The challenge of emergence of virtual property to the traditional legal theory and the corresponding solutions

Submitted by Mu Xiaochen to the University of Exeter

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Abstract

The emergence and popularity of virtual property has challenged traditional legal theory, especially property and intellectual property theory. Due to the predisposition for a desire of ownership, and the desire for security and certainty in investment, virtual property users should acquire new specific legal protection for their virtual property. This thesis argues that it is needed to establish an independent virtual property theory which could clarify the legal status of virtual property, the types of virtual property right and the allocation of ownership of virtual property in the virtual world.

The majority of the current virtual property theories tend to confuse different types of code and content in virtual worlds, equating the underlying software (the building blocks of virtual worlds) and the user generated content (virtual assets). In this sense, this thesis proposes to construct a notion of virtual property through layer theory.

The layer theory divides virtual property into three layers, namely infrastructure layer (1), abstraction layer (2) and content layer (3), based on distinguishing between codes which constitute a platform of the virtual world and codes which consist of the user generated content. The infrastructure layer (1) contains the internet service providers’ ISPs’ codes which constitute the platform of the virtual world. This level of virtual property could be considered as the fundamental basis of the operation of the virtual world. At the abstraction layer (2) sits the unique computer code which comprise of the unique items which designed by ISPs but have not transmitted to
users in the virtual world. The content layer (3) are the virtual items which are closely relevant to specific individual due to their personal investment and arrangements.

Virtual items that sit at the infrastructure layer (1) and abstraction layer (2) should be categorised as ISPs’ virtual property and should be protected as computer software or artistic works created by writing program under current copyright framework. The programmers’ employed by the ISPs are the author of both categorises of virtual property and the ISPs are the first owner of both types of virtual property. However once virtual property combines users’ skill, labour, personal information and other types of investment and arrangement, the added part then should be categorised as users’ virtual property and the ownership should be granted to ordinary users.

Theoretically, this thesis defines virtual property as a piece of property which relies on the internet environment provided by ISPs and reflects both the legal relationship between users and ISPs and the relationship between users and others. This thesis also divides virtual property into three categories, the virtual property users get from ISPs directly without further reproduction and creation, the virtual property that contains users’ private information, and the virtual property enrich users’ originality and reproduction which even have not reach the requirement of copyright.

Compared with the traditional property right model, taking the complex relationships reflected by virtual property, this thesis argues that virtual property rights granted to users should be a twofold virtual property right. The twofold virtual property rights system adopts what I term ‘restrained-exclusive property rights’ or ‘fundamental property rights’ to describe the ‘rights’ users can claim to regulate the relationship and conflict between them and ISPs, meanwhile ‘relative-exclusive property rights’ or
‘external property rights’ are used to describe owners’ property interests to prevent the infringement from other users.

The twofold virtual property rights system will help courts to recognise the exclusive aspect of users’ virtual property right, clarify the property interest over users’ private information, and identify the originality in users’ virtual property.

From the legislative perspective, this thesis suggests that virtual property should be explicitly stipulated in the current copyright framework in the UK due to the characteristic of the virtual property. As the ‘Copyright, Designs and Patents Act 1988’ (CDPA) states in s.1 that copyright is a property right. On the other hand, based on the virtual property theory proposed by this thesis, virtual property that sit at the infrastructure layer (1) and abstraction layer (2) should be protected as computer software or artistic works. Therefore, this thesis suggests that users’ virtual property should be regulated by an independent statute entitled ‘The Virtual Property Statute’ which will complement the current CDPA 1988.
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Chapter 1. Introduction

1.1 The problem

The need to protect virtual property has been acknowledged. However, the majority of current literature in this field primarily focuses on their specific research question or have concentrated on the particular cases. The approaches to protect virtual property has been ad hoc rather than wholistic, and a comprehensive virtual property theory has not been established. As a result, there is no single unified, holistic, approach to how virtual property should be protected. Given that we live in an

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1 "Why is it important that we have a theory of virtual property? The common law of property works to ensure that resources are used well. If we do not have a good theory of virtual property, then virtual property will be poorly used. A good theory of virtual property is also important to the future of the internet. Finally, a theory of virtual property is important to maintain the equilibrium of the law as it adapts to new contexts." See in Fairfield, Joshua, ‘Virtual property’ (2005) 85 BULR 1047; "When considering the legal aspects of virtual worlds, virtual property and players’ rights to such property are two of the most commonly debated topics." See in DaCunha, Nelson, ‘Virtual Property, Real Concerns’ (2010) 4 ALPJ 35; "People regard their virtual, second lives with as much significance as they do their real lives. Equally, people value their virtual property as much as they do their real and tangible possessions. Virtual properties—such as email addresses, websites, avatars, video game characters, virtual accessories, and any other intangible digital commodities—are more prevalent and abundant today than ever before. Although virtual property is not physical or tangible, proprietors of virtual property consider themselves to be owners of such property. To some extent, “owners” of virtual property place a value on it because they are able to control it and exclude others from it. Additionally, the idea of ownership in virtual property is reinforced because owners can increase the value in it and exchange its worth with other people." See in Yen Truong, Olivia, ‘Virtual Inheritance Assigning more Virtual Property Rights’ (2009) 21 SSTLR 57;

2 For example, Fairfield focus on clarify the property interests over virtual property, see in Fairfield, Joshua ‘Virtual property’ (2005) supra 1; Cifrino analysed the contractual clauses in the virtual world and then conclude that contract law will be the appropriate approach to regulate the virtual world, see in Cifrino, Christopher ‘Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be The Governing Paradigm in The Law of Virtual Worlds’ (2014) 55 BCLR 235; Ludwig suggest using restitutionary approach to protect virtual property, see in Ludwig, Jordan, ‘Protection for Virtual Property: A Modern Restitutionary Approach’ (2012) 32 LOLAELR 1; Nelson tried to explain the privacy aspect of the citizens in the virtual world, see in William Nelson, John, ‘A Virtual Property Solution: How Privacy Law can Protect The Citizens of Virtual World’ (2011) 36 OCULR 395.

3 For example, in Bragg v Linden research, Inc. the key point is the property interest over the virtual property and allocation of ownership of virtual property in the virtual world, see also in 北京市第二中级人民法院 (2004) 二中民终字第 02877 号判决书.(Judgment No. 02877 of the Second Intermediate People’s Court of Beijing (2004); in Google Inc. v Judith Vidal-Hall, the main argument is about the protection on the personal information reflected by virtual property in the virtual world; in the US case ProCD, Inc. v. Zeidenberg, and the UK case SAS Institute Inc v World Programming Ltd, the key point is how to deal with the conflicts and the fundamental relationships between the reach of a contract and the copyright balancing exercise on the work which has not been protected by copyright law.
information society,\(^4\) it is necessary and urgent to establish an integrated virtual property theory to clarify the concept and principle related to the protection of virtual property.

The appearance and popularity of virtual property was influenced deeply by the development of internet and digital technology. The virtual property exists in different formats and the increasing number of the formats of virtual property is a challenge for the recognition of virtual property. In addition to traditional formats such as online games, email address, online services, there appear novel formats, users generate content and online footprint. However, currently there is not a single criterion to determine whether a virtual item can be categorized as virtual property or not.

The thesis argues that if virtual property should be protected, it is still necessary to analyse the justification of the protection of virtual property. Due to the existence of the contractual clauses in End Users License Agreements (EULAs), there still remains confusion related to the recognition of virtual property, namely, how to identify the owner of virtual property, how to balance the different interests between users and internet service providers (ISPs) and how to decide which type of property right should be granted to the owner? All of these conceptual issues should be resolved in the proposed virtual property theory.

In addition, we should consider the issue of how to implement such a proposed system from a practical perspective, and, ultimately, regulate virtual property under an independent statute.

1.2 The research questions

The popularity of the internet and the development of internet and information technology have brought the world into the age of the “Information Society”. Therefore, the conflict between the development of technology and the uncertainty of the approach to protect virtual property has resulted in many issues in relation to virtual property protection. With the improvements in the concept of property, except for the typical virtual property theft issues, there still remain problems in defining, recognising and protecting virtual property form legal perspective.

In the US, in Bragg v Linden research, Inc., March Bragg, the plaintiff, claimed that his virtual property right was infringed by Linden Research Inc. (hereinafter Linden), the defendant. Braggs' virtual land named “Taessot” is purchased by Bragg through with real money and Bragg also paid Linde real money as “tax” on his land. However, on April 30, 2006, when Bragg acquired a parcel of virtual land named “Taessot” for $300. Linden sent Bragg an email advising him that Taessot had been improperly purchased through an “exploit.” Linden took Taesot away. Linden then froze Bragg's account, effectively confiscating all of the virtual property and currency that he maintained on his account with Second Life. The primary disputation in this case is the allocation of ownership of the virtual property in the virtual world. Although the parties eventually settled outside the court and the court did not rule on any issue other than the arbitration clause of the TOS. This case still

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5 This case occurred in the US. In the US case, Bragg v. Linden Research, Inc., 487 F. Supp. 2d 593 (E.D. Pa. 2007). In the US there are many cases related to virtual property rights in the virtual world, however, the decision of Bragg v. Linden Research, Inc. is relevant clear and main focus on the enforcement of clauses in EULA.

6Yen Truong, Olivia, ‘Virtual Inheritance Assigning more Virtual Property Rights’ (2009) supra 1

demonstrates the legal uncertainty of the recognition of property rights in virtual world.

In China\(^8\), the first case related to the protection of virtual property occurred in the game “Red Moon”\(^9\), the plaintiff Li Hongchen, as a player of “Red Moon”, his virtual gaming equipment was stolen by other users and his game account was confiscated by the defendant the Arctic Ice Technology Development Co., Ltd. The primary argument is this case seem to be the ownership of virtual weapons, however, eventually, the court recognised this case as a contractual dispute rather than the infringement of virtual property right. A similar case occurred in 2013,\(^10\) the defendant closed players’ account, confiscated players’ virtual items and deleted game currency. Ultimately, the court also deal with this case as a contractual dispute. Therefore, this thesis argues that the absence of integrated virtual property systems caused insufficient justification for the court to make a decision on the protection of virtual property. Without the integrated and accepted virtual property theory, judges cannot grant virtual property rights to individuals, the disputes argued in the court are only considered as contractual arguments.

Due to the technological development of the information technology and the development of the information-oriented business, users’ digital private information plays an increasing important role in the operation of such companies. Users’ private information can be collected and analysed more flexibly and clandestine. in Google Inc. v Judith Vidal-Hall,\(^11\) the defendant, Google, collected private information about

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\(^8\) As a typical example of civil legislation, the protection of virtual property in China is more improved.


\(^10\) See in 广州市天河区人民法院（2013）穗天法民二初字第 4742 号民事判决书 (Guangzhou Tianhe District People’s Court (2013) Sui Tian Fa Min Er Chu Zi No. 4742 Civil Judgment)
the claimants' internet usage via their Apple Safari browser (the Browser-Generated Information, or ‘BGI’) without the claimants' knowledge and consent, by using a small string of text saved on the user's device ('cookies'). The BGI was then aggregated and used by the defendant as part of its commercial offering to advertisers via its 'doubleclick' advertising service. This meant advertisers could select advertisements targeted or tailored to the claimants' interests, as deduced from the collected BGI, which could be and were displayed on the screens of the claimants' computer devices. This thesis argues that it is reasonable and urgent to protect users' digital private information and balance the different information interest between users and such companies.

With the increasing popularity of the social media platform, a huge amount of users generated content which have not reach the criterion of the copyright still enrich users’ original ideas. Both in the US case ProCD, Inc. v. Zeidenberg,\(^\text{13}\) and the UK case SAS Institute Inc v World Programming Ltd,\(^\text{14}\) the key point is how to deal with

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\(^{11}\) Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650

\(^{12}\) The claimants are three individuals who used Apple computers between the summer of 2011 and about 17 February 2012. Each of them accessed the internet using their Apple Safari browser.

\(^{13}\) This case occurred in the US. ProCD, Inc. v Zeidenberg, (WD Wis. 1996) at 656 & 658 "In the US, the focus of the law has been on the manner in which contractual clauses may extend the scope of copyright style protection. Unlike the UK, the focus is not on specific areas such as the making of back up copies. A line of US decisions focus dealing with non copyright works focus on the fundamental relationship between the reach of a contract and the copyright balancing exercise, which is patently not the case in the UK or EU. The line of case law in question concerns two hearings involving a company called Pro CD." “In ProCD, a manufacturer of computer software (ProCD), information from over 3,000 directories into a telephone containing approximately 95 million telephone listings (at expense) and developed a search engine to be used in conjunction database. In order to effectively market the software, the database at different prices—higher prices for commercial lower prices for private users. A problem arose, however, berg bought a private user package, but ignored the license, listings, and made the database commercially available over through his own proprietary search engine. ProCD sued claiming copyright infringement and breach of the shrinkwrap agreement.” See in Covotta, Brian and Sergeeff, Pamela ProCD, Inc. v. Zeidenberg (1998) 13 Berkeley Technology Law Journal 35

\(^{14}\) “SAS had developed analytical software (“the SAS System”) comprising an integrated set of programs which enabled users to carry out a wide range of data processing and analysis tasks, and in particular statistical analysis. The core component of the SAS System was Base SAS, which enabled users to write and run application programs to manipulate data. The functionality of Base SAS could be extended by the use of additional components (referred to together with Base SAS as “the SAS Components”). The defendant (“WPL”)
the conflicts and the fundamental relationships between the reach of a contract and the copyright balancing exercise on the work which has not been protected by copyright law.\textsuperscript{15} In the US, the conflicts between contractual clauses and copyright protection are clarified in \textit{ProCD, Inc., v. Zeidenberg}\textsuperscript{16}:

“A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create ‘exclusive rights.’ Someone who found a copy of SelectPhone (trademark) on the street would not be affected by the shrink wrap license—though the federal copyright laws of their own force would limit the finder’s ability to copy or transmit the application program.”\textsuperscript{17}

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\textsuperscript{15} Pro CD used contractual clauses to prohibit their customers from reselling ProCD’s own compilation of telephone numbers. Traditionally, such compilations would have had protection under US copyright law because of the “sweat of the brow” by the company in compiling the telephone numbers. However, following Feist, the “sweat of the brow” test was overruled and such compilations lost copyright protection. ProCD therefore used a contractual clause to provide copyright style protection. The clause was contained in a shrink wrap licence, to which users had to agree in order to access the compilation data. The case was heard before both the Western District of Wisconsin, and on appeal, the Seventh Circuit. Both courts took a broad approach in establishing a policy towards contractual clauses which extend copyright style protection over potentially copyright works. In the Western District of Wisconsin it was decided that contractual clauses could not be used to provide copyright style protection where copyright itself would not provide protection. On appeal, the Seventh Circuit reached the opposite conclusion, due to copyright being a property right, and contract being a personal right. However, to reiterate the above point, both courts drew up a policy towards contractual clauses that extend copyright style protection and that seek to preclude copyright law.” Griffin, James, “The interface between copyright and contract: Suggestions for the future” (2011) 2 EJLT 6

\textsuperscript{16} ProCD, Inc. v. Zeidenberg, 908 F. Supp. 640 (W.D. Wis. 1996) supra 13

\textsuperscript{17} ProCD, Inc. v. Zeidenberg, \textit{ibid.} at 656 & 658
With respect to such legal issues, this thesis suggests that categorising this type of virtual items as users' virtual property should be the appropriate approach to protect users’ right and also balance the interest between users’ and ISPs.

