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NON-FUNGIBLE TOKENS: AN ARGUMENT FOR THE OWNERSHIP OF DIGITAL PROPERTY?

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ABSTRACT

The paper examines the concept of ownership and its potential application to digital assets, particularly Non-Fungible Tokens (**"NFTs"**). Technological advancements which allow the creation, storage, and sale of unique digital assets in a purely digital manner have raised many questions about the concept of 'digital ownership'. However, the legal frameworks regulating the ownership, sale, and legal classification of digital assets have not evolved at the same pace as technology. This leads to legal uncertainty in the digital landscape, and weakened protection for the users of this technology, particularly in the European Union (**"EU"**). Although the concept of digital property has been discussed theoretically, practical recommendations for the implementation of this concept are still scarce. This paper discusses the concept of digital property after providing a contextual understanding of NFTs and the technology behind them. Finally, the author offers recommendations for a harmonised EU-level framework for the legal classification of NFTs, and for the concept of digital property.

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1. INTRODUCTION

The blockchain cannot be described just as a revolution. It is a tsunami-like phenomenon, slowly advancing and gradually enveloping everything along its way by the force of its progression.

—William Mougayar

Although many in this fast-emerging industry wax lyrical about the mathematical, trust-based system which needs no regulation, the stark reality is, as Aristotle pointed out many years ago – "law is order, and good law is good order." Technological advancements have fast out-paced the law, with many scholars advocating for the implementation of future-proof, technologically neutral regulation. The law has regulated what we can own, and what we can do with it since its very inception. However, blockchain technology now provides opportunities and challenges which jurists of the past could not even begin to imagine. Regulating for the digital age requires a delicate balance of knowledge of the law, as well as of the technologies which it seeks to regulate. Understanding both these fields will ensure that the law simultaneously regulates technology, while ensuring that technological innovation is not stifled by unnecessary bureaucratic and regulatory burdens.

The purpose of the paper is to analyse the concepts of digital ownership, and how it is currently being approached in a number of jurisdictions. The paper shall particularly focus on non-fungible tokens (**"NFTs"**), a recently developed technology which allows for the creation of unique digital assets – something which was not possible before. Although arguments have been made for the development of this concept, and frameworks have been created on national levels, no practical recommendations have yet been made for the development of a European Union (**"EU"**) level framework. Furthermore, by analysing the legal classification of NFTs under different legislations, the paper aims to provide recommendations for a framework which will harmonise the classification of such digital assets under EU law.

The paper shall first provide a contextual understanding of NFTs and their use-cases. The second part of the paper will provide a wide-ranging comparative legal analysis of the legal classification of NFTs, as well as the approaches taken to digital assets and digital property across a number of jurisdictions – with a focus on Liechtenstein and the United Kingdom (**"UK"**). The third section of the paper shall also examine the traditional concept of ownership and possession, as well as the arguments for and against the

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development of the legal concept of digital ownership, then applying these concepts to NFTs. In the fourth section, the paper will utilise the findings of the comparative analysis to develop recommendations for an EU level framework for the legal classification of NFTs, and for the development of the legal concept of digital ownership.

This paper is not intended to provide the final solution for the issues being examined, but rather, it is aimed to be the basis of further discussion and analysis. However, through analysing the current legal landscape and considering different possible approaches, the paper aims to provide practical and applicable solutions, rather than purely theoretical arguments.

2. UNDERSTANDING NFTs

2.1 Non-Fungible Tokens and their rise to popularity

Although NFTs have been around since 2014, their recent meteoric rise to popularity has been well-documented in the nascent pool of literature about NFTs [5] [30]. People who are not well-versed with the technology behind NFTs are likely to know them simply as art collectibles and tend to be sceptical of the concept. CryptoPunks and CryptoKitties were two of the first projects to gain widespread popularity between 2017 and 2018 (EUBOF, 2021). Although NFTs did not immediately gain mainstream popularity, in the third quarter of 2021, the NFT market exploded with sales amounting up to 10.7 billion USD, compared to 1.2 billion USD in the first quarter of the same year, and 28 million USD in the third quarter of 2020 (Howcroft, 2021). These statistics clearly demonstrate the ever-increasing popularity of the NFT market, highlighting the stark necessity for an adequate regulatory framework.

However, it is clear that many scholars, particularly those who do not have a technological background, struggle to understand what an NFT truly is. Some have described NFTs as a smart contract [18] [28], while others have held that they are always tied to "real-world objects" (Dalai, 2022). Both of these assertions fail to understand what an NFT actually is. NFTs are, in and of themselves digital assets, or tokens which can be proven to be unique, and are not fungible (EUBOF, 2021). The common *acquis* in literature is that NFTs are a type of crypto-token, which are different from other 'traditional' crypto-assets as a result of their non-fungibility [5] [7] [23] [12]. Before this, the concept of uniqueness was limited to physical objects, since digital objects could be easily replicated without any provenance.

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The NFT itself is a token which usually points to a metadata file which contains information about the digital asset, most importantly the tokenID and contract address. The file itself does not usually contain the underlying asset (in the case of digital assets), but rather a link to it [17]. The NFT itself is 'minted' (or created) using a smart contract, which then registers it as a digital ledger entry on a particular blockchain, and it is stored in the respective cryptographic wallet [32].

2.2 The characteristics of NFTs

Due to the variety of use-cases for NFTs which shall be discussed in the subsequent heading, it is often difficult for legal scholars, as well as laypersons to understand what the NFT actually represents. Broad questions such as "Are NFTs securities?" are often put forward when analysing the legal classification of NFTs. Although this may seem to be a fair question, it makes just as much sense as asking if a piece of paper is a security, simply because of its ability to be used as such. The majority of literature has been focused on attempts to classify NFTs within existing legal definitions, mostly to understand the legal implications under current regimes of applicable law (Moritz et al., 2022). Instead of adopting this approach, the characteristics of NFTs will be examined, to be able to understand the tokens, and what differentiates them from other forms of digital assets. This approach will allow the paper to develop a technologically neutral classification, rather than one which is based on pre-existing concepts.

Two main sources were used when analysing the characteristics of NFTs, namely a report by the EU Blockchain Observatory and Forum (**"EUBOF"**) (2021), and a journal article by blockchain expert Popescu (2021). The study has focused on these sources because of the thorough understanding of blockchain technology and NFTs which the respective authors of the papers have. Both papers offer five properties, of which four are congruent, and which the paper shall examine first. The first, perhaps most obvious, characteristic is that of uniqueness and non-fungibility. While EUBOF refer to this characteristic as "uniqueness", Popescu referred to it as "non-interoperable". This characteristic is needless to say eponymous to NFTs, and is also set as the basis for the classification set out by the England and Wales Law Commission (**"EWLC"**) (2022). The second characteristic, which is agreed upon by both papers, is that of rarity, which EUBOF further expands to develop the concepts of artificial, numerical and historical rarity. Since NFTs are produced in a limited supply, the NFT owned will always be one out of a finite number. The third characteristic is that of immutability, which is the basis of all blockchain-based tokens, meaning that the token is tamper-resistant, and may not be removed or destroyed by anyone. The fourth and final agreed upon characteristic is that of authenticity, referring to the ability to verify information on

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the ledger, as well as provide provenance for the asset. EUBOF referred to this characteristic as "ownership", which this paper will refrain from using for the sake of clarity.

