

Scottish Government – Digital Assets in Scots Private Law Consultation
Consultation Response (February 2025)

[1] This response is provided by Dr Alisdair MacPherson, Professor Burcu Yüksel Ripley, Dr Jonathan Ainslie, Dr Chike Emedosi, Professor Donna McKenzie Skene and Dr Euan West. We are all members of the Centre for Commercial Law and/or the Centre for Scots Law at the University of Aberdeen.

General

[2] We are pleased that the Scottish Government is consulting on digital assets in Scots private law. We acknowledge the important work undertaken by the Expert Reference Group, which underpins the proposals in the consultation paper, and we are generally supportive of those proposals.

[3] We previously responded positively to the Expert Reference Group’s consultation in 2022, as well as the various consultations undertaken by the Law Commission (of England and Wales) and the House of Lords, in relation to digital assets – see <https://www.abdn.ac.uk/law/research/centres/centre-for-commercial-law/public-policy--stakeholder-engagement/#panel73833>.

[4] Professor Yüksel Ripley and Dr MacPherson have written widely on digital assets (including, in relation to Scotland, B Yüksel Ripley and A MacPherson, Digital Assets Law Reform in England and Wales and Prospects for Scotland, *Aberdeen Law School Blog*, 2022, available at <https://www.abdn.ac.uk/law/blog/digital-assets-law-reform-in-england-and-wales-and-prospects-for-scotland/> and A Held, A MacPherson and B Yüksel Ripley, “United Kingdom (UK) Report on Cryptocurrencies: With a Focus on the Law of England and Wales and the Law of Scotland” (2023), available at <https://ssrn.com/abstract=4543838>). They have also recently undertaken a Royal Society of Edinburgh (RSE)-funded project (with Luci Carey) on “Digital Assets in Scots Private Law: Innovating for the Future”. Various collaborators and participants across Scotland, the UK and Europe have been involved in the project and it has led to a number of outputs – available here <https://www.abdn.ac.uk/law/research/centres/centre-for-commercial-law/digital-assets-in-scots-private-law-innovating-for-the-future/>, and a forthcoming article.¹ There was a general consensus among project participants that legislative intervention in this area would help to clarify certain fundamental matters regarding digital assets but that relevant legislation should be brief and limited in its scope. This is consistent with earlier research findings of Professor Yüksel Ripley and Dr MacPherson outlined in the sources cited above.

Question One

Is primary legislation the most effective way to resolve uncertainty about the status of digital assets in Scots private law?

If you do not agree, please explain your reasons.

[5] Yes, we agree. We are of the view that Scots law could accommodate digital assets without bespoke legislation, particularly due to the flexibility and expansiveness of the meaning of property

¹ B Yüksel Ripley, A MacPherson and L Carey, “Digital Assets in Scots Private Law: Innovating for the Future” (Forthcoming).

and property law in Scotland. However, there is currently an absence of case law and other authority. It may be a considerable period of time before there is sufficient case law to provide clarity regarding various aspects of digital assets from Scottish courts, especially since Scotland is a small jurisdiction and also some disputes are settled or resolved out of court (see further Yüksel Ripley and MacPherson cited above). We think it is reasonable for individuals, businesses, legal practitioners and other stakeholders to obtain clarity and certainty. Whatever view one takes about the merits of digital assets, the way in which such assets are treated in private law is important. For example, an investor will wish to know whether and how they can acquire ownership of a digital asset, a wife in the context of a divorce will want clarity as to whether she has any entitlement to her husband's digital assets, the children of a deceased individual will wish to discover if they can inherit their parent's assets, and a creditor would expect to have the ability to enforce against their debtor's digital assets.

[6] The position in Scotland differs somewhat from the position in England and Wales, where the principal issues concern the precise categorisation of digital assets, and the Property (Digital Assets etc) Bill consequently addresses this. While general categorisation may be more straightforward in Scotland, the relevant category (incorporeal moveables – see below) requires some adaptation and special rules to best accommodate digital assets within the doctrinal structure of Scots law. This is because of the novel aspects of digital assets and economic and practical realities concerning them. There is greater need for legislation in Scotland for clarification and adaptation of the law concerning digital assets, due to the relative lack of authority compared to England, which now has a reasonable volume of cases providing greater certainty. As such, we see significant merit in using legislation to clarify the status and characteristics of digital assets in Scots private law. It will also allow for an approach that takes account of the views of different stakeholders, and offers more control over the particular rules to be adopted and their breadth, in comparison to case law which depends upon the cases that happen to arise and come before the courts. In the meantime, there will be some uncertainty and this could impact on the use of digital assets and affect decision-making of commercial parties.

Question Two

Should any possible future primary legislation have a narrow scope of application by being limited to a statutory definition of digital assets as property, rules governing the transfer of ownership, and provisions confirming that the principles of Scots private law continue to apply to digital assets?

If you do not agree, please explain your reasons.

[7] We agree that future primary legislation should not be a “code” for digital assets in Scots private law, or even a detailed piece of legislation covering a large number of matters concerning digital assets in various areas of private law. Instead, any legislation should be more overarching, mainly providing foundational certainty, and relatively brief. However, such legislation should be more expansive than the Property (Digital Assets etc) Bill for England and Wales, given the absence of authority in Scotland and the need for clarity on certain matters that have already been addressed in English law. Legislation with a narrow scope of application also leaves greater opportunity for practitioners to experiment with suitable legal approaches and solutions, and will enable judges to apply principles of Scots law in a suitable way and to refine pragmatically the relevant rules for digital assets.

[8] The participants in Aberdeen's RSE-funded digital assets project, including various practitioners, were strongly of the view that while legislation would be desirable to provide some clarity on fundamental issues, it should be brief, limited and technologically neutral.