Due to the uncertainty of the legal status of users’ virtual property, with the purpose of regulating the virtual world, the End Users Licence Agreements (EULAs) was designed by ISPs to regulate the rights and obligations of different parties in the virtual world. Because of the initial investments provided by ISPs in establishing the virtual world, ISPs usually attempt to regulate users, such as access to the virtual world, interact with other users in the virtual world or make a deal with other users by such contractual clauses. In this case, due to the lack of clarification of the legal status of virtual property, contractual clauses in EULAs is a popular tool which ISPs prefer to use. 

Therefore, in accordance with the protection for users’ virtual property rights, it is needed to analyse the contractual clauses relevant to virtual property rights in EULAs.

Therefore, this thesis begins by questioning what virtual property is It then critically examines the extent to which types of virtual property can be categorized as users’ virtual property? With the purpose to make a better understanding of virtual property, this thesis explores the layer theory which divides virtual property into three layers, namely infrastructure layer (1), abstraction layer (2) and content layer (3). In order to establish an integrated virtual property theory, from the theoretical perspective, this

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18 “Usually, online service providers make large initial investments in computer hardware, software, and intellectual property to establish a community or web-space with long-term growth potential. Service providers then license access to these expensive resources to users. Users manipulate, interact with, and develop these resources according to certain rules set by the service provider, as would a licensee acting within the bounds of a licence.” See in Blazer, Charles, ‘The Five Indicia of Virtual Property’ (2006) 5 Pierce L. Rev. 137.
thesis then focuses on some secondary questions: what is characteristic and classification of virtual property? What is the difference between virtual property and privacy, intellectual property and chattel? The thesis critically assess to why virtual property should be categorized as a type of legal property? From the practical perspective, this thesis intends to address the question of which type of property rights should be granted to owners, and how to bring virtual property into a legal framework? Finally, this thesis provides a proposal to reform the virtual property theory under the current CDPA 1988.

1.3 Key concepts and theoretical framework

Virtual property is defined as a piece of property consist of computer code and enrich of individual’ investment in the virtual world which also reflects the legal relationship (the right – obligations relationship\(^\text{19}\)) among users, ISPs and others. In addition, the operation of virtual property is also impacted by the contractual clauses in EULAs.

Virtual property in the virtual world should be divided as three layers.\(^\text{20}\) Infrastructure layer (1) represents the construction of the whole virtual environment. It can be considered as the platform of the virtual world. Each ISPs establish their own virtual platform for their users to perform and interact with other users such as Google, Facebook, Wechat and Blizzard. The platform is the infrastructure layer (1) based on the layer theory proposed in this thesis. The abstraction layer (2) represents the unique virtual items designed by programmers through computer codes and algorithms. The virtual property in this layer have not been transferred to users from ISPs. All virtual items such as online service, virtual weapons in online games, virtual


\(^{20}\) For details see Chapter 2 at 2.2.2
account which have not been transferred to users can be categorised as this layer. Ultimately, the content layer (3) represents the virtual property individualized through users’ unique arrangements and investments, including but not limited to the time, money and labour spent on that property. Virtual account combined with users’ username and password, virtual service and items users get from ISPs through EULAs, users’ reproduction over the virtual items they get from ISPs directly are the typical examples of this layer.

Virtual items in infrastructure layer (1) and abstraction layer (2) should be categorized as ISPs’ copyright and be protected as computer software under current copyright framework; and virtual items that sit at the content layer (3) should be labelled as users’ private virtual property, and be protected by the virtual property system proposed in this thesis.

The virtual property in the content layer (3) can be divided into three categories. The first category of virtual property are the virtual property users get from internet service providers (ISPs) directly without further reproduction. Virtual weapons in the online games and the internet service are the typical example of this category. The second group of virtual property are the virtual items containing users’ private information. Virtual accounts and online footprints are the typical examples of this group of virtual property. Finally, the third group of virtual property are the virtual items containing users’ original ideas that however have not reached the copyright criterion. User generated content is the example of this type of virtual property.

21 “literary work means any work, other than a dramatic or musical work, which is written, spoken or sung, and accordingly includes—
(a) a table or compilation [other than a database], . . .
(b) a computer program[., . .
(c) preparatory design material for a computer program] [and
(d) a database;]” See in Copyright, Designs and Patents Act 1988 Article 3
22 Further discussion see in Chapter 2 at 2.2.2 and Chapter 6 at 6.5
In terms of the types of virtual property right, this thesis argues that the owner of the virtual property in the content layer (3) should be granted an integrated virtual property right – a twofold virtual property right. The ‘restrained-exclusive property rights’ or ‘fundamental property rights’ are used to deal with the conflict and relationships between users and ISPs. ‘Relative-exclusive property rights’ or ‘external property rights’ are used to describe owners’ property interests against other users.

Taking into account the apparent difference between virtual property and traditional real property, this thesis suggests that it is appropriate to categorize virtual property rights as a new type of property right which regulated in the current copyright framework. Under the current copyright framework, copyright remains an appropriate form of exclusive rights for ISPs who have created the virtual world, however, for users’ virtual property which sits in the content layer (3), this thesis suggests copyright should also be an appropriate approach. Due to the predisposition for a desire of ownership, and the desire for security and certainty in investment, as well

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23 The operation of users’ virtual property rights should rely on the virtual environment established by service providers. Users’ behaviours in virtual world should also in compliance with the regulation of EULAs. Therefore, the conflicts and relationship between users and service providers are different from the conflicts and relationship among users. The operation of users’ virtual property should also respect service providers’ rights in virtual world which regulated in the terms of EULAs. From this perspective, users’ virtual property rights against service providers are impacted and restricted by EULAs compared with users’ virtual property rights against other users.

24 Compared with the relationship between users and internet service providers, users’ virtual property rights against other users is more exclusive. Therefore this chapter use “relative-exclusive property rights” or “external property rights” to describe this type of virtual property.

25 “Literary work means any work, other than a dramatic or musical work, which is written, spoken or sung, and accordingly includes—
(a) a table or compilation [other than a database], . . .
(b) a computer program[, . . .
(c) preparatory design material for a computer program] [and
(d) a database]” See in Copyright, Designs and Patents Act 1988 Article 3

26 See in Chapter 2 at 2.2.2 “Finally, at the content layer (3), this thesis identifies the unique items contain the investment, like time, money and labour, from users. Obviously, the content layer (3) represents the virtual property belonging to internet users.”

27 For details see in Chapter 6 at 6.2 and 6.5
as the economic and social value reflected by users’ virtual property, they are different from intellectual property, privacy and physical property (differences are clarified by the layer theory and the two-fold virtual property right system\(^{28}\)), The concept of virtual property is entirely historically contingent\(^{29}\) and based on the contemporary social circumstance. The notion of property should be broaden according to the social and economic development. Due to the economic and social value of virtual property, virtual property has become an experience of us and based on the human understanding theory, it can be concluded that virtual property should be labelled as a new kind of property.

According to Hohfeldian methodology\(^{30}\), in terms of the virtual property rights in virtual environment, this chapter argues that once a specific virtual item belongs to a specific user, this virtual item then has an unique and recognised virtual identity, other users could distinguish it from other virtual items which have not belongs to any individual. In this case, it is reasonable for owners to prevent others using, possessing and infringing the enforcement of owners’ right over the specific virtual item. From this perspective, users should be granted virtual property rights over their virtual property.

According to Hegel’s free will theory,\(^{31}\) whether one thing can be regard as one’s private property or not is that the thing becomes the embodiment of one’s internal spirit, “Since property gives visible existence to my will, it must be regarded as “this”

\(^{28}\) See in Chapter 4 at 4.6.4
\(^{31}\) Harris, James, Property and Freedom (Oxford University Press, 2002.)
and hence as “mine.”\textsuperscript{32} The statement about possession from Hegel can also provide justification for recognising virtual property as a new type of property.

Labour theory\textsuperscript{33} also provide justification for the acceptance of virtual property, people have a nature right to their preservation. The World is shared in common and individuals’ labour make specific object become their private property.

In accordance with previous property theory, property is often escribed as a bundle of rights,\textsuperscript{34} or more informally, a bundle of sticks rather than a thing.\textsuperscript{35} The common rights in this bundle are known as: the right to exclude, the privilege to possess/use, and the power of transfer.\textsuperscript{36} Based on the concept of virtual property and layer theory proposed in this thesis can conclude that users’ virtual property right should be recognised, as copyright is also a property right, both virtual property right and copyright are the consequence of technology and are also distinct from traditional property right. Therefore, this thesis suggests that users’ virtual property should be regulated by an independent statute entitled ‘The Virtual Property Statute’ which will complement the current CDPA 1988.

1.4 Thesis outline

Chapter Two clarifies the primary concept related to virtual property in order to establish the conceptual basis for the further discussion of the protection of virtual property. This chapter starts with a brief introduction of the virtual world. The virtual world can be interpreted as a platform created by internet content providers to

\textsuperscript{32} Hegel \textit{The Philosophy of Right ibid.}

\textsuperscript{33} Locke, John \textit{Two Treaties of Government} (1st edn, Cambridge University Press 1960)

\textsuperscript{34} Waldron, Jeremy \textit{The Right to Private Property} (Oxford: Clarendon Press. 1988) supra 310

\textsuperscript{35} Grey, Thomas, ‘The Disintegration of Property’ (1980) 22 American Society for Political and Legal Philosophy 69

\textsuperscript{36} Honoré, Anthony Maurice, \textit{Ownership} (Cambridge University Press 2012) Honorè seems to present the right of (positive) possession and the (negative) right to exclude as two “aspects” of the same legal position.
ensure participators’ interconnection. With the purpose to explore the intrinsic meaning of virtual property, this chapter introduces and explains the layer theory which divides virtual property into three layers. Based on the layer theory, this chapter defines virtual property as a piece of property consist of computer code and enrich of individual investment in the virtual world which also reflects the legal relationship (the right – obligations relationship ) among users, ISPs and others. Even the operation of virtual property should rely on the virtual environment created by ISPs, virtual property interconnects with the real world flexibly. This chapter divides virtual property into three categories, a) the virtual property users get from ISPs directly and without users’ reproduction; b) the virtual property that contains users’ private information and c) the virtual property which contains users’ original ideas and reproduction. This chapter then explains the characteristic of virtual property: intangibility, rivalrousness, persistence and interconnectedness.

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37 “Virtual world is an online digital environment in which large numbers of users interact through their virtual representations to socialize, participate in events, and create and trade virtual goods, services and other property, including real estate.” See in Burshtein, Sheldon, ‘virtual world with real world issues’ (2008) 9 IELC 61

38 The layer theory proposed in this paper is modified from Abramovitch”Within virtual worlds, there are three possible levels of “property”: 1. First level: At its core, all virtual property is ultimately computer code, which is protected by copyright law. 2. Second level: Items in the virtual world – avatars, swords, clothes, buildings, etc. – are the virtual world’s equivalent of the same property items in the physical world. 3. Third level: It is possible that the in-game virtual property itself is a form of intellectual property. For example, an in-game book is both a “physical” item of property, but also represents a “tangible” representation of the copyright in that book. Another example would be the creation of a clothing line in a virtual world: in such a case, there could be intellectual property rights in the form of designs or trade marks inherent in the clothes, while someone also could “own” the physical embodiment of the items of clothing in that line. However, as in the real world, intellectual property rights would not exist for every object.” See Abramovitch, Susan ‘Virtual Property in Virtual Worlds’ (2009) 2 at https://www.lexology.com/library/detail.aspx?g=5a3f3b03-a077-45d4-9981-36f713c92820 accessed 2 July 2021

39 The infrastructure layer (1), the abstraction layer (2) and the content layer (3). The infrastructure layer (1) represents the platform and basis of the whole virtual property world; the abstraction layer (2) represents the virtual items designed by ISPs but have not been transmitted to users; the content layer (3) represents the virtual item combine with users’ personal investment, including but not limit time, labour and time.


41 See in Chapter 2 at 2.2.3

42 See in Chapter 2 at 2.3

43 Burshtein, Sheldon ‘virtual world with real world issues’ (2008) supra 28
Furtherly, this chapter distinguishes virtual property from relevant property rights (privacy, law of confidence, intellectual property, contracts and chattels). Eventually, this chapter analyses justification\textsuperscript{47} of virtual property and explain why should virtual property be protected.

Based on the layer theory, practically, the internet platform each ISPs designed and provided is the typical example of the infrastructure layer (1), for instance the service provided by Google. The particular software and programme written by programmers is the typical example of the virtual property sits in the abstraction layer (2), the virtual items combined with users’ skill, labour, time and other investment and arrangement are the examples of the virtual property in the content layer (3), for instance, the virtual clothes in the online games which users get from ISPs, the virtual account which is occupied by users through username and password, the online footprint and other users generated content.

By relying on the layer theory and the classification of virtual property, users’ online activities, which reflect users’ interests and references, and any other virtual account that contain users’ private information can be categorized as users’ virtual property. Therefore, chapter three analyses the development of privacy and misuse of private information in the United Kingdom. The chapter then outlines how layer theory provides justification for the protection of private information, especially under the uncertainty caused by the confusion among confidential information, privacy and

\begin{itemize}
\item Quadrini, Matthew, ‘Caveat Cloudster: Why Traditional Common and Civil Property Law Should Apply to Virtual Property and How It Will Change The Legal Realities of The Internet’ (2015) 24 Dal J Leg Stud 55
\item “Persistence is the quality of an object having longevity. The user’s virtual property shovel remains in existence in the virtual world, and it remains the property of that user, even after he or she logs out of the virtual world.” See in Abramovitch, Susan & Cummings, David, ‘Virtual Property, Real Law: The Regulation of Property in Video Games’ (2007) 6 CILT 73
\item Abramovitch, Susan & Cummings, David, ‘Virtual Property, Real Law: The Regulation of Property in Video Games’ ibid.
\item See in Chapter 2 at 2.6
\end{itemize}
private information. Finally, in order to explain the feasibility of the protection from virtual property theory, this chapter introduces the legislation related to personal information in China which tries to establish property right over personal information.

Chapter four analyses the types of virtual property rights that should be granted to owners. This chapter starts with the analysis of the ownership of different types of virtual property. Virtual property in the infrastructure layer (1) and the abstraction layer (2) should be protected as computer software or artistic works created by writing program under current copyright framework. However virtual property in the content layer (3) should be protected by the proposed twofold virtual property rights system.\(^48\) In accordance with the purpose to establish an independent virtual property system, this chapter adopts the Hohfeldian\(^49\) methodology, which clarified the legal concepts and relationships related to property, to provide justification for granting ownership to users. By analysing the conflicts between users and ISPs, and the conflicts among users, this chapter establishes a twofold virtual property rights system. For the conflicts among different users, this chapter adopts ‘relative-exclusive property rights’ or ‘external property rights’\(^50\) to describe the virtual property rights which are used to against the infringement from other users. Owners need the technical support from ISPs to record evidence once their virtual property rights were infringed by others, however, by contrast, for the conflicts between users and others, owners could claim exclusive virtual property rights over their virtual property and exclude other users from infringing these rights. For the conflicts between users and ISPs, this chapter adopts ‘restrained-exclusive property rights’ or ‘fundamental

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\(^{48}\) For details see in chapter 4 at 4.4.2

\(^{49}\) Newcomb Hohfeld, Wesley Fundamental Legal Conceptions as Applied in Judicial Reasoning (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19

\(^{50}\) For details see in chapter 4 at 4.4.2.1
property rights' to describe users' property claims against ISPs. This type of virtual property rights indicate that ISPs not only have the obligation to protect the operation of users' virtual property, but they also have the obligation to assist users to avoid the infringement from other users.

