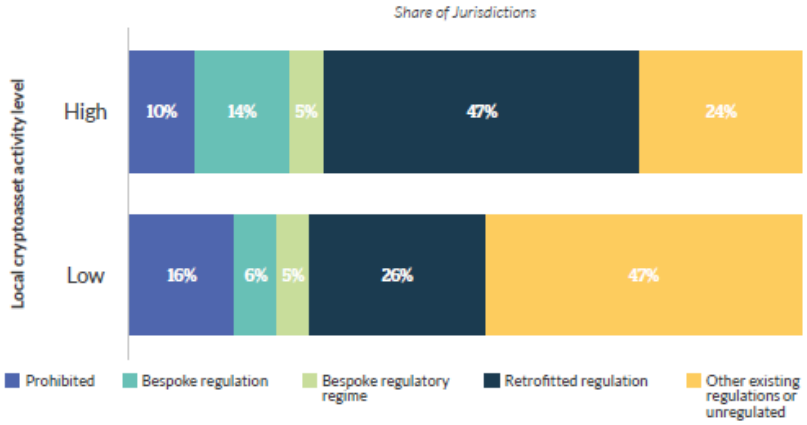
Figure 1: Degree of formalised documentation across different crypto-assets



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

Overview of regulation

2.16 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. As shown in chart below sourced from a 2019 Cambridge publication[28], there is varied regulation across jurisdictions with differing regulatory responses across 108 jurisdictions including those with either low or high crypto-asset activity. Regulatory requirements range from those that implicitly cover crypto-assets to those that have explicit and bespoke crypto-asset requirements. There is also variation on what activities (e.g. issuance, brokerage) and crypto-asset categories (e.g. type of tokens) that fall within regulatory perimeters (**Regulatory requirements are discussed further in Appendix 3:)**.



2.17 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 authorities published in 2019 showed that none of them had utility tokens being classified as securities in their jurisdiction. Some commentators 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.

2.18 Finally, there is an expectation by stakeholders including those who participated in the EFRAG crypto-project outreach that there should be a strengthening of investor and consumer protection in response to a number of scams and the notable high failure rate of past ICO issuances. Enhanced regulatory definitions would complement and potentially help to inform the development of related crypto-asset accounting requirements.

[28] Cambridge Center for Alternative Finance, *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

CHAPTER 3: HOLDERS ACCOUNTING

3.1 The objective of this chapter is to:

a) delineate existing holders' accounting approaches under IFRS and under a selection of NSS guidance;

b) identify areas where stakeholders have expressed the need for either clarification or enhancements of IFRS holders related requirements;

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?

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 ('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 rights 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 distributed ledger technology (DLT) network. As detailed in the **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 *Leases*, 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 3.71 to 3.85**).

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 proof of work mining activities where miners earn block rewards of new crypto-asset units as described in **Appendix 1**,

(iii) as compensation for goods or services,

(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 classification due to the opacity and uncertainty on the enforceability of the rights of some crypto-assets (e.g. utility tokens) and insufficient documentation and contractual arrangements. And also due to the high occurrence of associated scams (as shown in **Appendix 1** approximately 80% of ICOs have been scams), theft (according to Ciphertrace cited in an OECD paper[29]- Kataryzna (2019); USD 1.3 billion were stolen between 2016 and 2018) and illicit transactions (an estimate of 46% of bitcoin transactions per year worth nearly USD 76 billion are illicit transactions). In other words, should the risky nature, illicit transactions and numerous episodes showing crypto-assets susceptibility to fraud and theft necessarily preclude their recognition as assets? Strictly speaking, the risky nature and abuses should not preclude their recognition 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 when defining an asset. The definition does not preclude assets becoming worthless. Hence, even if holding of crypto-assets can be construed as being akin to a risky bet, it is worth noting that even a lottery ticket meets the definition of an asset[30] notwithstanding that in most cases they are near worthless and that they too 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)[31] 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. If anything, these authors argue that the ongoing development of crypto-asset forensic tools and increased regulatory oversight on crypto-assets issuance and trading platforms may enhance their traceability to be even greater than that of fiat currency notes. Furthermore, Kataryzna (2019) citing an economist

[29] 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

[30] 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

[31] 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

magazine article, highlights that crypto-asset laundering as a proportion of overall money laundering is still relatively insignificant[32] (i.e.3-4%).

Framework for analysing possible holders' accounting approaches

3.5 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)?

3.6 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 which is informed by:

(i) Analysis of IFRS IC agenda decision clarification on accounting for cryptocurrencies

(ii) High-level analysis of NSS guidance for holders

(iii) Review of accounting firm and academic literature

(iv) Outreach feedback

b) The analysis of identified challenges related to recognition and measurement of crypto-assets:

(i) Analysis of unresolved issues following IFRS IC agenda decision clarification on cryptocurrencies

(ii) Analysis of stakeholders high-level expectations for the IFRS 2020 agenda consultation

(iii) Review of accounting firm and academic literature

(iv) Outreach feedback

Existing guidance- holders on own behalf

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

a) IFRS IC clarification agenda decision

b) NSS guidance.

[32] According to Europol statistics, around 3-4% of the Europe's annual criminal taking is crypto-laundered (around USD 4,2-5,6bn), which in comparison to the overall money laundering practices accounting for 2-5% of GDP (around USD 800bn-2tn), and therefore are comparatively insignificant

https://www.economist.com/finance-and-economics/2018/04/26/crypto-money-laundering

IFRS IC clarification agenda decision

3.8 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.

3.9 Subsequently, in March 2019 the IFRS IC issued a tentative agenda decision for public comment that clarified[33] the accounting for cryptocurrencies. The final agenda decision was issued in June 2019.

Scope of IFRS IC agenda decision

3.10 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.

c) does not give rise to a contract between the holder and another party.

IFRS IC agenda decision analysis

3.11 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 definition[34] 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).

3.12 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.

3.13 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 Committee observed that:

a) IAS 2 applies if an entity holds cryptocurrencies for sale in the ordinary course of business

b) If an entity is a broker-trader of cryptocurrencies then it should consider the requirements of paragraph 3 (b) of IAS 2 for commodities[35] broker-trader who measure their inventories at fair value less costs to sell.

3.14 IFRS IC concluded that holding of a cryptocurrency is:

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[33] https://www.ifrs.org/-/media/feature/meetings/2019/june/IFRS IC/ap12-holdings-of-cryptocurrencies.pdf

[34] 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'.

[35] 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.

a) **not cash** based on the description of cash in paragraph AG3 of IAS 32 whereby the IFRS IC is not aware of any crypto-currency that is used as a medium of exchange and as the monetary unit in 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;

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 contractual right to the holder

(iii) It is not a contract that will or may be settled in the holder's own equity instrument

3.15 The IFRS IC clarification is consistent with the commentary in a 2016 publication by the Australian Accounting Standards Board (AASB)[36] and a 2018 publication by Chartered Professional Accountants of Canada (CPA Canada)[37]. The AASB and CPA Canada publications also noted that cryptocurrencies are **not investment property** as they are not property as defined under IAS 40 *Investment Property*.

IFRS IC agenda decision conclusion

3.16 In summary, in clarifying the accounting of cryptocurrencies, the IFRS IC considered the accounting requirements for intangible assets, inventory, cash and financial asset and clarified that cryptocurrencies have the characteristics of either intangible asset or inventory depending on the purpose of holding the cryptocurrency.

3.17 The IFRS IC clarification also clarified disclosures requirements including the applicable IFRS *13 Fair Value Measurement* requirements if an entity measures cryptocurrencies at fair value and the disclosure requirements applicable to its holdings of cryptocurrencies.

IASB staff related observations

3.18 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.

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

[36] 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_ASAF_DigitalCurrency.pdf

[37] 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-ifrs/publications/accounting-for-cryptocurrencies-under-ifrs

NSS holders' guidance

3.19 A high-level analysis of NSS' 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 has a breakdown of a selection of NSS guidance related to holders.

Table 3.1. Selection of NSS holders requirements

Jurisdiction	Nature	Measurement
Canada	Assessment to qualify as an asset necessary for each individual cryptocurrency • Intangible assets • Inventory	IAS 8 Accounting *Policies, Changes in Accounting Estimates and Errors* IAS 38 *Intangible Assets* Subsequent measurement: either at cost (cost method) or at fair value (revaluation method) IAS 2 *Inventories* Lower of cost and net realisable value
France	Excluding tokens presenting the characteristics of securities, the following categories depending on business purpose of holder • Tokens held for own use (recorded as an intangible fixed asset) • Tokens held as investment (specific investment category)	*Intangible fixed assets* Amortised over useful life (period of expected services) *Tokens held as investments* Fair value measurement Fair value gains or losses deferred until realisation In case of deferred loss position, provision to P&L for the amount Full disclosures on conditions of fair value determination due to current characteristics of markets
Japan	Uncertain whether legal property rights can be attached to virtual currencies. Nevertheless they are seen as assets for accounting purposes. Seen as an independent category of assets.	Active market: FVPL
Lithuania	Financial asset with categorisation depending on business purpose of holder • Investment: Other investments • Held for payment- financial asset recorded as current assets	FVPL
Slovakia	ST financial asset other than cash	Fair value
Switzerland	Accounting policies are derived from the law (i.e. Swiss Code of Obligations). The following categories depending on business purpose of holder • Financial asset (current assets or non-current assets) • Inventory • Intangible assets	Financial asset- Fair value Inventory- lower of cost or fair value

Netherlands	The following categories depending on business purpose of holder • Intangible fixed asset • Inventory • Other investment	Intangible fixed asset: acquisition cost or at fair value Inventory: acquisition price Other investments: initial cost or fair value (through profit or loss or through OCI with recycling)

3.20 The below observations can be made on NSS guidance analysed.

3.21 Unlike the IFRS IC clarification, the scope of holders accounting issues by NSS is broader than just cryptocurrencies with no claim on the issuer.

3.22 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 usually applied for cryptocurrencies and utility tokens within different NSS guidance when not held in the ordinary course of business;

c) Inventory category usually applied for cryptocurrencies and some utility tokens within different NSS guidance if 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;

e) Prepayment asset category usually applied for some utility tokens within different NSS guidance. It is the appropriate classification because a prepayment asset is recorded where an entity has paid for services before delivery of those goods and services.

3.23 Across the NSS guidance, there are varied approaches towards the measurement of crypto-assets, including:

a) FVPL if there is active market (e.g. Japan)

b) Measurement based on intention of acquirer (e.g. France 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

e) Own accounting policy choice (IAS 8 *Accounting Policies and Accounting Estimates*)

3.24 The rationale of classification of crypto-assets (cryptocurrencies, some utility tokens) as intangible assets within NSS guidance is consistent with the IFRS IC clarification agenda decision (i.e. identifiable non-monetary asset without physical substance that can be separated from holder and sold individually).

3.25 As noted in paragraphs **3.29** 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 financial asset can be the appropriate classification for holders of security and asset tokens.

3.26 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 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.

3.27 Table 3.2 below provides a summary of possible initial and subsequent measurement approaches related to crypto-assets under IFRS and NSS 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 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	Movements above and below cost- Profit and loss
Prepayment asset	Cost	Subject to impairment testing under IAS 36	Movements below cost- Profit and loss
Non-financial asset investments (IAS 8)	Cost	FVPL or FVOCI	
Considered unique asset (i.e. Japan)	Cost	FVPL	Movements above and below cost- Profit and loss

Possible areas for standard setting for holders

3.28 Standard setting for holders may be required in respect of

a) Crypto-assets excluded from the scope of IFRS IC agenda decision;

b) Unresolved challenges related to recognition and measurement of crypto-assets.

Guidance on crypto-assets excluded from scope of IFRS IC agenda decision

3.29 As noted earlier, the IFRS IC agenda decision clarification 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 IFRIC clarification (e.g. stable coins, security and asset tokens, utility tokens, stable coins and hybrid tokens).

Unresolved recognition and measurement challenges

3.30 Notwithstanding the IFRS IC clarification, there are aspects of it that may need further clarification. For instance, the 2016 AASB[38] points out that the term "held ordinarily in the course of business" has not been defined. 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 clarification as it may be challenging to ascertain if such cryptocurrencies have a claim on the issuer.

3.31 At a more fundamental level, different stakeholders including those who provided feedback to the EFRAG crypto-project outreach point to unresolved recognition and measurement challenges and these can be summed up as follows:

a) Gaps in IFRS guidance when crypto-assets are considered to be non-financial asset investments

b) Measurement under IAS 38 or IAS 2 may not always reflect the economic characteristics of crypto-assets that have speculative or investment asset attributes

c) Need for amendment or clarification on when crypto-assets can be classified as financial assets

d) Cash or cash equivalent definition in IAS 32 or IAS 7 may need to be updated

e) Accounting for hybrid tokens and utility tokens needs clarification

f) Other issues that need clarification (holdings due to mining activities, barter exchanges)

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

3.32 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 investments[39].

[38] 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_ASAF_DigitalCurrency.pdf

[39] 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 speculation (e.g., trading of emission rights)
- Intangible assets used as long term investment

3.33 In effect, there are gaps[40] in IFRS requirements in respect investments in intangible assets or with commodity type investments that are neither financial instruments nor inventory. The previously applicable IAS 25 *Accounting for Investments* 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 commodities held for investment purposes.

3.34 The 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 *Property Plant and Equipment*); 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).

3.35 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 propose[41] FVPL as appropriate for non-financial investments held for short term and FVOCI for those held for the long term. A World Gold Council publication[42], which provides guidance on gold held as investments by monetary authorities proposes their measurement at FVOCI. Prochazka (2018)[43] 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.

Questions on relevance of IAS 38 and IAS 2 measurement requirements

3.36 Several respondents[44] 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 speculative investments. These respondents observed that the measurement requirements of IAS 38 and IAS 2 do not provide useful information. A variety of approaches to measurement of cryptocurrencies were proposed by different respondents and these include:

a) FVPL for cryptocurrencies in active markets (as required by Japan- ASBJ)

b) FVPL for all cryptocurrencies

c) Measurement should be based on the intention of the acquirer

d) Scope out cryptocurrencies from IAS 38 and allow an IAS 8 accounting policy choice for cryptocurrencies other than inventory (proposed by IOSCO and Canadian Standard Setter).

3.37 One of the EFRAG crypto-project 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:

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

[41] IFRSbox, 2018, How to account for investment gold under IFRS https://www.ifrsbox.com/040-investment-gold-ifrs/

[42] 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

[43] 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

[44] There were 16 of 20 respondents supported standard setting in addition to or instead of finalising the agenda decision

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 paragraph[45] 7of IAS 38 should be applied to crypto-assets as it is for insurance contracts or expenditure on the exploration for, or development and extraction of, oil, gas and mineral deposits.

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.

3.38 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 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:

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 *Fair Value Measurement* guidance, which considers fair value measurements in inactive markets; IAS 38 only allows the revaluation approach when markets are active.

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 speculative purposes.