Popescu holds that the final characteristic is indivisibility, meaning that the NFT must be represented as a whole, and cannot be divided into smaller denominations. The present author argues that this falls under the scope of non-fungibility, in the sense that if the NFT is inherently not interchangeable, it could not logically be divided. It should be noted however, that NFT fractionalisation is possible through the creation of tokens which represent 'shares' in the original NFT, which remains undivided itself. On the other hand, EUBOF hold that the last characteristic is programmability, arguing that NFTs can be programmed just like any other programmable software. The example provided refers to residuals and royalties being paid to artists even after the first sale, as well as experimental applications of NFTs to Decentralised Finance (**"DeFi"**). Two categories of programmability are defined by EUBOF, (i) basic token functionalities such as the ability to transfer the token, as well as 'burn' (or destroy) it, and (ii) token information functionalities which allow one to query about the holder of an NFT, as well as the metadata of the NFT itself.

2.3 The myriad use-cases of NFTs

Regardless of the hype surrounding NFTs, awareness and knowledge about them remains considerably low. In a study by Pew Research Centre (Faverio and Massarat, 2022), it was shown that less than half of adults in the United States of America (**"USA"**) have heard at least a little about NFTs, with 2% saying that they have bought NFTs. With these statistics, it is hardly surprising that most people's perception of NFTs is either that they are cryptocurrencies, or only used for digital arts. For a number of reasons, namely the considerable influx of people jumping onto the NFT bandwagon during the final quarter of 2021 and the first of 2022, and their eventual abandonment, the NFT market's volume of sales has decreased considerably - with many happy to declare them a fad which is dying out (Brooks, 2022; Kharif, 2022). However, this is far from being a novel phenomenon, with Mao (2022) comparing it to a number of historical events such as tulip mania in the 1600s and the Dotcom bubble in the late 1990s. Others have profusely criticised NFTs as being "a solution in search of a problem", even arguing that NFTs should not be considered as tokens [27]. However, these arguments are based on NFTs being used in their most mainstream nature, that of digital arts or as being created through a third-party platform. As will be demonstrated below, this interpretation falls short of considering the myriad possible use-cases for

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NFTs in a number of industries. On the other hand, some have heralded the so-called "NFT meltdowns" as an opportunity to explore more dynamic and applicable use-cases for NFTs (Stein Smith, 2022).

Certain authors have attempted to provide categorical and paradigmatic approaches, mostly based around the current applications of NFTs, rather than their potential use-cases. Chiu and Allen (2022) propose three paradigms: (i) the consumption of NFTs, (ii) commercial exploitation of the non-financial underlying asset, and (iii) the financialisation of NFTs. The concepts being considered were more theoretical than practical and were also limited to the integration of NFTs in legal systems, rather than their potential use-cases in different industries. A similar approach was adopted by Mao (2022), who advocated for a technologically neutral approach, understanding that a blanket approach would be "over-reductionist" due to the rapid development of the technology at hand. Mao proposed four categories which aim to conceptualise the use-cases of NFTs at present day: (i) digital certificates of provenance, (ii) pure consumables, (iii) speculative instruments, and (iv) digital shares. Although the analysis is a thorough one, and rather more encompassing than the one proposed by Chiu and Allen, Mao did note that these categorisations only consider present use-cases and should only serve as a reference for potential future use-cases.

Building off the framework proposed by Mao (2022), it is pertinent for the study to analyse a few potential use-cases, to further demonstrate the need for technological neutrality when regulating NFTs. However, an in-depth analysis of all such potential use-cases would merit a study in and of itself, so for the purposes of brevity, this paper shall focus on a few choice topics which illustrate the variety of use-cases for this technology. The use-cases chosen are those which display the more innovative applications of NFTs, rather than their more well-documented use-cases. The paper shall also avoid discussing the use-cases of NFTs in art, entertainment and consumption of digital media since these are already well established, and well documented. The first use-case, and perhaps one which may be implemented in the near future, is the application of NFTs to real estate. Transfers of ownership can be easily implemented through a transfer of a token representing a property title which is automatically registered on a public database, a process which currently takes a considerable amount of time. NFTs can also be used to create better systems for fractional property ownership, mortgages, and even rent agreements with automatic payments [4].

Apart from the more obvious applications of NFTs to DeFi, Financial Technology (**"FinTech"**), and other activities of a commercial nature such as securities and shares, NFTs can be used to streamline

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and improve processes in the medical industry, while also providing for the safer storage of sensitive medical data. A similar argument is proposed for the use of NFTs to unlock the concept of self-sovereign identity, allowing for a more secure system which could later also include processes such as voting (Shilina, 2022; Luca, 2022; EUBOF, 2021). The final potential use-case being considered is the application of NFTs to already existing applications of blockchain technology to supply chain management by introducing unique, non-fungible tokens for items being tracked (Shilina, 2022; EUBOF, 2021; Sophir et al., 2021). This wide variety of potential use-cases clearly demonstrate the inapplicability of a broad regulation which simply regulates NFTs as a technology, and even, one would argue, regulation which merely categorises NFTs into digital assets and digital asset securities in the way that the proposed Digital Asset Market Structure and Investor Protection Act of the USA would. The author agrees with Mao (2022) who argues that NFTs, and digital assets as a whole, should not simply be pushed into the same schemes which provide for traditional financial assets while relying on 'catch-all' clauses.

3. A COMPARATIVE LEGAL ANALYSIS OF NFTS, DIGITAL ASSETS AND DIGITAL PROPERTY

3.1 The legal classification of NFTs across jurisdictions.

Although a considerable number of jurisdictions have now regulated cryptocurrencies and virtual financial assets in one way or another, not many have implemented a tailored approach to NFTs. The existing frameworks focus, some argue excessively, on the form the asset takes, rather than the substance of the asset itself (CCAF, 2020). No common system has yet been adopted, which scholars have outlined the need for, considering the cross-jurisdictional nature of NFTs. This section will examine the legal classification of NFTs in a number of jurisdictions from across the world, also focusing on their classification under current EU legislation.

3.1.1 European Union Legislation.

The EU's focus on digital transformation can be witnessed in the proposal for the regulation of *Markets in Crypto-assets* (**"MiCA"**), the EU's first attempt to regulate crypto-assets which do not fall under financial regulation. This regulation defines three types of crypto-assets: (i) utility tokens, (ii) asset-referenced tokens, and (iii) electronic money tokens. Utility tokens are defined to have non-financial purposes, and usually provide digital access to goods or services. Asset-referenced tokens are used to

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maintain a stable value by referencing several currencies, commodities, or crypto-assets to stabilise their value and in turn to be used as a payment form. This is differentiated by the EU from crypto-assets which are purely used for payment and stabilise their value using only one fiat currency. The regulation defines a crypto asset as "a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology." Although recent amendments to the proposal have made its application to NFTs possible in certain scenarios, it would broadly not apply to NFTs as a whole.

3.1.2 European Union Jurisdictions.

The legal classification of NFTs in France is based on a case-by-case analysis which depends on the particular NFT's classification as a digital asset or a token. France began regulating digital assets with the implementation of the *5th Anti-Money Laundering Directive* (**"AMLD V"**), opting to create a global regime which considers digital assets as a whole – including virtual currencies and tokens. Under French law, tokens are defined as "an intangible good representing, in digital form, one or more rights that is recorded on a distributed ledger technology" (European Network, 2022). For the most part, the application of securities regulation to NFTs is not considered under French law, however the way in which they are marketed may lead to their qualification as securities, even though they do not fulfil all the necessary characteristics.

