The Law Commission's 'Digital Assets: Consultation Paper' – Key Themes

Justina Stewart & Joshua Cainer, Outer Temple Chambers

In a speech in 2019, Sir Geoffrey Vos, then Chancellor of the High Court, issued the challenge that "*The mainstream legal profession … needs, I suggest, to turn its incredible intellectual fire-power towards the development of the English common law, so that it can effectively tackle the problems thrown up by the use of big data, cryptoassets, on-chain smart contracts, and artificial intelligence. My plea is that you do not leave it too late…*".[1] The Law Commission's recent *Digital Assets: Consultation Paper* (the "Paper"), published on 28 July 2022, has certainly taken up that challenge in the context of a programme of law reform in relation to digital assets.

Introduction[2]

The Paper is a masterful discussion of many key issues relating to digital assets. It comprises over 500 pages of legal analysis along with 47 questions for which the Law Commission has opened a period of consultation ending on 4 November 2022.[3] It is also ideally timed – whilst the Law Commission's proposals are only provisional (pending consultation), interest in, and disputes concerning, digital assets show no signs of abating. As practitioners continue to see an ever-increasing fallout from the so-called "*crypto winter*", alongside gathering momentum on crypto-related fraud, margin call and mis-

[1] Sir Geoffrey Vos, 'Future Proofing for Commercial Lawyers in an Unpredictable World' (Annual Combar Lecture, 12 November 2019) <https://www.judiciary.uk/wp-content/uploads/2019/11/COMBAR.lecture2019.final_-1.pdf> (last accessed 5 September 2022).

[2] Paragraph references are to the relevant paragraphs in the Paper unless otherwise specified.

[3] The Paper constitutes the most recent publication by the Law Commission as part of its wide range of law reform projects concerning the intersection between law and technology. A chronology of its recent and current projects is appended to this article.

selling claims, much of the Law Commission's analysis will prove to be of invaluable assistance in advising clients more confidently of their legal position.

To assist those who may not have days or even weeks to read and consider the Paper, in this article we identify the seven key themes that can be distilled from its contents. These themes, and some of the key provisional proposals and conclusions, can be summarised as follows:

Theme	Key provisional proposals and conclusions
1. A new category of personal property called 'data objects'	There should be explicit recognition of a new, third category of personal property called "*data objects*" that is distinct from things in possession and things in action. Certain criteria that a thing must satisfy to fall within the new category are proposed. The Paper also uses the terminology of "*crypto-token*" and "*cryptoasset*", notably in a different way to which those terms have been used elsewhere in the field of digital assets. The former is used to refer, loosely speaking, to the "*on chain*" component of a digital asset, and the latter to a composite of a crypto-token and any associated or linked property or other legal rights that are recognised in law as existing as a consequence of having legal rights in relation that crypto-token.
2. 'Control' rather than 'possession'	The factual concept of control rather than possession best describes the relationship between data objects and persons. Certain criteria for when a person has control over a data object are proposed. As the rest of the Paper makes clear, the concept of control provides the foundational concept for governing the original acquisition of property rights, transfers, custody or custody-like arrangements, collateral arrangements, causes of action and associated legal remedies for unlawful interference, and the location of a data object for conflict of laws purposes.
3. Transfer of crypto-tokens	Relevant to this theme (and others) is the concept of a "*state change*" to the ledger or record of a crypto-token system. The rules of derivative transfer can be applied to the transfer of crypto-tokens by a transfer operation that effects a state change, subject to the provisos that, in general, a transferor can confer no better title to a transferee than they are able to give and that the transfer must be legally valid in terms of the common law and equitable rules governing derivative transfers of title.

	There should be explicit clarification that the special defence of good faith purchaser for value without notice applies to crypto-token transactions at both common law and in equity. The law should be clarified by way of common law development, rather than legislation, to confirm that a transfer operation that effects a state change is a necessary (but not sufficient condition) for a legal transfer of a crypto-token.
4. Linking a crypto-token to something else	No law reform is necessary or desirable to clarify or specify the method of constituting a link between a crypto-token and a linked thing or the legal effects of such a link.
5. Custody and custody-like arrangements	Crypto-token custody arrangements can be characterised and structured as trusts and no law reform is required to clarify the legal position in relation to certainty of subject matter requirements for creating a valid trust over comingled, unallocated holdings of crypto-tokens. There should be law reform in relation to s.53(1)(c) of the Law of Property Act 1925, as well as new legislation allowing for a general pro rata shortfall allocation rule in respect of commingled unallocated holdings of crypto-tokens or crypto-token entitlements in a custodian insolvency. Extending bailment to crypto-tokens is not currently necessary.
6. Collateral arrangements	Crypto-tokens can be the subject of title transfer collateral arrangements, and non-possessory securities can be granted, without the need for specific reform. It is undesirable to make provision for data objects to be the subject of possessory securities. The FCARs should not be extended to encompass crypto-token collateral arrangements more formally. It would be beneficial to implement law reform to establish a legal framework that better facilitates the entering into, operation, rapid, priority enforcement and/or resolution of crypto-token collateral arrangements.
7. Causes of action and remedies	An action to enforce an obligation to pay non-monetary units such as crypto-tokens would and should be characterised as a claim for

	unliquidated damages unless and until crypto-tokens are generally considered to be money (or analogous thereto). However, there is an arguable case for law reform to provide courts with the discretion to award a remedy denominated in crypto-tokens in appropriate cases. Tracing rather than following provides the correct analysis of the process to be applied to locate and identify property following transfers of crypto-tokens. There are arguments in favour of extending the tort of conversion to data objects, subject to the introduction of a special defence of good faith purchase for value without notice.

Below, we consider these seven themes in further detail. We would, however, emphasise that, in attempting to distil over 500 pages of analysis, we can in no way do justice to the Paper.

Theme (1) – A new category of personal property called 'data objects'

Property rights are a "*gateway to many standard forms of transaction*".[4] Whilst personal rights are only enforceable bilaterally between two parties who have assumed responsibility to each other, or who have interacted in such a way that the law imposes legal responsibility upon them, proprietary rights are capable of being asserted against the whole world. Property rights "*are important for the proper characterisation of many modern and complex legal relationships, including custody relationships, collateral arrangements and structures involving trusts*".[5] They are particularly important in an insolvency scenario and their significance in the context of fraud, theft or breach of trust and succession is also well known to practitioners in these areas.

Therefore, it is unsurprising that 10 out of the 20 chapters of the Paper are devoted to the Law Commission's property law analysis.

Chapter 2, 'Objects of personal property rights', addresses the legal concept of property.

The Law Commission emphasises the fundamental point that the term "*property*" describes a relationship between a person and a thing, and not the thing itself.[6] As such, the Law Commission endorses an understanding of property as:

[4] Para 1.3, citing David Fox, 'Cryptocurrencies in the Common Law of Property' in David Fox and Sarah Green (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019) at para 6.07.
[5] Para 1.5.
[6] Para 2.3.

> "*not a thing at all but a socially approved power-relationship in respect of socially valued assets, things or resources*".[7]

However, the Law Commission notes that because the relationship is not one that can arise between persons and all things, a necessary starting point is to identify what kinds of "*things*" can be the object of property rights.[8] The remainder of the chapter considers various characteristics of legal things, or objects of property rights, relied upon by courts as commonly used criteria for "*thingness*". [9]

Chapter 3, 'Information and property rights', considers the relationship between information and property rights.