3.39 Sixt and Himmer (2019)[46] suggest that there are additional limitations of IAS 2 and IAS 38 measurement in the context of cryptocurrencies

a) For assets that produce cash flows directly such as assets that are capable of being sold independently (like cryptocurrencies but unlike intangible

[45] Paragraph 7 states that " Exclusions from the scope of a Standard may occur if activities or transactions are so specialized that they give rise to accounting issues that may need to be dealt with in a different way….".

[46] Sixt and Himmer, 2019-page 42.

assets), the most relevant measurement is likely to be the one that reflects the present value of the future cash flows.

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, 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.

3.40 Sixt and Himmer (2019) goes further to demonstrate why the IAS 38 measurement approach is questionable by comparing two popular crypto companies Bitmain (Hong Kong) that applies the cost model and Bitcoin Group Ltd (Australia) that applies the 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.

3.41 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.

3.42 Furthermore, the revised conceptual framework requires a measurement basis that provides users of financial statement information with the relevant information., The differing functional use by holders and varied economic characteristics, rights and obligations of crypto-assets makes it difficult to come up with a single measurement basis for all crypto-assets.

Need for clarification on when crypto-assets can be considered as financial assets

3.43 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 entities under potentially favourable conditions (e.g. foreign currency forward contract with positive outcome – derivative asset); or contract settled with variable amount of own equity instruments.

3.44 On the basis of the IFRS definition, some security and asset tokens could qualify as financial assets as these range from coins redeemable for precious metals to, tokens backed by real estate or equity-based tokens. The latter show equity-like features, such as decisions regarding the issue entity dividends, ownership rights or profit shares. Furthermore, the economic rights and obligations of security and asset tokens are extensively documented either in a private purchase memorandum 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 for example. They are also regulated as securities under EU legislation. The main difference of security tokens relative to traditional securities, is that the rights of security tokens are written into smart contracts and the tokens are traded on a blockchain-powered exchange.

3.45 On the other hand, though cryptocurrencies with no claim on issuer can have some cash-like and/or speculative asset attributes, as per the IFRS IC clarification, they are not considered to meet the definition of a financial asset. In similar manner, crypto-assets that are described by their issuers as being utility tokens and some security tokens may not qualify as financial assets under IFRS even though they may have economic attributes similar to financial assets (speculative asset attributes, risk profile, functional equivalence to ordinary securities). In effect, issuer classification and description of crypto-assets is not determinative[47] of their classification as financial instruments (financial assets, financial liabilities or equity) under IFRS. Therefore, some stakeholders have proposed that there is a need to develop principles for categorising crypto-assets as financial instruments (financial assets, financial liabilities or equity) for accounting purposes.

Possible approaches to identifying economic substance to inform financial asset classification

3.46 Given the above noted limitation of issuers' classification and description of crypto-assets (i.e. whether they label them as payment tokens, utility tokens or security tokens) for determining accounting requirements, an alternative indicator of the economic substance and accounting approach for crypto-assets could be their regulatory classification. However, regulatory classifications have the following limitations:

a) As shown in **Table 3.3** below, there are varied definitions of securities across jurisdictions (e.g. US versus EU). Crypto-assets including security, utility and hybrid tokens are more likely[48] to qualify as securities under the US legislation than they are under EU legislation. There is also variation across EU[49] 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.

b) Besides, issued 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).

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 transferability**

Criteria that classify an investment contract
• A common venture
  ○ No individualised rights
  ○ Investors' funds are pooled
  ○ Income and expenses are distributed proportionally
• Expectation of profit
  ○ Dividend, return, or payment
	Criteria that classify as a transferable security
	• A class of securities
	  ○ No individualised rights
	  ○ Set of identical, fungible objects
	• Functional equivalence with ordinary securities
	  ○ Profit participation
	  ○ Stake in partnership
	  ○ Voting rights

[47] An academic paper (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 speculative/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.

[48] 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.

[49] 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.

• Managerial effort of others
  ○ Expectation of a person or group to carry out managerial or entrepreneurial efforts
• Investment of money
	• Transferability and negotiability
	  ○ 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)

3.47 Academic paper (Parrondo, 2019) proposes an approach of ensuring the economic substance of crypto-assets is considered and where needed financial asset classification is accorded to these assets. Parrondo (2019) proposes that for purposes of determining which accounting requirements and regulation should apply, the classification of crypto-assets into the three main token types (payment, utility and security tokens) should be done independent of issuer classification. She proposes four criteria for the classification of crypto-assets into the three main token types for accounting purposes, namely:

a) There being a legal claim against a counterparty

b) Existence of intrinsic value (e.g. the presence of well-defined token functionality)

c) Token value stability

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)

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

3.48 As outlined in above Table, Parrondo (2019) proposes that items treated as utility tokens for accounting purposes should have a legal claim against a counterparty, have intrinsic value[50] and token value stability and their holding should not entail investment risk. While those considered to be security tokens (i.e. and therefore eligible to be treated as financial assets) should have legal claim against a counterparty, investment risk and functional equivalence with ordinary securities. The above proposed classification that is tailored for accounting purposes could result in holders of crypto-assets that are labelled as utility tokens by their issuers being considered as holders of security tokens for accounting purposes (i.e. potentially eligible to be treated as financial assets).

[50] Well defined token functional value and the long-term justifiable value and usefulness of the utility token needs to detailed in the technical description and business model of the Whitepaper. Price volatility undermines the functionality of a utility token.

3.49 Overall, there is a question of whether the IFRS definition for non-cash financial assets should be amended such that utility tokens or security tokens held for investment purposes but not meeting the IAS 32 definition ought to be able to qualify to be classified as financial assets. There are differing viewpoints on this across different publications, including:

a) The 2016 AASB publication and Sixt and Hammer (2019) also considers that the attributes of payment tokens (often being owned for their speculative value and having active markets), makes it appropriate that they have similar accounting to financial assets. However, the 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 unified, standalone crypto-asset standard and effectively treat cryptocurrencies as a unique asset with a blend of attributes of either intangible assets or commodities or inventory but with some cash like and speculative asset properties.

b) Sixt and Hammer (2019) suggests 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 speculative 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

3.50 Several respondents to the IFRS IC agenda decision clarification 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 crypto-currencies need to be a unit of account for recognition 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.

3.51 Furthermore, crypto-assets including some cryptocurrencies can 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) of where some crypto-assets meet the definition of e-money[51] due to there being a claim on an issuer. In addition, some stable coins can be defined as e-money based on the ECB definition outlined.

3.52 Another area where accounting clarification will be required is the concept of central bank digital currency (CBDC), a stable coin issued by a given central bank. There is the question of the equivalence of CBDC with cash, its legal tender feature and whether or not a right to restitution will be granted to token holders. There is ongoing development in this idea of CBDC, not only with the recent announcement of China PBOC of course but also very recently in France which has just announced their intention to move in this field in 2020.

[51] 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.

3.53 An additional question of accounting implications would arise were the Libra project to eventually create a privately issued stable coin tied up to an underlying basket of currencies and other money market instruments issued by states and central banks of different jurisdictions. In effect, if the Libra project was to come to fruition, it would result in a hybrid stable coin combining the feature of a stable coin and those of a CBDC.

3.54 The IASB staff paper[52] 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 definition of functional currency under IAS 21 *The effects of Changes in Foreign Currency Rates.*

3.55 In summary, an update to the IFRS definition of cash could be considered by the IASB. Yet, such an update would have significant consequences as it could incentivise their holding by entities including financial institutions and this in turn will have implications on monetary policy and financial stability.

Accounting for holders of hybrid tokens and utility tokens needs clarification

Hybrid tokens

3.56 Hybrid tokens create challenges by displaying features of different types and changing their nature either over time or depending on the context and/or effective use by their holders.

3.57 Difficulties can arise when a hybrid token is created that mainly functions as a cryptocurrency but has additional utility outside from its payment aspects. To illustrate the difficulties in classifying tokens into fixed categories, Maas (2019) gives the example of a project called Syscoin[53]. 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 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. 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?

3.58 Other examples of hybrid tokens where accounting challenges may arise include:

a) ETH which combines utility feature (i.e. used to run Decentralised applications-Dapps) and payment features since ETH is a commonly accepted crypto-currency

b) the Binance BNB coin, 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 BNB in a way to redistribute part of its revenue to its token holders).

3.59 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

[52] https://www.ifrs.org/-/media/feature/meetings/2019/june/IFRS IC/ap12-holdings-of-cryptocurrencies.pdf
[53] https://syscoin.org/

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 regards, 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.

3.60 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. Symmetrical issues arise on the issuance of hybrid tokens as discussed in **Chapter 4**.

Utility tokens

3.61 As described in **Appendix 2,** some utility tokens can be seen as analogous to other well-known transaction (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 neatly fit well known commercial transactions or where it may be challenging to readily determine the economic value proposition (e.g. rights to update network functionality; or vote on governance on software protocols)

3.62 The appropriate treatment of utility tokens could potentially be inferred from the accounting practices of analogous transactions but as pointed out in **Paragraphs 3.32 to 3.35**, 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.

3.63 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.

3.64 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. However, some stakeholders who provided input to the EFRAG crypto-project 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**.

3.65 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 3.56 to 3.60**. As described in **Paragraph 3.48**, utility tokens can also be *de facto* security tokens for accounting purposes.

3.66 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 (e.g. clarifying the extent to which the intention of holder versus intrinsic characteristics and nature of specific utility tokens should determine their accounting, ascertaining the recognition and measurement of some of the more atypical rights (e.g. rights to update network). As discussed in **Chapter 4**, there are symmetrical issues in the accounting by the issuer of utility tokens (e.g. questions on nature of performance obligations and nature of obligations towards holders of atypical rights).

Other issues for clarification

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

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

Holding of crypto-assets due to mining activities

3.68 Proof of work mining is one of the ways that crypto-assets come into existence. Holders of crypto-assets can become so by buying them with fiat currency or by receiving them in a non-cash exchanges (as compensation for goods or services or barter-like exchange with dissimilar crypto-assets) or as compensation for mining activities. Mining of crypto-assets is akin to the production/manufacturing of inventory or internal generation of intangible assets. As described in **Appendix 1**, 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:

a) If IAS 38 is considered to be applicable, then internally generated assets are not recognised, would the implication be that mined crypto-assets ought to have a carrying value of zero except for those that were acquired in a business combination.

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 power 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 *Joint Operations* and IFRS 16 *Leases*) applicable for the different mining business models described in **Appendix 1** (cloud based or renting mining capacity).

Summary of accounting for holders

3.69 **Table 3.4** below outlines the assumptions of applicable accounting for different crypto-assets based on the above analysis of existing guidance and alternative approaches based on stakeholder expectations articulated in possible areas for standard setting also described above. These have been identified based on the taxonomy that is defined in Appendix 2 taking account of the limitations of any taxonomy classification (e.g. classification categories may become obsolete, there are hybrid/multi-class tokens etc) that results in some NSS (e.g. France) not applying a taxonomy based classification during their development of accounting guidance.

3.70 The applicable accounting reflects the identified 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.

Table 3.4. 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
Cryptocurrencies with no claim on issuer including payment tokens	• Bo claim on issuer • Implied rights to exchange for equivalent goods and services with counterparties that accept	As per 2019 IFRS IC agenda decision either IAS 38 or IAS 2 is applicable for cryptocurrencies with no claim on issuer and they are classified as either intangible assets or inventory. <u>Asset classification could depend on purpose/holder intention</u> • Intangible assets • Inventory	Revision of IAS 38 definition of intangibles in business and allowing accounting policy choice (Proposed by some as a near- term approach).

		Measurement depends on purpose/holder intention • Cost or revaluation model (for intangible assets) • Lower of cost or net realizable value or FVPL (for inventory)	
E-money tokens- Cryptocurrencies and utility tokens that qualify as e-money and some emergent stable coins	• Fungibility, tradability and transferability • Claim on issuer, • implicit rights to exchange for equivalent goods and services with counterparties that accept	Asset type • Financial asset Measurement • FVPL	Revise definition of cash or cash equivalent under IFRS and clarify whether crypto-assets that qualify as e-money based on jurisdictional definition can be classified as cash and treated as analogous to foreign currencies.
Security and asset tokens	• Fungibility, tradability and transferability • Contractual entitlement to ownership interest or control of the token issuer POSSIBLE RIGHTS • 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	Asset type • Financial asset • Non-financial asset investment Measurement possibly depends on intended holding period • FVPL • FVOCI	Clarification on whether IFRS 9 with a financial asset classification is applicable for security and asset tokens. Clarification on accounting treatment of security and asset tokens that may not meet IFRS definition of financial instruments (financial asset) Clarification of implications of holding period intention.

	• 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		
Utility tokens	• Fungibility, tradability and transferability in some cases • Claim on issuer POSSIBLE RIGHTS • 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 (Proof of status mining) • Rights to contribute labour, effort or resource to a system • Right to contribute, programme or create features of a system	<u>Asset classification could depend on holders business purpose and/or on the nature of the utility token (i.e. specific rights)</u> • Prepayment asset • Intangible assets • Inventory • Financial assets • Non-financial asset held as investments <u>Measurement depends on holders' business purpose</u> • 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)	Clarification of the applicable IFRS for 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

	• 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	• FVPL or FVOCI (for financial asset and depending on intended holding period)	
Hybrid tokens including some stable coins	Combination of utility, security or payment token features	Could depend on predominant nature of underlying rights, business purpose or on the bifurcation or componentisation of different underlying rights	Clarification or development of principles for the accounting for multiple feature crypto-assets.
Pre-functional tokens	Will convert to tokens (usually but not necessarily to utility tokens)	<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> • Prepayment asset • Intangible assets • Inventory • Financial assets • Non-financial asset investment <u>Measurement depends on holders' business purpose</u> • 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)	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).

		• FVPL or FVOCI (for financial asset and depending on intended holding period	
SAFT typically issued with pre-functional tokens	Rights to future tokens and considered as securities	<u>Asset type</u> • Financial asset <u>Measurement</u> • FVPL	Clarification on whether IFRS 9 with a financial asset classification is applicable for security and asset tokens. Clarification of implications of holding period intention.

Issues related to holders on behalf of others

3.71 This section considers accounting by entities that hold crypto-assets on behalf of others (e.g. custodial service and wallet providers, exchanges and brokers) herein also referred to as intermediary holders.

3.72 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

3.73 The appropriate asset recognition needs an evaluation of whether the intermediary holder is a de facto principal or agent. Several publications[54] note that of 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 fulfills an agent role) ; or

b) that only represent the clients contractual right to the crypto-assets (i.e. intermediary holder fulfills a principal role).

3.74 Table below lays out the accounting implications depending on whether the depositor client or intermediary holder has economic control of the crypto-assets.

Table 4.4: Accounting implications of bearer of economic control in intermediary holding arrangement

	Depositor client accounting	**Custodian or intermediary holder accounting**
Situation 1: *Custodian or intermediary holder has economic control and bears significant risk and reward of crypto-assets*	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: *Depositor client has economic control and bears significant risk and reward of crypto-assets*	Depositor client recognises crypto-assets	Crypto-assets are off-balance sheet for the custodian or intermediary holder

Depositor client versus intermediary holder: Who has economic control of crypto-assets?