In Germany, there is no specific regulation of NFTs, however the specific characteristics and functionalities of the NFT in question are to be considered, since they may lead to the application of a number of regulatory provisions. Germany defines crypto-assets in the *German Banking Act* (**"KWG"**), which holds that they are:

> digital representations of value that has not been issued or guaranteed by a central bank or public body and does not have the legal status of currency or money, but is accepted by natural or legal persons as a means of exchange or payment or serves investment purposes on the basis of an agreement or actual practice and which can be transmitted, stored, and traded electronically (Engelmann and Brunotte, 2022).

The widest interpretation of this definition would mean that NFTs fall under its scope, since they may be seen as serving investment purposes. However, it has been argued that the simple fact that NFTs

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can be sold should not mean that they are considered as an investment, but rather the "investor-like expectation of the performance of the NFT" should be considered (Engelmann and Brunotte, 2022). It has also been argued that NFTs are not tradable, since this would require exchangeability - which is not the case with NFTs due to their non-fungible nature. Engelmann and Brunotte (2022) go on to argue that NFTs should not be considered as securities, asset investments, or units of account under German law, an argument reiterated by Lorenz et al. (2022).

3.1.3 Liechtenstein.

The Liechtenstein 'container model' introduced by the *Liechtenstein Token and Trusted Technology Service Provider Act* (the **"Liechtenstein Token Act"**), is an innovative one, in which the token is a legal object which can represent any type of rights. Since the token is considered a 'container', it is possible to have an 'empty' container (LLV, 2019). The Liechtenstein Token Act did away with the traditional necessity of a physical information carrier and replaced them with digital register-based information carriers to create a future-proof system [22]. However, it is to be noted that the tokens must be backed by "trustworthy technology systems", such as Distributed Ledger Technology (**"DLT"**) to ensure legal certainty in transactions (LLV, 2019). Under this law, the NFT would be considered as a token, however, the way in which it is treated by the law will depend on its functionality, rather than its form.

3.1.4 United Kingdom.

In the UK there is currently no bespoke framework for NFTs, but they would be considered as a crypto-asset, of which three categories are recognised in the UK: (i) security tokens, (ii) e-money tokens, and (iii) unregulated tokens. For an NFT to be considered a security token it must "provide rights and obligations specified investment which included shares, deposits and insurance" [21]. However, in a recent landmark consultation paper held that NFTs should be considered as crypto-tokens, which are a type of crypto-asset. The paper defined crypto-tokens in such a way that there is no distinction based on the taxonomy or the use of the crypto-token, providing a technologically neutral approach (EWLC, 2022). The following definition of a crypto-token is provided:

Crypto-token means a particular, individuated data structure which:

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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:

    a. capable of being uniquely attached to or associated with a particular Data Address; and

    b. capable of Authentication of an operation in respect of the particular instantiation of the data structure

In the proposed definition, *authentication* refers to cryptographic authentication via computational means. The *crypto-token system* refers to the system manifested by the operation of the Protocol Rules. *Data address* is defined as a unique individuated data structure or a set of such, recognised by the Protocol Rules. *Protocol rules* refer to the software code which defines the rules and algorithms for the particular crypto-token system (EWLC, 2022).

Although this definition is not enacted into law yet, it has the potential of putting the UK at the forefront of NFT legislation and regulation. It distinguishes between the NFT as a crypto-token in and of itself, and the NFT as a crypto-asset – considered as a crypto-token linked to a thing or rights external to the crypto system (EWLC, 2022). Further, it is recommended that the fungibility of an NFT depends on what contractual counterparties are willing to accept as mutually interchangeable, rather than the objective quality of the token itself. On this point, it is argued that fungibility is a subjective quality, and that although bank notes are usually considered as fungible objects, they are individually numbered, meaning that each note is unique (EWLC, 2022).

3.2 Digital assets and digital property across jurisdictions

3.2.1 The non-disruptive Liechtenstein model.

In the report issued by the Liechtenstein National Administration (**"LLV"**) (2019), it was noted that the concept of ownership of an object is limited to physical objects. It was argued that the extension of the concept of ownership beyond physicality would require the rewriting of many provisions of property law. This was deemed to be undesirable since property law regulates many other aspects over and above

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the ownership of property. Thus, the Liechtenstein Government adopted an approach which autonomously regulated the ownership of tokens and the associated legal consequences, which in turn does not affect the established system of property law while still providing much needed legal certainty. This is compared to the Swiss approach to the regulation of intermediated securities in that there can be a direct assignment of assets to legal entities at any time (LLV, 2019).

The Liechtenstein model introduces two key concepts: (i) the person entitled to dispose of the token, and (ii) the holder of the power of disposal of the token. The former may legally dispose of the tokens and is considered as the owner, therefore making them the legal holder of the right represented by the token. The latter is considered to be any person who knows the private key which allows access to the token, without necessarily being the person entitled to dispose of it (LLV, 2019). With the creation of the token as a new legal object, the Liechtenstein Token Act "side-stepped the doctrinal civil law difficulties of recognising intangible objects as objects of property rights and instead created a standalone, specific statutory regime" (EWLC, 2022).

3.2.2 The UK's third category of personal property.

The proposals of the EWLC and a recent judgement have highlighted the UK's willingness to recognise property rights over digital assets. It is argued by the EWLC (2022) that "digital assets [do not] fit neatly into either of the existing common law categories of personal property." However, it is noted that "the law of England and Wales is highly flexible," allowing for incremental developments. In the case of *Osbourne v. Persons Unknown and Ozone Networks t/a Opensea*, the plaintiff filed a lawsuit stating that NFTs were stolen from her digital wallet [3]. Judge Pelling held that there was "at least a realistically arguable case that [NFTs] are to be treated as property as a matter of English law." For the purposes of context, it should be noted that in a previous decision by the same Court in *Fetch.ai Ltd and another v Persons Unknown Category A and Others*, the Court departed from the reasoning proposed by the UK Jurisdiction Taskforce (**"UKJT"**)'s Legal Statement (2019), and held that crypto-assets could be considered as choses in action. This is contrasted with the position taken in *AA v Persons Unknown*, which endorses the UKJT Legal Statement, and is argued to be the preferred position [3].

The EWLC (2022), alongside a number of other authors (Palka, 2016; 2017; CCAF, 2020), calls for the development of a third category of property, the *tertium quid*, being data objects. Three criteria are proposed to determine which things fall into this new category: (i) composed of data presented as an

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electronic medium, (ii) exists independently of persons and exists independently of the legal system, and (iii) rivalrousness (EWLC, 2022). The first criterion is used to distinguish from personal property in possession, as well as recognising that the object is "constituted of data that is uniquely instantiated within a particular network or system." The second criterion is based on the *Ainsworth* criteria defined below, making the object definable, identifiable, stable and capable of being transferred. The requirement of existence independently of the legal system distinguishes these things from those considered as things in action (EWLC, 2022). The final criterion follows the principles of rivalrousness and excludability examined in Section 3 of this paper.

3.2.3 Commonwealth jurisdictions' interpretation of digital property.

The application of property law to digital assets was examined by the Singapore International Commercial Court in the case of *B2C2 Ltd v Quoine Pte Ltd*, in which there was an attempt to "bridge the gap between a purely contractual perspective [...] towards blockchain technology and a property law informed approach by classifying electronic currencies as intangible property with identifiable value" [20]. Although the court of first instance seems to recognise the third category of personal property by relying on the *Ainsworth* criteria to determine if such things are an "identifiable thing of value", the appellate court adopted an approach similar to the *Mt. Gox* case, which held that ownership can only relate to tangible things.