The contract between users and ISPs generally take the form of an End User License Agreements (EULAs).52

“Instead of relying solely on the default protections of intellectual property law, providers turned to contract to allocate rights to virtual items. These contracts generally take the form of the familiar end user license agreement (EULA) that accompanies practically every software transaction.”53

Therefore, Chapter Five analyses the contractual clauses which governs relations in the virtual world. The analysis in this chapter rely on the classification of virtual property. This chapter argues that in terms of users' intellectual property rights over the virtual items they created in the virtual world, EULAs are not equivalent with the licence which provided legal permissions by right holder.54 For the virtual items that contain users' personal information, this chapter suggests that it will be more ontologically appropriate to clarify the legal status of users' personal information and then provide more regulatory certainty. Personal information should not be allocated and collected by ISPs only through the terms of EULA. In terms of the property

51 For details see in chapter 4 at 4.4.2.2
claims over users’ virtual property, this chapter argues that, users’ virtual property right is a type of legal property right and should not only be clarified by contractual clauses in EULAs. Finally, this chapter provides a suggestion on the modification of the contractual clauses related to users’ virtual property in EULAs. ISPs should use particular terms in EULAs to recognise users’ virtual property right and clarify the ownership of different types of virtual property.

Finally, Chapter Six analyses how the proposed virtual property theory, especially the layer theory and the twofold virtual property rights system, work from a practical perspective. This chapter proposes an independent statute entitled ‘The Virtual Property Statute’ which will complement the current CDPA 1988.

1.5 Methodology

1.5.1 Rationale for the different methods used

This thesis identifies users’ virtual property rights over their virtual property and balances the different interests among users, ISPs and others. The initial chapters establish and explain the proposed virtual property theory. They do so from theoretical, historical and legal perspectives. This helps to make for a better understanding of the intrinsic meaning of virtual property and distinguishes it from the virtual items belonging to ISPs and others.

The layer theory deals with the practical issues related to virtual property based on the classification of virtual property. The aim is to analyse how the proposed virtual property theory works and provide legal suggestion for the protection of virtual property under an independent statute entitled ‘The Virtual Property Statute’ which will complement the current CDPA 1988. These later chapters utilise the theoretical
framework set out in earlier chapters. By utilising that framework, the operation of the proposed virtual property theory can be effectively investigated.

It should also be noted that this is library-based research using material from the public domain. All data collected originates from primary and secondary sources of law; no field work, interviews, or further empirical data is required. It should be noted that primary sources can be either mandatory or persuasive authority. Secondary sources are by definition persuasive.

1.5.2 Theoretical and Historical Perspectives

To begin with, a few comments on the method of historical and theoretical analysis in the thesis are required. In terms of historical analysis, the thesis stresses the importance of social trends, along with historical events. For instance, with the purpose to explore the intrinsic meaning of virtual property, it is necessary to introduce the advent of the virtual world.

“The original virtual worlds date back at least thirty years, but they were limited in scope and only accessible by small groups of people with access to the massive mainframe computers that were connected to what eventually became the Internet. The first virtual worlds to draw substantial numbers of players were role-playing games set in mythical realms. One common aspect of role-playing games is a mission-reward system that allots players with experience points and magical items
when they defeat enemies. These items are collected by the players’ avatars and can then be used later or traded for other items.”

In the virtual world, internet content providers who created the virtual world usually use contractual clauses to regulate users’ behaviours. The contract between users and ISPs generally take the form of the familiar End User License Agreement (EULA). In order to explain and modify the relationship between users and ISPs, it is reasonable to explain how EULAs appear and operate in the virtual world.

“Usually, online service providers make large initial investments in computer hardware, software, and intellectual property to establish a community or web-space with long-term growth potential. Service providers then license access to these expensive resources to users. Users manipulate, interact with, and develop these resources according to certain rules set by the service provider, as would a licensee acting within the bounds of a licence.”

According to the proposed virtual property theory, virtual item contains users’ personal information should be categorised as a type legal virtual property, in addition, the advancement of information technology has brought us into an information society. This thesis, therefore, explains the impact of information technology to our society, especial the risk and challenge to the protection of users’ private information in digital forms.

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55 Kwong, Justin, ‘Getting the Goods on Virtual Items: A Fresh Look at Transactions in Multi-User Online Environments’ (2011)37 Wm. Mitchell L. Rev. 1805
“Internet technologies have resulted in information becoming intangible in nature and detached from physical copies such as individual books or newspapers. Information is now highly mobile, moving rapidly and un-predictably in 'flows', resulting in spatial and temporal compression.”

The theoretical analysis throughout the thesis depends on the specific research questions. In terms of the justification of the establishment of the virtual property system, labour theory provides a straightforward justification for users’ property interest over their virtual property.

“The labour of his body, and the work of his hand, we may say, are properly his. WHATSOEVER then he removes out of the state that nature hath provided, and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property.”

The personhood theory, which is rooted in Georg Hegel’s free will theory and Kant’s moral philosophy provides alternative justification for the property interests over virtual property.

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58 Moosavian, Rebecca, ‘Keep Calm and Carry On: Informing the Public under the Civil Contingencies Act 2004’ (2014) 18 IJHR 178
59 The analysis provided by labour theory on the property is a popular justification for the property right, the “enough and as good for others” criterion and the “non waste” criterion are most relevant to the virtual world.
60 Locke, John, Two Treaties of Government (1st edn, Cambridge University Press 1960)
62 “A person has the right to direct his will upon any object, as his real and positive end. The object thus becomes his. As it has no end in itself, it receives its meaning and soul from his will. Mankind has the absolute right to appropriate all that is a thing.” See in Hegel The Philosophy of Right (1st edn, London George Bell And Sons 1896)
63 Kant, Immanuel Kant, Grounding for the metaphysics of morals (SparkNotes Philosophy Guide Series, Spark 2014)
64 Hegel and Kants’ analysis and theory are the most popular and accepted, therefore this thesis collect their theory to provide justification for virtual property.
“These objects are closely bound up with personhood because they are part of the way we constitute ourselves as continuing personal entities in the world.”

“An object is closely related to one’s personhood if its loss causes pain that cannot be relieved by the object’s replacement. If so, that particular object is bound up with the holder.”

This thesis also analyses the Hohfeldian methodology which had a profound impact on modern legal thought and in particular on property law. Wesley Newcomb Hohfeld introduced his model of fundamental legal conceptions and jural relations in the early twentieth century and his model will guide the search for rights and other entitlements as they exist, or may exist in the law.

In order to clarify why virtual property should be protected, this thesis also analyse the process of human understanding. “All of our ideas come from our experiences,” “if we want to admit that one thing is really exist, we have to perceive it by our senses.” All our ideas are nothing but copies of our impressions.

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65 Jane Radin, Margaret, ‘Property and Personhood’ (1982) supra 52
66 Economic language, though awkward in this realm, would say that the holder of such an object has a large amount of consumer surplus that would be very difficult to ascertain accurately. The holder typically would not think about the object in monetary terms at all. Applying economic reasoning to things of high sentimental value presents difficulties because such things are likely to represent a large proportion of a person’s total “wealth.” See Kennedy, ‘Cost-Benefit Analysis of Entitlement Problems: A Critique’ (1981) 33 STAN. L. REV. 387
See also Baker, ‘The Ideology of the Economic Analysis of Law’ (1975) 5 PHIL. & PUB. AFF. 1
67 Jane Radin, Margaret, ‘Property and Personhood’ (1982) supra 52
70 Newcomb Hohfeld, Wesley Fundamental Legal Conceptions as Applied in Judicial Reasoning (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19
71 Hume, David, An Enquiry concerning Human Understanding (Oxford University Press, 2007)
72 Ibid.
The thesis, by combining historical and theoretical analysis, draws up a clear framework for the protection of virtual property.

1.5.3 Practical Analysis

Building upon the theoretical and historical analysis, the thesis proceeds to analyse how the proposed virtual property rights work from a practical perspective.

In terms of the ownership of virtual property, virtual items that sit at the infrastructure layer (1) and abstraction layer (2) should be categorised as ISPs’ virtual property and should be protected as computer software or artistic works created by writing program under current copyright framework.

For virtual property owners of content layer (3), owners should not only deal with the infringement from others, but also should deal with the conflicts between them and ISPs. Therefore, this thesis establishes an independent twofold virtual property rights system.

The twofold virtual property rights system adopts ‘restrained-exclusive property rights’ or ‘fundamental property rights’ to regulate the relationship between users.

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74 See in Chapter 2 at 2.2.2
75 “literary work means any work, other than a dramatic or musical work, which is written, spoken or sung, and accordingly includes—
(a) a table or compilation [other than a database], . . .
(b) a computer program,[. . .
(c) preparatory design material for a computer program] [and
(d) a database];” See in Copyright, Designs and Patents Act 1988 Article 3
76 The operation of users’ virtual property rights should rely on the virtual environment established by service providers. Users’ behaviours in virtual world should also in compliance with the regulation of EULAs. Therefore, the conflicts and relationship between users and service providers are different from the conflicts and relationship among users. The operation of users’ virtual property should also respect service providers’ rights in virtual world which regulated in the terms of EULAs. From this perspective, users’ virtual property rights against service providers are impacted and restricted by EULAs compared with users’ virtual property rights against other users.
and ISPs, meanwhile ‘relative-exclusive property rights’ or ‘external property rights’ are used to deal with the conflicts between users and others.

In terms of the protection of the virtual property users get from ISPs directly without further reproduction, the twofold virtual property right system can help to recognise users’ property internets over their virtual property. With regards to the protection of the virtual property contain users’ private information, a twofold virtual property right system clarifies the legal status of users’ private information in digital formats and also provides justification for the establishment of the tort of misuse of private information. With respects to the protection of the virtual property containing users’ original ideas but which have not reached the copyright criterion, a twofold virtual property right system could help to recognise originality over user generated content in the virtual world.

1.6 Materials and resources

The research of virtual property is relatively new and is closed to the development of technology. This thesis establishes an integrated virtual property theory which includes layer theory and twofold virtual property rights system.

In terms of the review of the current literature related to virtual property, for instance, this thesis chooses Joshua Fairfield, ‘Virtual Property’. Fairfield provided a definition of virtual property and outlined the characteristic of virtual property. Fairfield’s analysis is based on his primary argument that virtual property should be labelled as a new type of property and should be protected by property law. On this

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77 Compared with the relationship between users and internet service providers, users’ virtual property rights against other users is more exclusive. Therefore this chapter use “relative-exclusive property rights” or “external property rights” to describe this type of virtual property.

78 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
point, the thesis does not agree. Nonetheless, Fairfield’s analyses still could be considered as a typical reflection of current literature of virtual property. This thesis also chooses S H Abramovitch ‘Virtual Property in Virtual Worlds’, 79 which provides the approach to divide virtual property into different levels. In order to provide a comprehensive analysis, this thesis also chooses Christopher J. Cifrino ‘Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be The Governing Paradigm in The Law of Virtual Worlds’, 80 which supports the notion that virtual property should be protected by contract law rather than property law. This thesis argues that virtual property is an independent and complex property system, it includes various types of virtual property formats, therefore a single approach cannot provide adequate protection for virtual property. John William Nelson, in ‘The Virtual Property Problem: What Property Rights in Virtual Resources Might Look Like, How They Might Work, and Why They Are a Bad Idea’, 81 holds the opinion that users’ rights in the virtual world should be protected by privacy. This thesis argues that most of users’ personal information in digital formats have not reached the criterion of privacy and should be protected by an independent virtual property right rather than privacy.

1.7 Limitations

The research and proposal provided in this thesis is limited by several factors. The virtual property layer theory and the twofold virtual property rights system are

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established based on the analysis of the operation of virtual world. It is reasonable to expect that they can be adopted by different countries’ legal framework. However, this thesis eventually suggests that virtual property rights should be categorized as a new type of copyright. This suggest relies on the analysis of the UK Copyright, Designs and Patents Act 1988” (CDPA 1988). The sample of the text of protection for virtual property is also under the current CDPA 1988 framework. We cannot expect all countries adopt this sample. For instance, as a typical civil law system country, citizens’ virtual property rights and personal information rights are regulated in Civil Code of The People’s Republic of China82 rather than as a new type of copyright. However, other countries can modify this sample to insert their own legal framework, especially the copyright framework.

Another limitation is that virtual property is a relatively new phenomenon and close to the development of technology, there is not sufficient cases related to the protection of the virtual property, all the cases collected in this thesis are the typical cases relevant to virtual property. For instance, Vidal-Hall v Google Inc83 is the typical cases related to the protection of users’ online footprint, the analyses in Vidal-Hall v Google Inc are used to balance the different interest between users and ISPs on users’ personal information. SAS Institute Inc v World Programming Ltd84 is the typical case about the analyses on the validity of the contractual clauses in the software licence agreements. The US case Bragg v Linden research, Inc.85 is the particular case related to the property rights in the virtual world. Due to the rapidly

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82 See in Civil Code of The People’s Republic of China s 111 and s 127
83 Vidal-Hall v Google Inc [2014] EWHC 13 (QB)
85 Bragg v. Linden Research, Inc., supra 5
developing and constantly changing nature of this field of law, some issues posed in this thesis remain open-ended.

Chapter 2 Primary conceptions related to virtual property

2.1 Introduction

The emergence of legal issues in relation to virtual property, with the growth of internet technology,\textsuperscript{86} has challenged traditional legal theory. However, the transition from traditional property to virtual property requires questions such as why we should protect virtual property? What is the classification of virtual property? Who are the

\textsuperscript{86} Deloitte Technology Spotlight-Recognizing Revenue from Sales in a virtual world (Industry Spotlight 2013)
owners of such property? This thesis suggests that virtual property should be analysed and protected by an independent virtual property theory. At the very outset this chapter starts by establishing the definition of virtual property. The word “virtual” refers to the online presentation of the idea in the mind. virtual property is a piece of property consist of computer code and enrich of individual' investment in the virtual world which also reflects the legal relationship (the right – obligations relationship) among users, ISPs and others. Virtual property can include user-generated online content, which contain users’ personal private information (online activity), investment and original ideas. This chapter uses the layer theory to divide virtual property into three levels. Based on the layer theory, this chapter then clarifies the classification and characteristics of virtual property. In accordance with the purpose of clarifying the legal meaning of virtual property, this chapter will analyse the differences between virtual property and other relevant rights such as those concerning property, privacy, intellectual property, contracts and chattels. Finally, this chapter discusses the necessity of the research of virtual property through rethinking the concept of ‘property’, the meaning of ‘real’ and the process

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87 ‘This thesis defines virtual property as a piece of property which relies on the internet environment provided by ISPs and reflect the legal relationship between users and ISPs and relationship between users and others.’ ‘This thesis defines virtual property right as a twofold virtual property right. This thesis adopts “restrained-exclusive property rights” or “fundamental property rights” to describe the “rights” users can claim against ISPs, meanwhile “relative-exclusive property rights” or “external property rights” are used to describe owners’ property interests against other users. ’See this chapter at 2.2.3 and 2.6
88 See this chapter at 2.2.1
89 See this chapter at 2.2.3
90 See this chapter at 2.2.2
91 The property at the infrastructure layer (1) belongs to ISPs and provide underlying environment for further development. The items at the abstraction layer (2) are created by ISPs and protected by IP, and they also belong to ISPs. Property at the content layer (3) are user’s virtual property, because users invest time, money and labour on them.
92 See this chapter at 2.3 and 2.4
93 See this chapter at 2.6
94 See this chapter at 2.6.1
95 See this chapter at 2.6.2
of ‘human understanding’. The concept of property is historically contingent and the notion should be understood as relying on our interpretation of the world. It is argued that intangibility is not as important as previous theories argued, and that the distinction between material and immaterial things are irrelevant. This chapter analyses the concept of property by questioning the confusion of usage of the property concept and why virtual property should be protected from the perspective of philosophy, conventional property theory and intellectual property law. The chapter then analyses the tendency to extend the scope and object of property, especially under the development of internet technology. This tendency could increase acceptance of virtual property and support the necessity of this research. This chapter also argues that we can find evidence to support the necessity of researching virtual property from the perspective of philosophy. The philosophical arguments concerning ‘human understanding’ argue that all of our ideas come from our experience and that interpretation of the world relies on perception. In conclusion, this chapter provides fundamental conceptions and principles for further research in virtual property.