[9] We agree that amongst the most important matters to address in legislation are a statutory definition of digital assets as property, and rules governing the transfer of ownership.

[10] Regarding express provision confirming that the principles of Scots private law continue to apply to digital assets, we think that this would probably be how Scottish courts would interpret matters without such provision, but it would be useful to put the point beyond doubt. Issues have arisen in the past for e.g. floating charges following their introduction to Scots law, where there was no equivalent provision and the relevant legislation (including for their creation and enforcement) was viewed as akin to a code, meaning certain rules and principles of security rights generally did not apply (see *Forth & Clyde Construction Co Ltd v Trinity Timber & Plywood Co Ltd* 1984 SC 1). It can be helpful to clarify how the legislative reform interacts with the wider law, for the avoidance of doubt – see e.g. Companies Act 2006, ss 170(3)-(4), 178(1) and 180(1) in relation to duties of directors. The inclusion of a provision regarding the continued application of principles of Scots law clearly informs judges that they can apply such principles and particular rules emanating from those principles, and also appropriately signals that they should interpret the law relating to digital assets as consistently as possible with the rest of Scots law. This will help integrate such assets into private law more broadly.

[11] However, we do not think that the legislation should necessarily be limited to the foregoing aspects, as there are a few additional matters that could be usefully addressed (please see further below).

Question Three

For the purposes of Scots property law, should digital assets be classified as incorporeal moveable things?

If you do not agree, please explain your reasons.

[12] Yes, we agree. Even without legislation, we think that (certain) digital assets would be accepted as property objects in Scots law and, if so, would be considered a special type of incorporeal moveable property (see further Yüksel Ripley and MacPherson cited above). They are not land or rights in relation to land and so are moveable property (rather than heritable property). And, while we agree that there are some similarities with corporeal moveable property, as specified in the consultation paper, we take the view that intangible property can be equated to incorporeal property in Scots law,² and it would be counter-intuitive for digital assets to be deemed corporeal moveables. We consider that tangibility/intangibility (almost always) determines whether property is to be corporeal or incorporeal respectively. Incorporeal moveable property is a relatively flexible category in Scots law (which avoids some of the categorisation difficulties in English law) and includes not only claim rights, but also various other property types such as shares and intellectual property rights. Therefore, it can also accommodate digital assets.

² As noted in B Yüksel Ripley, A MacPherson and L Carey, “Digital Assets in Scots Private Law: Innovating for the Future” (Forthcoming), Scottish authorities generally equate (in)corporeality with (in)tangibility – see e.g. K G C Reid, *The Law of Property in Scotland* (1996), para 11; Bankton, *Institute* 1.3.20, Erskine, *Institute* 2.2.1 and Bell, *Commentaries*, 5th edn (1826) II, 1. Interestingly, Bankton, Erskine and Bell refer to incorporeal property as having its existence in law, which, if viewed restrictively, might be considered at odds with digital objects being included in the category of incorporeal moveables, as digital assets are stated to be independent of the legal system (see below). However, the point made by the institutional writers may simply be a reflection of the forms of incorporeal moveable property then in existence, rather than a defining characteristic of incorporeal moveables as a category. In any event, it seems far more of a challenge to place such assets within the category of corporeal property they identify, depending as it does on perceptibility to the senses.

[13] It would nevertheless provide certainty if legislation confirmed that digital assets are incorporeal moveable things. Yet, even if this is enacted, the greater challenge is determining the relevant rules that apply to digital assets, given their novel and unique features. Legislation can assist with this to some extent, but the courts, as they encounter digital asset disputes, will also need to determine which specific principles and rules of the law of incorporeal moveable property are applicable to digital assets and how, or whether, bespoke solutions are more suitable. While it may be necessary to occasionally look to the law of corporeal moveables to develop answers or analogical solutions for digital assets, legislation such as the Sale of Goods Act 1979 will not apply, as it is limited to “goods” i.e. “all corporeal moveables except money” (s 61(1)). However, there may be rules in that legislation or elsewhere that provide suitable or desirable templates for equivalents to be developed for digital assets.

[14] We note that under the Electronic Trade Documents Act (ETDA) 2023, s 3(4), an electronic trade document (ETD) is “to be treated as corporeal moveable property for the purposes of any Act of the Scottish Parliament relating to the creation of a security in the form of a pledge over moveable property”. This provision places an ETD, falling within the scope of the ETDA 2023, into the category of corporeal moveable property in Scots law in relation to pledge. Given that an ETD can be a digital asset, further attention should be given to the interaction between this provision and any future legislation confirming that digital assets are incorporeal property in Scots law. In any event, the approach that s 3(4) of the ETDA 2023 adopts in ensuring legal parity between an ETD and its paper equivalent in relation to pledge is not in line with the ETDA 2023’s functional approach.³ As Professor Yüksel Ripley and Dr MacPherson have previously stated, it would have been preferable to achieve that legal parity under the ETDA 2023 by focusing on the ultimate legal effect of an ETD, rather than its property categorisation, through alternative wording: “An electronic trade document is capable of being encumbered by a possessory pledge or statutory pledge under the law of Scotland provided that an equivalent paper trade document can be encumbered by such a pledge” – see <https://committees.parliament.uk/writtenevidence/115567/pdf/>.

Question Four

Should any future statutory definition of the category of digital assets considered an object of property be technologically neutral and avoid being too prescriptive?

If you do not agree, please explain your reasons.

[15] Yes, we agree. Please see further our answer to question 2 above.

Question Five

The ERG proposed that digital assets be defined with reference to two limiting characteristics. The first characteristic would be that the digital asset is capable of independent existence. Should this be a defining criterion?

If you do not agree, please explain your reasons.