The Law Commission considers that there are compelling reasons for maintaining the general legal principle that information is not an appropriate object of property rights.[10] As the Law Commission observes, this has potentially important consequences because, on one interpretation, all digital things are nothing more than strings of data and could be said to be "*pure information*".[11]

However, the Law Commission considers that some digital assets are so distinct from pure information that it is appropriate for the law to treat them as things capable of attracting property rights.[12] That said, maintaining a distinction between pure information and a (digital) object of property rights is critical for digital assets and any law reform should not overextend property protection to pure information and therefore risk undermining the general legal principle that information is not an appropriate object of property rights.[13]

Chapter 4, 'A third category of personal property', considers how best to treat digital assets within the existing schema of the law of personal property.

The law of England and Wales has traditionally recognised two types of personal property: (1) things in possession; and (2) things in action. However, digital assets do not fit neatly into either of these categories. While common law courts have been creative in recent years, being willing to find that things can attract property rights even if it does not fit neatly within either category, there is a lack of clarity as to how exactly to reconcile digital assets as attracting property rights within the traditional structure of personal property law.[14]

Two possible options for law reform exist – either one or other of the two categories could be expanded or a new third category could be adopted. The Law Commission opts for the latter, namely that the law of England and Wales should explicitly recognise a third category of personal property.[15] It believes

[7] Para 2.10, citing Kevin Gray, 'Equitable Property' (1994) 47(2) Current Legal Problems 157 at 160.
[8] Para 2.26.
[9] Paras 2.26-2.83.
[10] Paras 3.10-3.67.
[11] Para 3.68.
[12] Para 3.69.
[13] Para 3.70.
[14] Paras 4.2-4.3, 4.8-4.16, 4.67.
[15] Paras 4.94-4.99.

that this approach provides the strongest conceptual foundation from which other, more complex legal issues in relation to new types of things can be determined.

The Law Commission has reserved its position, pending consultation, on whether creating a distinct, third category of personal property should be done through common law development or through legislation.[16] We observe that the arguments provided by the Law Commission for each of the alternatives could be said to suggest a preference for the legislative approach.

In Chapter 5, 'The characteristics of data objects', the Law Commission refers to those things which satisfy the suggested third category of personal property as "*data objects*".[17] In this key chapter, it sets out three provisional criteria that describe the characteristics of things that should fall into this category.[18]

(1) Data represented in an electronic medium: The first criterion is that "*it is composed of data represented in an electronic medium, including in the form of computer code, electronic, digital or analogue signals*".[19]

The purpose of this criterion is to distinguish data objects from the tangible objects which count as things in possession, whilst at the same time acknowledging that the criterion of intangibility is overly simplistic in the context of networks and systems with a tangible, albeit highly distributed, existence.[20]

By emphasising the informational quality of data objects represented in an electronic medium, this third category recognises that it is the combination of specific data and the operation of socio-technical networks or systems that allows some digital assets to take on characteristics or attributes that make them function more like objects than pure information.

(2) Independent existence: The second criterion is that "*it exists independently of persons and exists independently of the legal system*".[21]

This criterion contains two distinct requirements, namely that data objects exist independently of the following two things:[22]

- Persons – this reflects the conceptual principle that, if property law helps to define relationships between objects and persons, then the former must be distinct and separable from the latter.[23]

- The legal system – this requirement distinguishes data objects from things in action and is designed to exclude any kind of thing in action, such as a debt claim, from being a data object, even where

[16] Paras 5.112-5.142.
[17] Para 5.6.
[18] Paras 5.10-5.12.
[19] Paras 5.10 and 5.20-5.21.
[20] Paras 5.14-5.19.
[21] Paras 5.10 and 5.39-5.41.
[22] Para 5.23.
[23] Para 5.28.

that thing is represented in digital form or by data.[24] This stems from the important conceptual distinction that an archetypal thing in action is wholly reliant on the legal system for its existence and enforceability, whereas a digital asset has a factual existence independent of the legal system.

The Law Commission notes the views of some consultees that this begs the question of how this second criterion applies to data objects that represent or embody obligations enforceable by legal rights (such as a carbon credit allowance which represents a legal right), even though there is some distinct non-legal data associated with it.[25] The Law Commission's answer is to adopt a clear conceptual separation between: (1) a data object itself; and (2) any legal relationship to which the data object is (or is purported to be) linked or connected. The second requirement identified above is used to evaluate the former, not the latter.[26] This conceptual separation is a theme that recurs in Chapters 14 and 15 in relation to linking a crypto-token to something else, examined below.

(3) Rivalrousness: The third criterion is that "*it is rivalrous*", namely that:

> "*… use of the resource by one person necessarily prejudices the ability of others to make equivalent use of it at the same time*".[27]

Rivalrousness is an important feature of things that are appropriate objects of property rights:

> "*One of property law's principal functions is to allocate rivalrous objects between persons, and to protect their liberty to use those objects free from interference of others.*"[28]

> "*… [P]roperty law is concerned with resources that are rivalrous. More specifically, the criterion of rivalrousness, as a necessary characteristic of objectives of property rights, can be derived from the core property law notion of the ability to exclude others from rivalrous resources.*"[29]

This criterion is one of the main ways in which the Law Commission seeks to prevent pure information from falling with the third category and so uphold the general legal principle that information is not an appropriate object of property rights.[30]

Chapters 6-10 consist of the Law Commission's application of each of the proposed criteria for data objects to a variety of subsets of digital assets, including digital files and digital records, email accounts and certain in-game digital assets, domain names, carbon emissions trading schemes and crypto-tokens.[31]

The detailed analysis of these kinds of digital assets is beyond the scope of this article. However, the key takeaway point is that the Law Commission's analysis of each of these types of digital assets is only

[24] Paras 5.35-5.36.
[25] Paras 5.42-5.44.
[26] Paras 5.45.
[27] Para 5.48; see also paras 5.71-5.73.
[28] Para 5.51.
[29] Para 5.53.
[30] Para 5.50.
[31] Paras 6.1-6.2.

indicative. It acknowledges that a particular digital asset might exhibit the requisite characteristics of data objects even if it falls within one of the broad categories that the Law Commission considers do not generally exhibit the criteria of data objects.[32] Therefore, if the Law Commission's proposal becomes law, each kind of digital asset and each case will be different and both legal practitioners and courts will have to familiarise themselves with the technological nuances of each digital asset in each individual case.

The terms used by the Law Commission in Chapter 10 and Appendix 4 are also an important part of understanding the remaining themes in the chapters that follow. The Law Commission distinguishes between two different, but related, terms.[33]

The first term is "***crypto-token***". Loosely speaking, this is used to refer to the "*on chain*" component of a digital asset, although the Law Commission's tentative short-form definition of a crypto-token is more complex. In particular, Appendix 4 of the Paper provides that crypto-token means:

> *"… a particular, individuated data structure which:*
>
> *1. is constituted by the Protocol Rules of the Crypto-token System in which it is instantiated using one or more distributed ledgers or structured records; and*
>
> *2. is recognised by the Protocol Rules of the Crypto-token System in which it is instantiated as, at any one time (including by reference to the state of the distributed ledger(s) or structured record(s) and the Protocol Rules relating to state transitions, if applicable):*
>
> *a. capable of being uniquely attached to or associated with a particular Data Address; and*
>
> *b. capable of Authentification of an operation in respect of the particular instantiation of the data structure (including, if applicable, an operation to effect a change of state of the distributed ledger or structured record)."*[34]

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[32] Para 6.3.