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96 See this chapter at 2.6.3
98 See this chapter at 2.6.3
99 Kantor, Georgy, Lambert, Tom, and Skoda, Hannah, Legalism: property and Ownership (Oxford Scholarship Online 2018)
100 See this chapter at 2.6
101 See this chapter at 2.6.1
102 Hume, David An Enquiry concerning Human Understanding (Oxford University Press 2007) supra 62
103 Locke, John Two Treaties of Government (1st edn, Cambridge University Press 1960) supra 51
105 Popper, Karl & Eccles, John The Self and Its Brain (Springer International 1977)
2.2 The concept of virtual property

2.2.1 The Virtual World

In the online environment, the virtual world provides an environment for virtual items. Virtual worlds have become an increasingly potent economic force.\(^{106}\) This thesis holds the opinion that understanding the concept of the virtual world will be a precondition for an acceptance of virtual property by the public.

Some scholars state that the concept of virtual worlds pre-dates the Internet.\(^{107}\)

“The virtual world is an online digital environment in which large numbers of users interact through their virtual representations to


socialize, participate in events, and create and trade virtual goods, services and other property, including real estate.\textsuperscript{108}

From the historical perspectives, some scholars hold the opinion that the history of virtual worlds\textsuperscript{109} started in text-based, offline role playing games,\textsuperscript{110} created on the basis of the different works of fiction such as, for instance, Tolkien’s books and idea of world building.\textsuperscript{111}

“The original virtual worlds date back at least thirty years, but they were limited in scope and only accessible by small groups of people with access to the massive mainframe computers that were connected to what eventually became the Internet. The first virtual worlds to draw substantial numbers of players were role-playing games set in mythical realms. One common aspect of role-playing games is a mission-reward system that allots players with experience points and magical items when they defeat enemies. These items are collected by the players’ avatars and can then be used later or traded for other items.”\textsuperscript{112}

\textsuperscript{108} Burshtein, Sheldon, ‘virtual world with real world issues’ (2008) \textit{ibid.}
\textsuperscript{109} “The original virtual worlds date back at least thirty years, but they were limited in scope and only accessible by small groups of people with access to the massive mainframe computers that were connected to what eventually became the Internet. The first virtual worlds to draw substantial numbers of players were role-playing games set in mythical realms. One common aspect of role-playing games is a mission-reward system that allots players with experience points and magical items when they defeat enemies. These items are collected by the players’ avatars and can then be used later or traded for other items. Regardless of the virtual world’s theme, most role-playing games use this system because the items enhance the experience of playing and thus keep the person engaged.” Kwong, Justin, ‘Getting the Goods on Virtual Items: A Fresh Look at Transactions in Multi-User Online Environments’ (2011) \textit{supra} 46
\textsuperscript{110} King, Chelsea ‘Forcing players to walk the plank: why end user license agreements improperly control players’ rights regarding microtransactions in video games’ (2017) 58 William and Mary Law Review, 1365
\textsuperscript{112} Kwong, Justin, ‘Getting the Goods on Virtual Items: A Fresh Look at Transactions in Multi-User Online Environments’ (2011) \textit{supra} 46
However, the usage of the Internet increases our acquaintance with the concept of the virtual world. In other words, the widespread usage of internet has caused virtual worlds to grow exponentially in number. The emergence of virtual worlds has spawned a great deal of interest and publicity, in both popular and specialized media.\textsuperscript{113} Hence, this thesis primarily confines the virtual worlds to the scope of Internet technology. One of the leading experts on virtual worlds, Richard Bartle, describe virtual world as:

“They are implemented by a computer (or a network of computers) that simulates an environment. Some – but not all – of the entities in this environment are under the direct control of individual people. Because several such people can affect the same environment simultaneously, the world is said to be shared or multi-user. The environment continues to exist and develop internally (at least to some degree) even when there are no people interacting with it; this means that it is persistent.”\textsuperscript{114}

From a linguistic perspective,\textsuperscript{115} virtual worlds could be defined as states of human existence; states which do not exist physically, are not real, but appear nonetheless to be real from the point of view of the program or user.\textsuperscript{116} In terms of the meaning of virtual, this thesis defines virtual it as electric formats depends on the internet technology.

\textsuperscript{113}Boone, Scott 'Virtual Property and Personhood' (2008) 24 SCHTLJ 715
\textsuperscript{114}Bartle, Richard, \textit{Designing Virtual Worlds} (1st edn, New Riders 2004)
\textsuperscript{116}Harbinja, Edina, 'Virtual Worlds – A Legal post – Mortem Account’ (2014) \textit{supra} 98
2.2.2 Layers of virtual property

The term virtual property is used in different ways. For instance, in order to protect a video game player’s property, ‘virtual property’ can be used to describe items in online games, like Second Life. ‘Virtual property’ can be used for the protection of privacy. The terms can also be used to describe email addresses, online account and other online activities. However, in accordance with the purpose to protect virtual property systemically, this thesis discusses the term ‘virtual property’ as an integrate system which contains the layer theory, the classification of virtual property and the twofold virtual property right.

The majority of virtual property theories tend to confuse different types of code and content in virtual worlds, equating the underlying software (the building blocks of virtual worlds) and the user generated content (virtual assets). In this regard, Abramovitch offers a helpful theory and proposes three levels whereby property can possibly be identified within virtual worlds. At the first layer (1) sits the

119 Nelmark, DavidVirtual property: the challenges of regulating intangible, exclusionary property interest such as domain names (2004) 3 Northwestern Journal of Technology & Intellectual Property 1
120 “Within virtual worlds, there are three possible levels of “property”:
1. First level: At its core, all virtual property is ultimately computer code, which is protected by copyright law.
2. Second level: Items in the virtual world – avatars, swords, clothes, buildings, etc. – are the virtual world’s equivalent of the same property items in the physical world.
3. Third level: It is possible that the in-game virtual property itself is a form of intellectual property. For example, an in-game book is both a “physical” item of property, but also represents a “tangible” representation of the copyright in that book. Another example would be the creation of a clothing line in a virtual world: in such a case, there could be intellectual property rights in the form of designs or trade marks inherent in the clothes, while someone also could “own” the physical embodiment of the items of clothing in that line. However, as in the real world, intellectual property rights would not exist for every object.” See Abramovitch, Susan, ‘Virtual Property in Virtual Worlds’ (2009) 2 at https://www.lexology.com/library/detail.aspx?g=5a3f3b03-a077-45d4-9981-36f713c92820 accessed 2 July 2021 supra 29
developer’s code, which is protected by IP as software. This level, therefore, represents software and code that determines the properties and features of virtual worlds and their user’s actions and behaviours. This thesis identifies this level as the fundamental platform for the operation of the virtual world. In terms of Abramovitch’s analysis, this thesis argues that it has not clarify the ownership of virtual property sits at this level. At the second level, Abramovitch\textsuperscript{122} identifies objects or items inside the virtual worlds which resemble real world items (objects like avatars, weapons, buildings, clothing, cars spaceships, and houses). This thesis argues that it is necessary to clarify the relationship between virtual property sit at the first and the second level. And then recognise the ownership of the virtual property sits at the second level. While at the third level,\textsuperscript{123} she identifies in-game virtual property assets that could potentially also be protected by Intellectual property (e.g. a book that is found lying on a table inside the virtual world).\textsuperscript{124} In terms of the Abramovitch’s analysis over the virtual property ait at the third level, this thesis argues that, it is urgent to recognise the intellectual property right over the virtual property itself rather than recognise the intellectual property over the content reflected by the virtual property. For instance, we need to clarify the copyright over the virtual book itself rather than the copyright over the content of the virtual book.

In conclusion, even Abramovitch’s analysis provide an useful approach to understand virtual property, it still cause confusions have not solved. Abramovitch’s analysis only based on her research on the field of online games. It is not applicable for the whole virtual world. Abramovitch’s analysis did not clarify the relationship and

\textsuperscript{122} Abramovitch, Susan \textit{Virtual Property in Virtual Worlds} (2009) \textit{ibid}.
\textsuperscript{123} Abramovitch, Susan \textit{Virtual Property in Virtual Worlds} (2009) \textit{ibid}.
\textsuperscript{124} Harbinja, Edina ‘Virtual Worlds – A Legal post – Mortem Account’ (2014) \textit{supra} 98
distinction among different levels. Finally, Abramovitch’s analysis did not recognise the ownership of virtual property sits at different levels.

This layer theory is useful for the better understanding of virtual property and can also deal with the confusion of different kinds of virtual items. Virtual property layer theory is also supported by “Network Neutrality”\textsuperscript{125} proposed by Professor Tim Wu. Virtual property should be protected as an integrated system. However, following the layer theory, the virtual items sitting at the first and the third level will be protected by IP, however the items sitting at the second level will be regulated by property law. The virtual weapons users obtained in the online games are the typical examples of this type of virtual property. This will cause confusion as to why all of them are virtual property but will be protected by different kinds of laws.\textsuperscript{126}

Despite the confusion identified by my analysis of the layer theory, it allows a difference to be made between computer code belonging to ISPs and the items belonging to users. Hence this thesis holds the opinion that only the items recreated and processed by users through their labour, time and personal information can be considered as virtual property which users can claim virtual property rights over. However, this thesis argues that the layer theory from Abramovitch\textsuperscript{127} is ambiguous, especially between the second level and the third level. The layer theory from Abramovitch\textsuperscript{128} only classifies the items existing in online games. As a result, this thesis modifies this layer theory and applies it to the whole of the virtual environment.

\textsuperscript{125} Wu, Tim, ‘A Proposal for Network Neutrality’ (2002) University of Virginia Law School \textit{supra} 31
\textsuperscript{126} Frank, Jerome \textit{Law and the Modern Mind} (1st edn, Transaction Publishers 2009)
\textsuperscript{127} Abramovitch, Susan\textit{Virtual Property in Virtual Worlds} (2009) \textit{supra} 29
\textsuperscript{128} Abramovitch, Susan\textit{Virtual Property in Virtual Worlds} (2009) \textit{ibid}.
At the first level – (1) the infrastructure layer - sits the service provider’s codes which facilitate the construction of the whole virtual environment. Items at this level can be considered as a platform not only for users but also for ISPs to perform and behave. The items that exist in this level should be protected by IP and this thesis holds the opinion that the items in this level belong to ISPs and can be considered as their virtual property. At the second level – (2) abstraction layer - this thesis identifies the unique computer codes which comprise of the unique items in the virtual world which is designed by programmer but have not transferred to users. The service, programme and software provided by ISPs are typical examples of items exist in this level. These items still belong to ISPs and are not possessed by users, users only have the right to access or to use them. Therefore, the items in this level are protected by IP and are also considered in the scope of virtual property. Finally, at the third level – (3) the content layer - this thesis identifies the unique items that contain the investment, like time, money and labour, from users. Obviously, the content layer (3) represents the virtual property belonging to internet users. In terms of the protection of virtual property, due to the fact that there are variable kinds of virtual property, there will be different approaches to protect them.

In conclusion, the classification established in this thesis divides virtual property into three groups, the property at the infrastructure layer (1) belonging to ISPs and provide underlying environment for further development. The items at the abstraction layer (2) are created by ISPs and protected by IP, and they also belong to ISPs. Eventually the property at the content layer (3) are user’s virtual property because users invest time, money and labour on them.
2.2.3 The definition of virtual property

In consideration of the layer theory, virtual property theory is a complex system that can regulate cyberspace. Different approaches could be used to resolve these problems.

Virtual property, as a concept, is important for continued investment into digital goods and information. Current property protections differ in their scope and this leads to uncertainties and a lacuna of protection. The concept of virtual property will make clear the boundary and classification of property in order to provide systematic protection for users, whilst also enabling right holders to understand to what extent they can use virtual property and how to use them in operating their business.

By analogy with the conception of property, there are ordinary and legal conceptions of property, the phrase ‘virtual property’ is susceptible to at least two definitions:

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129 Harbinja, Edina ‘Virtual Worlds – A Legal post – Mortem Account’ (2014) supra 98
130 Gong, Jennifer ‘Defining and addressing virtual property in international treaties’ (2011) 17 B.U. J. SCI. & TECH. L. 1 “To comprehend and address the needs the digital world presents, we must examine the property its denizens use. This Note categorizes virtual property into four areas and distinguishes their virtual property issues. Avatars, domain names, virtual chattels, and intellectual property, are all important aspects of virtual property that present their own problems”.
133 Munzer, Stephen A Theory of Property (1st edn, Cambridge University Press 2012) “The popular conception of property views property as things. For the most part, property is tangible things – land, house, automobiles, tools, factories. The other way of understanding property is the sophisticated conception. One might almost call it the legal conception, for it is very common among lawyers. It understands property as relations. More precisely, property consists in certain relations, usually legal relations, among persons or other entities with respect to things.”

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one lay and one legal.\textsuperscript{134} This approach to define a conception, which Jacques Derrida called deconstruction\textsuperscript{135}, can explore and reveal the internal logic of ideas and meaning. The lay conception defines virtual property from a technical perspective; it views virtual property as virtual places or objects consisting of computer code and are accessible for users and ISPs to perform under the virtual environment.\textsuperscript{136} Conversely, in terms of legal conception of virtual property, the authoritative and widely cited one is the definition from Professor Joshua Fairfield.\textsuperscript{137} He distinguished virtual property from computer code that is non-rivalrous and protected by the law of intellectual property.\textsuperscript{138} Professor Fairfield Joshua considered virtual property as computer codes which are rivalrous, persistent and interconnected.\textsuperscript{139} However, Fairfield’s such opinion is opposite to the current intellectual property theory. This kind of code makes up the structural components of the internet itself. However, the definition and classification of virtual property from Professor Fairfield Joshua is based on his primary argument that virtual property should be protected by property law like real property\textsuperscript{140}. Despite that other scholars who have sought to narrow down this scope or propose a boarder definition.\textsuperscript{141}

\begin{footnotesize}
\begin{enumerate}
    \item Lawrence, Dan ‘It really is just a game: the impracticability of common law property rights in virtual property’ (2008) 47 WLJ 505
    \item Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
    \item Fairfield, Joshua \textit{Virtual property} \textit{ibid}.
    \item Fairfield, Joshua \textit{Virtual property} \textit{ibid}.
    \item Fairfield, Joshua \textit{Virtual property} \textit{ibid}.
    \item defining as “virtual property” the various items existing in a virtual environment in which a game is played, including a user’s account, as well as “anything that is ‘owned’ in a multi-user online game.” Dr. Meehan also shares elements with Prof. Fairfield's definition: “A market for virtual property is likely to arise only if the virtual environment (or game) is persistent and multi-user and the virtual property is persistent and non-replicable.”
\end{enumerate}
\end{footnotesize}
This thesis has argued that there are many forms of virtual property and all aspects of virtual property present their own legal issues. In order to hold all types of virtual property, this thesis defines virtual property as a piece of property consist of computer code and enrich of individual’ investment in the virtual world which also reflects the legal relationship (the right – obligations relationship ) among users, ISPs and others. Further that owner can obtain rights (property right or intellectual property right and other rights) over them. The operation of these virtual objects is’ not only based on the internet environment but also restricted by the relationship between ISPs and ordinary users. In short, virtual property can include user-generated online content, which contains users’ personal private information (online activity), investment and original idea. From the perspective of legislation, there is not a specific definition of virtual property in statutes in UK. This thesis attempts to establish the legal conception of virtual property. Virtual property is a piece of property which relies on the internet environment provided by ISPs, and this kind of property may include owners’ personal private information, recreation and other investment. Owners can claim different rights (privacy, ownership or intellectual property right) based on the particular investment in the virtual property.