3.75 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 can depend on

a) Contractual terms and conditions;

b) Laws and regulation governing custodians in different jurisdictions

c) How the custodian manages and stores the crypto-assets

3.76 The combination of feedback from the EFRAG crypto-project outreach, advisory firm input, review of accounting firm publications (E&Y, KPMG and PwC)[55], NSS guidance (France guidance that is in development and Japan) and a recent AICPA practice aid[56] -has shed some light on several factors that would need to be considered in determining 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) Does the client can transfer the crypto-assets to another exchange or to their own wallet?

f) Does the depositor 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 rights and obligations of the depositor 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-assets 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.

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[55] Ernst and Young, August 2018, Applying IFRS, Accounting for Holders of Crypto-Assets https://www.ey.com/Publication/vwLUAssets/EY-applying-ifrs-accounting-by-holders-of-crypto-assets/$File/EY-applying-ifrs-accounting-by-holders-of-crypto-assets.pdf
KPMG, 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* (PwC publication)
https://www.pwc.com/gx/en/audit-services/ifrs/publications/ifrs-16/cryptographic-assets-related-transactions-accounting-considerations-ifrs-pwc-in-depth.pdf

[56] 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

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 clients' crypto-assets are held separately or commingled with those of other clients? Below is an elaboration of implications and the indicators of whether clients crypto-assets are held separately.

m) Which party is entitled to the benefit in the case of a hard fork? Below is an elaboration.

Are clients crypto-assets held separately or commingled?

3.77 As noted above, the intermediary holder's segregation of depositor clients crypto-assets as opposed to the commingling of clients crypto-assets with those of other clients is an indicator that the client has economic control.

3.78 The EFRAG crypto-project outreach highlighted that in some jurisdictions such as France and Switzerland, the ability to segregate 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 setup with a separate ledger is not sufficient for off-balance sheet treatment.

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

a) Whether the rights and obligations of the entity and its clients are set out in a contract or whitepaper (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 clients and the individual holdings of each 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 clients, to assess whether each transaction could be attributed to the relevant 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 client, this is more likely to indicate segregation.

d) Whether the crypto-assets is 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 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 clients' crypto-assets in hot or cold wallets. An entity might allow clients to hold some amounts in a hot wallet for frequent trading, and some other amounts from the same client in a cold wallet for

safe-keeping. Whether the client or the entity holds and is able to use the private key to the wallet might also be relevant. If the crypto-assets is held in cold wallets, and the private key is held and can only be used by the client, this is more likely to indicate segregation.

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

3.80 DLT-blockchain represents a record of all transactions (i.e. ledger) and this record is kept by all the permission-less network participants. 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

3.81 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 protocols[57] is enacted for purposes recording subsequent transactions. A hard fork is currently only applicable to crypto-currencies.

3.82 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. 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).

3.83 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 less[58] in worth than before) and a new asset.

3.84 One of the EFRAG crypto-project 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.

3.85 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). The consultancy firm that provided specialist advise to the EFRAG crypto-project noted the following:

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[57] 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.

[58] 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**.

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

Behavioural consequences of prudential treatment of intangible assets in the banking sector

3.86 Some stakeholders have pointed out that in determining the prudential regulatory capital of banks, intangibles assets are deducted from own funds. Hence, as was the case with introduction of IFRS 16, where there was a clarification by the Basel Committee, that for regulatory capital determination purposes, “right of use” leased assets were to be treated as being equivalent to owning the underlying leased assets and this negatively affected banks’ undertaking of leasing transactions that would be deemed equivalent to their owning intangible assets. In similar fashion, the classification of cryptocurrencies as intangible assets, could potentially discourage banks’ holding of crypto-assets other than for trading purposes. However, at this point in time, bank holdings of crypto-assets are insignificant and hence there is unlikely to be any material impact on prudential capital as a result of crypto-assets being considered to be intangible assets.

Possible additional disclosures

3.87 As highlighted in paragraph **3.17,** the IFRS IC clarification also clarified disclosures requirements including the applicable IFRS *13 Fair Value Measurement* requirements if an entity measures cryptocurrencies at fair value and the disclosure requirements applicable to its holdings of cryptocurrencies (e.g., IAS 2, IAS 38, IFRS 13) and noted in paragraph **3.18**, this could include fair value information to the extent that such information is relevant.

3.88 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 two paragraphs). For instance, the 2018 CPA Canada publication and Sixt and Hammer (2019) propose the following holders related disclosures as possible additional disclosures when 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;

e) Entities adopting a cost approach under IAS 38 should consider disclosing the fair value of the respective crypto-assets 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

3.89 As is the case with the IFRS IC agenda decision clarification and with most of the analysed NSS guidance, the classification and measurement consider the intention of the holder (i.e. except for the Japan guidance where crypto-assets are considered a unique asset type). The asset classification is determined through combination of considering the business purpose of holding the crypto-asset and, to varied extent, considering the underlying economic characteristics (i.e. asset type is determined by function and nature).

3.90 In the preceding sections, and in paragraph **(Table 3.3),** several areas have been identified where accounting requirements under IFRS needs either clarification or enhancement. While not disagreeing with the essential conclusions of the 2019 IFRS IC clarification on the accounting for cryptocurrencies- several stakeholders have in the past argued and continue to argue 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, cryptocurrencies are intangible assets as they are non-monetary assets and a digital representation of value but unlike most commonly known intangible assets (e.g. software, intellectual property, brands); they have some cash like and speculative asset properties, have active markets and they are not cash generating assets (i.e. do not have value in use). The analysis within this DP pinpoints several unresolved recognition and measurement challenges and these can be summed up below as follows:

a) There is need to extend clarification for holders beyond cryptocurrencies with no claim on issuer (i.e. for stable coins, 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 speculative or investment asset attributes

d) There is 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 after considering the possible implications on monetary policy and financial stability

f) The accounting for hybrid tokens needs clarification

g) Other areas that need clarification (accounting for holdings due to mining activities, barter exchanges)

3.91 **Table 3.5** below summarises some of the indicators of control described in earlier paragraphs. As noted, no single factor is determinative

Table 3.5: Implications of indicative factors

Indicators that depositor client has economic control of crypto-assets	**Indicators that intermediary holder has economic control of crypto-assets**
• Legal contract or jurisdiction regulatory frameworks stipulates intermediary holder is the agent	• Client crypto-asset are commingled with other clients crypto-assets

• Client crypto-asset is segregated in a separate wallet • Restriction on use and transfer of crypto-assets by intermediary holder • Client bears risk of loss (i.e. no restitution) in the event of theft, hacking • Client can benefit from hard fork	• 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 • Client could get restitution in the event of theft, hacking • Intermediary holder can benefit from hard fork

3.92 Other than the application of IAS 8, 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 or development of related requirements for crypto-assets can be done to ensure consistency in how these matters are addressed across different IFRS standards.

3.93 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. The accounting for holders on behalf of others needs IFRS clarification 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).

c) Clarifying whether the custodian credit risk exposure should be considered when determining the value of the receivable asset.

3.94 **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 (**Chapter 3:)** 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 issues on 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 issuer), 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 crypto-project outreach stated the need for clarification or guidance on accounting for issuances and related issues.

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, other than issuance of tokens considered to be equivalent to securities, the ICO issuance remains largely unregulated in many jurisdictions, providing further scope for varied terms and conditions. It is therefore crucial for issuers (and particularly potential investors) to review the whitepaper 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 whitepaper 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 whitepaper or arising from legal enforceable requirements, but 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 similar 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 by securities regulators or they could also be seen as similar to product sales. As discussed in Appendix 3 and **paragraph 3.46**, the classification as securities or financial instruments varies across jurisdictions (e.g. EU versus 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 useful to determine the obligations, if any, that exist between the issuer and the holder of the crypto-assets.

4.10 The question of if and what 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 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.

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 be recognised where an entity, on the basis of its past practices, has a 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, it ought to meet the definition of a liability under the Conceptual Framework.

Recognition as a liability or contingent liability

4.17 The IASB removed from the [revised Conceptual Framework], 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 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-related liabilities. The economic characteristics and nature of obligations associated with the issued crypto-assets guide the choice of applicable IFRS Standard. If none of 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 with speculative intent, it might be difficult to establish the likelihood of the issuer entity having to fulfil an obligation or alternatively the likelihood might be uncertain such 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 the economic decision-making needs of users and produces reliable information in the financial statements. IAS 8 states that in making this judgement, 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.

Applicable IFRS Standard for ICO Issuance (and similar offerings)

4.22 In the absence of clarification by the IASB, the preliminary conclusion of this research, informed by accountancy firm publications and feedback from the EFRAG crypto-project outreach, is that ICO issuers can apply one or a combination of the following IFRS Standards:

a) IFRS 9 *Financial Instruments* – as a financial liability likely to be applicable for issuance of security and asset based tokens

b) IAS 32 *Financial Instruments Presentation* – as an equity instrument likely to be applicable for issuance of security and asset based tokens

c) IFRS 15 *Revenue from Contracts with Customers* – 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

d) IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* – 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.

4.23 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.

4.24 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.

4.25 However, it is less clear which IFRS requirements would apply for the issuance of hybrid type tokens and how they should be classified under IFRSs. 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.

4.26 There is currently an emerging trend, especially in the US, to develop and trade crypto-asset derivatives (such a futures) 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 crypto-project 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.

4.27 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 obligation/s (i.e. the timing of transfer of control of network goods and services from issuer to holder of token etc.). The applicability of IFRS 15 is premised on the existence of enforceable implicit and/or explicit contracts with customers. However, as described in **paragraphs A2.11 to A2.24**, 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.

4.28 Similarly, another question that needs IFRS clarification is if and when IAS 37 becomes applicable for crypto-liabilities, and what crypto-related obligations qualify for recognition as a provision and under what circumstances or point in time should such provisions should be derecognised?

4.29 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

4.30 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.

4.31 EU countries with specific accounting requirements include France and Lithuania. Other European countries with some form of local GAAP requirements for ICO issuance include Switzerland and Luxemburg. 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.

4.32 Another useful point of reference for ICO issuer accounting, are the accounting firms publications including a December 2019 PwC publication[59] (referred to in the rest of this chapter as PwC publication). Reference was also made to other accounting firm publications that covered issuance accounting to varying degrees.

4.33 In the paragraphs below is an overview of the

a) analysis of accounting firms' publication guidance;

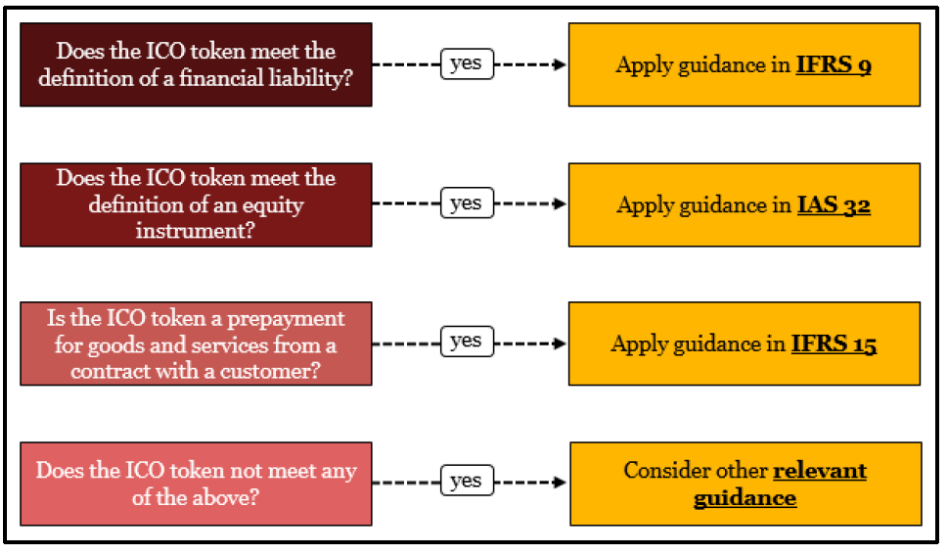
b) Existing NSS guidance.

Accounting firms' publication guidance

Accounting for ICOs by the issuer

4.34 The PwC publication provides the following possible analysis framework 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.

Source: PwC publication



[59] https://www.pwc.com/gx/en/audit-services/ifrs/publications/ifrs-16/cryptographic-assets-related-transactions-accounting-considerations-ifrs-pwc-in-depth.pdf

Financial liability

4.35 An issuer of an ICO token should assess whether a token meets the definition of a financial liability under IAS 32. [60]

4.36 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

4.37 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

4.38 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.

4.39 To determine whether a contract with a customer exists, an ICO entity should consider whether the whitepaper, 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.

4.40 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 ICOs 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).

4.41 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.

[60] 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)

Other relevant guidance

4.42 PwC notes that when an IFRS Standard cannot be identified, the hierarchy in IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* 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 *Provisions, Contingent Liabilities and Contingent Assets*.

Other ICO related issues

4.43 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

c) own tokens exchange for employee services.

Pre-sale agreements (SAFTs)

4.44 As explained in **Appendix 2: paragraph A2.43**, 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.

4.45 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 to a participation in the issuing company.

4.46 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, at which time the entity is required to return to the investor the amount originally invested (or a portion thereof).

Accounting for pre-functional tokens and SAFTs

4.47 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.

4.48 On the other hand, if the tokens underlying the SAFT represent a pre-payment for future goods or services the question is whether IFRS 15 should be applied, or whether the consideration received should be recognised as a pre-payment (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 instrument[61]. This guidance is consistent with the views expressed by PwC in its publication.

[61] 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].

4.49 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

4.50 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.

4.51 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

4.52 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.

4.53 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, can the costs be capitalised as part of the intangible, based on the applicable IFRS guidance, or should they be expensed (for example, research and development guidance under IAS 38)?

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

4.54 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. Our research has 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, employee are remunerated mainly in crypto-assets, of which ICO tokens would comprise a sub-set of their remuneration.

4.55 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).

Existing NSS guidance

4.56 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.

4.57 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 differ across jurisdictions and due to the lack of a full picture on the different jurisdictional tax-related requirements.

France

4.58 The Loi Pacte in France passed into law (summer 2019), a comprehensive legal framework for ICO issuers and businesses dealing with tokens which are legally defined. The accounting regulation developed by the French accounting Standards authority (ANC) was published in 2018 and is summarised below.

4.59 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

4.60 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 whitepaper of the ICO and any other relevant document. ICO issuing entities are required to distinguish between tokens featuring characteristics of securities and other tokens.

4.61 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.

4.62 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

4.63 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.

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.

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.

4.64 If the tokens have a hybrid feature (for example utility token plus security features), the accounting will be based on the two separate features.

4.65 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

4.66 The French guidance discusses the accounting for pre-functional tokens and SAFT agreements when they are refundable.

4.67 The French guidance informs 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

4.68 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.