[33] Paras 10.3-10.5.

[34] Appendix 4 at para 4.14. The Law Commission defines the key terms deployed in that description as follows:

"***Authentication*** *means cryptographic authentication via computational or computing means.*

Crypto-token System *means the system manifested or realised by the operation of a particular set of Protocol Rules.*

Data Address *means a unique individuated data structure or a particular set of associated data structures or identifiers (including, but not limited to, an asymmetric cryptographic value) which is/are recognised by the Protocol Rules of the relevant Crypto-token System.*

Protocol Rules *means software code that specifies or embodies rules or algorithms for:*

1. the generation, Authentication, sending and validation of data within the particular Crypto-token System;

The Law Commission provisionally concludes that crypto-tokens, in general, satisfy its proposed criteria of data objects (data represented in an electronic medium, independent existence and rivalrousness) and therefore fall within its proposed third category of personal property.[35]

The second term is "***cryptoasset***", which the Law Commission uses to describe a composite of a crypto-token and any associated or linked property or other legal rights that are recognised in law as existing as a consequence of having legal rights in relation to that crypto-token.[36]

The Law Commission acknowledges that this terminology is different to that used elsewhere in the field of digital assets, but considers that this multi-tier terminology is helpful in distinguishing between, and describing, both the general nature of data objects as things, and the range of combinations of legal rights that can be associated with them.[37]

Theme (2) – 'Control' rather than 'possession'

Chapter 11, 'Control', focuses on a basic principle of personal property law that the holder and the owner of a tangible thing may be two different persons, and identifies the concept that best captures the concept of "*holding*" or "*having*" for intangible data objects as "*control*", rather than "*possession*".[38]

Under the law of England and Wales, only tangible things are capable of possession.[39] Unless a thing can be possessed it cannot (among other things) be the subject of a possessory security, be bailed or be protected by property torts such as conversion.[40] As intangible data objects falling within the proposed third category of property cannot (currently) be possessed, it follows that, absent law reform, data objects "*are excluded from a range of commercially useful legal arrangements*".[41]

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2. determining and effecting changes to the distributed ledger or the structured record of the particular Crypto-token System by a process of Authentication such that the state of the relevant distributed ledger or structured record is capable of verification by other participants in the Crypto-token System; and

3. determining and effecting changes to the particular Crypto-token System and/or the Protocol Rules themselves."

[35] Paras 10.2 and 10.55-10.139. In relation to this, we would add that the approach taken to the description of crypto-tokens in Chapter 10 arguably differs to that in the Appendix 4 – in Appendix 4 at para 4.4, the Law Commission states that its "*… starting point is to assume that any crypto-token to which this description is applied is already capable of satisfying the criteria described in Chapter 5. Put another way, this description should only be applied to crypto-tokens provided that the crypto-token is composed of data represented in an electronic medium, exists independently … and is rivalrous*".

[36] Para 10.4.

[37] Para 10.5.

[38] Paras 11.1-11.2.

[39] Para 11.10.

[40] Para 11.13.

[41] Para 11.12.

There are two possible options for law reform – either the concept of possession could be extended so that it can apply to data objects, or a new concept could be adopted that fulfils a similar function to possession. The Law Commission prefers the latter.[42] In particular, it provisionally proposes that:

1. the concept of "*factual control*" is more appropriate for data objects than possession;[43]
2. this concept should be developed through the common law, rather than being codified in statute;[44]
3. to be in control of a data object, a person must be able sufficiently to:
   (a) exclude others from the data object;
   (b) put the data object to the uses of which it is capable (including, if applicable, to effect a passing of, or transfer of, that control to another person, or a divestiture of control); and
   (c) identify themselves as the person with the abilities specified in (a) to (b) above.[45]

As the remainder of the Paper makes clear, applying a concept of control gives rise to legally important consequences which, in many cases, mirror closely the consequences of applying the concept of possession to tangible objects. In summary, the concept of control provides the foundational concept for governing the original acquisition of property rights, transfers, custody or custody-like arrangements, collateral arrangements, causes of action and associated legal remedies for unlawful interference, and the location of a data object for conflict of laws purposes.[46]

Theme (3) – Transfer of crypto-tokens

Chapters 12 and 13 deal with issues concerning the transfer of crypto-tokens.

Chapter 12, 'Factual transfers of crypto-tokens', acts as a starting point by suggesting the best way of conceptualising how crypto-tokens are transferred as a matter of fact. Ordinarily, when one transfers a thing from one person to another, the thing itself remains generally unchanged.[47] However, the way in which crypto-tokens are transferred is idiosyncratic. Unlike the transfer of a physical object, the recipient of a crypto-token "*transfer*" does not receive the original token in an unchanged state and, whilst participants in crypto-token systems commonly refer to and understand such transfers as being analogous to the delivery of a tangible physical object, that is not an accurate characterisation.[48]

The Law Commission uses the terms "*state*" and "*state change*" to refer to the "*canonical and chronological order of transactional events as recorded within the transaction-based ledger or record*

[42] Paras 11.46 and 11.75.
[43] Paras 11.76-11.77 and 11.111.
[44] Paras 11.114-11.128.
[45] Paras 11.91 and 11.112.
[46] Para 11.109.
[47] Para 12.4.
[48] Paras 12.4-12.8.

of a crypto-token system".[49] The term "*state change*" is important because state changes comprise a key part of the conceptual foundations for analysing legal transfers in Chapter 13.

The Law Commission makes three observations relating to the factual consequences of a transfer operation that effects a "*state change*" within a crypto-token system:[50]

(a) such a transfer operation typically involves the replacing, modifying, destroying, cancelling, or eliminating of a pre-transfer crypto-token and the resulting and corresponding causal creation of a new, modified or causally related crypto-token;

(b) such a transfer operation typically involves the imposition or creation of varying degrees of technical encumbrances in respect of the causally-related crypto-token, which typically amounts to a change of control as between the pre-transfer crypto-token and the causally-related crypto-token; and

(c) such a transfer operation typically results in a change of state of the distributed ledger or structured record in accordance with the protocol rules of the crypto-token system.

Chapter 13, 'Legal transfers of crypto-assets', takes the factual situation outlined in Chapter 12 and considers the legal consequences. These can be broken down into the following key points:

(1) The ledger is not a definitive record: The Law Commission distinguishes between two possible legal conceptions of crypto-token transfers: (1) the distributed ledger or structured record may be a definitive record of a legal title to a crypto-token (i.e. constitutive of legal title); or (2) the distributed ledger or structured record may only be non-definitive evidence of legal title.[51] The Law Commission adopts the second of these conceptions – in the absence of a statute or a contractual agreement providing otherwise, the state of the distributed ledger should not necessarily be regarded as a definitive record of legal title to a crypto-token. Instead, it is a record of the factual position of what has occurred within the crypto-token system, albeit the state of the ledger will provide strong, if not definitive, evidence of legal title.

(2) Original acquisition: Although the Paper does not consider in detail how original or independent methods of acquisition of title apply to crypto-tokens, it considers that analogies with existing legal methods of acquisition will be important for certain operations or transactions involving crypto-token systems.[52] For example, it considers that mining a crypto-token would result in a new, independent acquisition of the crypto-token the miner receives as part of the block reward.