[16] We broadly agree with this. Given that special rules in possible future legislation and more generally will apply to digital assets, it is necessary to define them in some way. We can see the

³ B Yüksel Ripley, A MacPherson and L Carey, “Digital Assets in Scots Private Law: Innovating for the Future” (Forthcoming).

value in using rivalrousness and independent existence, and note that the Law Commission (of England and Wales) identified these as defining characteristics too.⁴

[17] Rivalrousness is a general feature for the recognition of property objects generally, so there is then a need to also have a criterion specific to digital assets, to distinguish them from other property objects, including other incorporeal moveables. The consultation paper proposes “independent existence” for this purpose. However, the meaning of this criterion is not immediately apparent. It may be desirable to further define “independent existence”, with reference to it meaning existence independent of law/the legal system and of any person who may have rights in the asset. Our interpretation of this criterion is that digital assets depend on the law and/or legal system for recognition of their legal status, but they do not depend on the law/legal system for their existence as a matter of fact. We however note that there may be some more difficult situations where e.g. tokenised securities depend on contractual arrangements or other legal relations that rely on the law/legal system for their existence. However, we assume that the tokens will be considered separately from the underlying asset(s) in assessing their (in)dependent existence.

[18] In the consultation paper, it is not entirely clear to us how a statutory definition of digital assets will work, without some reference to the intangible or digital/electronic nature of digital assets. For example, if it is simply stated that a digital asset is of a rivalrous nature and capable of independent existence, this would serve the purpose of excluding other incorporeal moveables from the scope; however, it would also create an unintended result of potentially classifying corporeal objects as being digital assets, as both characteristics are also applicable to such objects (including electronic devices that can be used to access digital material). If digital assets are then stated to be incorporeal moveable things, it could have the bizarre result of reclassifying corporeal moveables as incorporeal moveables. We suspect that a court would adopt a purposive approach to achieve a contrary (and correct) result, but it would be an undesirable state of affairs nonetheless, and would create some uncertainty. We therefore think that the statutory definition should include a reference to the intangible or digital/electronic nature of digital assets and propose the following definition:

(1) A thing that is digital or electronic⁶ in nature is a digital asset⁶ if it is—

(a) rivalrous,⁷ and

(b) capable of independent existence.

(2) A digital asset is an incorporeal moveable thing unless expressly provided otherwise in any enactment.⁸

⁴ Law Commission, *Digital Assets as Personal Property: Supplemental Report and Draft Bill* (Law Com No 416, 2024) paras 4.22 et seq.

⁵ The wording of “A thing that is digital or electronic in nature” would also have the advantage of being consistent with the wording in the Property (Digital Assets etc) Bill for England and Wales, which states “A thing (including a thing that is digital or electronic in nature)”. An alternative form of wording could instead refer to “A thing that is electronic or digital in form” or “in nature”/“form” could be omitted, so that it would read, “A thing that is electronic or digital is a digital asset if it is:”. Alternatively, it could be worded as “A thing that is intangible” but this would be less satisfactory and precise.

⁶ Or “digital object”, if that is ultimately the preferred term.

⁷ The wording in the consultation paper “of a rivalrous nature” could be used instead, in which case it would be desirable to avoid using “in nature” on the previous line.

⁸ The wording beginning “unless expressly provided otherwise...” is suggested to take account of any contrary provision regarding particular types of digital assets in other legislation, including with reference to the point outlined above in our answer to question 3 at [14] on the interaction between s 3(4) of the ETDA 2023 and this proposed legislation.

[19] If a more expansive description is to be adopted for (1)(b), the following might help to clarify what is meant:

(1)(b) capable of existence independent of–

(i) the legal system,⁹ and

(ii) of any person who may have rights in the thing.

In addition, a definition of rivalrous could be in the following terms:

(3) A thing is rivalrous for the purposes of (1)(a) if its use or consumption by one person precludes [or prejudices]¹⁰ its use or consumption by another person.

[20] An alternative approach to the proposal would be to use a more technical and focused definition for digital assets. But this carries its own risks. The definition would need to be precise enough to capture the particular assets that are intended to be covered while being expansive, flexible and future-proof enough to take account of technological developments and innovation that give rise to equivalent assets in the future. In the UK, various pieces of legislation (principally regulatory) now contain a definition of cryptoassets, such as the Money Laundering and Terrorist Financing (Amendment) Regulations 2019 (SI 2019/1511), which inserted Reg 14A into the Money Laundering, Terrorist Financing and Transfer of Funds (Information on the Payer) Regulations 2017 (SI 2017/692).¹¹ It states that “‘cryptoasset’ means a cryptographically secured digital representation of value or contractual rights that uses a form of distributed ledger technology and can be transferred, stored or traded electronically”. As the plan would be to legislate in Scotland for digital assets beyond merely cryptoassets, such a definition would need to be amended to reflect technological neutrality, particularly to remove the reference to “cryptographically”. A definition of digital assets could expressly specify that certain assets such as cryptoassets fall within the definition, if that was considered desirable (perhaps as a basepoint example of such an asset). The legislation could also make provision to enable the types of asset specified to be amended by secondary legislation.