The New Zealand High Court examined the same issue in the case of *Ruscoe v. Cryptopia Ltd*, in which the Court quoted the Legal Statement made by the UKJT (2019), finding that crypto-assets were "a species of "intangible personal property" and "clearly an identifiable thing of value […] capable of being the subject matter of a trust"" [3]. In its decision, the Court also quoted the Canadian case of *Shair.com Global Digital Services Ltd v Arnold*, which held that crypto-assets can be considered as property for the purposes of a proprietary freezing order [3].

4. CAN NFTs ATTRACT PROPERTY RIGHTS?

4.1 Questions of ownership and possession

"The first problem in any analysis of property rights is the lack of any coherent definition of 'property'." [10]. Although property law has been a fundamental area of law since Roman times, no set, unilateral definition of the legal concept of property has ever been established (EWLC, 2022). In English,

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the word 'property' is used interchangeably to describe an object of property (the actual thing), as well as the relationship between a person and a thing, and the rights which the person has over that thing (Palka, 2016; EWLC, 2022). Palka (2016) also holds that the 'concept of property' can refer to three things: (i) the concept of an object of a property right, (ii) the concept of the type of social ordering, and (iii) the concept of a type of property right. It is also widely agreed upon that 'property' is "not a thing at all but a socially approved power-relationship in respect of socially valued assets, things or resources" (Gray, 1994; EWLC, 2022). This understanding of the social aspect to property has been widely endorsed through case law and literature (Palka, 2016; [24]; EWLC, 2022).

Breaking this down, a widely accepted understanding of this concept is that it contains three elements: (i) the existence of a thing which can be subject to property rights, (ii) the right of the person to use the thing, and (iii) the right of the person to exclude others ([24]; EWLC, 2022). It is important to understand the way in which law attempts to regulate reality. Palka (2016; 2017) argues that the law states what reality should be, thus referring to reality through legal concepts. Legal terms get their meaning from the concepts which are constituted by norms, being able to refer to actual objects. On the other hand, the norms are established by the features of the actual objects, creating a dialectical relation. This concept is important to understand because the categorisation of a thing will affect the way in which it is dealt with in law. When interpreting the law, legal professionals' reason *per analogiam*, attempting to find similarities in classifications, rather than differences (Palka, 2016; 2017). However, this approach may not apply when the things being considered are of a nature which has not yet been dealt with by law – as is the case with digital property.

4.1.1 What are things?

Although nearly two millennia have passed, the understanding of what can be considered as the object of rights, or the basis of it, has remained the same. The Roman jurist Gaius described the concept of *res*, things which can be the objects of rights. Gaius then makes the distinction between things which are tangible – *res corporales* – and those which are intangible – *res incorporales* – but still exist in law. In present day law, the delineation between material and immaterial objects is still based on this concept, both in common and civil law jurisdictions (Palka, 2016; 2017). However, common and civil law jurisdictions differ in the way they treat objects in terms of ownership, with common law systems being more flexible in their interpretation, while civil law systems tend to have a set definition of what can be

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considered as *res* (CCAF, 2020). While common law systems recognise ownership in intangible objects, civil law systems recognise rights in them, but not actual ownership [29].

A number of approaches have been proposed with regard to the determination of a thing's ability to attract property rights. The paper will consider the approaches proposed by the EWLC (2022), and by Marinotti (2021). The former considers the following characteristics: (i) compatibility with the *Ainsworth* criteria, (ii) excludability, (iii) rivalrousness, (iv) separability, and (v) value. Quoting Lord Wilberforce's judgement in the case of *National Provincial Bank v. Ainsworth*, four characteristics were proposed:

> Before a right or an interest can be admitted into the category of property, or of a right affecting property, it must be definable, identifiable by third parties, capable in its nature of assumption by third parties, and have some degree of permanence or stability.

These criteria are not considered an exhaustive list, and it has also been noted that the criteria are not easily applicable to intangible things in which there is no physical indication (EWLC, 2022). Regardless, when applying these criteria to 'crypto-tokens', both the EWLC, and the UKJT agree that 'crypto-tokens' are able to attract property rights. The concepts of excludability and rivalrousness are similar in nature. When a thing is *rivalrous*, it means that if one person has a thing, the other does not. If the use or consumption of a thing by a person inhibits others' use and consumption, it is considered to be rivalrous. On the other hand, *excludability* refers to a person's ability to control or deny access of others to the thing or its benefits. *Separability* considers the ability of a thing to have independent existence, meaning that things such as talents cannot be subject to property rights since they would fail to exist without the respective person. With regard to *value*, it is noted that this does not only refer to economic value, but also realisable value, which means that the thing should be transferable, and has the potential to be paid for (EWLC, 2022).

Marinotti (2021) adopts an iterative approach in creating a technologically neutral formula which can be applied to a thing to determine its ability to attract property rights. The process is based on the owner's right to use a thing, adopting the approach that the right should have an "obvious boundary". Rather than considering it the owner's right to exclude, Marinotti phrases it as the duty of all non-owners not to interfere with the thing. However, Marinotti disagrees with the opinion of Douglas and McFarlane (2013) who held that a thing must be tangible for others to be able to know their duty not to interfere.

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Marinotti argues that tangibility is not the only manner in which boundaries can be delineated, meaning that in and of itself it is not a requisite. Marinotti goes on to argue that a technologically neutral approach would once again focus on the obvious boundaries of the thing, which may be determined through other means. To determine such boundaries, Marinotti argues that these should be derived from shared social customs and intuitions. The non-exhaustive list of examples provided are similar to the criteria determined by the EWLC, in that they recognise separability, value, and transferability. The final working definition provided by Marinotti to define the ability of a thing (*t*) to be able to attract property rights is the following:

1. Is *t* a rival asset?
2. From shared social customs and intuitions:
    a. Can owner X discern the boundary of their right to use *t*?
    b. Can non-owner Y discern the boundary of their prima facie duty not to interfere with *t*?

Marinotti's proposed system provides a clear formula to determine a thing's ability to attract property rights, which the present author agrees with since it does away with the need for tangibility – providing a much needed technologically neutral approach.

4.1.2 Traditional concepts of ownership and possession.

Now that a framework to determine which things can attract property rights has been established, what are the property rights that they can be subject to? An understanding of the traditional applications of ownership and possession will serve as the basis for the discussion of the application of these concepts – or variations thereof – to digital assets and NFTs. The concept of ownership is treated differently in common and civil law jurisdictions, which is a result of the historical development of the legal concepts in different jurisdictions [29]. Merrill (2017) defines ownership as "a legally enforceable right to exclusive control of a thing", noting that it is broader than possession since it is not always limited to tangible things. On the other hand, possession refers to the physical control over a thing, which for obvious reasons can only apply to tangible things [16].

Although many different legal theories of ownership have been developed, for the purposes of this paper it is enough to understand the main differences between the two legal traditions. In civil law, the

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concept of ownership is considered one which is absolute – affording total appropriation, and allowing the owner to use, benefit from, dispose of, and even destroy the thing [29]. Thus, in civil law, the property right is *erga omnes*, against all. On the other hand, in common law, a legal relation is considered a property right if a person has a better title when compared to another [35]. While certain property rights can be afforded to intangible objects in civil law systems, ownership in and of itself – generally speaking – cannot [16].

This is due to the fact that in most civil law jurisdictions, only things which can be possessed can be subject to proprietary rights. On the other hand, in common law jurisdictions property rights can be attributed to tangibles and intangibles. It should however be noted that possession can never be used to acquire property rights over intangibles [16]. In common law, property rights over movables are considered choses in possession, while property rights over intangibles are considered as choses in action, since they can only be enforced through legal action ([16]; EWLC, 2022). It is abundantly clear that neither system provides for digital assets as things which can be interpreted through the traditional concepts of ownership and possession, with many calling for the creation of a third type of personal property (Palka, 2016; 2017; CCAF, 2020; EWLC, 2022).