(3) Derivative acquisition: The Paper provisionally concludes that the rules of derivative transfer of title apply to crypto-tokens, despite the transfer of a crypto-token by a transfer operation effecting a state

[49] Para 12.64.
[50] Para 12.67.
[51] See generally paras 13.7-13.13.
[52] See generally paras 13.14-13.16.

change involving the creation of a new, causally-related thing.[53] However, a transfer operation that effects a state change, while necessary, is not sufficient to transfer (superior) legal title to a crypto-token.[54] This is for two reasons: (1) in general, a transferor can confer no better title to a transferee than they are able to give (the *nemo dat* principle); and (2) the transaction between the transferor and the transferee must be legally valid in terms of the common law and equitable rules governing derivative transfers of title.

(4) Innocent acquisition rules: However, there are exceptions to the *nemo dat* principle, in particular the defence of good faith purchaser for value without notice at both equity and common law (which the Law Commission refers to as an "*innocent acquisition rule*"). Whilst the Law Commission considers that the equitable defence applies to transfers of crypto-tokens in the same way as it applies to other objects of property rights,[55] the common law defences do not, on the basis that they apply more narrowly to money and negotiable instruments and crypto-tokens are almost certainly neither.[56] Consequently, the Law Commission provisionally proposes that a common law special defence of good faith purchase for value without notice, of the kind currently applicable to money and to negotiable instruments, *should* apply to a transfer of a crypto-token by a transfer operation that effects a state change, and that this should be implemented by way of legislation as opposed to common law development.[57] The Law Commission also considers that such an innocent acquisition rule cannot and should not apply automatically to things that are linked to that crypto-token.[58] This is because the consequences of derivative transfers of title to any linked things will depend on, among other things, the nature of the link, the applicable law, and the intention of the parties, an approach which is consistent with the Law Commission's reasoning in Chapters 14 and 15 on linking crypto-tokens to something else.[59]

(5) Role of factual control in legal transfers: The Law Commission considers that the concept of factual control set out in Chapter 11 plays an important (but not determinative) role in the overall analysis as to the legal effect of a transfer of a crypto-token.[60] In typical cases, the Law Commission considers that a transfer operation that effects a state change will result in a change of control and in many cases, control will rely on or be determined by the state of the distributed ledger or structured record.[61] Furthermore, the Law Commission suggests that the new technical encumbrances and conditions which regulate how the transferee can control that crypto-token following a transfer operation that effects a state change, together with the state of the distributed ledger or structured record, will provide rebuttable evidence as to the (superior) legal title holder of the crypto-token.[62] The Law Commission provides a number of examples where that presumption will certainly be rebutted, for

[53] Paras 13.18-13.19 and 13.90.
[54] Para 13.22.
[55] Paras 13.47-13.49.
[56] Paras 13.37-13.46 and 13.50.
[57] Paras 13.52-13.80 and 13.91-13.94.
[58] Paras 13.85, 13.88 and 13.91.
[59] Paras 13.85-13.87.
[60] Para 13.95.
[61] Para 13.96.
[62] Paras 13.97-13.98.

example where a crypto-token is held pursuant to some type of custody or collateral arrangement, or where a person has obtained factual control over a crypto-token without obtaining (superior) legal title (for example through a hack).[63] In this way, the (superior) legal title to a crypto-token can therefore by located separately from both: (1) the recorded state of the distributed ledger or structured record; and (2) a controller of the crypto-token.[64]

Therefore, the Law Commission provisionally concludes that it is possible to separate (superior) legal title from the recorded state of the distributed ledger or structured record and/or factual control over a crypto-token.[65] In this context, the Law Commission observes that the law of England and Wales has a system of relative title by which the law ranks concurrent titles held by different persons in respect of the same object.[66] It thinks that it is possible to apply similar concepts of relativity of title to crypto-tokens and so provisionally concludes that the common law is capable of developing rules to assist with the legal analysis as to title and/or priority where disputes arise between multiple persons that have factual control of a crypto-token, with statutory reform not being appropriate for this purpose.[67] It also considers that those rules will need to be specific to the technical means by which such factual circumstances can arise within crypto-token systems or with respect to crypto-tokens.[68]

Drawing those conclusions together, the Law Commission provisionally proposes that the law should be clarified by way of common law development, rather than legislation, to confirm that a transfer operation that effects a state change is a necessary (but not sufficient) condition for a legal transfer of a crypto-token and that state change condition is more appropriate than the potentially wider condition of "*a change of control*".[69]

(6) Analogies with other existing methods of legal transfer: Finally, the Law Commission draws analogies with a number of other existing and well-recognised methods of legal transfer as helpful analytical or explanatory tools, with the caveat that none are perfect and it is most appropriate for the law to acknowledge the idiosyncrasies of crypto-tokens to enable the development crypto-token specific rules.[70] Perhaps the most important point is the Law Commission's provisional conclusion that it is not appropriate to treat crypto-tokens as analogous to "*goods*", as currently defined in the Sale of Goods Act 1979 and other related statutes, including the Supply of Goods and Services Act 1982 and the Consumer Rights Act 2015.[71] This view obviously has wider ramifications for consumer protection which are not addressed by the Law Commission. However, in rejecting any analogy with sales of goods, the Law Commission makes a further provisional conclusion that, by contrast with sales of goods

[63] Paras 13.101-13.102.
[64] Para 13.103.
[65] Para 13.112.
[66] Para 13.104.
[67] Paras 13.104 and 13.113.
[68] Para 13.113.
[69] Para 13.145.
[70] Paras 13.114 and 13.151-13.152.
[71] Paras 13.135-13.140 and 13.144.

contracts, allowing title to a crypto-token to transfer at the time a contract of sale is formed, but where no corresponding state change has occurred, would be inappropriate.[72]

Theme (4) – Linking a crypto-token to something else

Chapter 14, 'Linking a crypto-token to something else', discusses the different types of "*link*" that can arise between: (1) the thing that is a crypto-token, which itself is capable of being an object of property rights; and (2) another thing – normally external to the crypto-token system – to which that crypto-token might be linked (or purport to be linked).[73] A crypto-token may be linked to many different kinds of things and the Law Commission characterises the conceptual foundation for those links as based on the following five key points:[74]

(a) the crypto-token can be an object of property rights in itself;

(b) the crypto-token will include an internal dataset as a constituent part of the crypto-token data structure itself;

(c) the crypto-token could also be linked to an external dataset (i.e., data or information which is stored or which exists externally to the crypto-token system) or other things external to the crypto-token system (including intangible things, legal rights or tangible things);

(d) the information itself cannot be the object of property rights; and

(e) any legal rights in relation to any internal or external datasets are necessarily external to the crypto-token system.