[21] A further approach would be to draw upon definitions in other jurisdictions or those of international bodies. For example, the UNIDROIT Principles on Digital Assets and Private Law (2023) states that “‘digital asset’ means an electronic record which is capable of being subject to control” (Principle 2(2)), with “electronic record” (at Principle 2(1)) and “control” also defined (Principle 6). We note the following illustrations for what may constitute digital assets under the UNIDROIT Principles: virtual (crypto) currency on a public blockchain (e.g. Bitcoin) is a digital asset (see illustration 1, para 2.8 onwards); a central bank digital currency (CBDC) may be a digital asset depending on how it is designed and issued (see illustration 2, para 2.11 onwards); and an Excel or Word file could be a digital asset if the file is capable of being subject to control through password protection (see illustration 5, para 2.17 onwards). In the USA’s Uniform Commercial Code Article 12, the term “controllable electronic record” is used, and this is stated to mean “a record stored in an electronic medium that can be subjected to control under Section 12-105” (Section 12-102). Section 12-105 then specifies what is meant by control, including references to exclusive powers to prevent others “from availing themselves of substantially all the benefit from the electronic record” and being able to transfer control to another person or to cause another person to obtain control. Such definitions can be adapted, by e.g. referring to “exclusive control”, if considered appropriate.

⁹ Or “the law and the legal system”.

¹⁰ As per our response to question 6 (see below), “precludes” or an equivalent may be preferable to “prejudices”.

¹¹ Of course, digital assets in a Scots private law context do not need to be defined in a similar way, but it may be useful to at least consider it as a starting point.

Question Six

The second characteristic would be that the digital asset is of rivalrous nature, in that the use or consumption of the digital asset by one person will prejudice the use or consumption of that same asset by another person. Should this be a defining criterion?

If you do not agree, please explain your reasons.

[22] Yes, we agree. Please see also our answer to the previous question. Rivalrousness is a general feature of property objects, and so it seems sensible to include it as a requirement for digital assets to be property objects. However, “rivalrous” and “rivalrousness” are not particularly familiar terms in Scots law and in legal practice. So, it would be useful if a definition were provided, in the terms specified in response to the previous question, or by some equivalent, e.g. “a digital asset is of a rivalrous nature if the use or consumption of the digital asset by one person prejudices¹² the use or consumption of that digital asset by another person”. But we do wonder whether “precludes” may be more appropriate than “prejudices” here, given that prejudices suggests harm to another, whereas precludes seems to more accurately reflect the inability of another party to use or consume the asset.¹³ Another suitable term could be used instead, such as “prevents” or “excludes”.

Question Seven

Should any possible future primary legislation refer to the category of digital assets which are to be classed as objects of property for the purposes of Scots property law as “digital assets”, without creating any other defined term to describe this category, such as “digital objects”?

If you do not agree, please explain your reasons and what defined term or terms you would consider more appropriate to use.

[23] There is no universally accepted terminology in this area. There are, consequently, various possibilities that can be considered here, including the following: digital assets, digital objects, digital moveables, digital things, digital property, digital property objects, (digital) tokens, digital items etc. Our two favoured options are “digital assets” and “digital objects”, with a slight preference for the latter.

[24] “Digital assets” is a widely used term, including in this consultation paper, and is also found in the short title of the Property (Digital Assets etc) Bill for England and Wales, as well as some international instruments such as UNIDROIT Principles on Digital Assets and Private Law (2023). The use of the term digital assets can provide alignment with the English position in terms of the terminology and facilitate the use of the term in this legal area across the UK. However, in general, the term is often used to refer to a far wider category of assets than those to be covered by a narrow legal definition as envisaged by the consultation paper. It may be desirable to keep available a broader term such as digital assets, to refer not only to assets that can be property objects in the sense outlined here, but other assets too.

¹² Or “precludes”, as per the following sentence.

¹³ We are aware that “prejudices” is used by the Law Commission, *Digital Assets as Personal Property: Supplemental Report and Draft Bill* (Law Com No 416, 2024), paras 2.22-2.24. However, cf T Cutts, “Crypto-Property? Response to Public Consultation by the UK Jurisdiction Taskforce of the LawTech Delivery Panel” (2019) 2, <https://ssrn.com/abstract=3406736> who uses “inhibits” (and is cited by the Law Commission), albeit that such a term may cause confusion in Scots law given the diligence of inhibition. An appropriate synonym such as “precludes” may therefore be preferable.

[25] “Digital objects” may be considered more precise and technically accurate from a Scots property law point of view, as well as being fairly neutral. As it is less widely used and understood, it may emphasise that it means something technical and legal, albeit that being less well-known and used may have its own drawbacks. It should be acknowledged that the long title of the Property (Digital Assets etc) Bill refers to “things that are capable of being *objects* of personal property rights” (emphasis added). We also note that the Law Commission has used both “digital assets” and “digital objects” as relevant terms in its work.

Question Eight

Should control over a digital asset generally be the basis for establishing ownership of that asset?

If you do not agree, please explain your reasons.

[26] In general, “control” is emerging as a suitable concept to use in relation to digital assets. We can understand why control over a digital asset is being suggested in this consultation paper too as the basis for establishing ownership of the asset. Control appears to reflect the reality of who most users would consider is the holder (or even “owner”) of the asset and also reflects the powers that the person with control has, which correspond to those normally associated with ownership, like the ability to exclude, to use the asset, and to transfer it.¹⁴ It clearly represents the factual situation in relation to who can deal with digital assets. If control is not used as the basis for ownership, then the “owner” would seem to have such status without the powers inherent in ownership, and this would cause considerable issues for parties seeking to enforce against that party.

[27] However, using control to ordinarily determine ownership would be contrary to the publicity principle of Scots law, given that control does not depend on publicity. While control may be the result of an entry on the relevant ledger or blockchain, which provides some form of potential public notice, its public element may be limited to system users (at least in some instances) and may only refer to a pseudonymous account. In addition, control can often arise as a result of “off-chain” activity, which may be an entirely private arrangement. Yet there are other types of property for which the ownership position also does not depend on a publicity mechanism (whether it is possession, registration or otherwise), including some corporeal moveables. It may therefore be reasonable for digital assets also not to be dependent on a publicity mechanism in relation to ownership.

[28] On balance, we agree with the proposal regarding control, as a reflection of the economic and practical realities of digital assets and for reasons of commercial expediency.