4.1.3 The case for digital ownership.

Digital assets and debates about their ownership are far from being a new phenomenon, being considered as early as 2013 as a new type of asset (Toygar et al., 2013). This section of the paper will focus on the general arguments in favour and against the development of the concept of digital ownership, rather than focusing on a comparative analysis of legislation and case law or an analysis of practical applications, which will be conducted in subsequent sections. The technology behind NFTs has provided an opportunity which was not considered possible before – the creation of unique, non-fungible digital assets. Currently, the only legal regimes which recognise the concept of the ownership of digital assets (aside from Liechtenstein) are based on copyright laws ([12]; Goldman, 2022). Fairfield, a great advocate of digital ownership, held that the "extension of property principles to digital assets is [...] inevitable" [11]. However, it is clear, and widely accepted, that digital assets cannot be governed by traditional concepts of property [1], and that the development of a *sui generis* (or unique) regime is necessary (Szilagyi, 2018). The current approaches have been criticised, with Moon (2018) holding that "centuries old legal categories and classifications of 'things' are out of date", making them "inadequate and in urgent need of updating."

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This sentiment was echoed by Fox and Green (2019), who describe the current regimes as "increasingly untenable."

Although this would require considerable legislative efforts, which will be discussed in the following sections, the main recommendation is the adoption of a "single, unified, and tech-neutral definition of legal thinghood in property law" [24]. It is argued that "the law ought to be able to take a principled, nuanced, and idiosyncratic approach to the legal treatment of new technology" which will allow the law to "facilitate and protect the development of a completely new type of data object" (EWLC, 2022). Palka (2016) argues that as time goes by, new concepts based on new, more fitting analogies are necessary, an argument which Fairfield (2021) reiterates profusely in his work. Allen (2018) holds that this will "make our law of property in general more future-proof, as a large and increasing proportion of our economy is concerned with such immaterial objects." One of the main arguments put forward by proponents of this development is the inapplicability of tangibility as a sufficient method of determining thingness, arguing that importance should instead be given to the characteristics of the things at hand [24] [12] [25].

This is not to say that the proposal for the legal concept of digital property has no critics. Bridge et al. (2021) held that the debate brought forward is a "red herring", and that intangibles could be classified as choses in action. Moringiello and Odinet (2021) argue that NFTs do not present any reason to be given the legal status of a token in their current constitution. They argue that NFTs are not rivalrous, because they "are freely available for download by anyone with a computer". The authors go on to hold that NFTs are "a case of attempting to create novel and overly complex property rights by contract", and that a holder of an NFT lacks "any kind of meaningful right to exclude others." The critique goes on to hold that NFTs are not compatible with the progressive property theory since they are "harmful to the environment." Although these criticisms will be analysed in further detail below, it is beneficial to consider the approach presented by Moringiello and Odinet (2021).

The study was conducted by referencing the terms of service of a number of NFT platforms, and only by considering the use-case of NFTs as representations of digital art. While it is agreed that the NFT in and of itself does not necessarily transfer any rights in underlying assets, the interpretation based on a select amount of market practices does not provide a technologically neutral assessment. The study also holds that NFTs are available for download by anyone. Even though the token's metadata and linked asset *may* be downloaded, this is not the token itself. The token itself is stored on the blockchain and cannot

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simply be claimed by anyone who downloads it. The logic behind the argument that NFTs should not be considered as property because of their environmental impact can also be argued against. Many other industries pose environmental concerns, and yet their products are still considered to be property. The author agrees that there are plenty of misrepresentations being represented by NFT platforms and sellers alike, however one cannot assess technology based on one use-case while not considering its actual technological potential.

4.2 An argument for digital property

The main argument for digital ownership is legal certainty. For the 'owners' of digital assets, many questions are left unanswered in an unregulated space. Fairfield (2021) argues that the legal regimes which regulate digital assets currently have "all but eradicated ownership interests online in favor [sic] of a contract and licensing regime." One of the main issues considered are the remedies available to the 'owners' of digital assets in cases of theft and similar offences (LLV, 2019). Other considerations are related to the bankruptcy of service providers storing digital assets on behalf of their customers (LLV, 2019). This lack of legal certainty and regulation, in turn, weakens the legal protection of users of this technology (EWLC, 2022). Fairfield (2021) argues that "[the] legal regime for digital personal property must evolve to support purchaser expectations for a kind of online ownership that has until now not been available." The applicable regimes to the transaction of such goods are also obscured, since if they cannot be considered as things, the law of sales of goods would not apply, even though users "clearly intend to convey an ownership interest in digital property" [12].

The LLV (2019) argues that legal certainty is necessary on two levels. First, since the digital assets can represent not only the purely digital assets, but also rights to physical objects, a buyer needs to have legal certainty with regard to their rights over such objects. Second, legal certainty is necessary with regard to the obligations of service providers, and the remedies available to their customers should they be necessary (LLV, 2019). They hold that:

Greater legal certainty at these two levels may help create an efficient ecosystem for digital assets and transactions and thus enable full exploitation of the potential of the token economy.

Fairfield (2021) argues that better analogies are to be used when assessing digital property, and that the "analogy to physical personal property is clear and compelling." He advocates a shift from "pure

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license characterizations [sic], which have plagued digital objects." Fairfield (2021) holds that "[law] proceeds by analogy, and technology law is no different," and that the key to doing so is to provide grounding examples. He argues that digital assets, particularly NFTs are "sold with precisely the rights of ownership [...] that come attached to real-world ownership." The LLV (2019) argues that it is not the software itself which should be regulated, since this "would stifle innovation and is therefore not effective," a sentiment which was echoed by the EWLC (2022). The development of this concept is only the beginning of a long process of creating legal certainty for this technology, and further clarifications will be necessary with regard to the transfer and acquisition of such things, control and custody over them, and the remedies available (CCAF, 2020; [14]; EWLC, 2022).

However, these theories are not without their critics. Most notably, Moringiello and Odinet (2022) have argued that NFTs, and other digital tokens as a whole, do not "embody property rights in a reference thing" by comparing them to current applications of tokenisation such as bills of lading and deeds of real property. They argue that NFTs "do not provide any link to an underlying asset, and therefore do not facilitate the transfer of any asset". The author agrees that NFTs ability to attract property rights is subject to a number of considerations, namely their intended use. Thus, a clear-cut answer which provides a final answer is difficult to achieve when considering the variety of use-cases. This being said, if regulation focuses on present use-cases of a technology, the law would need to be rewritten every time a new application is developed (LVV, 2019).

Palka (2016) argues that the problem with legal understanding is that "[legal scholars] tried so hard to make the new phenomena fit into existing concepts that an absurd conclusion still seemed the most plausible one." Palka (2016) argues that the unwillingness to create novel legal concepts which reflect reality will result in laws which are not representative of society's expectations and practices, and which are made redundant through the development of technology. The present author agrees with the EWLC (2022), in that the objective should be to "create a facilitative and legally certain environment in which [digital] assets can flourish." The present author argues that the development of a harmonised framework, especially at an EU level, will be essential to establish legal certainty in the single market due to the cross-jurisdictional nature of digital transactions.