2.3 Classification of virtual property

Based on the layer theory, only the items that exist in the content layer (3) can be considered as virtual property belonging to internet users. The layer theory makes the boundary of virtual property clear and make the difference between the service provider’s code and the user’s virtual property clear. However, in terms of the

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142 Lastowka, Greg 'User-generated content and virtual worlds' (2008) 1 VJETL
143 See this chapter at 2.3
144 See this chapter at 2.2.2
protection of virtual property, in order to provide an effective approach which could clarify the legal status of the virtual property right and eliminate the confusion among different kinds of virtual property, it is necessary to set up the classification of virtual property. Because the classification of virtual property could clarify the distinction among different types of virtual property and then provide fundamental support for the further research on the allocation of ownership of virtual property and the recognition of the virtual property right.

The classification of virtual property established by this thesis depends on the types of virtual property. For the first grouping of virtual property, users are expected to claim property right on items considered as the user’s private property. This thesis argues that users should have the right to claim private property right on these items. For instance, all the items users get from ISPs can be used directly without any further creation and exploration. Virtual sword or virtual diamond users obtained in online games are typical example of this group. The second group of virtual property will be the items that contain personal information. They do not contain much of economic value, however, they are very important to users as they contain user’s significant and confidential personal information. In other words, the items in this group can be described as personal data. Email addresses and online bank accounts are the typical examples of this group of virtual property. In terms of the protection of this group, the protection of misuse of private information will be an effective approach to clarify the legal status of users’ private information and then provide sufficient protection. Eventually, the third group of virtual property contains

\[\text{Stoup, Phillip, ‘The development and failure of social norms in second life’ (2008) 58 DLJ 311}\]
\[\text{Christ, Roxanne and Peele, Curtis, ‘Virtual worlds: personal jurisdiction and click-wrap licenses’ (2008) 20 IPTU 1}\]
\[\text{Vidal-Hall v Google Inc [2014] EWHC 13 (QB) supra 74}\]
the items arranged or created by users, and they are rich with the user’s creation and original ideas. Hence this thesis suggests that this kind of virtual property can be considered as the user’s copyright. For instance, the arrangement and creation over virtual weapons and clothes in online games, and the items recreated by users with their original ideas, are typical examples of this group.

2.4 The characteristics of virtual property

Virtual property is distinguishable from traditional property due to their intangible characteristics which is also the typical characteristic of intellectual property. No matter which aspect of virtual property researchers are devoted to, they all shouldBecause the clarification of the characteristic of virtual property could distinct virtual property from other relevant property and then determine the approach collected by scholars to protect virtual property. Professor Joshua Fairfield defines virtual property as having three legally relevant characteristics not shared with regular code:

“Virtual property is rivalrous, persistent, and interconnected code that mimics real world characteristics.”

This thesis argues that rivalrous is the legal characteristic of virtual property rather an intrinsic characteristic. Computer code is non-rivalrous, however just because that the owner of virtual property should be granted an exclude property right, Fairfield separate virtual property from the general computer code. Therefor this thesis regards rivalrous as a legal characteristic of virtual property. The three criteria from Fairfield are borrowed from the law and economics literature and serves to

151 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
distinguish virtual property and traditional code sequences. Some authors also identify other features (such as scarcity, or secondary markets; and value-added-by-users.). This thesis will add intangibility as one principle character of virtual property analogy to intellectual property as it is both an important feature of property historically and is still retained as such by some jurisdictions (England, for instance).

2.4.1 Intangibility

At the very outset, this thesis starts with intangibility. The rise and popularity of cloud computing has been described as “the latest example of Schumpeterian creative destruction: creating wealth for those who exploit; and leading to the demise of those that don’t.” It is inevitable that the development of technology, especially the internet technology, has changed people’s ordinary lives profoundly, not only the daily life, communication, but also economies, careers, and the operation of society. All of these items people used and created will be rich of personal value and be considered as a kind of private property.

Virtual property originates from and can be found in virtual worlds, even if there has not been specific and accepted universally conception of virtual property. In

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155 Harbinja, Edina ‘Virtual Worlds – A Legal post – Mortem Account’ (2014) supra 98
156 Schumpeter, Schumpeter, Capitalism, Socialism & Democracy (New York: Roudedge, 2003)
157 A.K.Jain and Choudhary, Gaurav ‘Internet of things: A survey on architecture, technologies, protocols and challenges’ (2016) ICRAIE 21
159 Burshtein, Sheldon ‘virtual world with real would issues’ (2008) supra 28
terms of ‘virtual’, this thesis defines virtual as electric formats depends on the internet technology. Virtual property, unlike physical property, can only exist with the support from the ISPs and under the virtual environment. Because of this characteristic, there are different scenarios provided for the regulation of virtual property which will be discussed in the following sections.

2.4.2 Rivalrousness

One of the most valuable aspects of private property for the owner is that they can maintain and use their property exclusively. In terms of the exclusive right of virtual property owners, according to the statement of Fairfield, the computer code which constitutes virtual property must be rivalrous. The quality of rivalrousness requires that the code be designed to allow users to exclude others such that the user can retain sole possession. Rivalrousness can also help people to distinguish virtual property and other intangible works. Because majority of intangible works, like IP, are not rivalrous.

This thesis argues that rivalrousness is more important for the protection of virtual property than for traditional real property. Due to the fact that virtual property must be relied on computer programme code, the majority of virtual property cannot be possessed physically like conventional property. Hence, from the perspective of

161 See the definition of virtual property at 2.2.3
162 Quadrini, Matthew, ‘Caveat Cloudster: Why Traditional Common and Civil Property Law Should Apply to Virtual Property and How It Will Change The Legal Realities of The Internet’ (2015) supra 35
164 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
166 Optikk, Godt, ‘Regulatory Property Rights’ – A Challenge to Property Theory’ (2017) 6 EPLJ 158
167 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
possession, the user of virtual property should be granted the right to exclude others from interfering their enforcement of property interests upon virtual property.\textsuperscript{169}

2.4.3 Persistence\textsuperscript{170}

Persistence is another typical characteristic of virtual property.

"Persistence is the quality of an object having longevity. The user’s virtual property shovel remains in existence in the virtual world, and it remains the property of that user, even after he or she logs out of the virtual world."\textsuperscript{171}

In terms of virtual property, persistence means that a user’s virtual property must exist in the virtual world and must be accessible from more than one computer. Even when users log out their account, their virtual property still exists and can be used when users log back in on a different computer. Like the definition from Castronova:

"Persistence is the feature of virtual world which enables them to continue to run whether anyone is using them or not."\textsuperscript{172}

Fairfield also argues that code is persistent since:

\textsuperscript{169} Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ (2007) 39 Mary’s L.J. 339
\textsuperscript{170} It should be noted that the discussion about persistence is much more from the technical perspective.
\textsuperscript{171} Abramovitch, Susan & Cummings, David, ‘Virtual Property, Real Law: The Regulation of Property in Video Games’ \textit{supra} 36
“It does not fade after each use, and it does not run on one single computer.”173

However, this thesis argues that the persistence of virtual property is not because of the characteristic of computer code itself, it because that virtual property was stored in other devices, like RAM. For instance, this will include user’s email address, the works which users have written online, and the information users have stored in software. They continue to exist even if users log out their account and shut down the power. Hence this thesis argues that, for virtual property, in order to deal with the temporality from the argument against virtual property, persistence has profound significance and help people to accept the existence of virtual property.

2.4.4 Interconnectedness

This thesis argues that interconnectedness has special significance for virtual property, and not just for property in online games. As discussed in the classification of virtual property174, except for the items that contain personal information, all other kinds of virtual property have this characteristic.

As Erlank notes, if there was no interconnectivity in virtual worlds, players would be able to experience only their own property, which is contrary to the fundamental idea of virtual worlds.175 For all virtual property, interconnectivity presupposes

173Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
174 See the discussion of the classification on virtual property at 2.3 of this chapter.
“the capability to convey or transmit virtual objects among different users. It is what allows players to trade virtual goods either in a given virtual world or in the real world.”176

Like Castronova177, Fairfield also argues that

“code can be made interconnected, so that although one person may control it, others may experience it.”178

It means that virtual property must be experienced by different users in the same way and exist in different devices and programmes designed by various ISPs, like physical property in real world.179 Virtual property does not exist in a vacuum.180 However, based on the layer theory181 and the classification182 of virtual property established in previous sections, this thesis holds the opinion that, interconnectedness is not applied to all types of virtual property. If the virtual property contains users’ private information or contain users’ original work, they should not be interconnected among users.

Depending on the relationship between virtual world and real world, interconnectedness has a special meaning for virtual property, not only for entertainment like online games and communicate software, but also for virtual trading, as it could also increase the economic value of them.183 Meanwhile, it would

176 Abramovitch, Susan & Cummings, David, ‘Virtual Property, Real Law: The Regulation of Property in Video Games’ supra 36
178 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
180 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
181 See this chapter at 2.2.2
182 See this chapter at 2.3
183 See the example of Netflix in this chapter at 2.5.1
cause new legal issues as well, such as the invasion of private right, the misuse of personal information\textsuperscript{184} and the theft of virtual goods. The solution to solve these theoretical issues will be discussed in further chapters.

2.5 Virtual property and relevant property rights

2.5.1 Virtual property and privacy (personal information)

One example of virtual property is the information\textsuperscript{185} collected by content streaming companies\textsuperscript{186} to track their customer’s online activity.\textsuperscript{187} With the development in internet technology, the online activities of users are reliant upon new delivery formats.\textsuperscript{188} The emergence of internet transfer daily activity patterns\textsuperscript{189} and enrich entertainment, communication and consume activities, meanwhile, our online activity is collected and recorded covertly by companies.

“From a market perspective, the mere presence of individuals online tends to produce valuable information for virtual world owners as well, and this information might also be seen as a form of content generated by users. For instance, when people use online media, they often generate valuable information as a byproduct of their activities.”\textsuperscript{190}

Netflix\textsuperscript{191} has stated that they collected customer’s information to analyse and determine which movies should be recommended for users according to their

\textsuperscript{184} Vidal-Hall v Google Inc [2014] EWHC 13 (QB) supra 74
\textsuperscript{185} See the definition of virtual property, layer theory and the classification of virtual property in this chapter at 2.2.2, 2.2.3 and 2.3
\textsuperscript{186} See Netflix is watching you. We’re all watching you at https://www.zdnet.com/article/netflix-is-watching-you-were-all-watching-you-who-did-hurt-you/
\textsuperscript{187} Lastowka, Greg ‘User-generated content and virtual worlds’ (2008) supra 133
\textsuperscript{188} Such as a lot of communicate social media; entertainment app and website.
\textsuperscript{189} Vilhelmsen, Bertil, Thulin, Eva & Ellédé, Erik ‘Where does time spent on the Internet come from? Tracing the influence of information and communications technology use on daily activities’ (2017) 20 ISC 250
\textsuperscript{190} Lastowka, Greg ‘User-generated content and virtual worlds’ (2008) supra 133
viewing history. This type of information companies collected can also be used to help them to determine which project should be funded in the future, and determine the type of advertisement that can be presented to users. The same issue of tracing customers’ online activities also occurred in other media companies, like Facebook, Twitter, and Amazon. Online social media companies trace users’ online activities to establish users’ interests, preferences, and physical location. Based on such information, the company can determine their future investment. For instance, Netflix’s decision about funding ‘House of Cards’ is based on the examination on its subscribe data.

“House of Cards, Netflix’s first foray into original programming, is currently the most-watched show in the service’s library. But that probably hasn’t come as much of a surprise to anyone at Netflix. Back in 2011, before the company made its bid, it looked at the show, examined its subscriber data, and determined that it would, in fact, be a hit. It’s one of the most sophisticated attempts at data-driven programming we’ve ever seen.”

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191 See ‘Netflix is watching you. We’re all watching you’ at https://www.zdnet.com/article/netflix-is-watching-you-were-all-watching-you-who-did-hurt-you/
192 Netflix sent out a cheeky tweet, indicating that it was tracking views of its original movie, The Christmas Prince. Netflix, in essence, has admitted it is analyzing viewership metadata the same way that popular news and editorial websites (yes, like ZDNet, which is owned by CBS) looks at page views in order to determine the type of articles that make the most money and which advertisers are best suited to particular content domains.
193 Amazon, Hulu, HBO, and, yes, the streaming services for basic cable channels and network television companies -- such CBS All Access -- all are engaged in this practice to some extent and mine their data for different reasons and to different ends.
194 See Here is how Netflix is watching your every move at https://www.buzz.ie/movies-tv/netflix-is-watching-your-every-move-250946
Online retailers, like Amazon, trace customers’ previous order and browsing history to increase their quantity of sale as well. Those companies trace users’ activity to find out what websites they look at, what products they have bought, what books they read and what games and music they played on their devices. This type of user information is crucial for these companies, as they will help the company to reduce costs and increase profits. Netflix collects data on its users as it uses data analytics to algorithmically recommend new shows and to help improve its services. However, how deep they are going into analysing their own data is not known.

Hence, this thesis contributes to set the criterion to determine to want extent companies can use the information they collected from customers. Another issue is that it is unclear how data is correlated and shared between services. Even if a user signs in only on one specific website, not only this website can trace and record customers’ activity, but other relevant websites can also trace these activities. For example, Facebook might want to understand viewing habits on services such as Netflix, or user activity on Twitter. The transition of customer data among different services increase the monetization of customer data. Facebook's Beacon project is an example of this monetization. The Beacon project displayed data about

197 See in chapter 3 at 3.2
198 Hoffman, Donna, Novak, Thomas and Peralta, Marcos Building consumer trust online How merchants can win back lost consumer trust in the interests of e-commerce sales (1999) 42 COA 80
199 See Facebook can track your browsing even after you've logged out, judge says at https://www.theguardian.com/technology/2017/jul/03/facebook-track-browsing-history-california-lawsuit
201 See How to Browse the Web and Leave No Trace at https://fieldguide.gizmodo.com/how-to-browse-the-web-and-leave-no-trace-1795721220
202 Story, Louise & Stone, Brad, Facebook Retreats on Online Tracking, (2007) 30 N.Y. Times 1
Facebook user product and service purchases to other users as a means of generating advertising revenues\textsuperscript{205}. The sharing of collected information from different companies can reduce a company’s cost of data collecting and increase their profit of advertisement\textsuperscript{206}. The connection among different companies result in the sharing of the customer information they collect and own. Despite the infringement of users’ privacy, this thesis argues that this may also result in the infringement of customer’s property right, the right to possess, to enjoy the income from, to alienate, and to recover ownership from one who has wrongly deprived the owner of it\textsuperscript{207}. Users’ online activity, which can be considered as a type of users’ private information – a type of virtual property, is recorded, analysed and shared by ISPs just based on the assignment of EULAs. Due to the development of company’s collecting and analysing methods, the property interests over users’ private information demonstrates much more significance than privacy. However, users cannot control their online information easily without any technical and cannot claim property right upon them. Users do not receive any reward from the usage of their information. These infringements have not been resolved effectively.