Question Nine

Should the voluntary transfer of the ownership of a digital asset require the transfer of control over that asset from the current owner to another person, coupled with the current owner intending to transfer ownership to that other person?

If you do not agree, please explain your reasons.

¹⁴ Yet the answer may depend upon exclusive control – see our answer to question 9 below.

[29] We broadly agree.¹⁵ In addition to our points in response to the previous question (both positive and negative), we also note that while there may be some evidentiary issues relating to ownership if off-chain transfers are permitted, there is likely to be commercial pressure in favour of a flexible approach recognising the possibility of transfer of ownership using both on-chain and off-chain transfers.¹⁶ The transfer of control may be viewed as the equivalent of delivery of a corporeal moveable at common law, albeit that the latter may be considered to exhibit a greater degree of publicity, but not always (as the item could be delivered in private and subsequently concealed). Furthermore, at least there would be some identifiable step that would signify the transfer of ownership, unlike for the sale of goods, where “property... is transferred to the buyer at such time as the parties to the contract intend it to be transferred” (Sale of Goods Act 1979 s 17(1)). In any event, the publicity principle may be viewed as a means of managing risk in favour of third parties, but it may not be considered so important for digital assets, given their features and expectations of those dealing with them. There are also some mechanisms that enable the traceability of such assets, particularly once entries are made on the relevant system.

[30] We note that it is proposed that the transfer of control would be necessary but insufficient for the voluntary transfer of ownership, as it would also require an intention to transfer ownership to that other person. We agree with this approach. It may, however, give rise to practical issues of proof, and it also raises the question of what rights a party may obtain by virtue of voluntarily receiving control but where there is no intention to transfer ownership. Presumably, if there is an intention to transfer ownership for security purposes, this will involve an actual transfer of ownership, but what if the owner only gives control to a creditor for security purposes and does not intend to transfer ownership. Would this give the creditor a real right in security akin to pledge (with control standing in place of possession) or would it simply give a creditor a practical security with various powers, despite not having any actual real right? The Scottish Government may ultimately wish to avoid addressing this and leave it up to the courts to determine, but it is nevertheless worth considering the matter fully first.¹⁷

[31] One problem with using the transfer of control for determining the transfer of ownership is that while digital assets are of a rivalrous nature, that is not necessarily true of control (cf possession). If an owner giving their private key to another party transfers control, then multiple parties can acquire control, as an owner can give their private key to various parties, or indeed can also retain it themselves despite giving it to another party. As such, if X gives their private key information to Y and Z in turn, and intends to transfer ownership to those parties, who is the owner or do Y and Z become co-owners? If, for example, Y becomes owner or Y and Z are co-owners, what happens if Z then uses the private key control to become the holder “on-chain”? Does Z then become owner, despite Y not having agreed to transfer ownership to them, or will Y remain owner and have the ability to claim the asset back from Z?

[32] Such issues could be avoided, to some extent, by relying upon transfer of “exclusive control”, in which case only one party will become the owner. If X transfers control to Y and Z, neither party becomes owner as they do not have exclusive control. Similarly, if X retains control as well as giving it to Y, X still has the ability to transfer control to Z, and so Y does not have exclusive control. However, if either Y or Z uses the information to become holder “on-chain” they would

¹⁵ If the transfer of control is not used in the way specified, then a party obtaining control in the context of a transfer of ownership can be considered to acquire a personal right akin to a *ius ad rem*, i.e. a right to obtain a real right (of ownership), which they can utilise to complete a transfer and acquire ownership. This is comparable to a party with a valid disposition in relation to land. However, unlike with land, if the party obtaining control has exclusive control (see further below), it is not possible for the owner to create a *ius ad rem* in favour of another party.

¹⁶ B Yüksel Ripley, A MacPherson and L Carey, “Digital Assets in Scots Private Law: Innovating for the Future” (Forthcoming).

¹⁷ See also B Yüksel Ripley, A MacPherson and L Carey, “Digital Assets in Scots Private Law: Innovating for the Future” (Forthcoming).

then acquire ownership by virtue of now having exclusive control, with the other party having lost control.¹⁸ Whether the party who has lost control has a remedy, and against whom, will depend on the circumstances.¹⁹

[33] We also note that in UNIDROIT Principles on Digital Assets and Private Law (2023), for example, while “control” is used, it is defined in such a way that it essentially amounts to “exclusive control”. Principle 6 states:

(1) A person has ‘control’ of a digital asset if:

(a) subject to paragraphs (2) and (3), the digital asset, or the relevant protocol or system, confers on that person:

(i) the exclusive ability to prevent others from obtaining substantially all of the benefit from the digital asset;

(ii) the ability to obtain substantially all of the benefit from the digital asset; and

(iii) the exclusive ability to transfer the abilities in sub-paragraphs (a)(i), (a)(ii) and (a)(iii) to another person; and

(b) the digital asset, or the relevant protocols or system, allows that person to identify itself as having the abilities set out in sub-paragraph (a).

(2) A ‘change of control’ means a transfer of the abilities in sub-paragraph (1)(a) to another person, and includes the replacement, modification, destruction, cancellation, or elimination of a digital asset, and the resulting and corresponding derivative creation of a new digital asset (a ‘resulting digital asset’) which is subject to the control of another person.

(3) An ability for the purposes of sub-paragraph (1)(a) need not be exclusive if and to the extent that:

(a) the digital asset, or the relevant protocol or system, limits the use of, or is UNIDROIT Principles on Digital Assets and Private Law programmed to make changes to, the digital asset, including change or loss of control of the digital asset; or

(b) the person in control has agreed, consented to, or acquiesced in sharing that ability with one or more other persons.