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4.3 NFTs as things able of attracting property rights

Now that the theoretical importance of establishing the legal concept of digital property has been considered, the paper will apply the formula developed by Marinotti (2021) to NFTs. This approach is similar to the one proposed by the EWLC (2022), however it is preferred due to its clear, formulaic nature. Although Marinotti (2021) performed this assessment on a number of specific case-studies, no assessment was conducted on a generic NFT. It is to be noted, however, that the following analysis is a purely theoretical exercise, and does not necessarily apply across the board. It is merely the application of a formula proposed through literature, which aims to establish the *possibility* of NFTs attracting property rights. The author argues that in practice, a unified classification of the ability of these digital assets to attract property rights is impossible, since many other considerations must be made. For the purposes of defining what is considered as an NFT, the definition of a crypto-token proposed by the EWLC (2022) shall be utilised. This definition is being used due to its comprehensive nature, which allows the crypto-token to be differentiated from other crypto-assets such as cryptocurrencies.

First, are NFTs rival assets? Cutts (2021) defines rivalrousness as "if use or consumption by one person, or a specific group of persons, inhibits use or consumption by one or more other persons." The rivalrousness of NFTs is innate to their technological design, in that they are unique. Only one copy of the token exists, and if one person holds it and uses it, another cannot. This is due to the ability of an NFT to be "uniquely attached to or associated with a particular Data Address" (EWLC, 2022). This is contrasted with other digital objects, such as text files or audio files which can be easily copied and used by a number of people. Thus, it is clear that NFTs satisfy the first criterion.

Second, can the owner of an NFT discern the boundary of their liberty-right to use it? The owner of an NFT, through the technological framework which it is found on, in essence, has the ability to keep it, transfer it, or destroy it. The shared social customs and institutions which are defined by Marinotti (2021) are enforced by the blockchain itself, since these actions are only allowed by a person who has the data address with which the NFT is associated. Unlike other digital assets, such as virtual in-game items, these are not dependent on the interface to determine their usage, or limitations thereof. This means that owners of NFTs are able to discern the boundary of their liberty-right to use.

Third, can non-owners of an NFT discern the boundaries of their duty not to interfere? The technological framework behind the blockchain on which an NFT is found provides that no individual can

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interfere with the NFTs owned by another. These limitations are "cryptographically created and enforced, so too is the [NFT's] non-owner's duty not to deliberately interfere" [24]. Without having the data address, one cannot exercise any rights over an NFT held by another. Marinotti (2021), when examining Bitcoins, holds that "non-owners need not even actively acknowledge the boundary of their duty not to interfere because the boundary is functionally impenetrable." The same line of reasoning can clearly be applied to NFTs. Further, once again using the same reasoning applied to Bitcoins, it can be held that "[each] non-owner knows or should know that it is socially and legally wrongful" to use, transfer or destroy another's NFT – demonstrating a shared social custom.

This demonstrates that all the criteria proposed by Marinotti (2021) can be satisfied by a generic NFT, theoretically allowing NFTs to be things which are capable of attracting property rights. For further emphasis, NFTs also satisfy the *Ainsworth* criteria in that they are: (i) definable, (ii) identifiable by third parties, and (iii) capable in their nature of assumption by third parties. It must once again be noted that this analysis is theoretical and is based on a generic NFT. It does not consider use-cases in which such a token would not satisfy these criteria, such as identification tokens, which are analysed by the EWLC (2022). Finally, the legal treatment of these digital assets relies heavily on their intended use, and how they are being used, which requires case-by-case analysis, which is not achievable through this analysis. However, this analysis does provide a potential theoretical backing for the concept of digital property and its application to these tokens.

5. AN EU FRAMEWORK FOR DIGITAL PROPERTY

5.1 A harmonised classification of digital tokens

To be able to regulate digital tokens at an EU level, it is important to develop a clear legal classification of these items. The term 'digital asset' is often widely used to describe any asset which is represented in a digital or electronic form. Not all digital assets may be able to attract property rights, and due to this paper's focus on NFTs, the classification will be focused on digital tokens. The proposal of the Cambridge Centre for Alternative Finance (**"CCAF"**) (2020) to create a framework in which assets are completely separate from their form offers a technologically-agnostic approach in which regardless of the form, an asset has the same legal standing. The present author argues that this is, although admirable, nigh on impossible to practically implement. Rather, following the logic proposed by the EWLC (2022), a classification which defines particular digital assets, notably those which are potentially able to potentially

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attract property rights, is more desirable. This classification should focus on the characteristics of the token, rather than its intended use. This will then allow other regulations to apply to the token based on its usage. For example, securities and financial markets laws would only apply to the tokens being used for those purposes, rather than tokens as a whole. Also, this would not negatively impact already implemented regulations with regard to cryptocurrencies or other types of crypto-assets. This technologically neutral approach does away with the need to update regulations consistently.

Before defining the classification of these digital assets, one must first attempt to define the technology at their core. This is important to distinguish these assets from others, such as mutable digital files. In this regard, the *Liechtenstein Token Act* adopts a broad definition, that of "trustworthy technologies" (**"TT"**), being "technologies through which the integrity of tokens, the clear allocation of tokens to a TT identifier, and the transfer of tokens can be ensured." The LLV (2019) argues that the term 'blockchain' would not be technologically neutral since this depends on the "serial logging of transactions in a distributed ledger and [...] block-based verification", which is only one potential technical implementation. Nor does it consider the term 'DLT' to be sufficient, since "it cannot be ruled out that in future blockchain systems will be developed without a decentralised ledger." The Liechtenstein model also strays away from using terms such as 'crypto-systems' since cryptographic methods are used in information systems as a whole, and methods other than cryptography can be used for blockchain systems.

On the other hand, the definition proposed by the EWLC (2022) is more specific, referring to crypto-token systems which are reliant on protocol rules. These protocol rules are the technological framework which provide for:

1. The generation, authentication, sending and validation of data within the particular crypto-token system;

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 changed to the particular crypto-token system and/or the protocol rules themselves.

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The author holds that this definition provides a clear classification based on the characteristics of the token. It can be argued that this definition, being more specific, could afford more legal certainty.

With regard to the digital asset itself, the Liechtenstein model creates a new legal object – the token, which is defined as "every connecting point of rights on a [trusted technologies] system, regardless of whether they are technologically implemented as a "token", or whether the token is "filled" or not" (LLV, 2019). It is a container, which may or may not hold any rights. A similar approach is adopted by the EWLC (2022), in that the particular technological implementation itself is not considered, nor is the necessity for the crypto-token to be "filled" with anything. The author agrees with this approach, in that it does not limit the digital tokens to those which are a representation of value.

Based on a mixture of both these models, the author proposes the following characteristics for consideration when regulating. It should be noted that these recommendations are not exhaustive, and only provide a guideline for classification. For the purposes of technological neutrality, the term 'digital token' shall be used, as the author agrees with the LLV (2019) in that cryptography is not the only feasible method. Thus, for the purposes of creating a harmonised classification, the following characteristics are outlined.

A Digital Token is a particular, individuated data structure which:

1. is rivalrous;
2. exists independently of persons;
3. is constituted by the Protocol Rules of the Digital Token System in which it is instantiated using one or more distributed ledgers or structured records;
4. is capable of being attached to or associated with a particular Data Address; and
5. is capable of Authentication (cryptographically or otherwise) of an operation in respect of the particular instantiation of the data structure.