This thesis argues that the protection for users’ property interests over their private information generated by such companies is insufficiently certain. As Professor James Boyle observed almost two decade ago, ‘the Web reads and writes us’:\textsuperscript{208}

\textsuperscript{205} Story, Louise & Stone, Brad, Facebook Retreats on Online Tracking, ibid.
\textsuperscript{206} Whitten, Alma, Google’s director of privacy for product and engineering, wrote in a blog post. https://www.washingtonpost.com/business/technology/google-tracks-consumers-across-products-users-cant-opt-out/2012/01/24/gJQA9gJH0Q_story.html?utm_term=.c7470310bf21
\textsuperscript{207} “In contemporary jurisprudence, ‘property’ refers to the various incorporeal ownership rights in a res, such as the right to possess, to enjoy the income from, to alienate, or to recover ownership from one who has improperly obtained title to the res, as well as to the actual physical object of these rights.”
\textsuperscript{208} Boyle, James, ‘Foucault in Cyberspace: Surveillance, Sovereignty, and Hardwired Censors’ (1997) 66 U. Cin. L. Rev. 177
“Technological changes that directly affect the privacy discourse proceed beyond surveillance applications, and include advances in the ability to store and retrieve information.”

From the legal perspective, there has not a single specific approach to identify the legal status of user information, as there has not a definitive legal status of users’ private information. In terms of the protection of users’ private information, it undergoes the development from infringement of privacy to a breach of confidence and then to a tort of misuse of private information. In *Vidal-Hall v Google Inc*, the main issue is what the legal status of users’ private information is and how to protect users’ right over their private information. In terms of the protection for users’ private information, Mr Justice Tugendhat stated that:

“The cause of action for misuse of private information is a tort and not a breach of confidence.”

However, the judgment of Tugendhat leaves a practical issue as to how to choose the applicable law to protect users’ private information. It also poses a question as to the applicability of the law of confidence, which has all sorts of issues which mean it might or might not apply to private information. In *Coco v A.N. Clark (Engineers) Limited*, established three essential elements of breach of confidence:

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211 *Vidal-Hall v Google Inc* [2014] EWHC 13 (QB) supra 74


“that of the three elements essential to a cause of action for breach of confidence, namely (a) that the information was of a confidential nature, (b) that it was communicated in circumstances importing an obligation of confidence and (c) that there was an unauthorised use of the information.”

However, there is no general tort of violation of privacy in English law. In *Gorden Kaye (By Peter Froggatt his next friend) v Drew Robertson Sport Newspapers Limited*, Glidewell LJ, giving the leading judgment, introduced his reasons in this way:

“It is well-known that in English law there is no right to privacy, and accordingly there is no right of action for breach of a person's privacy. The facts of the present case are a graphic illustration of the desirability of Parliament considering whether and in what circumstances statutory provision can be made to protect the privacy of individuals.”

Since the inception of the Human Rights Act 1998, misuse of private information has developed quickly as a cause of action meaning that practitioners no longer need to shoehorn such claims into claims for breach of confidence. In *Vidal-Hall v Google Inc*, even the Court of Appeal accepted that the basis for actions for breach of confidence and actions for misuse of private information are different and hence protect different interests with a different focus. Judge Tugendhat J labelled the

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214 *Coco v A.N. Clark (Engineers) Limited* [1968] F.S.R. 415
215 “we have reached a point at which it can be said with confidence that the law recognises and will appropriately protect a right of personal privacy.” *Douglas v Hello! Ltd (No.1)* [2001] Q.B. 967; [2001] 2 W.L.R. 992
216 *Gorden Kaye (By Peter Froggatt his next friend) v Drew Robertson Sport Newspapers Limited* [1991] F.S.R. 62
217 *Coco v A.N. Clark (Engineers)* supra 124
218 *Vidal-Hall v Google Inc* [2014] supra 74
action of misuse of private information as a tort. Whilst there may be advantages of considering misuse of private information as a tort, some uncertainties may also arise as a result. Misuse of private information is more than just a recognition of a breach of a legal duty. The system proposed by the thesis would be capable of providing this protection by identifying the classification and boundary of information property. Based on the definition and classification of virtual property established by this thesis, users’ online activities and items which contain their private information exist at the content layer and can be considered as users’ virtual property. In this case, Judges could rely on the virtual property theory to view misuse of private information as a type of tort and then protect users’ virtual property right. From this perspective, virtual property theory can deal with the legal issue of misuse of private information effectively. The proposed system will also clarify the obligation of ISPs and balance the different interest between ISPs and users.

Another example of users’ virtual property which contain their private information are online accounts which contain users’ personal and communicational information. Whilst an account can be possessed and used by users through the investment of the user’s significant information, the information is not currently effectively protected. An online account can be protected by the law of intellectual property. However, once these online accounts have been used by users, once these accounts contain users’ information and investment, there is not a simple solution to protect users’ right upon these accounts. The question of whether online accounts

220 Generally speaking, the emphasis of most torts is on the wrongful conduct of the defendant but it does not mean that the violation of the plaintiff’s right cannot be the basis of the tort itself.’ See Mo, Jojo ‘Misuse of private information as a tort: The implications of Google v Judith Vidal-Hall’ (2017) 33 computer law & security review 87
221 See this chapter at 2.2.3
222 See this chapter at 2.3
223 See this chapter at 2.2.2
are intellectual property has immediate relevance. For example, there is dispute over who owns the online accounts of deceased soldiers in the Iraq war.\textsuperscript{224} The families of soldiers argue that:

“The information belongs to his son’s estate, just like his old high school papers, his sweaters and his soccer ball, and should be transferred to the next of kin.”\textsuperscript{225}

The email and Web hosting company, Mailbank. Com. Inc argued that:

“While it empathizes with the family’s situation, its first priority is to protect the privacy of its customers. It is the company’s policy to support absolute privacy of our clients.”\textsuperscript{226}

Finally, the company refused to divulge any information about the accounts.

This thesis argues that, from the market perspective, the information reflected by users’ online activities, has considerable economic value for virtual world owners.

“when people use online media, they often generate valuable information as a byproduct of their activities. People visiting chat rooms make those rooms valuable simply by virtue of their presence as speakers and listeners. Those using *896 search engines automatically generate data consisting of queries and link selection patterns. Those


\textsuperscript{225} As computers continue to permeate our lives, what happens to digital bits of information when their owners die has become one of the vexing questions of the internet age. \url{http://www.washingtonpost.com/wp-dyn/articles/A58836-2005Feb2_2.html} accessed 4 July 2021

who visit e-commerce sites generate Web-surfing histories and purchasing patterns. All of this data can have significant commercial value and, therefore, might be understood as a form of content generated by users."  

Taking the economic value of user-generated information into consideration, this thesis proposes to grant users virtual property right over their online generated information. However, the virtual property discussed in this thesis is not limited to online accounts, for other examples of virtual property are domain names, URLs (uniform resource locators), website tracking, original information in email accounts, online bank accounts, content posted in social medium accounts, and telephone numbers.  

Currently, in terms of the legal framework of data protection, the law of jurisdiction normally operates on the basis of permissions. For EU data protection, this means that the EU may be permitted to extend the geographic scope of EU law on the basis of territoriality or passive personality. However, on closer inspection, as data protection rises to the level of a fundamental right, the EU's exercise of jurisdiction may not just be permissive (discretionary), but also mandatory. The character of data protection as a fundamental right may create particular obligations for the EU to protect the right to data protection extraterritorially. It is of note in this respect that, unlike international human rights treaties such as the International Covenant on Civil and Political Rights or the European Convention on Human Rights (ECHR), the EU Charter on Fundamental Rights does not have a limiting jurisdictional clause. Instead, the geographical scope of a fundamental right laid down in the Charter,

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227 Lastowka, Greg ‘User-generated content and virtual worlds’ (2008) supra 133
such as data protection (Article 8), follows the scope of the EU’s competences and the application of EU law. The absence of a jurisdictional clause may pose fewer doctrinal limitations to the extraterritorial application of the Charter. Thus, it may inform the application of a ‘control’ standard that is more relaxed as compared to the control standards used by, notably, the European Court of Human Rights to delineate the extraterritorial application of the ECHR.

Given the ‘virtual’ nature of threats to data protection, the application of a functional ‘virtual’ control standard may be apt. Arguably, the EU incurs extraterritorial obligations when it exercises virtual control over an EU resident’s data. This means that, insofar as the EU has the capacity to influence how data are treated abroad, it should harness this influence to have an EU data subject’s data respected and protected. The EU should refrain from giving assistance to (extraterritorial) third parties’ breaches (duty to respect) and should prevent such parties from committing breaches (duty to protect). This implies that the EU should construe EU data protection legislation in such a way that it safeguards the EU subjects’ fundamental right to data protection against encroachment by third states and third state-based operators.

Eventually, this thesis argues that, even the current legal framework, like Article 8 ECHR229, Article 7 EU Charter of Fundamental Rights230 and Article 8 HRA231 are

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229 ‘Right to respect for private and family life
1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.’ See in European Convention on Human Rights Article 8
230 ‘Respect for private and family life
Everyone has the right to respect for his or her private and family life, home and communications.’ See in Chapter of Fundamental Rights of European Union Article 7
231 ‘Right to respect for private and family life
insufficient. Though they clarify the justification to protect individuals’ private and family life and balance the different interests between public and private life, the types of users’ personal information has been broadened by advanced information technology. On the one hand, in many cases, users’ information are not very close to their private life, on the other hand, in the majority cases which are related to the protection of users’ personal information did not involve the disclosure of users’ personal information. Therefore, this thesis argues that current legal framework cannot provide sufficient protection for users’ personal information.

The aim of any compliance programme under the GDPR is to understand what personal data you have and what happens to it, where it goes and how secure it is. And, to be transparent about it to the data subjects, so that they are in a position to assert their rights over it. The rights under the GDPR are the rights of access (under a subject access request); to erasure (the so called ‘right to be forgotten’); restriction of or objection to processing; data portability (to be able to easily move your data from one vendor to another for example). These are all subject to country-specific requirements. Even though this is a Regulation, each country still should enact their own domestic Act. Therefore, this thesis argues that, only the regulation of GDPR is insufficient to provide protection for users personal information.

It should also be noted that the GDPR is regarded as the primary legislation that protects individuals’ personal data, as it clarifies (i) data protection principles (i.e.

1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.’ See in Human Rights Act 1998 Article 8
lawfulness, fairness and transparency; purpose limitation; data minimisation;
accuracy; storage limitation; and integrity and confidentiality)\textsuperscript{232}; (ii) conditions for
processing both, personal data and sensitive data (lawful grounds for processing)\textsuperscript{233};
and (iii) data subject rights (i.e. right to provided transparent information; right to be
informed; right of access; right to rectification; right to erasure; right to restriction of
processing; right to be notified regarding rectification, erasure or restriction of
processing; right to portability; right to object; and right not to be evaluated based on
automated individual decision making including profiling).\textsuperscript{234} However, this thesis
argues that, firstly, based on the layer theory and classification of virtual property, the
virtual property which contain users’ personal information is just one type of users’
virtual property. On the other hand, the provisions of GDPR firstly is primarily
designed to regulate the process of individuals’ personal data. Even it clarifies the
principles and the rights of data subject, it has not clarified the legal statues of
individuals’ personal information which is the basis of the further protection for users’
personal information. Secondly, the provisions of the GDPR regulate the obligations
of the processor and controller, and then try to balance the different interest of data
subject and processor and controller. However, based on the two-fold virtual
property rights system, users should not only be granted the right to deal with the
conflicts between them and ISPs, they also should be granted the right to deal with
the infringement from other users. Therefore this thesis argues that, in terms of the
protection of users’ virtual property which contain user’ personal information, the
provisions of the GDPR are insufficient.

\textsuperscript{232} See in General Data Protection Regulation Article 5
\textsuperscript{233} See in General Data Protection Regulation Article 6-Article 11
\textsuperscript{234} See in General Data Protection Regulation Article 12-Article 23
2.5.2 Virtual property and intellectual property

In order to make the classification of virtual property clear, we have to distinguish the difference between the virtual property right and the intellectual property right.\textsuperscript{235} The law of intellectual property protects non-rivalrous internet and other non-internet resources.\textsuperscript{236} Computer code could be included as a non-rivalrous resource,\textsuperscript{237} and ISPs and companies use computer code to establish the whole internet platform and produce unique production provided for users. Nonetheless, there are also many levels of code which consist of virtual property that are rivalrous.\textsuperscript{238} This thesis argues that protection by intellectual property is to protect the innovation and creativity of ISPs and companies.\textsuperscript{239} However, in order to operate their company or make full use of the internet resources, the information they collect and the virtual items which contain user’s insufficiently original information have not been protected by copyright. The existing protection for database will provide a better understanding of the difference between non-rivalrous code and rivalrous code. According to the WIPO Copyright Treaty 1996,

“Compilations of data or other material, in any form, which by reason of the selection or arrangement of their contents constitute intellectual creations, are protected as such. This protection does not extend to the

\textsuperscript{235} Jankowich, Andrew ‘Property and democracy in virtual worlds’ (2005) 11 BUJ Sci. & Tech. L. 1
\textsuperscript{236} See in chapter 2 at 2.4.2
\textsuperscript{237} Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
\textsuperscript{238} See the characteristic of virtual property in this chapter at 2.4
\textsuperscript{239} ‘Copyright provides the framework required to induce authors and other right owners to create and to reward them for their work, i.e. one purpose of copyright is to encourage and reward endeavor.’ See at Garnett, Kevin, Rayner James, Jonathan and Davies, Gillian Copinger and Skone James on Copyright (London Sweet & Maxwell 1999)
data or the material itself and is without prejudice to any copyright subsisting in the data or material contained in the compilation.”

The systematic or methodical arrangement and collection of independent works are protected by database, by contrast, the material itself is protect by copyright. In terms of the virtual world, the non-rivalrous code which consist of the virtual environment should be labelled as ISPs’ intellectual property. However, the users’ skill, labour and judgement over the virtual item in the virtual world should also be protected independently.

With regards to users’ investment over their virtual property, this thesis argues that it has already meet the requirement of originality,

“The word “original” does not in this connection mean that the work must be the expression of original or inventive thought. Copyright Acts are not concerned with the originality of ideas, but with the expression of thought, and, in the case of “literary work,” with the expression of thought in print or writing. The originality which is required relates to the expression of the thought. But the Act does not require that the expression must be in an original or novel form, but that the work must not be copied from another work - that it should originate from the author.”