The Paper outlines different ways in which a link between a crypto-token and something else – normally external to a crypto-token system – can be constituted.[75] There is discussion about crypto-tokens used as part of a statutory registers or records,[76] other kinds of statutory links,[77] and contractual and other legal arrangements, including possible analogies to be drawn between the existing legal concept of documentary intangibles and crypto-tokens linked to things external to the crypto-token system.[78] However, the overarching point is that the variety of legal mechanisms for constituting a link between a crypto-token and a linked thing is likely to lead to different legal consequences – in particular, the strength of any such link will vary depending on a number of factors, including the exact wording of any contractual terms or possible future legislative provisions relating to the link.[79] The Law Commission sees no problem with this, provisionally concluding that market participants should have the flexibility to develop their own legal mechanisms to establish a link between a crypto-token and

[72] Paras 13.141-13.142 and 13.146.
[73] Para 14.6.
[74] Paras 14.15-14.18.
[75] Para 14.112.
[76] Paras 14.19-14.43.
[77] Paras 14.44-14.57.
[78] Paras 14.58-14.111.
[79] Paras 14.112-14.113.

something else.[80] Therefore, it provisionally concludes that no law reform is necessary or desirable further to clarify or specify the method of constituting a link between a crypto-token and a linked thing or the legal effects of such a link at this time.[81]

Chapter 15, 'Non-fungible tokens (NFTs)', takes the general theoretical groundwork from Chapter 14 and applies it to the specific context of NFTs. The Law Commission conceptualises NFTs as falling within its description of a crypto-token and capable of being objects of personal property rights.[82] It notes that the more novel and contentious uses of NFTs generally involve situations in which: (1) NFTs (as crypto-tokens capable of attracting property rights) include an internal dataset as a constituent part of the NFT and/or are linked to an external dataset stored elsewhere; and (2) control (or, alternatively, "*ownership*") of an NFT purportedly gives rise to external legal rights in relation to that internal or external dataset.[83] In other words, in the same way as considered generally in Chapter 14, NFTs can give rise to difficult questions in relation to this linked dataset and the nature of any legal rights that attach to such dataset, as opposed to in relation to the crypto-token itself.[84]

The purpose of the Law Commission's commentary on NFTs is to lay the conceptual foundations for facilitating a clearer understanding of how NFTs work: "*NFTs that are not linked to external legal rights in some way do not convey any additional legal rights. The NFT token itself can be the object of personal property rights. But, without more, an internal dataset or a linked external dataset does not attract either personal property rights or any other legal rights*".[85] The Law Commission hopes to clarify a growing misunderstanding within the NFT market which assumes that all NFTs are alike in the nature and package of rights that they give.[86] An NFT can be used to do many things – the Law Commission refers to "*the myriad NFTs and their varied implementation and sets of linked rights*" – but just as with any crypto-token that is linked to something else, the rights conferred by an NFT will depend on how the link to external legal rights is devised in each case.[87] For that reason, the Law Commission makes no law reform proposals for NFTs specifically – it does not consider that NFTs create novel legal issues that are distinct from crypto-tokens more broadly.[88] Instead, it considers that the law of England and Wales is well-suited to facilitate the flexibility of legal structuring of NFTs, consistently with its more general views in Chapter 14.

Theme (5) – Custody and custody-like arrangements

Chapter 16, 'Custody of crypto-tokens', lays the factual and legal foundations for conceptualising custody and custody-like arrangements of crypto-tokens. The Law Commission starts its analysis by defining the core features and categories of factual custody relationships. It notes that a custodian can

[80] Paras 14.113 and 14.115.
[81] Paras 14.113 and 14.115.
[82] Paras 15.4-15.8.
[83] Para 15.18.
[84] Para 15.19.
[85] Para 15.38; see also para 15.70.
[86] Paras 15.40-15.41.
[87] Paras 15.43 and 15.69.
[88] Paras 15.73.

be characterised as a person holding crypto-tokens on behalf of, or for the account of other persons.[89] The Law Commission uses the word "*holding*" to refer to a custodian having the capacity to exercise, or to coordinate or direct, the exercise of factual control, as described in Chapter 11.[90]

Taking this definition as a starting point, the Law Commission suggests that the degree of control that the custodian has (or has the capacity to coordinate or direct) over crypto-tokens that it holds can be understood as comprising two dimensions: (1) positive control, which involves the factual ability to use, dispose of or transfer an asset; and (2) negative control, which involves the factual ability to exclude others from using the asset.[91] The Law Commission observes that whilst not all providers of services relating to the safekeeping of crypto-tokens necessarily constitute custodians as defined by the Paper, market participants often use the term custody in a colloquial, overinclusive sense which may cover situations where a formal custodial relationship may not exist.[92] With that in mind, the Law Commission provisionally concludes that it is appropriate to sub-divide business arrangements in this context into three general categories by reference to how far they satisfy the two dimensions of positive and negative control:[93]

(a) Direct custodians are persons or organisations that engage in activities that clearly satisfy the definition of custody in the consultation paper. They hold crypto-tokens on behalf of or for the account of other persons and have the capacity to exercise or to coordinate or direct the exercise of factual control in terms of both its positive and negative aspects.[94]

(b) Custodial (and other) technology service providers includes persons or organisations that provide software and/or hardware devices for owners of crypto-tokens to undertake self-custody more securely. They do not have positive control (which is retained by the owner) but can potentially exercise negative control over the crypto-tokens (accidentally or deliberately).[95]

(c) Hybrid service providers include organisations that operate both direct custody facilities and, separately, "custodial/custody-like" technology services facilities.[96]

Where the custody facility is contractual, the general legal framework will be the same for all three general categories of custody facility: (1) the rights and obligations of the parties will be determined fundamentally by the terms of the contract, express or implied; (2) users retain no proprietary entitlement or encumbrance over any specific (or any specific pools) of assets and entitlements; (3) instead, users will simply have, at best, a personal claim for the value of the assets enforceable against the custodian, as well as personal claims for any other contractual breaches; and (4) consequently, on

[89] Para 16.10.
[90] Para 16.10.
[91] Para 16.12.
[92] Para 16.13.
[93] Paras 16.13 and 16.41.
[94] Para 16.15.
[95] Paras 16.16-16.18.
[96] Paras 16.19-16.20.

the insolvency of a custodian, users' claims to the return or delivery of crypto-tokens would rank as unsecured claims only.[97]

By contrast, the advantage of a trust-based custody facility is that users retain proprietary rights in the equitable beneficial interest in the crypto-tokens or the crypto-token entitlements held by the custodian, which safeguards the value of user claims in the event of their custodian's insolvency.[98] The Law Commission analyses the extent to which crypto-token custody arrangements are capable of satisfying the three certainties necessary to create a trust under the general law and considers that the main difficulty concerns satisfying the requirement for certainty of subject-matter – the requirement that the property that is the subject matter of the trust for each beneficiary must be clearly identifiable – in cases where intangible assets are held in omnibus accounts for multiple users.[99] The Law Commission recognises that a degree of uncertainty remains as to the correct conceptual basis for satisfying the certainty of subject matter requirement for a trust over commingled, unallocated intangible assets. It discusses two possible approaches: (1) the 'equitable co-ownership' approach under which one characterises the claims of users represented by internal account balances for a particular crypto-token as constituting beneficial co-ownership rights; or (2) the 'intangible asset exception' approach under which trusts over collective unallocated holdings of intangible assets can be supported by other legal arguments that are based on applying different subject matter certainty rules depending on whether the assets in question are tangible or intangible.[100]

The Law Commission considers that it should be practically possible for a custody arrangement involving crypto-token entitlements held on an unallocated basis at specified network addresses or higher-tier intermediary accounts to be characterised as a trust.[101] To that end, it provisionally concludes that crypto-token custody arrangements could be characterised and structured as trusts, even where the underlying entitlements are (i) held on a consolidated unallocated basis for the benefit of multiple users, and (ii) potentially even commingled with unallocated entitlements held for the benefit of the custodian itself.[102] It also provisionally concludes that the best way of understanding the interests of beneficiaries under such trusts are as rights of co-ownership in an equitable tenancy in common.[103] As such, the Law Commission's provisional conclusion is that no law reform is required to clarify the legal position in relation to subject matter certainty requirements for creating a valid trust over commingled, unallocated holdings of crypto-tokens – it considers that the courts will be able to develop coherent legal principles in this area.[104]