4.69 Similar to the French accounting guidelines on ICO issuance, the Lithuania guidelines inform 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, period of the use and liquidity. The Lithuanian guidelines explain that, usually, all essential ICO conditions, including also the rights granted to the purchasers of the tokens, commitments of the issuer and other terms and conditions should be specific in the white paper that accompanies the ICO and could be considered as a prospectus equivalent to when issuing securities.

4.70 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

b) accounting for ICO issuance.

Accounting for pre-ICO expenses

4.71 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.

4.72 Before undertaking an ICO, the ICO entity must decide on 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 to 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

4.73 ICO tokens that tokens that are not circulated (issued) during an ICO (and remain the property of the issuers) are not recognised and are recognised only when the active market of token stabilises. As explained in paragraph 4.50, 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.

4.74 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. Issuer recognises a liability if it has an obligation or commitment to the holder:

a) Payment tokens – payment 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 (pre-payment). 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.

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

4.75 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.

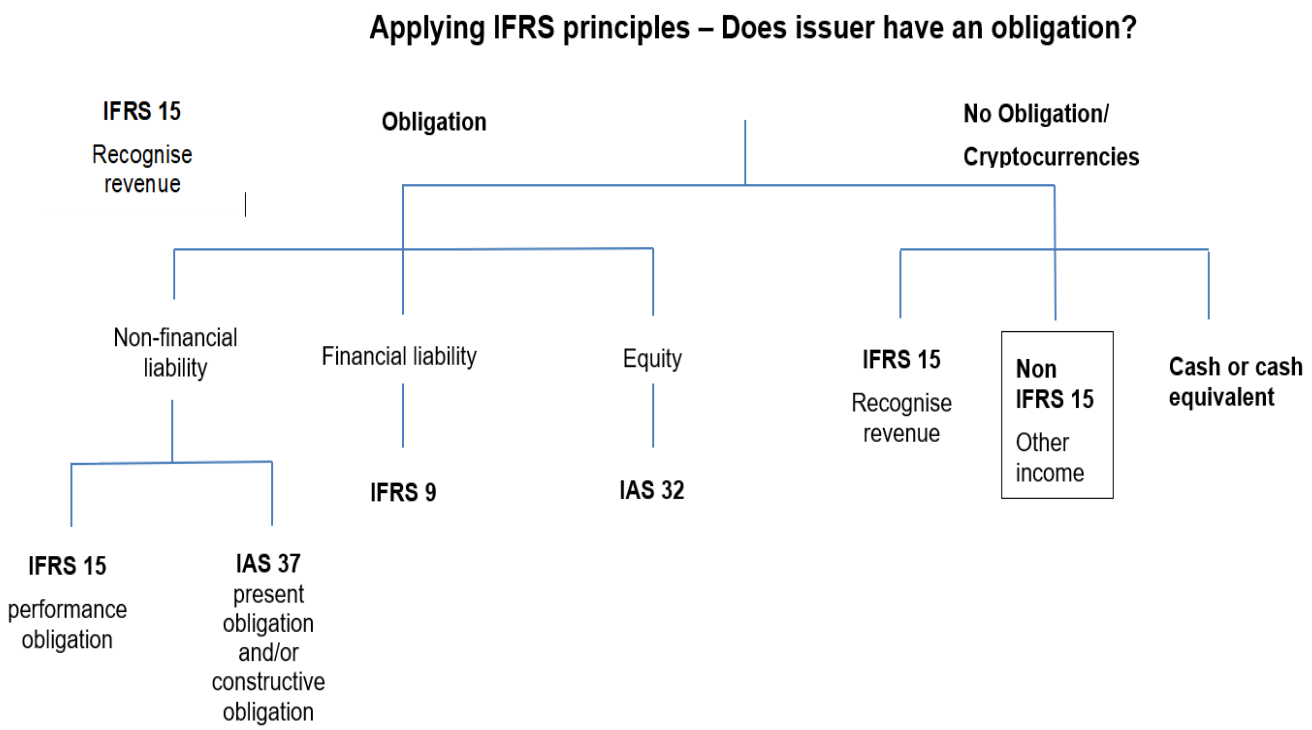
b) Own ICO tokens - accounting for crypto-assets that remain in the property of the issuer of the ICO (also often the founder of the crypto-asset) and are

not placed in circulation. The PwC publication discusses this issue and provides accounting guidelines under IFRS.

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

4.76 The identified possible applicable accounting for crypto-assets can be summarised as follows:



4.77 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 issuer	• None • However, need to consider whether the transaction is an exchange transaction	• 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 stable coins	• Claim on issuer, implicit obligations	• 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	• Contain characteristics that are similar to securities, could have claim on issuer	• Recognise a financial liability under IAS 32 and IFRS 9	• Determining whether it's a financial liability under IAS 32 and IFRS 9 may need clarification
Utility tokens	• Claim on issuer, explicit and implicit obligations	• 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	• 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 transaction is not within the scope of IFRS 15

Hybrid tokens with multiple features including some stable coins	• Claim on issuer, explicit and implicit obligations combined with no claim (in case of payment feature)	• Accounting based on a combination of cryptocurrency (payment token) and utility token	• Same clarifications as for payment tokens and utility tokens
Pre-functional tokens and SAFT	• Claims on the issuer will depend on the type of token – payment/security/utility	• Accounting will depend on the type of pre-functional token issued and the issuer obligations	• Needs clarification
Free tokens, Issuance costs, unissued tokens, reacquired tokens	• Requires further examination and clarification	• Requires further examination and clarification	• Requires further examination and clarification

Concluding remarks and observations

4.78 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.

4.79 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 that 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.

4.80 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

4.81 As noted in paragraphs 4.25 to 4.28 and summarised in the table in **paragraph 4.77**, there are a number of issuer accounting areas that would likely need clarification or amendment to existing possible applicable IFRS Standards.

4.82 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, and although security tokens might have similarities to equity instruments (such as shares) they might not in all cases qualify as a financial instrument under the existing IFRS definition. Clarification or amendment might therefore be needed. A similar consideration will arise in relation to a financial a financial liability when assessing whether a crypto-liability qualifies as a financial liability under IAS 32.

4.83 As mentioned in **paragraph 4.27**, 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).

4.84 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, if 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.

4.85 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).

4.86 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 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. Especially as what are described as utility tokens may have hybrid and multiple features, and whose obligations may change over time. Furthermore, as described in **Appendix 2** and on the discussion of challenges by holders of utility tokens in **Chapter 3 paragraphs 3.61 to 3.66**, 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 these type of atypical rights.

4.87 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.

4.88 Finally, as explained in **paragraph 4.75**, 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

4.89 **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 symmetrical 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 or which one is selected) should jointly consider the areas of clarification for holders and issuers.

4.90 The above issues (summarised in **paragraphs 4.81 – 4.88**) could be the focus of IFRS clarification or amendment regarding the accounting for issuers. As noted in **Chapter 6 (paragraph 6.6)** this is considered as a short-term solution in this DP.

4.91 Another possible short-term solution, in the event that there are gaps in the applicable IFRS Standards for certain fact patterns related to issuance of crypto-assets, is that 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 existing IFRSs dealing with similar issues as well as the definitions and principles in the Conceptual Framework. This view is in line with the position outlined by accounting firm publications and feedback from the EFRAG crypto-project outreach.

4.92 The amendment of existing applicable IFRS Standards or development of a standalone crypto-assets is more of an approach to be considered in the medium to long-term due to the likely lengthy nature of the due process and the current lack of pervasiveness of issuance transactions amongst IFRS reporting entities.

CHAPTER 5: CRYPTO-ASSETS VALUATION

5.1 A chapter on valuation is included in this DP because the faithful representation of crypto-assets issuance and acquisition transactions 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 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, results 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 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 crypto-project 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. One view is that an active market for a crypto-asset exists only when crypto-fiat exchanges published by reliable sources exist. Under this view, crypto-to-crypto exchanges should not be considered when determining is there is an active market.

5.5 Finally, an examination of the valuation methodologies can provide further insight on the nature and sources of economic value of crypto-assets in a manner that is helpful for thinking about the nature of asset (e.g. their intellectual property and other intangible asset features) and 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 report[62] highlights first attempts made towards developing a theoretical framework around crypto-currency valuation. They note that as an example, Bolt and van Oordt (2016) developed an economic framework to analyse the value of a crypto-currency. The 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;

[62] European Commission, 2018. *European Financial Stability and Integration Review* (2018)

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 are 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 early stages of development making it hard to derive a robust methodology for their valuation.

5.8 More recently, a 2019 the CBV Institute research paper[63] (CBV research paper) provides an analysis of suitable valuation approaches for crypto-assets. The CBV research paper 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 CBV research paper 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 examines three valuation approaches frequently included in the crypto-asset valuation discourse:

a) Cost of Production

b) Equation of Exchange

c) Network Value to Transactions Ratio.

5.10 The CBV research also provides a list of (yet evolving) valuation considerations in respect of each. The CBV valuation framework and valuation approaches are discussed below.

CBV Institute research report - Valuation Framework

5.11 The CBV Institute research 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:

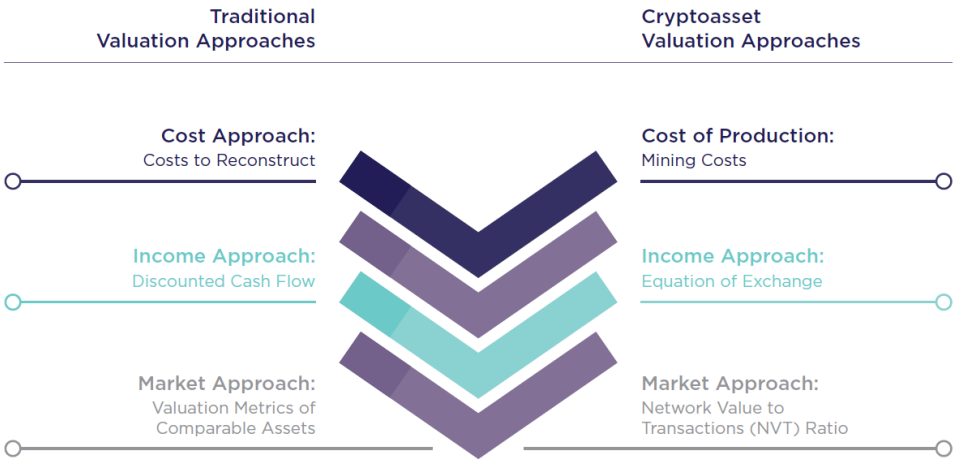
a) pronounced similarity between certain characteristics of crypto-assets and IP. For example, IP is described as a non-monetary asset “that manifests itself by its economic properties. It does not have physical substance but grants rights and economic benefits to its owner…” These same qualities are likely equally applicable to crypto-assets.

b) the crypto-asset valuation approaches examined in this paper are analogous to the three approaches commonly advanced in traditional valuation, being the cost, income/cash flow, and market approaches.

[63] Singh, T.K. and Tylar, J. CBV Institute, 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

5.12 The CBV research paper highlights parallels between emergent crypto-asset valuation approaches and the traditional valuation approaches that are recognised within accounting literature including IFRS Standards (i.e. cost approach, income approach and market approach).



Source: CBV research paper

Cost of production

Valuation theory

5.13 The CBV Institute research paper 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 research paper 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 Despite the technical jargon, the CBV Institute research paper Hayes' Cost of Production approach is, perhaps, one the most straightforward crypto-asset valuation methodologies. While it certainly helps identify the building blocks of value, practitioners should be aware of certain of its limitations:

a) Lack of applicability under PoS consensus mechanism

b) Transaction fees not considered

c) Non-monetary incentives of miners not considered

d) Mining centralisation

e) Cost ≠ Value.

Equation of exchange

Valuation theory

5.18 The second valuation approach explored in the CBV Institute research paper is Chris Burniske's Equation of Exchange, which based on existing literature, seems to be frequently applied in valuing utility tokens. The CBV paper notes that the 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.

5.19 Furthermore, the CBV paper 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).

5.20 In similar fashion, Burniske and Takar[64] (2018) 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 market place 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 paper (see preceding paragraph) and speculative value.

Valuation considerations

5.21 The CBV Institute research paper concludes that Burniske's Equation of Exchange shares many characteristics with traditional cash flow valuation approaches. While this parallel may help ease the thought transition to crypto-assets, practitioner 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?

c) Different Discounting Methodology.

Network Value to Transactions Ratio

Valuation theory

5.22 The third approach examined by the CBV Institute research paper 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".

5.23 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).

[64] Burniske, C. and Takar,J. 2018. *Cryptoassets The Innovative Investor's Guide to Bitcoin and Beyond*

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

5.24 The NVT ratio, one of the most popular crypto-asset market-based valuation approaches, may provide a methodology to evaluate or test the fundamental value of crypto-assets. However, 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

c) Challenges in identifying meaningful comparators.

CBV research report conclusion on valuation approaches

5.25 The CBV Institute 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 has been significant. Specifically, the approaches highlight a set of new and important factors that valuation practitioners should consider, such as:

a) Is the crypto-asset 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 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

5.26 The EFRAG crypto-project 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.

5.27 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-assets 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

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 exchange as a constraint to meeting the definition of an active market.

5.28 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

d) Disclosures

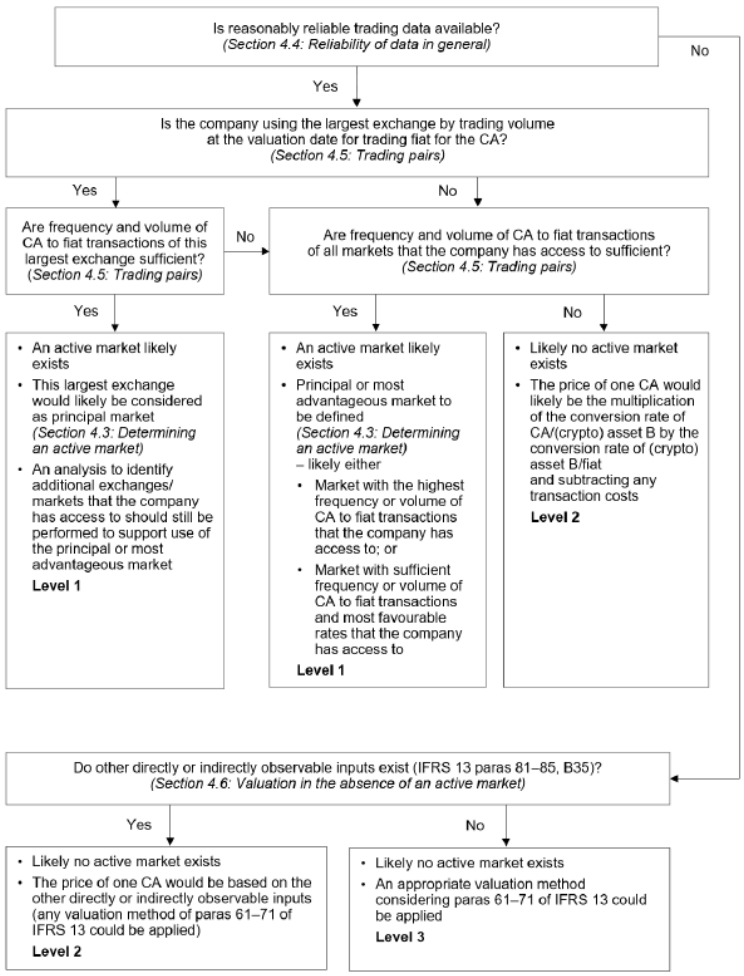
The fair value hierarchy of IFRS 13

5.29 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).