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240 The World Intellectual Property Organization Copyright Treaty 1996 Article (5) Compilations of Data (Databases)
241 University of London Press, Limited v University Tutorial Press, Limited. [1916] 2 Ch. 601; see also in See in Copyright, Designs and Patents Act (1988) s.1(1) “Copyright is a property right which subsists in accordance with this Part in the following descriptions of work— (a) original literary, dramatic, musical or artistic works.”
The protection of databases only focus on the collection and arrangement of data, however this type of protection cannot be applied to the data and materials included in the database.242

“1. In accordance with this Directive, databases which, by reason of the selection or arrangement of their contents, constitute the author’s own intellectual creation shall be protected as such by copyright. No other criteria shall be applied to determine their eligibility for that protection.
2. The copyright protection of databases provided for by this Directive shall not extend to their contents and shall be without prejudice to any rights subsisting in those contents themselves.”243

If the data and materials are insufficiently original, they cannot be considered as the subject of copyright, how to protect them? The virtual property theory will provide an effective approach for the protection of them by identifying their legal status. Even if the difference between intellectual property and virtual property is clarified, the protection for intellectual property could help to provide justification to recognise the proprietary interest of users.

“Right to property

1. Everyone has the right to own, use, dispose of and bequeath his or her lawfully acquired possessions. No one may be deprived of his or

242 Garnett, Kevin , Rayner James, Jonathan and Davies, Gillian Copinger and Skone James on Copyright (London Sweet & Maxwell 1999) supra 224
243 See in Article 3 in Directive 96/191EC Of The European Parliament And Of The Council on the legal protection of databases; see also in Ladbroke v William Hill [1964] 1 WLR 273 at 291: LORD PEARCE
“My Lords, the question whether the plaintiffs are entitled to copyright in their coupon depends on whether it is an original literary work. The words “literary work” include a compilation. They are used to describe work which is expressed in print or writing irrespective of whether it has any excellence of quality or style of writing ( per r son J. in University of London Press Ltd. v. University Tutorial Press Ltd. . The word “original” does not demand original or inventive thought, but only that the work should not be copied but should originate from the author”
her possessions, except in the public interest and in the cases and under the conditions provided for by law, subject to fair compensation being paid in good time for their loss. The use of property may be regulated by law in so far as is necessary for the general interest.

2. Intellectual property shall be protected."\(^{244}\)

“Whilst discussion concerning human rights and copyright law mainly regard the Convention, the reader should be aware of references to the newer Charter of Fundamental Rights. This Charter was solemnly proclaimed by the European Parliament, the Council of Ministers and European Commission in 2000. Full legal effect occurred from the Treaty of Lisbon in 2009. Article 17(2) states “Intellectual Property shall be protected.”\(^{245}\) The CJEU was initially very hesitant to refer to the Charter, but there has been mention of it in recent case law.\(^{246}\) For example, in *Spiegel Online GmbH v Volker Beck*,\(^{247}\) it was stated that, for national courts, balancing within the 2001 Information Society Directive must “having, regard to all the circumstances of the case before it, rely on an interpretation of those provisions which, whilst consistent with their wording and safeguarding their effectiveness, fully adheres to the fundamental rights enshrined in the Charter of Fundamental Rights of the European Union.”\(^{248}\) It was noted that there is nothing in the Charter that treats intellectual property rights as inviolable and must for that reason be treated as an

\(^{244}\) See in Article 17, Article 17(2) EU Charter of Fundamental Rights Protocol 1; see also in Protocol 1, Article 1 European Convention on Human Rights

\(^{245}\) Charter of Fundamental Rights of the European Union OJ/C-303 [2007]

\(^{246}\) Note that although the UK and Poland have a special protocol, CJEU judgments can still be considered relevant in their application of the Charter in, for example, the balancing of rights. For the Protocol see ‘Consolidated version of the Treaty on the Functioning of the European Union - PROTOCOLS - Protocol (No 30) on the application of the Charter of Fundamental Rights of the European Union to Poland and to the United Kingdom’ OJ C 115, 9.5.2008, p. 313–314.

\(^{247}\) *Spiegel Online v Volker Beck* [2019] ECDR 24

\(^{248}\) *Spiegel Online v Volker Beck* [2019] ECDR 24 *ibid.* at 441 and 446.
absolute right.\textsuperscript{249} The Charter has also been invoked in another case concerning freedom of information and the press.\textsuperscript{250} The CJEU stated that these rights in Article 11 of the Charter “are not capable of justifying, beyond the exceptions or limitations provided for in art.5(2) and (3) of Directive 2001/29, a derogation from the author’s exclusive rights of reproduction and of communication to the public, referred to in art.2(a) and art.3(1) of that directive respectively.”\textsuperscript{251}

Injunctive relief may also take the form of a Norwich Pharmacal Co v Customs and Excise Commissioners\textsuperscript{252} order requiring the ISP to disclose the names and addresses of its customers who have allegedly infringed copyright by making use of websites which are designed for copyright infringement, e.g. peer-to-peer file-sharing sites.\textsuperscript{253} Any such order is subject to the same proportionality rules in that it must not unjustifiably invade the right of an individual to privacy and there must be no other reasonable way of obtaining the information sought. The relevant part of the balancing exercise forming part of the assessment is a matter of importance. Those identified by the order would have their privacy endangered, become embarrassed and/or consider it not cost effective to fight the claim. The claimants need to have a genuine intention to obtain redress rather than be a “money-making scheme”.\textsuperscript{254}

Evidence of the infringement needs to justify the orders sought. In Mircom v Virgin,
problems identified were the age of expert evidence (one report was nine years old), and did not comply with CPR Part 35 in that inter alia it contained no statement of truth. The claimant also did not have a valid licence to use the program which identified the potential infringers, although the court noted that this might be deemed merely “technical.” False positives are not a reason to deny the order.

2.5.3 Virtual property and contract

The other crucial element is that the popular guidance in virtual world which regulate the allocation of rights and obligations in the virtual world is the contract between ISPs and users, called End User License Agreements (EULAs). Copyright style contractual clauses in EULAs may seek to extend copyright style protection for ISPs. This thesis argues that the validity of this contract should be considered carefully, as general users can but might not be aware of the terms in EULAs if they need to access to the internet environment. In other words, when the general users sign the contract, it is not their intention to agree to the terms or they did not notice the specific clauses presented in the contract.

255 Mircom International Content Management & Consulting Ltd v Virgin Media Ltd. [2020] FSR 5 ibid at 126.
256 Mircom International Content Management & Consulting Ltd v Virgin Media Ltd. [2020] FSR 5 ibid at 124.
257 Mircom International Content Management & Consulting Ltd v Virgin Media Ltd. [2020] FSR 5 ibid at 125.
258 Mircom International Content Management & Consulting Ltd v Virgin Media Ltd. [2020] FSR 5 ibid at 126-127.
260 Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) supra 15
261 Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ ibid.
262 Ackerman, Justin ‘An online gamer’s manifesto: recognizing virtual property rights by replacing end user licensing agreements in virtual worlds’ (2012) 6 Phoenix Law Review 137
Based on the types of service companies, this thesis divides EULAs into four groups: social media companies (like Facebook and twitter), online account companies (like HSBC and Gmail), online games companies (like Obumo Games and SEGA\textsuperscript{263}) and other software companies.\textsuperscript{264}

In the first group (social media companies), companies state that users own the content they submit through the service\textsuperscript{265}, however, which kind of rights users can claim is still unsettled.\textsuperscript{266}

“To submitting, posting or displaying Content on or through the Services, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods (now known or later developed).”\textsuperscript{267}

This thesis argues that, although companies acknowledge users own their content, they do not clarify which kind of right users can claim. In this circumstance, users' rights over their contents cannot be protected effectively by contract. The virtual property theory proposed by this thesis can clarify users' right over their content.

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\textsuperscript{263} Online game companies like Microsoft, Tencent, Activision Blizzard, Sony Computer Entertainment and Nintendo etc.

\textsuperscript{264} See in chapter 5 at 5.2

\textsuperscript{265} See Twitter Terms of Service at https://twitter.com/en/tos see Facebook Terms of Service at https://www.facebook.com/terms.php See Twitter Terms of Service at https://twitter.com/en/tos

\textsuperscript{266} Twitter only admit that You retain your rights to any Content you submit, post or display on or through the Services. What's yours is yours — you own your Content (and your incorporated audio, photos and videos are considered part of the Content). See Twitter Terms of Service at https://twitter.com/en/tos

\textsuperscript{267} See Twitter Terms of Service at https://twitter.com/en/tos
based on the classification of virtual property. Virtual property theory can also help judges to determine which kind of terms in EULAs are valid.268

The concerns about the second group (online account companies) principally focus on the protection of users’ personal information, as the majority of online accounts include users’ confidential personal information.269 However, these companies can collect, store and use users’ information through their Terms of Service270. Even if these companies promise that users’ information is only collected to provide better service271, this thesis argues that it is insufficient to rely upon this. How should we define the scope of ‘provide better service’? To what extent can they use customers’ information? These issues cannot be resolved effectively by EULAs. Because the clauses in this kind of contract are designed and enforced by companies, users have no option if they need to use services provided by companies. If the content in these

268 ProCD, Inc v Zeidenberg, (WD Wis. 1996) at 656 & 658 ‘Yet, the law as it currently exists in the US does not require the seller to provide any specific notices. As long as the buyer realizes that his purchase is subject to the terms of a licence, the ProCD case suggests that the seller can include whatever terms it desires. Unless courts are willing to distinguish different types of hidden terms, the decision in ProCD may lead to an increase in the use of so-called ‘shrinkwrap licences’, not only in the software industry but also elsewhere. At the very least it will reopen the debate.’ See John T. Cross ‘Revisiting the ‘Shrinkwrap License’: ProCD Inc. v. Zeidenberg’ (1997) 71 Information & Communications Technology Law 71

269 For instance, users’ name, domain name, address, online footprints, email address, online account and so on.

‘We collect information to provide better services to all our users — from figuring out basic stuff like which language you speak, to more complex things like which ads you’ll find most useful, the people who matter most to you online, or which YouTube videos you might like. The information Google collects, and how that information is used, depends on how you use our services and how you manage your privacy controls. When you’re not signed in to a Google Account, we store the information we collect with unique identifiers tied to the browser, application, or device you’re using. This helps us do things like maintain your language preferences across browsing sessions. When you’re signed in, we also collect information that we store with your Google Account, which we treat as personal information.’

See HSBC End User Licence Agreement at https://www.business.hsbc.uk/en-gb/gb/generic/end-user-licence-agreement ‘We will only collect information that we believe to be relevant and reasonably required to understand you and the Customer, and the Customer’s financial needs, and as otherwise reasonably required in connection with the conduct of our business, compliance with legal and regulatory obligations and best practice, and risk management activities.’
online accounts are not subject of privacy law and intellectual property law, virtual property theory could clarify their legal status and protect them effectively.

Many cases related to online games\(^{272}\) have led to publication about the protection of virtual property\(^{273}\). Considering that the items included in online games can be trade by real currency,\(^{274}\) if users’ items are stolen, how could they be legally protected? Who has the obligation to protect them? Which law can be used to apply for this protection? These legal issues cannot be protected by property law. The EULAs\(^{275}\) between users and companies\(^{276}\) increase the difficulties in dealing with these issues, as companies exclude users from having rights over games and items contained in games.\(^{277}\) The virtual property theory proposed by this thesis will make clear which kind of items belong to users and how to protect them based on the layer theory. The thesis will focus on questions such as whether they contain users’ significant information and whether they enrich users’ original creativity. The virtual property theory will assist in coming to a decision depending on these questions.


\(^{273}\) Ackerman, Justin ‘An online gamer’s manifesto: recognizing virtual property rights by replacing end user licensing agreements in virtual worlds’ (2012) supra 232

\(^{274}\) Ross, Jason ‘Licensing and access problems producers of video games face in foreign markets: a case study’ (2012) 35 Hastings Int’l & Comp. L. Rev. 429

\(^{275}\) See Lord of the Rings Online End User Licensing Agreement, Lord Rings Online Community, http://www.lotro.com/support/218-eula

\(^{276}\) See Obumo Games End Users Licence Agreement at http://www.obumogames.com/EULA

\(^{277}\) See Ubisoft end User Licence Agreement at https://legal.ubi.com/eula/en-GB
In the EULAs of other software companies, companies claim that they have the intellectual property right upon companies’ software, and they set many limitation to limit user’s activities when they use these software. However, which kind of right users can claim, they do not clarify. Therefore, this thesis argues that, virtual property theory will clarify users’ rights and balance the interests between users and companies.

In the digital environment, contracts are increasingly used by copyright owners to control the use of their on-line works. The increased use of copyright style contractual clauses in the digital context is an issue which has been insufficiently dealt with. These contractual clauses seek to extend copyright protection beyond that laid down in the legislation. However, is it reasonable to apply copyright style clauses to protect virtual items. In the US ProCD, Inc., v. Zeidenberg, a contractual clause was used to provide copyright protection for its own compilation of telephone numbers. However, following Feist, such compilation has lost copyright protection. The key point was whether the shrinkwrap licensing agreements included with software products were valid or not. Zeidenberg acknowledged that he had copied the telephone numbers and uploaded them to the

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278 See Papercut End User Licence Agreement at https://www.papercut.com/support/resources/manuals/ng-mf/common/topics/license.html

279 ‘In the UK, where the law has been amended as a consequence of domestic implementation of EU Directives, the main focus has been on contracts which restrict specific acts not covered by copyright. According to the preambles of the Directives, this was necessary to maintain the copyright balance. However, outside of specific circumstances there is no broad approach in relation to contracts that could extend the copyright style protection. In contrast to this, in the US, the focus has been establishing a broad approach to contracts which not only restrict the exploitation of copyright, but also those which extend existing copyright and those which create new copyright style rights in direct disregard of copyright law.’ Supra 13

280 ProCD, Inc. v Zeidenberg, supra 13 at 656 & 658

281 Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) supra 15

282 Feist Publications, Inc . v Rural Telephone Service Co., (Supreme Court, 1991)

283 “Shrink wrap is the plastic wrapping encasing the boxes in which software is usually sold. Some such agreements purport to bind the purchaser with the breaking of the shrink wrap seal to open the box -hence the term "shrink wrap license." See ProCD, Inc. v Zeidenberg, (WD Wis. 1996) at 1499.
World Wide Web, where they could be accessed for a price. ProCD maintained that Zeidenberg had infringed its copyright in the software, violated the express provisions of the shrink wrap license provided with the software, and misappropriated its product. Zeidenberg argued that the uploaded data was not susceptible of copyright protection, the shrink wrap license was invalid, and the Copyright Act preempted ProCD's state law claims. The case was heard before both the Western District of Wisconsin, and on appeal, the Seventh Circuit. In the Western District of Wisconsin, Chief Justice Crabb argued that if copyright itself does not provide protection, contractual clauses could not provide copyright style protection. On appeal, the Seventh Circuit reached the opposite conclusion, Judge Easterbrook argued:

“A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create ‘exclusive rights.’ Someone who found a copy of SelectPhone (trademark) on the street would not be affected by the shrink wrap license--though the federal copyright laws of their own force would limit the finder's ability to copy or transmit the application program.”

This thesis argues that the reason to determine whether the contractual clause is valid or not is to determine whether that type of object have been protected by

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284 ProCD, Inc. v Zeidenberg, supra 13 at 656 & 658
285 See Vault Corp. v. Quaid Software Ltd., 847 F.2d 255, 269-70 (5th Cir. 1988) (finding state statute upholding validity of software licenses to be preempted by the Copyright Act)
286 Brandon L. Grusa Contracting beyond copyright: ProCD, Inc. v Zeidenberg, supra 13 at 656 & 658
287 ProCD, Inc. v Zeidenberg, supra 13 at 656 & 658
288 ProCD, Inc. v Zeidenberg, ibid. at 656 & 658
289 Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) supra 15
290 ProCD, Inc. v Zeidenberg, supra 13 at 656 & 658
copyright law. However, we should not restrain our mind merely to the scope of copyright protection. Virtual property theory can confirm the legal status of these virtual objects, and provide specific, certain, protection for them. Virtual property theory will also help to deal with the distinction contracts and copyright right balance.