The Law Commission also briefly considers whether, as a matter of user protection in the event of custodian insolvency, the legal interpretation of a direct custody arrangement should be subject to a presumption that the relevant parties intend for it to take effect as a trust, with the courts giving effect

[97] Paras 16.42-16.51.
[98] Para 16.53.
[99] Para 16.66.
[100] Paras 16.68-16.74.
[101] Para 16.74.
[102] Para 16.75.
[103] Paras 16.74 and 16.76.
[104] Paras 16.74 and 16.77.

to this presumed intention subject to the direct custody arrangement in question also satisfying the requirements of objects and subject-matter certainty.[105] However, the Law Commission provisionally concludes that a presumption of trust does not currently apply to crypto-token custody facilities and should not be introduced as a new interpretive principle.[106] It could create market uncertainty and arbitrary distinctions between different kinds of custody services involving crypto-tokens and other asset types, whilst also not providing the most effective means of achieving the legitimate and important policy objectives of user protection.[107]

Chapter 17, 'Custody of crypto-tokens: law reform proposals', builds on the previous chapter and sets out the Law Commission's views on three specific law reform proposals.

The first law reform proposal concerns the requirement under s.53(1)(c) of the Law of Property Act 1925 that: "*a disposition of an equitable interest or trust subsisting at the time of the disposition, must be in writing signed by the person disposing of the same, or by his agent thereunto lawfully authorised in writing or by will*". The Law Commission considers that there are strong arguments that dealings in book entry and tokenised equitable entitlements to crypto-tokens fall outside the scope of s.53(1)(c).[108] It also considers that, in any event, such dealings are in fact carried by forms of electronic communication and authentication that satisfy the formality requirements of s.53(1)(c) and that legislative reform is unnecessary because the interpretation and application of s.53(1)(c) is sufficiently clear and is unlikely to cause any real problems for crypto-token custodians in practice.[109] However, the Law Commission notes ongoing perceived uncertainty regarding the application and implications of s.53(1)(c) to emerging and growing industries such as crypto-token markets.[110] Consequently, the Law Commission provisionally proposes that statutory law reform clarifying the scope and application of s.53(1)(c) would be beneficial for custodians and would help facilitate the broader adoption of trust law in structuring custody facilities, in relation to crypto-tokens specifically and/or to other asset classes and holding structures, including intermediated investment securities.[111] The Law Commission also sets out a number of specific provisional options for reform on which it invites consultees to comment and outline any further, possibly preferable alternatives.[112]

The second law reform proposal concerns what happens if a custodian does not hold or have access to sufficient crypto-tokens or crypto-token entitlements to meet the aggregate claims of its users or customers, known as "*shortfalls*".[113] The most difficult problems with shortfalls are when the custodian of a trust-based custody facility enters insolvency proceedings. Where crypto-tokens or crypto-token entitlements are held on an individually-allocated basis for each user, then a loss affecting any

[105] Para 16.97.
[106] Para 16.107.
[107] Paras 16.103-16.106.
[108] Para 17.40.
[109] Paras 17.40-17.41.
[110] Para 17.42.
[111] Paras 17.43 and 17.58.
[112] Paras 17.44-17.57 and 17.59.
[113] Para 17.63.

particular holding will be borne entirely by the user that is the beneficial owner of that holding.[114] However, where crypto-tokens or crypto-token entitlements are subject to a trust but held on an unallocated commingled basis for the benefit of multiple parties, there is some uncertainty as to the correct approach to apportioning any shortfall losses among such parties.[115] The Law Commission canvasses the various options available,[116] and provisionally concludes that law reform clarifying and simplifying this area would be beneficial so as to promote market certainty.[117] To that end, it proposes that legislation should provide for a general *pro rata* shortfall allocation rule in respect of commingled unallocated holdings of crypto-tokens or crypto-token entitlements in a custodian insolvency.[118] However, it notes that other more structured approaches to statutory reform are available and envisages that further, detailed consideration is required which is out of the scope of the consultation paper.[119]

The third law reform proposal concerns the fact that intangible property, and therefore data objects, cannot be the subject matter of bailments under the existing law.[120] The Law Commission provisionally concludes that extending bailment to crypto-tokens, or the creation of an analogous concept based on control, is not necessary at this time.[121] Its reasoning is based on: (1) conceptual and technical challenges to formulating a specific law of bailment or "*quasi-bailment*" encompassing crypto-tokens; (2) the absence of any clear consensus among consultees as to there being any practical benefit to this law reform proposal; and (3) the fact that the private law concepts of trust and contract already provide an adequate legal foundation for a range of crypto-token custody models and provide substantively or functionally similar duties and remedies to those arising in a bailment relationship.[122] Although the Law Commission currently does not identify a clear need for law reform extending or developing an analogous concept to bailment for application to crypto-tokens, it does not rule out the possibility that in the future there might be good reasons for developing a legal mechanism that allows for the imposition of legal duties on a party without the need for a trust relationship to arise and in the absence of a contract.[123] Whilst it does not consider that this objective is best served by the current law of bailment, it invites consultees to provide their views on examples of market structures or platforms that would benefit from being arranged as bailments.[124]

Theme (6) – Collateral arrangements

Chapter 18, 'Crypto-token collateral arrangements', considers options for granting security in respect of crypto-tokens, given that they are the principal type of data object for which collateral arrangements

[114] Para 17.64.
[115] Para 17.65.
[116] Paras 17.66-17.70.
[117] Para 17.72.
[118] Paras 17.78 and 17.81.
[119] Paras 17.78-17.80.
[120] Para 17.86
[121] Para 17.103
[122] Paras 17.87-17.101.
[123] Para 17.102.
[124] Paras 17.102-17.103.

have developed in the market, although the Law Commission considers that the analysis is likely to be applicable to data objects more broadly.[125]

The Law Commission notes that, in general, crypto-token collateral arrangements can be structured in one of two ways.[126]

The first is under a title transfer basis, where the collateral provider transfers in full its interest in the collateral assets to the collateral taker to secure or cover certain specified obligations owed to the collateral taker.[127] The collateral taker undertakes to transfer the full interest in the asset back (or as is more typically the case, to transfer assets equivalent to the collateral assets received) to the collateral provider once the obligations secured or covered have been settled in full.[128] Given the nature of this kind of collateral arrangement, the Law Commission provisionally concludes that crypto-tokens, as objects of personal property rights, can be the subject of title transfer collateral arrangements without the need for specific law reform to provide for this.[129]

The second is by using security interests, for which there are four kinds of consensual security known to the law of England and Wales: (1) pledge; (2) contractual lien; (3) equitable charge; and (4) mortgage.[130] The Law Commission provisionally concludes that charges and mortgages, as non-possessory securities, can satisfactorily be granted in respect of crypto-tokens without the need for law reform.[131] By contrast, pledges and liens are possessory security arrangements under which the party taking security has or will take possession of the assets provided as security.[132] This means that because intangible property, and therefore data objects, cannot be possessed as a matter of current law, they cannot currently be the subject of possessory security arrangements.[133] The Law Commission provisionally concludes that it is not desirable to extend the application of possessory security interests to make provision for data objects to be the subject of possessory securities, consistently with the view it expresses in Chapter 11 that data objects should not be capable of being possessed.[134] Nor does it think it desirable to develop a new (analogous) form of security interest for data objects, modelled on the pledge, but founded on a transfer of (exclusive) factual control by way of security from "*pledgor*" to "*pledgee*", by which the debtor would transfer control of the data object to the creditor.[135] This is because the Law Commission provisionally thinks that allowing for possessory security arrangements in respect of crypto-tokens would be of limited practical benefit and could give rise to problems, whilst