[34] It may be useful to draw upon some of this material, in adapted form, for the purposes of producing relevant legislative provisions in Scots law.

[35] We recognise that the Scottish Government may identify drawbacks in terms of using exclusive control, but the issues need to be weighed up carefully.

[36] As an aside, we note the statement in the consultation paper, at page 12, that “*assignment is not a suitable method to transfer ownership of digital assets. Assignment is a means to transfer a right or claim from one person to another, most commonly the right to payment of a debt.*” While we can understand this, and it is certainly true that assignment in a narrow sense of the term (especially involving intimation for claims) is inapplicable to digital assets, we think it is more debatable whether assignment in a broader sense is always inapplicable for digital assets. Assignment can be, and has been, used to refer to the transfer of rights in all types of pre-existing incorporeal property: claims, intellectual

¹⁸ This is comparable to where the owner of heritable property delivers dispositions to multiple parties and the first of them to register in the Land Register of Scotland will become owner (i.e. that is akin to an entry (registration equivalent) being made on the blockchain). However, the analogy breaks down as ownership of digital assets can be obtained at the equivalent of the disposition stage, if exclusive control is given at that point.

¹⁹ It is possible, for example, that the “offside goals rule” could apply in some circumstances, rendering the transfer voidable.

property, shares, and even subordinate real rights in corporeal property objects, such as standard securities and leases in relation to land.²⁰ As such, assignation may be considered the appropriate term, and indeed concept, for the transfer of rights where there is no direct corporeal property object, which applies equally to digital assets. Regarding methods of completing assignments, Scots law permits various mechanisms, including intimation (for claims), registration of different types (for e.g. shares and patents, and as of 1 April 2025 in the Register of Assignations for claims)²¹, and by assignation alone (for copyright).²² As such, the use of (exclusive) control in relation to the transfer of ownership of digital assets would not preclude the applicability or validity of assignation as a concept and term.

[37] We do, however, recognise that the consultation paper may reflect a counterview that digital assets, given their unique features, can be distinguished from the other types of incorporeal property, leading to the conclusion that assignation is always inapplicable for them. In any event, the more neutral, and broadly applicable, “transfer of ownership” and/or “transfer of digital assets” can be used instead.

Question Ten

Should a person who acquires control of a digital asset in good faith and for onerous consideration be recognised in Scots property law as acquiring the ownership of that digital asset, even where the transferor from whom they acquired the digital asset was not the owner?

If you do not agree, please explain your reasons.

[38] Yes, we agree. This would represent a departure from the standard position in Scots property law, whereby ownership cannot be acquired from a non-owner.²³ However, given the characteristics of digital assets, including pseudonymity, and the method(s) and potential ease of transfer, as well as pragmatic considerations relating to making the relevant systems work effectively, we support the proposal. With digital assets it may be particularly unfair for a good faith purchaser to be challenged by someone claiming that they remain the owner, after a number of purported transfers and despite the ledger or equivalent suggesting otherwise. There would also be considerable practical challenges for someone claiming to be owner in terms of enforcing their rights against a later good faith purchaser. Analogies can also be drawn between the transfer of digital assets and the transfer of cash and certain negotiable instruments, for which the general Scots law position does not apply, and a good faith acquirer can obtain ownership from a non-owner.

[39] We wonder whether using the term “in good faith and for value” may be preferable to “in good faith and for onerous consideration”. The former is used, for example, in the Bills of Exchange Act 1882, s 29(1)(b) (relating to a “holder in due course”), and in the Insolvency Act 1986, ss 242(4) and 243(5), and the Bankruptcy (Scotland) Act 2016, ss 98(7) and 99(7) (with respect to protections in the context of gratuitous alienations and unfair preferences). The reference to consideration may be understandable enough (e.g. there are references to “adequate consideration” in relation to gratuitous alienations), but there could be some confusion with the

²⁰ In fact, some historical Scots law sources also refer to the assignation of corporeal moveables, see e.g. Erskine, *Institute*, III.5.1. However, this seems to stretch the meaning of the term too far.

²¹ Due to the Moveable Transactions (Scotland) Act 2023.

²² It can be noted that the alternatives to intimation are ordinarily the product of legislation.

²³ I.e. *nemo dat quod non habet*. See KGC Reid, *The Law of Property in Scotland* (1996), paras 669 et seq.

consideration requirements of English law. We do not have especially strong views on this matter but raise it in case the Scottish Government would wish to give it further attention.

[40] We assume that there is no desire to refer to “adequate consideration” or equivalent, as there is for e.g. gratuitous alienations. Presumably if a party acquires a digital asset for any value or consideration, including significantly under the market value, this could meet the test referred to in the consultation paper. However, this may in fact put the intended acquirer on notice regarding the wider circumstances or lead them to investigate further, which may cause them no longer to be in good faith. We also assume that good faith is to be determined at the point when control is acquired, and that it does not matter if they subsequently discover that the “transferor” was not the owner.

Question Eleven

Should any possible future primary legislation make provision confirming that the principles of Scots private law continue to apply to digital assets, so far as those principles are consistent with the characteristics of those assets?

If you do not agree, please explain your reasons.

[41] We agree. We discussed this above in our answer to question 2.

Question Twelve

Should any possible future primary legislation make provision to clarify that digital assets which qualify as property may be held on trust?

If you do not agree, please explain your reasons.

[42] We think that if digital assets qualify as property, they can be held on trust, and so no legislation provision would be required. In addition, such statutory provision may raise the question of why there is not special provision for other areas of private law. However, we can understand why there may be a desire to have a specific provision for trusts, for the reasons given by the Expert Reference Group, and we would be willing to support it on that basis. There would also be no harm in doing so.