5.30 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.

5.31 The PwC publication provides the following decision-tree to help determine a valuation method.

Source: PwC publication



Determining an active market

5.32 The first step in considering the fair value of a cryptographic asset is to determine if an active market exists for that cryptographic 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".

5.33 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 cryptographic 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.

5.34 In some cases, there might be several markets for a particular cryptographic 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.

5.35 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 informs that if there is not a clear principal market (that is, because there are several markets with approximately the same level of activity). IFRS 13 defaults 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.

5.36 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

b) Some cryptographic assets aim to be backed by a fiat currency – for example, for one cryptographic token to represent the value of US$1. However, because these cryptographic assets are not considered a foreign or functional currency in the definition of IAS 21, they are treated no different to other cryptographic assets with regard to determining if an active market exists.

5.37 The importance of identifying active markets is reinforced by the CBV Institute research paper 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 (Vontobel) shows that the crypto-assets are only recognised based on Level 1 fair value.

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 cryptographic assets will not have an active market as described by IFRS 13, and 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 cryptographic assets is evolving rapidly, and 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 emergent valuation methodologies also provide further insight on the nature and sources of 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.

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 reinforced by a CBV Institute research paper[65] 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 (Vontobel[66]) shows that the crypto-assets are only recognised based on Level 1 fair value.

[65] Singh, T.K. and Tylar, J. CBV Institute, 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
[66] https://www.vontobel.com/siteassets/about-vontobel/downloads/2018-12-31_gv_annual-report_en.pdf 9
Page 182 of the 2018 Vontobel Annual Report

5.46 However, some of the participants in the EFRAG crypto-project 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 published by reliable sources exist. It is therefore necessary to have clarify on how an entity should determine fair value in the absence of active markets. There are also unique features associated with crypto-assets markets that need to be considered including: 24/7 trading; 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 (e.g. should they affect definition of active markets).

Approach to clarifying, amending or developing new IFRS requirements

5.47 Chapter 6: outlines possible approaches to clarify, amend or develop new IFRS requirements for holders and issuers (and holders) of crypto-assets. Three of the possible options (short-term/medium term solutions) consider either clarification by the IFRC IC 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 decide that fair value measurement is the appropriate measure for crypto-assets and crypto-liabilities.

5.48 The longer term solutions consider development of a new standard to address the accounting for crypto-assets and crypto-liabilities. Although IFRS 13, considers several ways to determine a meaningful fair value (Level 1, Level 2 and Level 3), as noted in paragraphs 5.8 - 5.10 of this DP, 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.

CHAPTER 6: POTENTIAL DEVELOPMENT OF IFRS REQUIREMENTS

6.1 This chapter outlines considerations for potential development of accounting standards including a synthesis of the areas for further consideration by the IASB highlighted in the previous chapters related to the accounting for holders and issuers and valuation considerations.

a) describe suggested alternative holders' accounting approaches; and

b) provide a potential roadmap for developing accounting solutions related to holders under IFRS requirements.

Key principles

Identifying rights and obligations

6.2 Accounting standard setters ought to have the ability to describe and categorise crypto-asset transactions of a similar economic nature (i.e. transactions ought to be capable of being standardised). 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 that there is no consensus or harmonisation in the classification taxonomies applied by regulators across different EU jurisdictions and globally. The combination of these factors, could result in some stakeholder thinking that there are so many "moving and unknown" parts associated with crypto-assets and such fluidity is not conducive accounting standard setting. However, a counterargument is that accounting requirements and the Conceptual Framework ought to be also able to address innovative, early stage transactions. Additional reasons on the ability to develop IFRS requirements for crypto-assets are as follows:

a) As noted in **Appendix 3,** a Cambridge 2019 publication[67] 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) The fundamental rights and economic characteristics of a broad spectrum of crypto-assets are in substance economically similar to existent "non crypto-assets" transactions (e.g., foreign currency holding, investment in commodities, holders of loyalty miles, emission rights). These fundamental characteristics are not fast moving and are unlikely to become obsolete economic features whether it is in relation to crypto-assets or to analogous transactions. Hence, for a subset of existing and next generation of crypto-

[67] Cambridge Center for Alternative Finance, 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

assets, a taxonomy classification can have ongoing relevance for accounting standard setting purposes.

d) **Appendix 2** has a granular breakdown of the fundamental distinctive rights for utility tokens and security tokens and gives some examples of crypto-assets that have these fundamental distinctive rights. The granular breakdown of rights can mitigate potential concerns that utility tokens and security tokens classification may be too broad for accounting purposes. It can also enable comparison to analogous "non-crypto-asset" transactions and thereafter consideration of the appropriate accounting treatment.

e) Some of the noted rapid innovation may be in the hybridisation of crypto-asset features and in the efficacy of technology mechanisms to fulfil economic functions rather than a change in their fundamental economic characteristics. Besides, a taxonomy that clearly identifies fundamental distinguishing economic characteristics and rights- would seem to enable rather than blur the conceptual thinking about the appropriate required accounting for hybrid tokens. For instance, a taxonomy classification ought to enable conceptual thinking on how the bifurcation of component attributes could occur for accounting purposes and it also helps to identify the predominant component features of hybridised crypto-assets.

6.3 There is no reason why any other more suitable classification taxonomy cannot be developed to guide the consideration of the accounting of economically similar crypto-asset transactions. As described in **Appendix 2** there is ongoing conceptualisation[68] on appropriate classification taxonomies and this type of thinking could potentially inform IFRS consideration of the accounting for different types of crypto-assets.

Holder and issuer classification

6.4 As concluded in **Chapter 3:,** the asset classification should be determined through combined consideration of the business purpose for holding the crypto-asset and its underlying economic characteristics (i.e. held crypto-assets classification should be determined by their function and nature). Classification by function and nature is the approach within the IFRS IC clarification on cryptocurrencies and with most of the analysed NSS guidance (i.e. except for the Japan guidance where crypto-assets are considered to be a unique asset type). However, as some stakeholders continue to pose questions on whether IFRS requirements meet the varied characteristics of crypto-assets, a key question that remains is whether crypto-assets (current and next generation) are a unique asset type with a need for the amendment or development of new IFRS requirements.

6.5 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.

[68] A recent academic research paper proposed 14 classification categories -Lausen, J. 2019. *Regulating Initial Coin Offerings? A Taxonomy of Crypto-Assets*. Research Paper.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3391764

Possible approaches to IFRS development

6.6 In order to clarify and possibly enhance these different aspects of accounting by holders and issuers of crypto-assets, there seems to be the following plausible options to developing IFRS requirements.

Short-term solution

(a) Option 1: Extending the scope of the IFRS IC clarification to go beyond the scope of the 2019 IFRS IC clarification that only focused on cryptocurrencies with no claim on issuer.

(b) Option 2 : Amendment of existing applicable standards (e.g. IAS 2 *Inventories* and IAS 38 *Intangibles*) to exclude or limit the inclusion of crypto-asset from their scope and allow prepares to develop their own accounting policy for crypto-assets (IAS 8 *Accounting Policies and Accounting Estimates*) in cases where preparers may deem that applicable standards are not reflecting the economic attributes of their crypto-assets transactions or where there is need for clarification of applicable standard principles (e.g. hybrid tokens, holdings from barter transactions, mining activities and other areas where there is uncertainty on how existing IFRS Standards apply). Through IAS 8, preparers would be able to make reference to similar IFRS Standards, other NSS guidance and the Conceptual framework to determine the appropriate recognition and measurement of crypto-assets.

Medium to long-term solution

(c) Option 3: Amend applicable IFRS standards (IAS 2 and IAS 38 for holders; IFRS 15 and IAS 37 for issuers; and IFRS 9 and IFRS 13 for both holders and issuers) to make them applicable for crypto-assets transactions and to address possible areas of accounting gaps and clarification in IFRS requirements identified in **Chapters 3, 4 and 5**.

(d) Option 4: Development of a standalone crypto-assets standard

(e) Option 5: Development of a broader new standard/s addressing crypto-assets and analogous transactions (e.g. a new standard on non-financial assets investments or a new standard on digital and digitised assets)

6.7 **Table 6.1** below analyses the above five options including summarising the reasons for possible clarification or amendment that have been identified in Chapters 3, 4 and 5 and outlining considerations (i.e. pros and cons) related to each of these four options. The executive summary section also expands the analysis of these five options.

EFRAG crypto-project team preliminary conclusion on approach to IFRS development

6.8 Based on the below detailed analysis in **Table 6.1**, and the extended analysis in the executive summary, the preliminary conclusion of the EFRAG crypto-project team that is subject to amendment after EFRAG TEG members input, is as follows:

6.9 Possible short-term solution: The following could possibly be considered by the IASB as a short-term solution (i.e. a combination of option 1 and 2):

a) A narrow scope amendment of existing applicable IFRS Standards to exclude crypto-assets from their scope and to allow preparers to develop their own accounting policy (IAS 8); and

b) An extended IFRS IC clarification on selected issues including those that could have broad implications (e.g. whether stable coins that are 1:1

pegged to fiat currency and other crypto-assets that qualify as electronic money under jurisdictional definitions can be classified as either cash or cash equivalents) and on where transactions are likely to be or become more widespread among entities (e.g. holders on behalf of others by financial institutions; and ICOs and similar offerings issuance by SMEs).

6.10 Medium- to long-term solution: If there is sufficient evidence of crypto-assets becoming mainstream, the development of either a unified, standalone crypto-asset standard or a broader digital and digitised assets standard ought to be considered by the IASB in the medium to long term. The development of a standalone standard is likely to be more efficient than either amending multiple individual applicable IFRS Standards or only developing a new standard for non-financial asset investments that only addresses one of the perceived gaps in existing IFRSs in respect of crypto-assets.

6.11 This preliminary conclusion by the EFRAG crypto-project team aligns with the description of stakeholder expectations in the 2019 December ASAF meeting staff paper[69] on the 2020 IASB agenda which shows that some stakeholders still expect a review and revision of crypto-assets related IFRS requirements including revision of IAS 38 definition of intangibles and allowing accounting policy choice (IAS 8) in the near term; or development of a new crypto-assets standard in the long term.

[69]December 2019 ASAF Staff Paper, https://cdn.ifrs.org/-/media/feature/meetings/2019/december/asaf/ap1-agenda-consultation.pdf

Table 6.1: Considerations in assessing possible approaches to developing IFRS requirements

Possible approaches to developing IFRS requirements	Reasons for addressing IFRS requirements	Considerations
Possible additional IFRS Interpretation Committee clarifications		
Only address aspects of applicable holder and issuer IFRS Standards (IAS 2 , IAS 38, IFRS 9, IFRS 13, IFRS 15,IAS 32 and IAS 37) that need clarification in respect of crypto-assets accounting	• As summarised in **paragraphs ES 19, ES 20 and ES 21 of the executive summary section** addressing holders, issuers and valuation, different sections of chapters 3, 4 and 5 identify various areas of holder and issuer accounting that need clarification including those related to holders and issuers on behalf of others, stable coins, utility tokens, security tokens that do not meet the definition of financial instruments, hybrid tokens, barter exchanges, holdings from mining activities and determination active markets. .	Pros • Can provide timely clarification for entities that undertake mining activities and for issuers and holders of security tokens. Cons • There is no evidence that the identified transactions that need clarification are pervasive amongst IFRS reporting entities. • Will likely still leave unresolved issues for aspects that may be need standard setting enhancement
Possible amendments to applicable IFRS Standards		
Possible narrow scope amendment to IAS 2 IAS 38, IAS 32, IAS 37, IFRS 9 and IFRS 15 to exclude crypto-assets from their scope and allow development of own accounting policy	**Chapter 3- paragraphs 3.30 to 3.49** highlight the following gaps in existing IFRS requirements for the accounting for crypto-assets • IAS 2 and IAS 38 do not cater for intangibles, and commodities and other non-financial assets that are held as investments • Possible measurement approaches (net realisable value, amortised cost) under IAS 2 and IAS 38 do not result in decision useful information due to the economic characteristics of crypto-assets, which bear speculative or investment asset attributes • IAS 38 revaluation approach not applicable when there is not active market for held crypto-assets • IAS 32 definition of financial asset/liability or equity may exclude crypto-assets with functional equivalence to financial instruments	Pros • Relatively easy to implement as it is a narrow scope amendment and can be considered as a short-term solution Cons • Allowing accounting policy choice will entrench the diversity in practice • As one of the motivation of excluding crypto-assets from IAS 2 and IAS 38 is that they have speculative or investment asset attributes, it could be perceived as an implicit vote for FVPL measurement as the appropriate measurement basis for all financial instruments

Possible amendment to IAS 2 IAS 38, IAS 32 and IFRS 9. The amendment may be to update existing requirements	For same reasons as those justifying a narrow scope amendment to exclude crypto-assets from existing applicable IFRS Standards	Pros • Builds on existing standards that are considered applicable for the accounting by holders of a significant proportion of crypto-assets (i.e. cryptocurrencies with no claim on issuer, utility tokens) Cons • Why restrict any amendments IAS 2 or IAS 38 amendment to only address the accounting of crypto-assets held as investments and not address other non-financial assets held as investments (e.g. commodities, emission rights and water rights) • Likely to have lengthy due process
Possible amendment of IAS 7 and IAS 32 to update definition of cash equivalents or cash	**Chapter 3- paragraphs 3.50 to 3.55** highlight the following reasons for possible update in definition of cash or cash equivalents • IAS 7 does not have a positive definition of cash, IAS 32 includes cash in the definition of financial assets • Focus on whether they have legal tender status is inconsistent with an "economic substance over form" basis of accounting • Why shouldn't stable coins that are pegged to fiat currencies 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 and make them de facto cash	Pros • Opportunity to develop positive definition of cash within IFRS literature even if such a definition were to preclude any crypto-assets from being considered as cash. • Addresses the accounting implications of the next generation of crypto-assets Cons • Question of whether crypto-assets present a disruptive enough innovation to necessitate a positive definition of cash or cash equivalent. IFRS requirements may be perceived as robust enough without a positive definition of cash • 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 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
Issuance of new standard		

Development of unified crypto-assets standard	For the same reasons articulated above for the clarification or amendment of existing applicable IFRS Standards In some cases, there are symmetrical considerations in accounting for crypto-assets holders and issuers that are best addressed through a unified standard	Pros • Could comprehensively provide a relevant measurement framework for all crypto-assets, address all areas that need clarification or enhancement • Could potentially inform or provide principles for accounting for non-financial asset investments besides crypto-assets Cons • Crypto-assets are not a separate type of asset, but they embody rights and obligations like any other agreement • A standalone standard could be perceived as legitimising and enabling the development of risky products • Lengthy process before a new standard can be developed • Crypto-assets are not sufficiently pervasive to justify the development of a unified standalone standard • Why only address crypto-assets and not analogous transactions where there are similar accounting gaps.
Development of new standard on accounting for crypto-assets and analogous transactions (e.g. standard on non-financial asset investments or standard on digital and digitised assets)	For the same reasons articulated above for the clarification or amendment of existing applicable IFRS Standards The accounting gaps in crypto-assets may reflect broader gaps in IFRS literature. For example, because the previously applicable IAS 25 was superseded by IAS 39 and IAS 40, there is 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	Pros • Would address relevant accounting for different types of intangibles and commodities held as investments • Highest marginal benefit and helps future proof the body of IFRS Standards • Is not tagged to a particular type of risk transactions Cons • Likely to be a lengthy due process before a new standard can be developed and may fail to provide timely answer to the various areas that need clarification

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 puts forward tentative conclusions and possible implications of potential market developments.