In the proposed classification, the term Digital Token System takes on the same definition as that of Crypto-token System provided by EWLC (2022). All other definitions are those proposed by the EWLC (2022), except for Authentication, which has been broadened to include authentication by methods other

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than cryptography. This classification is technologically neutral, in that it caters to future technological advancements, while still providing for a degree of legal certainty. Further, this will encompass applications such as NFTs and cryptocurrencies, while allowing them to be subject to other regulations, depending on their application.

5.2 A harmonised EU framework for digital property

Creating a harmonised classification for digital tokens is a far less challenging prospect than creating an EU-wide framework for digital property. As discussed above, civil and common law jurisdictions adopt different approaches with regard to ownership, and what can be considered the subject of ownership. Even between civil law jurisdictions, approaches vary in the classification of things which are subject to proprietary rights [3]. Now that the UK has left the EU, only Ireland remains as a pure common law jurisdiction amongst member states, with Malta and Cyprus having mixed legal systems. Thus, when one is attempting to create a framework which can apply to all EU member states, a system which is equally applicable to common and civil law jurisdictions has to be created. Although common law jurisdictions can add a third category of personal property with relative ease (as will be discussed in reference to the EWLC (2022) proposals), civil law jurisdictions would likely have to face a costly upheaval of established property law (LLV, 2019; CCAF, 2020; [3]). Further, it is clear that the traditional concept of possession cannot apply with regard to digital assets, with other concepts such as custody being proposed instead (CCAF, 2020; EWLC, 2022). This section will first analyse the proposals of the EWLC (2022) and the Liechtenstein model. Based on this, recommendations will be proposed to establish a framework for digital property in the EU.

As examined in Section 2, the EWLC (2022) proposes the creation of a third category of personal property. This would lead to a number of legal developments, namely the concept of control which is described as “an analogue to the common law concept of possession” (EWLC, 2022). This is determined by analysing if “a person in control of a data object enjoys a level of control over that asset that would satisfy the control element of possession, were the object in question tangible” (EWLC, 2022). Further, it is argued that the mechanism for the factual transfer of crypto-tokens is different from that which is applied to the transfer of legal title over tangibles and intangibles. Based on this, the EWLC (2022) argues that the distributed ledger is not necessarily a definitive record of superior legal title, since the “legal system is external to a crypto-token system.” Finally, the EWLC (2022) argues that the causes of action and

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remedies which are applicable to other types of objects of property rights can be easily applied to this third category of legal property.

On the other hand, the Liechtenstein model provides an "insulated special regime" (CCAF, 2020) which "autonomously [regulates] ownership of the token and the associated legal consequences only for TT systems" (LLV, 2019). The LLV (2019) argues that:

> [this] does not affect the established system of property law and creates a clear and well laid-out legal framework for tokens in relation to TT systems, which can also be understood by non-lawyers.

In order for this system to work, innovative legal concepts needed to be introduced. The first is the "person entitled to dispose of the token", which is defined as the owner of the token, the legal holder of the right represented, and the person who may legally dispose of the token (LLV, 2019) The law then introduces the "holder of the power of disposal" (LLV, 2019). The disposal of a token requires a private key to the wallet containing the token (or TT key). In this regard, any person who knows the private key is considered as the holder of the power of disposal, although they may not necessarily be the person entitled to dispose of the token (LLV, 2019). Tokens can contain any type of right, and "[any] transfer of a token on a TT system constitutes a binding transfer of the represented right, whether a pre-existing right or the right to digital information [22]. It is further held that "the legal effect of the transfer of a token has to be based on the underlying legal transaction and it depends on the design in each individual case" [22]. This means that depending on the content of the token, different laws will apply. Thomas Dünser, from the Liechtenstein Office for Financial Market Innovation explains this, by saying:

> This means that if a security is represented in a token, security laws apply. If a financial instrument is represented in a token, financial market laws may apply, and so on (Liechtenstein Impuls, 2020).

To ensure legal certainty, further amendments were also made to the Liechtenstein Persons and Companies Act and the Liechtenstein Trade Act, to cater for this system [22].

Based on these findings, it is argued that a framework similar to that developed in Liechtenstein proves to be the least disruptive solution which can cater for both civil and common law jurisdictions. In this way, member states will not incur substantial legislative costs, while still providing for an adequate

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degree of legal certainty and harmonisation. Although this will allow for the tokenisation of all assets and rights, if certain areas of law require specific formal procedures – such as the registration of the transfer of land with a public register – this law would not apply. Once again, it is to be noted that the following recommendations are far from exhaustive, and merely provide a conceptual basis upon which regulation should be built. Thus, the following concepts should be used to build a framework for digital property in the EU:

1. A Digital Token can represent claims or rights of memberships against a person, rights to property or other absolute or relative rights;

2. A Digital Token which represents no rights is subject to the same provisions as a Digital Token which does;

3. The person who has the right of disposal over a Digital Token is considered as the owner of the Digital Token, as well as the legal holder of the right represented by the Digital Token (if any);

4. Any person who holds the private key has the power of disposal over the Digital Token, even though they may not be entitled to do so;

5. The disposal of a token is considered as the transfer of the right of disposal over the Digital Token or the justification of a securities or a right of usufruct over a Digital Token;

6. Disposal of a Digital Token also results in the disposal of the rights represented by the Digital Token;

7. The disposal of a Digital Token must be conducted in line with the protocols of the Digital Token system; and

8. A person who receives a Digital Token in good faith is to be protected in their acquisition even if the transferring party was not entitled to the disposal of the Digital Token unless the recipient was aware, or should have been aware of the lack of right of disposal.

The definitions in these recommendations are those established in the previous section. This proposed framework will also have to be accompanied with relevant provisions to cater for conflict of laws, as well as the introduction of the concept of a Physical Validator, which the *Liechtenstein Token Act*

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defines as "a person who ensures the enforcement of rights in accordance with the agreement, in terms of property law." The author argues that this system provides an opportunity for the EU to develop a concept of digital property, in a way which will not be problematic for member states. This also allows for the application of regulatory provisions to digital tokens based on their use, rather than their technological form. Fairfield (2021) argues that "[we] should regulate technologies according to how humans use them." Such a technologically neutral approach will allow for legal certainty, without stifling innovation.

6. CONCLUSION

Fairfield (2021), one of the greatest advocates for the development of the legal concept of digital personal property held that "[if] NFT technology had been available at the advent of the internet, law would have taken a vastly different arc [...] It is time for a late-breaking course of action.

This paper is but a humble contribution to the discussion of digital property, aiming to provide recommendations which pave the way towards legal certainty in today's – and tomorrow's – digital era. The findings of this paper are far from being the final solution to the concept of digital property. The recommendations proposed are merely meant to provide a basis for further research, discussion, and hopefully, regulation. The legal concepts developed in years gone by do not reflect the reality of today's digital world. With technology evolving daily, it no longer makes sense to stubbornly shelter under the comfort of established legal norms. Legal scholars and legislators are now provided with the opportunity (and the considerable challenge) to create avant-garde legal concepts which foster innovation while providing legal certainty. In this regard, a mere understanding of the law is no longer enough. Technological understanding, and even code literacy, have become essential skills in developing the regulations which govern technology.

It is impossible to overstate the importance of future-proof, technologically neutral regulations. Further research about the procedural law, enforcement, and conflict of laws with regard to digital assets and digital property will be essential in developing comprehensive legal frameworks. If the EU truly wishes to develop a digital single market, it can no longer ignore the technology which can truly change how we transact online. The blockchain era is well upon us, it is time to acknowledge it, embrace it, and regulate it.