Question Thirteen

Should any possible future primary legislation contain any other substantive provisions within devolved competence which are not set out in this consultation? If so, please explain what additional provisions you consider would be needed and why they would be needed.

[43] We think it might be useful to include a provision in the proposed legislation clarifying and confirming the legislation’s retrospective/retroactive effect. Although we, in principle, are not in favour of legislation having retrospective/retroactive effect, we would support it for this proposed legislation. Otherwise, it may be highly artificial and complicated if different rules might apply to the same type of property before and after the introduction of the legislation. We note that, in relation to the Property (Digital Assets etc) Bill for England and Wales, the question of whether the Bill should have retroactive effect is being consulted on by the Property (Digital Assets etc) Bill [HL] Special Public Bill Committee.

[44] We note that various areas of private law are not covered in any detail in the consultation paper and there is no suggestion that there will be any specific legislative provisions for them. This is understandable, given the desire to keep legislation brief, and because addressing foundational aspects relating to property matters will also resolve issues arising elsewhere. Property law provides an infrastructure that the rest of private law relies upon.

[45] However, there are perhaps a few matters that should be considered further, with a view to possible legislative provision, including by way of amending existing legislation.²⁴ The most significant areas are those relating to involuntary transfer, especially debt enforcement and insolvency law.

[46] Insolvency law is less of a problem than the law of diligence (debt enforcement). In both corporate and non-corporate (personal)²⁵ insolvency procedures there are mechanisms that enable an insolvency practitioner to obtain information from a debtor and to ultimately acquire digital assets, with court involvement, if required, to compel the debtor's co-operation (giving rise to offences by the debtor if they do not comply). However, the process of acquiring the digital asset(s) may be convoluted and the most appropriate means of doing so may be uncertain or challenged, and there could be practical difficulties given the characteristics of these assets. As such, it would probably be desirable to amend the Bankruptcy (Scotland) Act 2016 to provide that a debtor is required (i.e. has a duty) to inform the trustee in sequestration of any digital assets that they hold, and to transfer control of that property to the trustee as soon as reasonably practicable. If they do not provide that information or transfer control, particularly if a request is made by the trustee and/or the court, then they may be committing an offence (either by bespoke provision or with reference to e.g. s 218 of the 2016 Act). Furthermore, given the possibility that the assets are held by a third party for the debtor, a specific provision could be introduced specifying that any person holding assets for the debtor is required to transfer control of such assets, either upon request by the trustee or following service of a court order. Sanctions equivalent to those applicable to a debtor for non-compliance should apply in this context too.

[47] Of course, if such changes are made, this will lead to a slight divergence from corporate insolvency law, unless equivalent provisions are also introduced in that context, especially for liquidation and administration. The difficulty is that only some of corporate insolvency law is within devolved competence, and so making the required changes may not be possible. This could, however, be the subject of discussion with the UK government to clarify the position and, if necessary, consider possible solutions. In any event, we think the changes to bankruptcy legislation are still justified even if there are no equivalent amendments to corporate insolvency law.

[48] The current law of diligence is inadequate to enable a creditor to successfully enforce against digital assets held by a debtor. They will often be unaware of the existence of such assets, and there are insufficient means of obtaining such information in Scots law outside formal insolvency procedures. If information disclosure orders (Bankruptcy and Diligence etc (Scotland) Act 2007, s 220) were brought into force, this would partially resolve the issue but not entirely, as the debtor could not be compelled to provide relevant information. Even if the creditor is aware of such assets and wants to execute diligence, arrestment will be unavailable if there is no third party involved, and probably ineffective if the third party is based in another jurisdiction. Attachment might be possible in some limited circumstances to obtain physical devices on which e.g. private keys are available, but there are considerable challenges with this too. In the absence of any other diligence being available, the creditor could only use adjudication for debt (as Scots law's residual

²⁴ As well as standalone provisions for digital assets and amendments to legislation, there may be some value in making provision for secondary legislation that allows for future amendment of primary legislation to make changes relating to digital assets; however, we realise that this would be controversial.

²⁵ The term "personal insolvency" is often used, but the relevant bankruptcy procedures in Scotland also cover some entities as well as individuals.

diligence). However, adjudication's enforcement methods, including the absence of a power of sale, and having to wait 10 years for an action of declarator of expiry of the legal for the creditor to become owner,²⁶ are unsuitable for digital assets. In addition, there may be little to stop the debtor from selling the asset in the meantime, as it may be unlikely that the adjudication would affect a good faith acquirer for value in this context. Even if it could, the creditor's ability to act would remain highly constrained. The introduction of residual attachment (see 2007 Act, s 129 onwards) would resolve some of the issues, and allow for courts to devise flexible remedies, including compelling the debtor to transfer control of digital assets to a third party. However, fears about the impact of replacing adjudication for debt with land attachment in relation to the debtor's home have hindered any reform in this area, including the introduction of residual attachment. For there to be an effective "seize" diligence for digital assets, it seems to be necessary for a debtor to be compelled to transfer control of such assets, and this is not currently available under Scots law. Rather than going into more detail here, we refer to our existing and future publications on these matters.²⁷ We would also be happy to provide additional written material and/or to discuss these matters further.²⁸

[49] These are obviously matters of difficulty that we would not want to hinder or delay the introduction of legislation on digital assets outlined in the consultation paper. There is currently an ongoing review of debt solutions in Scots law, including diligence, which could give further consideration to this matter, separately from the discussions regarding the proposed legislation on digital assets. But there is no indication that this specific issue is being considered or will be considered. In the near future, attention (in some forum) should be given to introducing information disclosure orders and residual attachment, either generally or specifically for digital assets. Residual attachment could even be made available in addition to adjudication for debt, if it is not considered feasible at the present time to abolish adjudication. Alternatively, adjudication for debt could remain as a diligence for land, but its residual function could be replaced by residual attachment.