[125] Paras 18.2 and 18.5.
[126] Para 18.11.
[127] Para 18.12.
[128] Para 18.12.
[129] Para 18.17.
[130] Para 18.18, citing *Re Cosslett (Contractors) Ltd* [1998] 1 Ch 495 at 508.
[131] Para 18.26.
[132] Para 18.27.
[133] Para 18.30.
[134] Paras 18.31-18.32 and 18.44.
[135] Paras 18.33 and 18.44.

it would be more productive to direct law reform efforts at crypto-token collateral arrangements that build on and enhance the inherent flexibility of non-possessory security interests.[136]

The Law Commission goes on to consider the special regime developed for financial collateral arrangements under the Financial Collateral Arrangements (No.2) Regulations 2003 (SI 2003/3226) (the 'FCARs').[137] It explains that whilst a broad range of crypto-token markets-related activities could potentially fall within the scope of the FCARs, for the purposes of structuring a crypto-token collateral arrangement the FCARs currently represent at best a piecemeal solution of uncertain application, not designed with any specific consideration of crypto-tokens and cryptoasset markets, and which are widely regarded as problematic both generally and in the specific context of crypto-token collateral facilities.[138] For that reason, the Law Commission provisionally concludes that an extension of the FCARs formally and more comprehensively to encompass crypto-token collateral arrangements would not be appropriate,[139] and that instead it would be beneficial to implement law reform to establish a legal framework that better facilitates the entering into, operation, rapid, priority enforcement and/or resolution of crypto-token collateral arrangements.[140] The Law Commission acknowledges that formulating the detailed substantive provisions of any future crypto-token collateral regime is an exercise beyond the scope of the consultation paper, although it offers some preliminary high level views as to the possible shape of such a law reform project to initiate a dialogue with consultees.[141]

Theme (7) – Causes of action and remedies

Chapter 19, 'Causes of action and remedies in relation to data objects', builds on the conceptual foundations set out in the previous chapters by considering how the existing law relating to various causes of action and associated remedies would apply to data objects if its law reform proposal to create such a category of property is implemented.[142]

The Law Commission provisionally concludes that much of the current law concerning causes of action and remedies can be applied to data objects such as crypto-tokens in the same way as they are to other types of (non-monetary) objects of property rights.[143] This includes the existing legal frameworks for breach of contract, vitiating factors, following and tracing, equitable wrongs, proprietary restitutionary claims at law and unjust enrichment.[144] Whilst the Law Commission therefore provisionally concludes that there is no need for bespoke rules or statutory law reform, the common law may need to develop on an iterative basis – what is required is that the courts recognise the nuances and idiosyncrasies of data objects and apply existing legal principles to such objects as far as possible.[145]

[136] Para 18.42.
[137] See generally paras 18.45-18.80.
[138] Paras 18.45-18.46.
[139] Paras 18.46-18.47.
[140] Para 18.113.
[141] Para 18.82.
[142] Paras 19.1-19.3.
[143] Para 19.87.
[144] Para 19.88.
[145] Paras 19.87-19.88.

Similarly, the Law Commission considers that there is sufficient judicial precedent for the conclusion that crypto-tokens can be the subject matter of proprietary injunctions and freezing orders (including worldwide freezing orders) on the basis that they are objects of property rights – it sees no reason why other types of data objects could not be treated similarly and so it provisionally concludes that existing principles in relation to injunctive relief can apply to data objects, without the need for law reform.[146] In the same vein, whilst the design of crypto-tokens may create some practical obstacles to enforcing judgments, the Law Commission considers that it is important to recognise that these difficulties are not necessarily unique to crypto-tokens, nor are they insurmountable.[147] Consequently, it provisionally concludes that the existing methods of enforcement of judgments (and ancillary mechanisms) in the context of crypto-tokens are satisfactory, although it is interested in the general views of consultees.[148]

The Law Commission does, however, express provisional views on a number of areas in which it considers law reform is required, and additionally in which it explicitly thinks that law reform is not required. Six areas considered by the Law Commission are of particular note and considered below.

(1) Unliquidated damages and action for an agreed sum: The Law Commission explains the difference between: (1) unliquidated damages for breach of contract – determined by the court and assessed on a compensatory basis; and (2) an award of an agreed sum – a remedy which directly enforces the debt owed under the contract.[149]

The Law Commission considers that the main area where data objects may give rise to novel issues in the existing legal framework for breach of contract is the action for an agreed sum.[150] An action for an agreed sum generally has various advantages over unliquidated damages.[151] However, the differences between the two remedies means that whether a contract involving crypto-tokens can be characterised as a claim for unliquidated damages or for an agreed sum can have potentially significant consequences, particularly in situations involving insolvency.[152] The Law Commission provisionally concludes that: (1) an action to enforce an obligation to "*pay*" non-monetary units such as crypto-tokens would (and should), under the existing law, be characterised as a claim for unliquidated damages; and (2) unless and until crypto-tokens are generally considered to be money (or analogous thereto), developing the law to permit an action for an agreed sum to be brought in relation to crypto-tokens is undesirable.[153]

(2) Monetary remedies denominated in crypto-currencies: The Law Commission notes that whilst courts have recognised that they have the power to award monetary remedies denominated in foreign currencies, it is unlikely that this would extend to monetary remedies denominated in crypto-

[146] Paras 19.147-19.148.
[147] Paras 19.153-19.156.
[148] Paras 19.157-19.158.
[149] Paras 19.6-19.12.
[150] Para 19.18.
[151] Para 19.12
[152] Paras 19.23-19.24
[153] Paras 19.19-19.26. The Law Commission also notes at para 19.19 that discussions around whether crypto-tokens are money (or should be treated as money or analogous thereto) are outside the scope of the consultation paper.

currencies, partly because crypto-tokens are, at present, unlikely to be regarded as money or currency (or analogous thereto).[154] Nonetheless, it provisionally concludes that there is an arguable case for law reform to provide courts with the discretion to award a remedy (where traditionally denominated in money) denominated in certain crypto-tokens in appropriate cases.[155] It does not expressly advocate in favour of this proposal, but seeks consultees' views on the principle of awarding remedies denominated in cryptocurrencies, as well as the factors that should be relevant to the exercise of the court's discretion to do so.[156]

(3) Vitiating factors: In the context of vitiating factors for contracts involving transfer of a data object, the Law Commission thinks that the legal principles of rescission for voidable contracts can be applied to data objects in the same way as they are to other objects of property rights.[157] However, it acknowledges the possibility that practical issues might arise in the context of achieving rescission where data objects are concerned due to the practical impossibility of unwinding transactions that have taken place on an (effectively) immutable crypto-token system.[158] The Law Commission suggests several options by which the court could achieve "*practical justice*" between the parties, including: (1) ordering the parties to enter into an "*equal and opposite*" second transaction on the crypto-token system to reverse the effects of the first transaction; or (2) ordering restitution of the monetary value of the benefits transferred.[159] It considers that even if the remedy is not rescission in a strict legal sense, in practical terms the result is the same and suggests that the precise nature of the order fashioned by the court will likely depend on various factors, including the type of crypto-token, the system in question and any relevant third parties who have the power to reverse transactions.[160]