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 or similar DLT 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.

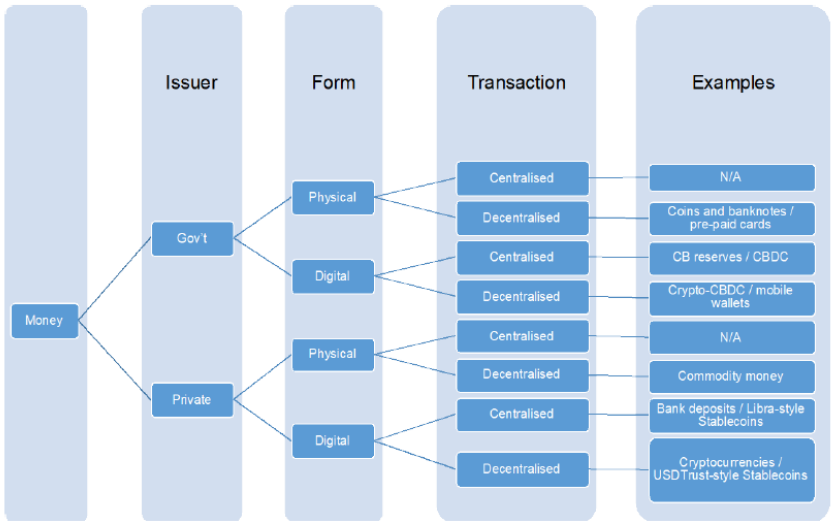
7.3 This chapter also examines other institutionalisation factors such as the existence of suitable valuation approaches and price discovery capacity that influence the faithful representation of crypto-assets transactions.

7.4 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.

Increased adoption and scalability potential

7.5 As depicted in below diagram from the European Parliament publication[70], cryptocurrencies including next generation types (stable coins, CBDC) are increasingly considered as being part of the taxonomy of money.

Figure 8: A taxonomy of money



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

[70] 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

7.6 However, as noted earlier in **Appendix 2:,** the limitations of cryptocurrencies as a means of exchange arise due to their lack of legal tender status and due to technological limitations on the trading and validation process that result in a much lower volume of transactions for cryptocurrencies than is the case for the platforms for processing traditional fiat currencies. Furthermore, their high volatility and low liquidity limits their capacity to serve as either a store of value or unit of account.

7.7 The EFRAG crypto-project 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.

7.8 In effect, the following interrelated imperatives are needed to enhance the uptake of crypto-assets:

a) ***Enhancing trust***: Limited acceptability is influenced by the need for enhancement in regulation and consumer protection regimes. There is a general view that market developments in crypto-assets would highly depend on regulatory developments including stronger and more reliable customer and investor protection

b) ***Increased scalability and processing efficiency****:* As noted in Appendix 2 that describes economic characteristics and echoed during the EFRAG crypto-project outreach, the limited scalability and relatively low processing speed of crypto-asset transactions as being an impediment to their greater uptake.

c) ***Price stability:*** Herein lies the role of stable coins. Some participants to the EFRAG crypto-project outreach observed that for stable coins (a less volatile form of cryptocurrency) 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. However, permissioned network based crypto-assets could be counter to the 'decentralised control' objective that motivated the permission-less network based crypto-assets innovation in the first place. There is an ongoing search for the technology and counterparties interaction arrangement that ensures widespread acceptance and participation without surrendering the initial intended benefits of the DLT platform based innovations.

d) ***Credible price discovery and valuation of crypto-assets transactions***

e) ***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.

Price discovery capacity and valuation

7.9 The EFRAG crypto-project outreach brought to light the lack of standardised valuation methods for tokens (including ICO and secondary market tokens). Many respondents considered that normal valuation techniques did not work to value crypto-assets. Valuation tends to be driven by market speculation or what some term 'fear of missing out' factors used in sales and promotional techniques such as capped funding and fixed price subscription.

7.10 Compared to tokens already listed on an exchange, ICO token valuation is even more difficult as they are typically issued at development stage or even pre-development stage before the 'product' is developed and before a market for the 'product' had been established. Furthermore, many tokens have a hybrid nature, for example Ether (it can serve as a utility token and a currency/means of exchange) which brings further complexity with valuation.

7.11 ***Valuation issues are*** elaborated on in Chapter 5.

Implications of technology innovation

7.12 Finally, there is a question of whether ongoing innovation in distributed ledger technology (DLT) and crypto-asset product design may evolve in a manner that has both economic and accounting implications in the near future.

7.13 For example, whether unlike current crypto-assets that in many cases can be considered to fall under existing accounting asset categories (i.e. intangible asset or inventory for cryptocurrencies, investment/financial asset for security tokens, prepayment for utility tokens), the next generation of crypto-assets may have features that make them truly unique assets (i.e., they wouldn't fit into existing IFRS categories and require a new IFRS standard).

7.14 Some EFRAG crypto-project outreach participants pointed to features that could impact on the scalability of DLT networks and by implication on the 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:

a) Greater application of Ricardian contracts[71] (i.e., smart contracts with legal content) and programmability of assets. Ricardian contracts could enhance the enforceability of crypto-assets obligations.

b) Embedded privacy features

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 near 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.

e) Quantum computing capacity, which if realised, will result in significant enhancement to current computing capacity (processing speed and problem solving capacity). Quantum computing[72] presents both a threat and opportunity for the cryptographic process that underpins crypto-assets transactions.

[71] https://www.eoscanada.com/en/introduction-to-ricardian-contracts

[72] https://medium.com/@tiogacapital/https-medium-com-tiogacapital-the-quantum-threat-to-crypto-asset-ownership-43bbd3997fb9

APPENDIX 1: BACKGROUND-CRYPTO-ASSET ACTIVITIES

A1.1 This appendix includes:

a) A detailed definition and description of the economic characteristics of ICOs and similar offerings. It also provides data on the prevalence and trends of ICOs and similar offerings;

b) A detailed description of key features of custodial process (i.e. wallets, private and public keys) that could impact economic control and data on growth trends of wallets.

ICOs and similar offerings

Overview of issuer activities

ICO's

A1.2 An ICO is a means of raising funds for a current for future crypto-asset project by issuing digital tokens to potential investors. The ICO market began in 2014 although only a few ICO's occurred in the early years given the technical constraints to 'launch' 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).

A1.3 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 feature, which allowed for the processing of complex workflows, and not solely the recording of transactions in digital assets, as was the case for bitcoin. Ethereum has since become the technology of choice for ICOs because it is the dominant smart contract- enabled network by a variety of metrics.

A1.4 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, the information content of white papers can vary significantly and often lacks robust information on the purpose of the crypto-asset and what rights a holder might have. Furthermore, white papers are not useful in determining specific rights and obligations between the issuer and the holder (potential holder) of the crypto-asset.

A1.5 Different research indicates that the European Economic Area (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 leads the issuance volume.

Emergence of Security Token Offerings and Initial Exchange Offerings

A1.6 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 Security Token Offerings (STOs) and Initial Exchange Offerings (IEOs). STOs and IEO's started to attract high levels of investor attention in 2019 and it is expected to continue to attract investor interest given their nature and the existing regulatory environment.

Security Token Offerings

A1.7 A Security Token Offering (STO) is 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, STO's 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.

A1.8 Despite the concerns in ICOs, a study issued by Inwara[73] 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 other jurisdictions, STO's are deemed to be securities and are subject to securities regulations.

Initial Exchange Offerings

A1.9 Initial Exchange Offerings (IEO's) provide a framework in which the exchange hosting the IEO acts as intermediary between the developers of the crypto-assets who wish to launch the crypto-assets and the contributors (those that buy the crypto-assets when they are first issued).

A1.10 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 wanted to undertake the ICO as well as undertake the necessary know your customer (KYC) regulatory or voluntary requirements. 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 IEO's have recently taken place on the Binance exchange.

A1.11 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 IEO's in Singapore and Hong Kong. IEOs in the EU have raised less than USD 50 million (mainly Estonia, Bulgaria, Germany and Switzerland).

Rationale for ICO's – issuer and investor perspectives

A1.12 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.

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. An analysis by an academic working paper of 253 ICOs between 2014 and 2017 showed that ICO tokens granted contributors the rights to access platform services in 68% of cases. The VC model does not offer the same

[73] Data from Iwana.com

multi-purpose possibility (i.e. of acquiring investors who are also potential customers).

A1.13 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 ICO's 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.

Key economic features and risks of ICOs

A1.14 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 largely unregulated in many parts of the world.

ICO's versus IPO's

A1.15 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 (or crypto-assets in case of an ICO) for shares (tokens in case of an ICO) that have monetary value and are traded on a secondary market. However, there are important differences.

a) The ICO market is largely unregulated, whereas the IPO market follows a strict process defined by regulation where compliance can be costly and mandatory, 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 whitepaper, 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. 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 few of the

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 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

A1.16 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 whitepapers issued during ICOs and the absence of legally binding and enforceable contractual agreements. As mentioned above, the enforceability of the whitepapers remain an open question.

A1.17 Inadequate regulation and poor documentation increases the likelihood of ICOs failing and investors losing their capital. A study by Satis Group (2018), an ICO advisory firm, found that around 78 percent of ICOs issued in 2017 were identified as scams or failed. However, the research paper[74] published by the highlights that 81% of a sample of 253 ICOs that were examined, successfully closed their offering.

A1.18 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.

A1.19 An academic working paper[75] 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 funds raised.

ICO measurement and valuation issues

A1.20 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 .

Prevalence and trends

Approach and limitations of analysis

A1.21 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 market[76], and academic and non-academic research papers. [77]

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[74] Adhami, S., Giudid,G., Martinazzi, S. 2018. : *Why do businesses go crypto? An empirical analysis of Initial Coin Offerings*, Working Paper, Bocconi University, Politecnico di Milano, School of Management.

[75] 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

[76] The data aggregator websites include CoinDesk.com, CoinmarketCap, ICObench.com, and icodata.com. Where available we have indicated which ICO data is specific to the EU.

[77] Satis Group Research paper Cryptoasset Market Coverage Initiation: Network Creation

A1.22 There are limitations to the data obtained from crypto-assets website. Our 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 ICO's 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 research paper. In order to provide a comprehensive trend analysis, we have used data from different sources and in some representing periods.

Key findings

A1.23 Since 2014, the ICO market has raised approximately USD 24.7 billion up to the end of Q1 2019 with the completion of over 5000 ICO projects in over 50 countries.[78] 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) informs 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.

A1.24 Data from ICObench shows that ICO growth has been declining since the second half of 2018. One of the reasons for this decline, was the significant decrease in the price of Bitcoin (since its peak in early 2018 of approximately USD 20.000) followed by the decline in value for all other crypto-assets (also referred to as altcoins in crypto-asset language). In December 2018, Bitcoin recorded a price of approximately USD 3.000 but since recovered to approximately USD 7.000 (mid-May 2019). According to data from ICObench the number of completed ICOs continued to decline in 2019. To some extent, ICOs are being replaced by IEO's. At the start of January 2020, Bitcoin was trading at USD 7585[79]Bitcoin and other crypto-assets remain highly volatile, and at this stage it is hard to say how this might affect the market growth. Some respondents to the EFRAG outreach were of the view that despite the slowdown, they did not think the ICO was 'over'. Some believe that 2020 will be a year of 'wait and see', as many jurisdictions, within the EU and beyond, are a more serious look at implementing crypto regulation.

A1.25 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 have 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.

Adhami et al (2018)

Bourveau et al (2018).

[78] Data from ICOBench.com

[79] Coinmarketcap on 6 January 2020 17.16 GMT+1.

A1.26 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

A1.27 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.

A1.28 A crypto-asset wallet is a software program secured by private and public keys and interacts with various blockchain to enable users to send and receive crypto-assets and monitor their balances. The following features are central to understanding the concept of 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.

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 algorithms 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).

A1.29 The data from a Cambridge University study - 2nd Global Crypto-asset Benchmarking Study (December 2018) - 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

A1.30 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

A1.31 A public key (or public address) can be thought of as the equivalent of a bank account number, which suffices for the purposes of receipt of funds/other parties sending funds to an individual. Some compare a public key to an email address that can be used to receive and send crypto-assets.

A1.32 However, unlike a bank account, the crypto-asset balance in a given public address can be viewed by anyone who knows the address, although the identity of the address owner is not recorded on the blockchain.[80] A recent 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. [81]

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 it any crypto-assets connected to that lost private key will be lost. 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 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.

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.

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

[81] 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

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 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 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 accounting treatment is further discussed in **Chapter 3:**

A1.40 An example of third-party custodial services for crypto-assets is Swissquote, a Swiss registered financial institution that started to provide cryptocurrency trading and custodial services in 2017. The following is an extract taken from Swissquote 2017 annual report;

'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 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.'