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REFERENCES

[1] Allen, J. (2019). Property in digital coins. *European Property Law Journal, 8*(1) http://dx.doi.org/10.1515/eplj-2019-0005

[2] Allen, J. G., Rauchs, M., Blandin, A., & Bear, K. (2020). *Legal and Regulatory Considerations for Digital Assets*. Cambridge, United Kingdom: University of Cambridge Centre for Alternative Finance. https://www.jbs.cam.ac.uk/wp-content/uploads/2020/10/2020-ccaf-legal-regulatory-considerations-report.pdf

[3] Allen, J. G., Wells, H., & Mauer, M. (2022). *Cryptoassets in Private Law: Emerging Trends and Open Questions from the First 10 Years*.SMU Centre for AI & Data Governance. https://dx.doi.org/10.2139/ssrn.4206250 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4206250

[4] Appelmans, A. (2022). *The potential of NFTs in real estate markets The potential of NFTs in real estate markets.* Crypto Valley Journal. https://cvj.ch/en/focus/blockchain/nfts-in-the-real-estate-market/

[5] Behzadi, E. (2022). The Fiction of NFTs and Copyright Infringement. *University of Pennsylvania Law Review Online, 170* https://dx.doi.org/10.2139/ssrn.4025604

[6] Bridge, M., Gulliger, L., Low, K., & McMeel, G. (2021). *The Law of Personal Property* (Third ed.). Sweet & Maxwell.

[7] Chiu, I. H., & Allen, J. G. (2022). Exploring the Assetisation and Financialisation of Non-Fungible Tokens (NFTs): Opportunities and Regulatory Implications. *Banking and Finance Law Review, Upcoming* https://dx.doi.org/10.2139/ssrn.4051912

[8] Cutts, T. (2021). *Possessable Digital Assets.*LSE Law. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3895404

[9] Douglas, S., & McFarlane, B. (2013). Defining Property Rights. In J. E. Penner, & H. E. Smith (Eds.), *Philosophical Foundations of Property Law*. Oxford University Press.

[10] Edelman, J. (2015). Property rights to our bodies and their products. *University of Western Australia Law Review, 39*(2) http://classic.austlii.edu.au/au/journals/UWALawRw/2015/20.html

[11] Fairfield, J. (2017). *Owned: Property, Privacy and the New Digital Serfdom*. Cambridge University Press.

[12] Fairfield, J. (2022). Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property. *Indiana Law Journal, 97*(4) https://www.repository.law.indiana.edu/ilj/vol97/iss4/4

[13] Fox, D., & Green, S. (2019). *Cryptocurrencies in Public and Private Law*. Oxford University Press.

[14] Garcia-Teruel, R. M., & Simon-Moreno, H. (2021). The digital tokenization of property rights. A comparative perspective. *Computer Law & Security Review, 41* https://doi.org/10.1016/j.clsr.2021.105543

[15] Gray, K. (1994). Equitable Property. *Current Legal Problems, 47*(2) https://doi.org/10.1093/clp/47.Part_2.157

[16] Graziadei, M. (2017). The structure of property ownership and the common law/civil law divide. In M. Graziadei, & L. Smith (Eds.), *Comparative Property Law: Global Perspectives*. Edward Elgar Publishing.

[17] Guadamuz, A. (2021). The treachery of images: non-fungible tokens and copyright. *Journal of Intellectual Property Law & Practice, 16*(12) https://doi.org/10.1093/jiplp/jpab152

[18] Guadamuz, A. (2022). Perspectives on NFTs from the EU and UK. *The Columbia Journal of Law & the Arts, 45*(3) https://doi.org/10.52214/jla.v45i3.10010

[19] Ibanez, L., Hoffman, M. R., & Choudhry, T. (2022). *Blockchains and Digital Assets*.EU Blockchain Forum. https://www.eublockchainforum.eu/sites/default/files/research-paper/blockchains_and_digital_assets_june_version.pdf

[20] Kulms, R. (2020). Blockchains: Private Law Matters. *Singapore Journal of Legal Studies, March 2020* https://ssrn.com/abstract=3646920

[21] Kumar, S., Rigg, G., & Green, K. (2022). The NFT Collection: The Rise of NFTs - Copyright Strikes Back? (Part 3). *The National Law Review, 12*(256) https://www.natlawreview.com/article/nft-collection-rise-nfts-copyright-strikes-back-part-3

[22] Lins, B., & Praicheux, S. (2021). Digital and Blockchain-Based Legal Regimes: An EEA Case Study Based on Innovative Legislations - Comparison of French and Liechtenstein Domestic Regulations. *Financial Law Review, 22*(2) https://www.ejournals.eu/pliki/art/19446/

[23] Mao, C. (2022). Imperfect Digital Certificates of Provenance - A Categorical Risk-Based Approach to Non-Fungible Tokens (NFTs). *SSRN Electronic Journal,* https://dx.doi.org/10.2139/ssrn.4060436

[24] Marinotti, J. (2021). Tangibility as Technology. *Georgia State University Law Review, 37*(3) https://readingroom.law.gsu.edu/gsulr/vol37/iss3/3

[25] Michels, J. D., & Millard, C. (2022). The New Things: Property Rights in Digital Files? *The Cambridge Law Journal, 20*(1) https://doi.org/10.1017/S0008197322000228

[26] Moon, K. (2018), Is Software Goods, or even Property? A Recommendation for Sui Generis Categories. *Society for Computers and Law Magazine,*

https://www.scl.org/articles/10240-is-software-goods-or-even-property-a-recommendation-for-sui-generis-categories

[27] Moringiello, J. M., & Odinet, C. K. (2021). The Property Law of Tokens. *Florida Law Review, 74*(607) https://dx.doi.org/10.2139/ssrn.3928901

[28] Nevi, G. (2022). *NFT - Non-Fungible Tokens how react the consumers? An exploratory analysis for a future integrated acceptance model.* Unpublished manuscript. http://archives.marketing-trends-congress.com/2022/pages/PDF/023.pdf

[29] Pierre, B. (1997). Classification of Property and Conceptions of Ownerships in Civil and Common Law. *Revue Generale De Droit, 28*(2) https://www.erudit.org/fr/revues/rgd/1997-v28-n2-rgd02413/1035639ar.pdf

[30] Pinto-Gutierrez, C., Gaitan, S., Jaramillo, D., & Velasquez, S. (2022). The NFT Hype: What Draws Attention to Non-Fungible Tokens? *Mathematics, 10*(3) https://www.mdpi.com/2227-7390/10/3/335/html

[31] Popescu, A. (2021). Non-Fungible Tokens (NFT) - Innovation beyond the craze. *Proceedings of Engineering & Technology Journal, 66* https://www.academia.edu/50920483/Non_Fungible_Tokens_NFT_Innovation_beyond_the_craze

[32] Steiner, A. (2021). The Paper It's Printed On: NFTs, Ownership and Conceptual Art. *SSRN Electronic Journal,* https://dx.doi.org/10.2139/ssrn.3997352

[33] Szilagyi, K. (2018). A Bundle of Blockchains? Digitally Disrupting Property law. *Cumberland Law Review, 48*(9) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3161151

[34] Toygar, A., Rohm Jr., C. T., & Zhu, J. (2013). A New Asset Type: Digital Assets. *Journal of International Technology and Information Management, 22*(4) https://scholarworks.lib.csusb.edu/jitim/vol22/iss4/7

[35] van Erp, S. (2017). Ownership of Data: the numerus clausus of legal objects. *Brigham-Kanner Property Rights Conference Journal,* (6) https://cris.maastrichtuniversity.nl/en/publications/ownership-of-data-the-numerus-clausus-of-legal-objects

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