(4) Tracing and following: Building on its analysis in Chapters 12-13, the Law Commission provisionally concludes that since crypto-tokens cannot be considered the "*same*" thing when they are transferred on crypto-token systems, tracing (rather than following) provides the correct analysis of the process that should be applied to locate and identify the claimant's property after transfers of crypto-tokens by a transfer operation that effects a state change, and that the existing rules on tracing (at equity and common law) can be applied to crypto-tokens.[161] However, the Law Commission does identify difficulties in cases where transfers involve crypto-tokens becoming "*mixed*" as they are transferred which, whilst not defeating equitable tracing, does raise difficulties with tracing at common law.[162] The Law Commission agrees with previous criticisms of the restrictive nature of the common law rules of tracing and, to that end, asks consultees whether they consider the common law on tracing into a

[154] Paras 19.159-19.160.
[155] Paras 19.162 and 19.167-19.168.
[156] Paras 19.162 and 19.167-19.169.
[157] Paras 19.39-19.40.
[158] Para 19.40.
[159] Para 19.40. See further discussion of this issue in the Law Commission's, *Smart legal contracts Advice to Government* at paras 5.96-5.103.
[160] Para 19.41.
[161] Paras 19.47--19.52.
[162] Paras 19.49-19.50.

mixture requires further development or law reform (whether generally or specifically with respect to crypto-tokens).[163]

(5) Tort of conversion: Intangible property, and therefore data objects, cannot be the subject matter of the tort of conversion under the existing law of England and Wales.[164] The Law Commission thinks that there are good policy arguments in favour of extending conversion – or a conversion-type cause of action – to data objects.[165] It considers the most compelling argument in favour of extending conversion is that it is arbitrary for the law to distinguish between the protection of legally identical rights and interests on the basis of their physical form, for example rare and valuable artwork in tangible, physical form as against a digital version of that artwork being attached to an NFT.[166] Given the state of current case law in this area, the Law Commission considers that any such reform would most likely need to be by way of statute.[167] It also considers that there will need to be amendments made to the Torts (Interference with Goods) Act 1977 specifically to include data objects – for similar reasons as explained above for the Sale of Goods Act 1979, data objects are unlikely to be considered "*goods*".[168]

Nonetheless, the Law Commission recognises that the idiosyncratic nature of data objects means that the tort of conversion will have to be adapted if it is to be extended to data objects. The tort of conversion requires (at common law) the claimant to have at least a possessory interest in the property concerned.[169] Consistently with its views expressed in Chapter 11, the Law Commission suggests that despite data objects being incapable of "*physical*" possession, it should nonetheless be possible to establish a suitable analogous interest in them for the purposes of conversion by reference to control.[170] The Law Commission also provisionally concludes that the introduction of a special defence of (or analogous to) good faith purchaser for value without notice should be introduced in the context of data objects to limit the impact of the application of strict liability for conversion in that specific context.[171] Whilst the Law Commission notes that this would have the effect of creating separate regimes for data objects and tangible property in the context of conversion, it considers that there are justifiable policy reasons for the introduction of such a defence in the context of data objects.[172] In particular, it considers that the strict liability nature of the tort may create uncertainty for parties given the nature of data objects (in particular crypto-tokens), the frequency and speed of transactions and the expectations of market participants concerning the idiosyncratic nature of a transfer operation that effects a state change.[173] By contrast with these express adaptations, the Law Commission considers that questions concerning what constitutes a sufficient "*interference*" in this context and what

[163] Paras 19.50 and 19.53.
[164] Para 19.100.
[165] Paras 19.122-19.123.
[166] Paras 19.103-19.104 and 19.122.
[167] Para 19.105, citing *OBG Ltd v Allan* [2007] UKHL 21, [2008] AC 1 and *Your Response Ltd v Datateam Business Media Ltd* [2014] EWCA Civ 281, [2015] QB 41.
[168] Para 19.106.
[169] Para 19.115.
[170] Para 19.115.
[171] Paras 19.119 and 19.124.
[172] Para 19.120.
[173] Paras 19.117-19.118.

remedies should be awarded are practical, fact-specific questions which can be resolved in the ordinary course by extrapolating from existing principles.[174]

(6) Theft, fraud and constructive trusts: It is worth noting the Law Commission's analysis of when a constructive trust may arise in the context of theft or fraud.[175] This is an important issue given that such constructive trusts have proved to be an important aspect of many claims involving the misappropriation of cryptoassets.[176] However, given that this is a matter concerning the broader application of trust law and not one specific to data objects, the Law Commission does not make any provisional law reform proposals on this issue.[177]

Concluding remarks

As will be clear from the range of issues covered in this article, there is much to digest. The Paper has multiple functions; providing resources for practitioners advising and courts adjudicating in this area; informing the consultation process; and facilitating the development and reform of the law in the rapidly evolving digital assets space. It will be interesting to see the extent to which courts take into account some of the Law Commission's provisional proposals and analysis and how the law develops even before there are any final proposals for law reform in this area. Thereafter, the legal landscape will no doubt continue to develop. In this context, the words of John F. Kennedy seem apt:

"Change is the law of life. And those who look only to the past or present are certain to miss the future."[178]

JUSTINA STEWART

JOSHUA CAINER

Outer Temple Chambers

September 2022

[174] Paras 19.116 and 19.121.
[175] Paras 19.125-19.134.
[176] See the following cases in which claimants have been held to have a good arguable case based on such a constructive trust analysis: *AA v Persons Unknown* [2019] EWHC 3556 (Comm), [2020] 4 WLR 35 at [62]-[63]; *Ion Science Limited v Persons Unknown* (unreported, 21 December 2020) at [14]; *Reyes v Persons Unknown* [2021] EWHC 1938 (Comm) at [18]; *Fetch.AI Limited v Persons Unknown* [2021] EWHC 2254 (Comm) at [15]; *Osbourne v Persons Unknown* [2022] EWHC 1021 (Comm) at [25]-[27]; and *D'Aloia v Persons Unknown* [2022] EWHC 1723 at [12]-[14].
[177] Para 19.134.
[178] Speech at Paulskirche, Frankfurt, 25 June 1963.

Appendix – Chronology of Law Commission projects in the field of law and emerging technology

	2020	2021			2022		
Smart contracts	*Smart Contracts Call for Evidence* published on 17/12/2020	End of consultation period on 31/03/2021		*Smart legal Contracts: Advice to Government* published on 25/11/2021			
Electronic trade documents		*Digital assets: electronic trade documents: A consultation paper* published on 30/04/2021	End of consultation period on 30/07/2021		*Electronic trade documents: Report and Bill* published on 16/03/2022		
Digital assets		*Digital Assets Call for Evidence* published on 30/04/2021	End of consultation period on 30/07/2021	*Digital Assets Interim Update* published on 24/11/2021		*Digital Assets: Consultation Paper* published on 28/07/2022	End of consultation period on 04/11/2022
Decentralised Autonomous Organisations (DAOs)							Expected to start in second half of 2022
Conflict of laws and emerging technology							Expected to start in second half of 2022