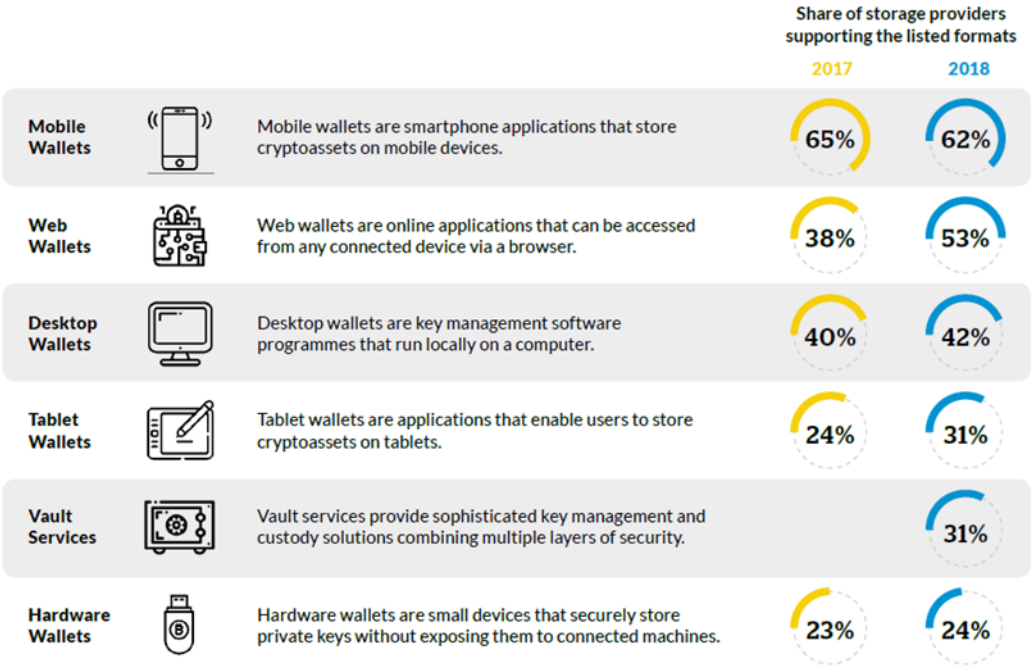
Prevalence and trends

Crypto-asset wallets

A1.41 The Cambridge University study indicates that mobile wallets are the most common way of holding crypto-assets; although support is increasing for web wallets. Figure 2 illustrates this trend (in relation to the global study and not specific to the EU).

A1.42 Figure 2 – Storage providers for crypto-assets

Source: Cambridge University study



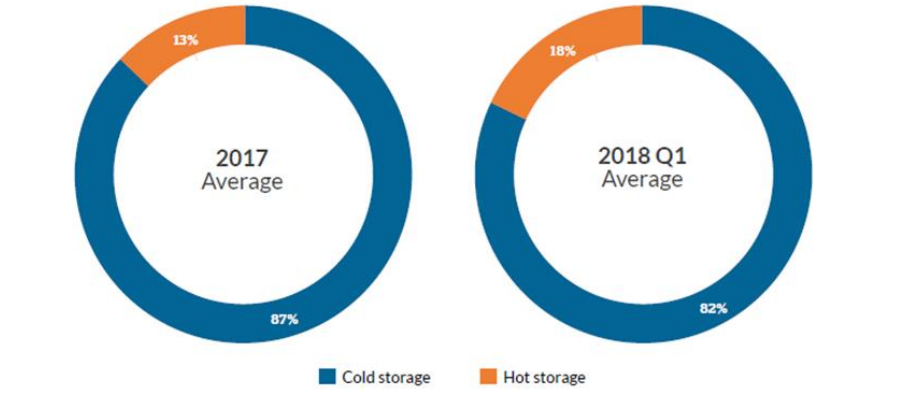
A1.43 Figure 3 shows the global evolution of wallet options between 2017 and the second quarter of 2018. Mobile and web wallets (hot wallets) are the most widely offered storage formats, though cold storage vault services (cold wallets) have gained in popularity in late 2017 with the influx of institutional investors. As previously mentioned, cold wallets offer a safer storage option that hot wallets.

A1.44 The 2017 Cambridge University 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 3 indicates that the share of funds in cold storage in 2018 has slightly decreased over 2017.

Figure 3 Share of crypto-asset funds (source: Cambridge University study)



Mining and other transaction validation activities

A1.46 Individuals and entities solve blockchain algorithms to verify the transaction data occurring between the two parties or to increase the overall supply of cryptocurrencies in circulation. Blockchain technology operates using either a "proof of work" or a "proof of stake" system that determines 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

A1.47 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 puzzle. Below is an elaboration of different aspects of PoW.

a) **Examples and key features**: Intensive computing and electricity consumption[82] required to solve puzzles used for some crypto-currencies (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 crypto-project 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 a process of switching from PoW to PoS in 2017 and also due to blockchains such as Cosmos and Tezos.

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

[82] 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 incentivize 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.

significant hardware and electricity costs involved in solving blockchain algorithms. Block reward after 99 new blocks are created. The 2017 Cambridge University 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 a upward rising trend. The trend of 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 predetermined possible 21 million bitcoins and the supply in circulation as at 15 February 2020[83]is approximately 18.22 million. Furthermore, the block reward is halved every 210,000 blocks, or roughly every 4 years. In 2009, it was 50. In 2013, it was 25, in 2018 it was 12.5, and sometime in the middle of 2020 it will halve to 6.25. Hence, 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 impossible[84] "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 that 50%) control of all computers in the distributed network. According to Coinometrics, it would cost $425 million in equipment and electricity to stage such an attack.

Proof of stake (PoS) validation

A1.48 In this system, typically no new units of cryptocurrencies are created because they have been pre-mined and total supply is already in circulation. As a result, validators in the blockchain network are selected to validate transactions and create a new block in 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- it is not as computationally intensive as proof of work mining.

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 miner 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 , a miner with 51% stake in the coin would not have it in his best interest to attack a network which 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.

[83] https://www.blockchain.com/en/charts/total-bitcoins

[84] 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.

Notable trends of mining business models

A1.49 The EFRAG crypto-project 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 included in the 2017 Cambridge University 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.

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 the proportion of contributed computational resources
Mining hardware manufacturing	Organisations designing and building specialised mining equipment
Cloud mining services	Organisations renting out hashing power to customers
Remote hosting services	Organisations hosting and maintaining customer-owned mining equipment

A1.50 The outreach feedback and geographical attribute data (i.e. cost of electricity, speed of internet connection, ambient temperature) provided by the 2017 Cambridge University publication also shows that proof of work mining activities hardly or are unlikely to be pervasive within a majority of EU jurisdictions with exceptions being Poland, Nordic countries such as Sweden.

APPENDIX 2: BACKGROUND-ECONOMIC CHARACTERISTICS, RIGHTS AND OBLIGATIONS

Overview of economic characteristics and role of taxonomy

A2.1 According to market data aggregator coin market cap[85], there are >2000 crypto coins and tokens. 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, 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 economic functions, namely:

a) serve as a means of exchange (payment);

b) provide investment or speculative value (akin to a security);

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 economic functions are commonly reflected in the taxonomies for crypto-assets used in regulator, legal firm, accountancy firm and academic literature.

A2.5 But 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) have either avoided or only had minimal reference to the distinctive categories within commonly applied taxonomy (i.e. payment tokens, utility tokens, security tokens) whilst 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 that 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 efficacy of technology mechanisms to fulfil economic functions rather than 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 go beyond the issuer classified labels of tokens and to further evaluate the characteristics, rights and obligations on a case by case basis.

[85] https://coinmarketcap.com/

Taxonomy applied in DP

A2.7 For the purposes of this project, the below eight categories of coins[86] and tokens outlined form the basis of analysis. These categories are not always mutually exclusive.

i) Cryptocurrencies (coins and payment tokens)

ii) Security and asset tokens

iii) Utility tokens

iv) Hybrid tokens

v) Stable coins

vi) E-money tokens

vii) Pre-functional tokens

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 or speculative, utility) but the breakdown into eight categories also enables the definition and distinctive analysis of issues related to stable coins and e-money tokens, notwithstanding that these two categories of crypto-assets could also be payment or security or hybrid tokens.

A2.9 There are other classification taxonomies. For example, Sixt and Himmer (2019)[87] describes consumer tokens that seem similar to utility tokens and further breaks these down to voucher tokens and work tokens. These authors further disaggregate security tokens into equity tokens, debt tokens and revenue tokens. Another academic paper (Lausen, 2019[88]) identifies a 14 category taxonomy. 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.

Documentation of rights and obligations and types of contractual arrangements

A2.10 The combination of high diversity of crypto-assets, 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 or content/formalism of crypto-assets rights and obligations.

A2.11 Accordingly, there is a spread/continuum in practice the formalisation and robustness of documentation of rights and obligations associated with crypto-assets.

A2.12 Starting from the absence of explicit formalisation up until very explicit information disclosure documents enforced by law or code, as follow:

a) Implicit to the market (algorithm based)

b) White paper

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[86] The difference between a coin and token is that a coin is issued on the crypto-asset developer's platform (e.g. Bitcoin, Ethereum) whereas a token can be issued on other platform

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

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

c) Contract (e.g. SAFT type)

d) Private Placement Memorandum (PPM)

e) Prospectus

f) Smart contracts

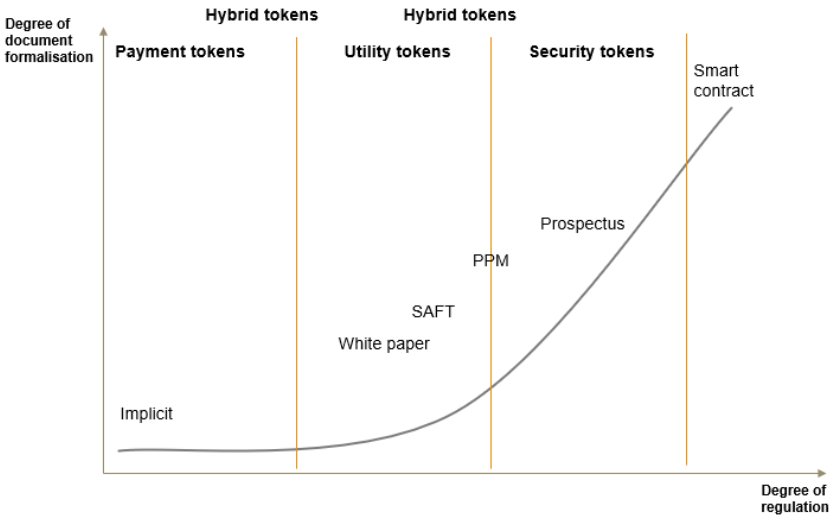
A2.13 The below is an outline of rights associated with different types of crypto-assets

a) Payment/exchange tokens: 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 therefore 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 for example.

c) Utility tokens: Rights and obligations of holders/issuers are typically documented in a whitepaper. 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 of variable level of formalisation.



Economic characteristics, rights and obligations of different crypto-assets

Cryptocurrencies (coins and payment tokens)

A2.14 These refer to coins or tokens issued through the DLT platform but have no claim against any issuer. Cryptocurrencies are a type of virtual currency that share several characteristics of fiat money (i.e. fungibility, tradability, divisibility, countable 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.

A2.15 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. There tends to be a question mark on the unit of account feature which varies significantly across jurisdictions.

A2.16 Well-known examples of cryptocurrencies include Bitcoin, Ether, Litecoin, Monero and Z-cash. Examples of payment tokens include: Gemini dollar, Ripple, Partici and Utility Settlement coins.

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. For example, 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, the credit card company visa can process 56,000 transactions per second. Furthermore, their high price volatility and low liquidity limits their capacity to serve as either a store of value or unit of account.

Implicit cryptocurrencies' rights

A2.18 In the absence of any explicit contractual arrangements between the decentralised network managing the issuance of crypto-currencies and their holders, combined with the absence of 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 These refer to tokenized assets or traditional financial instruments (debt or equity) governed by securities laws and financial instruments regulatory framework. Below is a description of security and asset tokens included in the December 2019 PwC publication.

A2.20 Security tokens are digital tokens based on the blockchain technology 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 a company decisions and/or a residual interest in the entity. The value of a security token is derived from the success of the entity.

A2.21 Asset-backed tokens is a digital token based on blockchain technology that signifies and derives its value from something that does not exist on the blockchain but instead is a representation of ownership of a physical asset (e.g. natural resources such as gold or oil) Its inherent value is based on the underlying asset.

A2.22 Examples of security tokens and asset tokens include: Documo Royal Mint Gold (RMG coin) and Maecenas.

Security and asset tokens rights

A2.23 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.

A2.24 In addition, the existence of a comprehensive regulatory framework for traditional financial instruments and securities laws provide clarity on the information disclosures requirements and de facto on the economic rights and obligations attached to them.

A2.25 Examples of contractual rights and obligations attached to securities 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

A2.26 These refer to tokens granting access to existing or yet to be developed future products or services of a Blockchain-based platform. They play a pivotal role in launching new platform, attracting potential customers and network participants and are designed to align interest of both users and owners of the platform.

A2.27 Some utility tokens can have similar features that are similar to gift vouchers, store credits, application program interface (API) keys[89], 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 while not necessarily being intended as a means of payment, differ from passive investors as they can grant owners the right to actively contribute to the system.

A2.28 Some examples of utility coins or tokens include: Filecoin, Golem, BAT, Ox, Gamecredits- MGO universal gaming tokens[90], Bancor, Paragon and Blockstack. Below is an illustrative description of value proposition[91] of Basic Attention Tokens (BAT), a utility token. BAT tokens effectively allows it holders to avoid forced ads on the internet.

Business model excerpt BAT

Present ecosystem	BAT token ad 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

Utility token rights

A2.29 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.

[89] An 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

[90] https://www.mobilego.io/

[91] https://basicattentiontoken.org/wp-content/uploads/2017/05/BasicAttentionTokenWhitePaper-4.pdf

a) A first critical aspect to consider here is that utility token issuance is not a regulated activity in most jurisdictions, accordingly the information disclosures documents (i.e. whitepapers) are not legally binding. Accordingly, 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 token which is as broad as the creativity of the issuing entity and the complexity of the expected business model of the underlying platform.

A2.30 While significant diversity exists in practice, we can however identify different key categories of rights that might be attached to them. These rights revolves 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 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 platform dedicated medium of exchange;

c) Transaction validation/Blocks creation rights: specific to Proof-of-Stake and gives the right to holders to stake, validate blocks and obtain returns from it;

d) Governance rights: allow token holder to influence the decision making process and evolution/development of the underlying platform;

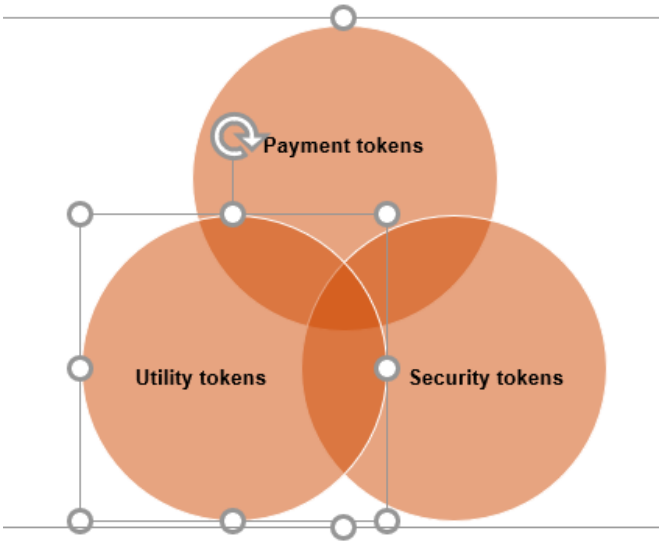
e) Contribution rights: refer to rights of holders to play some roles in maintaining the platform but different from governance or validation rights;

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

A2.31 As depicted in below diagram, 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 token can be used for different purposes by different users.