[50] In the meantime, and in order to avoid reform of digital assets being jeopardised by wider issues regarding debt enforcement, a useful measure in the proposed legislation would be a provision for a creditor to obtain interdict to stop a debtor from transferring or otherwise dealing with their digital assets. This could be supported by the usual sanctions for breach of interdict. Interdict could also be made available against other parties holding the assets for the debtor. It is true that these measures would not resolve a number of the above issues (in relation to e.g. informational problems and seizure of assets), and the debtor could simply retain the assets, particularly in anticipation of their value increasing or at least not diminishing significantly in value. However, it would be a helpful step towards assisting creditors in their enforcement against digital assets, and might cause a debtor to be more amenable to engagement in order to resolve their debt issues.

[51] We also note that there is some reference to security rights in the consultation paper, e.g. in Annex User Story 1, which is premised around Bitcoin being used as collateral in a loan transaction.

²⁶ With any surplus value beyond the relevant debt to be given to the debtor – see *Hull v Campbell* [2011] CSOH 24.

²⁷ See B Yüksel Ripley, A MacPherson and L Carey, "Digital Assets in Scots Private Law: Innovating for the Future" (Forthcoming); A MacPherson, B Yüksel Ripley and L Carey, *Report on Workshop 2: Mapping the Legal Landscape for Cryptoassets in Scotland* (June 2024), available at https://www.abdn.ac.uk/media/site/law/documents/Digital_Assets_Workshop_2_Report_-_Final.pdf; A Held, A MacPherson and B Yüksel Ripley, "United Kingdom (UK) Report on Cryptocurrencies: With a Focus on the Law of England and Wales and the Law of Scotland" (2023), 67-68 and 70-72, available at <https://ssrn.com/abstract=4543838>. See also ADJ MacPherson, "Scottish Statutory Debt Solutions and Diligence: A Response in a Time of Crisis" (2023) 27 *Edinburgh Law Review* 64 at 73-74.

²⁸ For example, Dr MacPherson is currently working on a paper examining the relationship between cryptoassets and diligence in more detail and identifying reform options.

However, there is no clear indication as to the type of security involved. It is clear that a floating charge can cover digital assets, as it can encompass all types of property.²⁹ We also assume that functional security can be created by transferring ownership of such assets for security purposes. But if control is only given for security purposes and there is no transfer of ownership intended, can that create a real right in security (akin to a pledge)? We also note that e.g. UNIDROIT Principles on Digital Assets and Private Law (2023) provides rules for security rights (see Principles 14-17). Principle 16 states that a security right made effective against third parties by control has priority over a security right made effective against third parties by another method. Some attention could also be given to whether the new statutory pledge (under the Moveable Transactions (Scotland) Act 2023) should be extended to such assets, even if the practical value of this may be limited in most circumstances. More generally, we assume that the intention is to allow for parties to decide on the most appropriate security arrangements and to leave other legal matters for the courts to determine. Yet, even if there are ultimately to be no specific provisions for security rights in the proposed legislation, we thought we should at least identify some of the issues involved, so that they can be considered.

[52] There are also procedural challenges relating to digital assets, which were raised by some of the participants in Aberdeen’s RSE-funded digital assets project. These difficulties relate to the identification of a defender/wrongdoer, due to pseudonymity. They include the inability of a pursuer to sue “persons unknown” or to obtain an interdict directed against persons generally (with notice of it), and uncertainty regarding methods of service, for example via a non-fungible token (NFT) airdrop.³⁰ Some attention should be given as to how such issues should be most appropriately addressed.

[53] Finally, we note private international law (PIL) issues relating to digital assets arising from the use of distributed ledger technology underpinning these assets and/or from the cross-border use cases of these assets.³¹ There are various important ongoing PIL projects concerning digital assets, most notably the Law Commission of England and Wales (LCEW)’s project on “Digital assets and ETDs in private international law: which court, which law?” and the Hague Conference on Private International Law (HCCH)’s “Digital Tokens Project”.³² We think that Scotland should closely follow these projects and provide expert input as they develop.³³ In relation to the proposed legislation, we understand that the intention is that it will apply to digital assets that are subject to Scots law.

²⁹ For the property covered by a floating charge generally, see Companies Act 1985, s 462(1) and e.g. ADJ MacPherson, *The Floating Charge* (2020), especially ch 4. Floating charges can, of course, only be granted by companies, LLPs and certain other corporate entities.

³⁰ For further details, see B Yüksel Ripley, A MacPherson and L Carey, “Digital Assets in Scots Private Law: Innovating for the Future” (Forthcoming).

³¹ See further B Yüksel Ripley, A MacPherson and L Carey, “Digital Assets in Scots Private Law: Innovating for the Future” (Forthcoming) and B Yüksel Ripley, A MacPherson and L Carey, “Intra-UK and International Dimensions of Digital Assets for Scotland: With a Focus on Private International Law Matters and Developing International Frameworks: Report on Workshop 3” (2024), available at [https://www.abdn.ac.uk/media/site/law/RSE-workshop-3--Report-\(October-2024\).pdf](https://www.abdn.ac.uk/media/site/law/RSE-workshop-3--Report-(October-2024).pdf).

³² LCEW’s project is currently at pre-consultation stage, see <https://lawcom.gov.uk/project/digital-assets-and-etds-in-private-international-law-which-court-which-law/>. For HCCH’s project, see <https://www.hcch.net/en/projects/legislative-projects/digital-tokens1>.

³³ Professor Burcu Yüksel Ripley is a member of the Advisory Panel of the LCEW’s project and a pro-bono subject-matter expert identified by the HCCH Permanent Bureau for the HCCH’s project.