A2.32 An example of a hybrid token is Ether that has features of an asset token, it is also accepted as a means of exchange of goods external to the Ethereum blockchain and as a utility in granting holders access to the computation power of the Ethereum virtual machine. Other hybrid token examples include NEO, Binance BNB and Neumark.



Hybrid tokens rights

A2.33 Rights and obligations attached to hybrid tokens broadly vary depending on:

a) The effective hybridisation (mix of payments/utility/security features);

b) How the hybridisation effectively materialises (over time vs depending on the use by token holders);

c) Whether or not the primary feature of the token is driving the categorisation

A2.34 As an example of area for discussion, a critical point for classification of token 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 token and the substance of the issuance considered as fund raising 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.

A2.35 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.

Stable coins

A2.36 A stable coin is a crypto-asset backed by real world assets, fiat currencies and in some special cases other cryptocurrencies. Stable coins attempt to solve the problem of high volatility. Linkage of the crypto-asset to a stable asset hedges against the impact of price volatility and is intended to incentivize trust in payment tokens as a means of payment. Analogies can be drawn between the intent underlying the issuance of stable coins and the role that the gold standard had in inculcating trust in currencies during the 19th century and parts of the 20th century. There are different types of stable coins including

a) Fiat currency backed stable coins (e.g. TrueUSD, Gemini dollar and Tether)

b) Other crypto-currency backed stable coins (e.g. Dai)

c) Asset backed stable coins (e.g. Digix Gold backed by physical gold, SwissRealCoin backed by a portfolio of Swiss real estate and the original concept of Libra)

d) Algorithmically stabilised coins (i.e. algorithm that either increases or decreases supply of coins to influence volatility of value) (e.g. Basis)

A2.37 Not every stable coin fits into a single classification category as they can be a derivative, a unit in a collective investment scheme, a debt security, e-money, or another type of specified investment.

E-money tokens

A2.38 E-money tokens is a classification category that is proposed in the guidance of the UK FCA issued in July 2019. It encompasses tokens that meet the definition of e-money including there being a claim on the issuer. Some stable coins, payment, utility and security tokens can qualify[92] as e-money based on jurisdictional authorities definition.

A2.39 A May 2019 ECB definition considers that crypto-assets do not qualify as "electronic money[93]" 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[94]". 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.

A2.40 That said, unlike the other types of tokens, the categorisation of crypto-assets as e-tokens is yet to be widely applied in crypto-assets literature.

Pre-functional tokens

A2.41 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.

A2.42 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 seem to considered as securities.

Simplified Agreements for Future Tokens (SAFT)

A2.43 Simplified Agreement for Future Tokens (SAFT'), which 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" not as likely to be a security) separate from the security-like component (the "non-functional token").

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[92] EBA describes two example 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.

[93] 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.

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

A2.44 Although described alongside crypto- tokens, SAFTs are contracts granting rights to tokens and are de facto securities.

Legal obligations related to crypto-assets issuers

A2.45 Obligations from token issuers vary greatly depending on the type if crypto-assets involved but also within a given category.

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 whitepaper but will mostly not be legally binding in the absence of applicable regulatory framework. However, as noted in Chapter 5, 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.

Illustrative examples

A2.46 Below are examples of crypto-assets related to different holder rights (and implied issuer obligations) identified during the EFRAG crypto-project outreach and from the review of different publications (e.g. Oliver Wyman,2018; Hacker and Thomale, 2018; and Maas, 2019)

Associated Rights	Examples of crypto-assets
Cryptocurrencies including payment tokens	
No legal claim on issuer but implied rights to exchange for goods, services and other assets with counterparties that accept	Bitcoin, Ether, Litecoin, Monero and Z-cash. Examples of payment tokens include: Gemini dollar, Ripple, Partici and Utility Settlement coins
Utility tokens	
Rights to access products or services of Token Platform	RLC, VeChain, Nexxus coin, Million coin, Filecoin, Golem, BAT, Ox, Civic, Augur, Status, Factom, Gamecredits, Bancor, and Paragoncoin
Rights to discounted fees or increased utility	
Rights to purchase or sell existing or future products or services	Must protocol token
Right to partial ownership of a product	Monolith token
Rights to mining activities	Tezos, Livepeer token
Rights to contribute labour, effort or resource to a system, and potentially be rewarded for it	RLC, GNO, LINK, SNX, Chronobank
Right to contribute, programme or create features of a system	Dock, Maker DAO token, Blockstack
Right to decide on products, services, functionalities to be offered or deleted within the Token Platform	Tezos, Aragon network token
Rights to vote on matters of governance, management and operation of Token Platform	Tezos, MKR
Security and asset tokens	
Contractual entitlement to ownership interest or control of the token issuer	Digishare token, FINOM (FIN)
Revenue or profit rights- rights to financial benefits from revenue streams or profits of the issuer/operator	VMC coin, TradeCloud, DGD, LGO, TKN, Polybius Bank (PLBT)
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)	DAI, Synthetix network tokens (SNX)
Rights to future tokens (e.g. Simple Agreement for Future Tokens)	SAFTs are effective financial instruments and can be issued for multiple crypto-assets
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'sBCap token and SPiCE VC
Traditional asset tokens, Property ownership rights, Usufruct- Right to fruit from property	Maecenas (art is tokenised) , Nivaura (bonds are tokenised), Digix DAO (gold is tokenised), Swissrealcoin, ICX
Hybrid Tokens	NEO, Binance BNB, Ether, Crypterium (CRPT), PAquarium (PQT), Syscoin
Stable coins	Digix DAO (gold is tokenised), Swissrealcoin, Tether, Gemini dollar, Basis, CarbonUSD

APPENDIX 3: RELATED REGULATION

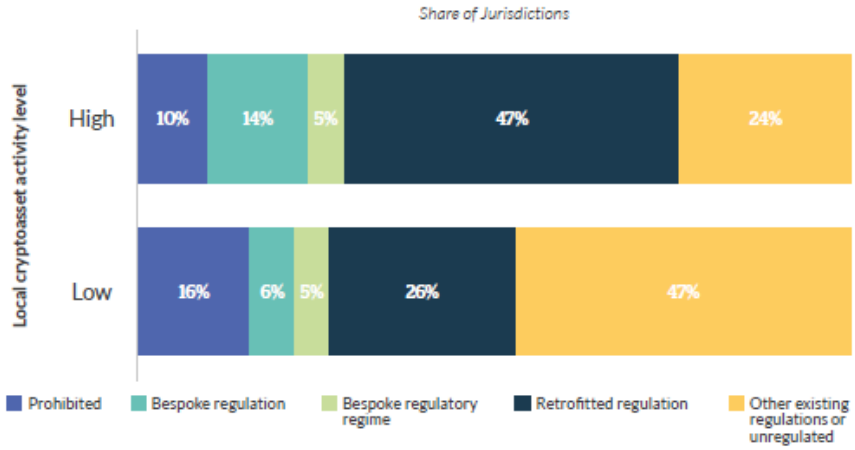
A3.1 The economic characteristics of different crypto-assets (e.g. whether or not they are either economically equivalent to securities or fiat e-money) has an influence on the type of regulation that is applied to them in different jurisdictions- and influences the requirements related to the issuance, secondary trading and holding of crypto-assets. Consequently, the prevailing regulatory requirements can be indicative of the economic characteristics of different crypto-assets and can serve as an input to assessing the appropriate accounting guidance for both holders and issuers of crypto-assets.

Overview of regulatory responses

A3.2 A review of legal and regulatory literature shows that apart from consumer protection and market integrity oriented requirements (e.g. know your customer and anti-money laundering requirements).

A3.3 Cambridge 2019 publication[95] on regulatory classification shows the varied responses to regulation

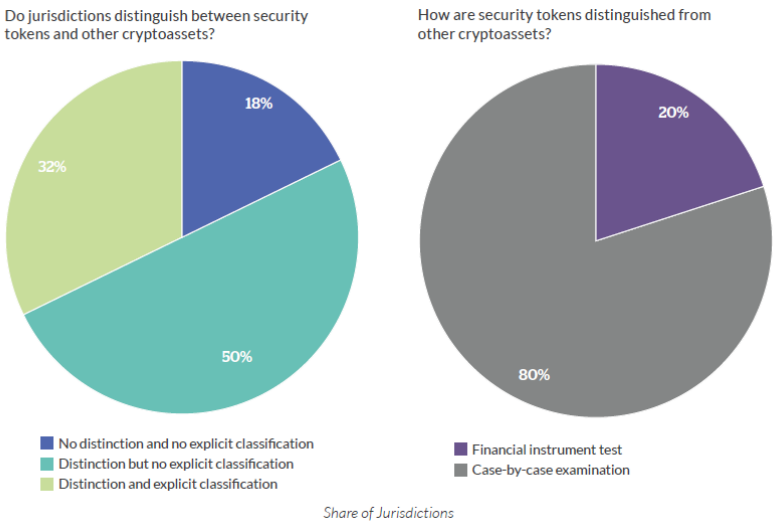
Figure 9: Regulatory response by level of cryptoasset activity in selected jurisdictions[77]



A3.4 Cambridge publication analysed 23 jurisdictions, and showed that 32% have a distinction and explicit classification.

[95] Cambridge Center for Alternative Finance, 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



A3.5 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 analysed jurisdictions, 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).

A3.6 There is varied level of regulation across jurisdictions. For example, in the US there is a fairly broad definition of securities through the application of the Howey test[96], whereby utility tokens are likely to be considered[97] securities. In addition, regulators tend to adopt a substance over form approach and therefore it does not mean that if an issuer describes a token as a utility token, the regulator will concur with such a classification.

Examples of regulatory content

A3.7 The following paragraphs outline different categories of regulation with a non-exhaustive high-level description of regulation across a selection of jurisdictions.

A3.8 **E-money related regulation**: There is varied regulation related to E-money tokens and payment services as shown by the below examples;

96 The1946 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.** https://blog.sfox.com/what-are-utility-tokens-and-how-will-they-be-regulated-89cfb6bb2a45 The Howey test applied to determine whether a) was money invested b) Is a profit expected and c) does expected profit depend on the efforts of others

97 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

a) The ECB publication implies that crypto-assets would fall outside 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 contrast, 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).

d) Japan regulates most crypto-assets under the Payment Services Act (i.e. 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)).

A3.9 **Security tokens related regulation**: In an EU context this will include MIFID 2, Transparency directive, Prospectus directive. Below are a few examples of countries’ regulation

a) In March 2018, 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.

b) France’s Autorite Des Marches Financiers (AMF) makes a distinction between utility tokens and security tokens. The AMF conclude that because certain crypto-assets derivatives can qualify as financial contracts, they are subject to regulations application to financial instruments.

c) The Dutch Central Bank (DNB) and Dutch Authority for the Financial Markets (AFM) has provided guidance for qualification as a financial instrument.

d) The UK FCA guidance stated that security tokens should be regulated under securities regulation.

e) In Japan, security tokens are treated as securities and regulated under the Electronic Record Transfer Rights (Financial Instruments and Exchange Act).

A3.10 **Utility tokens related regulation**: Even though 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. US, Japan) utility tokens are regulated under payment services or securities regulation. There is also rather rare bespoke regulation related to utility tokens (Antigua).

A3.11 **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 considered to be securities in some jurisdictions (e.g. 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.

A3.12 **Unregulated tokens** in several jurisdictions (e.g. UK, Netherlands) typically include utility tokens, most cryptocurrencies as they do not meet the definition of e-money.

APPENDIX 4: GLOSSARY OF TERMS

A4.1 The Table below outlines a glossary of terms informed by different publications including Gietzmann and Grosetti (2019)[98].

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.
Blockchain	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 block chain via a computerised process (i.e. cryptographic process).
Blockchain token economy companies	Companies business models that entail participation or blockchain-based decentralised ecosystems A blockchain-based token economy has emerged, driven by the explosive growth in the value and variety of crypto-assets
Crypto-asset platform developer	Coin developers on own platform (e.g. Bitcoin, Ethereum)
Other crypto-asset definitions Crypto-asset (as defined by France Loi Pacte)- is a definition of crypto-assets that is independent of DLT and does not give prominence to the role of the cryptographic process in the creation, transfer and recording of digital assets	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.
Cryptography/Cryptographic	The conversion of data into private code using encryption algorithms, typically for transmission over a public network.
Crypto-asset 'coin versus token'	The difference 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 other platform (e.g. Gemini dollar, Filecoin and Documo issued on the Ethereum blockchain)
Decentralised applications (Dapps)	A decentralized application is a computer application that runs on a distributed computing system. DApps have been popularized by distributed ledger technologies such as the Ethereum Blockchain, where DApps are often referred to as smart contracts.
Digital asset versus Digitised asset	A digital asset is an electronic record in which an individual has a right or interest. They do not exist in physical form. 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).

[98] 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

	Digital and digitised assets are represented on an electronic ledger that is not necessarily a blockchain. Digital and digitised assets on a blockchain are commonly referred to as "blockchain tokens". The process of digitising assets is also referred to as "tokenisation".
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). Block chain 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.
Fork	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. 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.
Initial coins offerings (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.
Mining-Proof of work (PoW)	Mining-is a process of establishing consensus to verify and confirm transactions within a DLT environment. It occurs while updating new transactions on the distributed ledger. 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.
Off-chain and On-chain transactions	On-chain transactions are those that are recorded on the blockchain
Proof of stake (PoS)	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.
Permissioned DLT	A DLT network in which only those parties that meet certain requirements are entitled to participate in the validation and consensus process. A further distinction can be made between private and public permissioned DLT. For 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. 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.
Permission-less DLT	A public permission-less 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 permission-less network is where everyone can be a participant in the consensus process but permission is needed to access full transaction history.
Private key	Required to send crypto-assets. Anyone with the key has sole access to the funds.
Public key	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
Simplified agreements for future tokens (SAFTs)	SAFTs are agreements that represent their holders rights to future tokens. SAFTs are only available in some jurisdictions (e.g. US) and are typically classified as securities. 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")
Smart contracts and Ricardian contracts	A Smart Contract is a machine readable set of instructions that organizes and controls the arrival of events, and the initiation of actions. 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 said agreement. In addition to crypto-assets, some blockchain platforms also support smart contracts. The most prominent smart contract is Ethereum.
Taxonomy	System of grouping objects of common interest in a domain based on common characteristics
Crypto-asset classification taxonomy (as noted elsewhere in the DP, there is no consensus on the definition of classification categories)	Below are elements of commonly applied categorisation of tokens • *Cryptocurrencies (coins and payment or exchange tokens)* • *E-money tokens (proposed by the UK FCA but not yet a widely applied categorisation)* • *Security tokens*- Tokens with specific rights and obligations similar to specified investments (equity, debt, unit investment) • *Utility tokens*- Tokens that can confer a variety of network-associated rights including granting holders access to a current or prospective product or service • *Other (hybrid tokens and pre*-functional tokens)
Tokens	As noted above tokens are crypto-assets residing on existing other blockchain and not on developers blockchain. France Loi Pacte definition- Constitutes a token 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 .
Virtual currency (defined by the AML directive)	A digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically.
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 storage).

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