Many countries across the world have acknowledged the need for a virtual property right in legislation. Within China, the virtual property right, as a new type of personal property right, has been stipulated in civil law\textsuperscript{291}. Chinese civil law states that virtual property rights are a fundamental personal right of citizens. However, how to protect the virtual property right is still unresolved, as there is not a specific statutory provision for the protection of virtual property. Therefore, this thesis argues that a systematic definition of virtual property should be established.

\textbf{2.5.4 Virtual property and Chattels}

Intangibility itself is not a problem. The common law has recognized incorporeal property like deeds, leases, goodwill, etc.\textsuperscript{292} However, intangibility could be used to draw the distinction between virtual property and chattels, when virtual property theory attempt to consider virtual property as a type of personal property. In \textit{The Software Incubator Ltd v Computer Associates UK Ltd}\textsuperscript{293}, the judge Waksman QC argued that software should not be excluded from the scope of “sales of goods”,\textsuperscript{294} he admitted that software was intangible and not a chattel in the traditional sense\textsuperscript{295}.

\begin{flushright}
\textsuperscript{291} General Rules of the Civil Law of the People’s Republic of China (Article 127) ‘Where the law has provisions on the protection of data or online virtual assets, following those provisions.’

\textsuperscript{292} Davenport v. Comm. of Internal Revenue, 184 F.3d 1176 (10th Cir. 1999).

\textsuperscript{293} \textit{The Software Incubator Ltd v Computer Associates UK Ltd}\textsuperscript{[2016]} EWHC 1587 (QB) [2017] Bus. L.R. 245

\textsuperscript{294} This thesis argues that based on the Hohfeldian methodology, if an individual has justification to prevent others from using or possessing a particular object, on matter it is tangible or intangible, it is reasonable to deduce that the individual have a right-claim over the particular object. See in Newcomb Hohfeld, Wesley \textit{Fundamental Legal Conceptions as Applied in Judicial Reasoning} (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19
\end{flushright}
In *Your Response Ltd v Datateam Business Media Ltd*\(^{296}\), the principal controversy is the possession of tangible property. In accordance with these purposes, the judge Moore-Bick drew a sharp distinction between the possession of tangible property and intangible property.

“Although an analogy could be drawn between control of a database and possession of a chattel, it was not irrelevant that the database was incapable of physical possession. Practical control went hand-in-hand with possession, but the two were not the same. Possession was concerned with the physical control of tangible objects; practical control was a broader concept, capable of extending to intangible assets and non-property.”\(^{297}\)

Although both virtual property and chattels can be considered as personal property, intangibility could be a means by which to make a distinction between them which is synonymous with the legal-physical distinction. This thesis argues that the other critical distinction between virtual property and traditional chattels is that the creation and operation of virtual property has to rely on the providers’ service. The code and data which create the virtual property entirely rely the providers’ service.\(^{298}\) Based on these differences, the principle of chattels cannot resolve issues of virtual property

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\(^{295}\) ‘that the expression “sale of goods” should, in the context of the Regulations, not be read as excluding the supply of software simply because the ownership of the intellectual property rights therein would not usually be transferred absolutely, namely by way of assignment, or because software was intangible and not a chattel in the traditional sense; that, in the circumstances, the software in question was “goods”’ see *The Software Incubator Ltd v Computer Associates UK Ltd* [2016] EWHC 1587 (QB) [2017] Bus. L.R. 245

\(^{296}\) *Your Response Ltd v Datateam Business Media Ltd* Case No: B2/2013/1812 Court of Appeal (Civil Division) 14 March 2014[2014] EWCA Civ 281 2014 WL 978838

\(^{297}\) *Your Response Ltd v Datateam Business Media Ltd* [2014] EWCA Civ 281

\(^{298}\) ‘However, the salient difference is that virtual property exists inside of, and is entirely dependent upon, someone else’s property. The data which creates virtual property exists entirely on a server owned by the developer. If the server was deleted or destroyed, all the virtual property contained within it would also be ruined.’ Emir Aly Crowne and Maxim Kaploun ‘From Blackacre & Whiteacre to Greyacre: Three Models for Ascribing Virtual Property Rights in Cyberspace’ (2010)19 U. Balt. Intell. Prop. L.J. 1
directly and effectively. The virtual property theory that this thesis has proposed can clarify the legal characteristics of virtual property through the layer theory\(^{299}\). The theory will help judges to deal with legal issues reflected by virtual property.

2.6 Justifications for virtual property

2.6.1 Rethinking the conception of property

At the very outset it seems necessary to emphasize the importance of the concept of property,\(^{300}\) in order to develop a concept of virtual property for this thesis. The emergence of virtual property, especially with the development of the internet and information technology, propels people to rethinking the legal significance and scope of property.\(^{301}\) This chapter argues that one of the greatest reasons that virtual property challenge traditional legal theory is the confusion of the concept and the scope of property, which will increase the difficulty in accepting virtual property. Hence, this thesis suggests that we could find out solutions to resolve the difficulties in accepting virtual property through analysing the reasons which caused the confusion in the conception of property.

One of the greatest hindrances to understanding the concept of property is confusing legal conceptions and non-legal conceptions. On the one hand,

“confusing and blending the legal and the non-legal quantities in a given problem.”\(^{302}\)

\(^{299}\) Fairfield, Joshua, ‘Virtual property’ (2005) supra 1

\(^{300}\) Locke, John Two Treaties of Government (1st edn, Cambridge University Press 1960) supra 51 “[w]hatsoever [man] removes out of the state that nature hath provided and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property.”

leads the boundary between legal conception and non-legal conception to become ambiguous. Not all items should be protected legally, in contrast, for some items, even though people do not consider them as their personal property, they should also be researched and protected legally because of the legal relations reflected by them.\textsuperscript{303} We should make the boundary between legal conception and non-legal conception clearer. On the other hand,

\begin{quote}
"the looseness of usage of property can increase the difficulty of establishing the legal conception of property."
\end{quote}

The looseness of usage could result in confusion of the understanding of legal concept in a particular case, as the notion has significant and specific connotations for certain professional groups, in particular those in legal practice.\textsuperscript{305} For the concept of property, as lay people we can use it to refer to anything in our daily life, as the popular semantic conception of property\textsuperscript{306} views property as things.\textsuperscript{307} For the most part, property is considered as tangible things – land, house, automobiles, tools, factories.\textsuperscript{308} However, in the language of modern intellectual property\textsuperscript{309} and

\textsuperscript{302} Legal conceptions contrasted with non-legal conceptions, see Newcomb Hohfeld, Wesley \textit{Fundamental Legal Conceptions as Applied in Judicial Reasoning} (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19

\textsuperscript{303} Locke, John \textit{Two Treaties of Government} (1st edn, Cambridge University Press 1960) supra 51 "[w]hatsoever [man] removes out of the state that nature hath provided and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property."

\textsuperscript{304} Newcomb Hohfeld, Wesley \textit{Fundamental Legal Conceptions as Applied in Judicial Reasoning} (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19

\textsuperscript{305} Legal conceptions contrasted with non-legal conceptions, see Newcomb Hohfeld, Wesley \textit{Fundamental Legal Conceptions as Applied in Judicial Reasoning} (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19

\textsuperscript{306} Chierchia, Gennaro & Turner, Raymond, ‘Semantics and Property Theory’,(1988) 11 Linguistics and Philosophy 261 (Develops a multi-sorted first-order theory of properties in which predication is analysed along the lines of a revisionist theory of truth.)


\textsuperscript{308} Munzer, Stephen \textit{A Theory of Property} (1st edn, Cambridge University Press 2012) supra 124
property law scholarship, it only refers to the legal conception of property, which has professional meaning. More precisely, property consists in certain relations, usually legal relations, among persons or other entities with respect to things. Further rethinking, this looseness will impact the acceptance of virtual property.

This thesis argues that another hindrance to understanding the concept of property is using conceptions established in ancient times to analyse current legal issues. From the historical perspective, if we are to understand how property has arisen, Grotius points out that,

“We must first recognize that the concept of property has itself undergone development. The story of the origin of property is not a story of the spontaneous generation of the modern concept of property, arriving fully-fledged in an underprepared world.”

The growth of internet and communication technology have extended the scope and object of property. The connotation of the conception of property is enriched by the development of technology. Each concept of property by scholars are inevitably established according to their specific social circumstance, and we should not expect

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309 Garnett, Kevin, Gillian Davies and Gwilym, Harbottle, Copinger and Skone James on Copyright (London: Sweet and Maxwell, 2005) supra 224
311 Bealer, George & Mönnich, Uwe ‘Property Theories’ (1989) https://link.springer.com/chapter/10.1007/978-94-009-1171-0_2 accessed 4 July 2021 (Argues for a first-order theory of properties, relations and propositions in which nominalized forms of complex predicates are included among the singular terms as ‘intensional abstracts’.)
314 Grotius, Hugo De jure praedae Commentarius (1st edn, Clarendon Press, 1950)
315 Hume, David A Treatise of Human Nature: Being an Attempt to introduce the experimental Method of Reasoning into Moral Subjects (London, United Kingdom: British Library, 1739) supra 277
316 Chander, Anupam, ‘The New, New Property’ (2003) supra 140 (“The entity controlling a domain name that represents the natural place on the Internet for people to gather information or build community about any particular subject immediately gains a powerful voice in that community, perhaps even the power to help define that subject.”)
the concept from very early days can suit for our contemporary social condition. When Locke presented the labour theory in his *Second Treatise of Government*, his theory of property proved attractive to the audience. Yet as time passed, Lockean labour theory has been reconsidered and developed by scholars and ‘productive labour’ theory. From this perspective, we should rethink the concept and significance of property as depending on the latest social conditions, in order to keep pace with the development of the technology and society, and to solve the corresponding contemporary legal issues.

The other reason that we should rethink the concept of property is that property appears differently to different audiences. Different people are obliged to process different types of information about property, and their access to information about property will differ. According to the different information people receive in different ways, there will be different shapes of property in their minds, hence there will be confusion about property in specific cases.

However, even we should admit to the variety of property, it does not mean that we should justify whether an item can be considered as a kind of property just according to individual’s opinion in specific case. There should also be some legal criterion to abide by to make a decision. As mentioned before, we should confirm the difference between legal conception and non-legal conception. Hence, exploring the significance of property from the legal perspective will be necessary and important.

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It is necessary to understand the concept of property from the legal perspective and to avoid confusing and blending the legal and non-legal quantities in a given problem, in order to explore the significance of the conception of property properly. From this perspective, in order to understand the concept of property, it will be important to explore the essential characteristic of property rather than merely focus on the physical shape or outlook of property, as

“People do not see how there can be a transfer of a right unless that right is embodied in some corporal thing.”

When it comes to the analysis of property, Hohfeld’s analytical precision will be useful and should not be ignored. However, this chapter argues that analysis of property should be viewed as a whole. It is insufficient if people just analyse the various rights and duties that arise out of private property, so just following the approach of Hohfeld cannot supply an integrated conception of property. Or, as James Penner and Henry Smith put it,

“The bundle picture is a tool for analysis and clarification of subsidiary issues such as the difference between a right and a liberty, but as Hohfeld himself probably realized, a theory of pieces needs to be supplemented or embedded within a theory of wholes.”

In order to explore the essential characteristic of property, we have to admit that the character of property changes across time and these changes are associated

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322 Compare, to the same effect, Holmes, The Common Law (1881), 409
324 William Harris, James , Property and justice (Oxford University Press 1996)
with developments in the characteristic ways in which human beings secure their living. The concept of property varies according to the periods of human society. Hence, this chapter suggests that the concept of property should be established depending on the contemporary social circumstance and the expectation of public. Tracing back the history of property, it is easy to figure out that:

“The idea of changes in property regimes attendant upon economic and social development, including the emergence of new ‘needs’, population pressure, and effective scarcity.”

We should also emphasise the importance of the concept and extent of property, as property is the key to economic and social development:

“without private property there would be no industry; and without industry, men would remain savages for ever.”

In other words, the extent of the development of a society is always reflected by the conception of property, especially the concept and the scope of private property. Therefore, it is necessary to identify the concept of property at the beginning of the research of virtual property:

“While the world was rude and illiterate, the relation of property was faint and obscure. This relation was gradually unfolded, and in its growth towards maturity accompanied the growing sagacity of

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327 Pierson, Christopher Just Property: Volume Two: Enlightenment, Revolution, and History (Published to Oxford Scholarship Online 2016)
328 Pierson, Christopher Just Property: Volume Two: Enlightenment, Revolution, and History ibid.
329 Pierson, Christopher Just Property: Volume Two: Enlightenment, Revolution, and History ibid.
mankind, till it became vigourous and authoritative as we find it at present."  

(Kames, 1758, 154)

From the perspective of philosophy,  

"Each conception we established naturally relied on the methods we use to comprehend the world. We naturally explore and establish our world according to our nature experience and knowledge."  

However, on reflection, are these concepts changed in pace with the extension of our knowledge and enrichment of our experiences? If they are, what is the significance of these concepts, because these concepts will be abandoned due to that they cannot keep pace with the development? If they are not keeping pace, the question we should consider seriously is that what things are like in themselves? Hence, this chapter holds the opinion that what things are like in themselves are limited by our capacity to comprehend and describe:

"The world of which I am speaking is our world, the world as we apprehend it. Our capacity to apprehend how the world is depends, of course, upon the concepts we possess—that is, upon our ability to describe it."  

We may speculate about beings who possess concepts that we lack. No one will reveal the essence of our world if they only focus on their experiences.

330 Kames, Lord (Henry Home) *Historical Law Tracts* (Edinburgh: Bell and Bradfute and Creech 1758)  
332Popper, Karl & Eccles, John, *The Self and Its Brain* (Springer International 1977) *supra* 96  
333 Popper, Karl & Eccles, John *The Self and Its Brain* *ibid.*  
334 Popper, Karl & Eccles, John *The Self and Its Brain* *ibid.*  
335 Dummett, Michael, *Thought and Reality* (Oxford Scholarship Online 2007)
In terms of the development of the concept of property, these notions naturally compel us to turn our attentions to the argument about the ‘ideas in mind’ and ‘literary and artistic works’ in the area of intellectual property. With the emergence of the reconceptualisation of virtual property to traditional legal theory, there is a similar distinction between material and immaterial things, tangible and intangible things as found in intellectual property law. However, this chapter does not suggest that Intellectual Property law is the sole approach to protect virtual property, in other words, this chapter does not suggest that virtual property should be protected as a kind of copyright or patent. The most important point is that we can find out the necessity and approach to research the legal problems reflected from virtual property compared to the perspective of intellectual property law. In modern intellectual property scholarship intangibility is not as important the previous theories claimed.

All in all, in terms of the concept of property, even though property can be viewed differently from the various perspectives, there will be an essential characteristic that can be legally abstracted, for instance, the exclusive use-right, from the statement of Grotius:

“there are some things which are consumed by use, either in the sense that they are converted into the very substance of the user and therefore admit of no further use, or else in the sense that they are rendered less fit for additional service by the fact that they have once

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336 Reich, California, 'The New Property' (1964) 73 Yale L.J. 733
338 Garnett, Kevin, Rayner James, Jonathan and Davies, Gillian Copinger and Skone James on Copyright (London Sweet & Maxwell 1999) supra 224
339 Alexander, Gregory, An Introduction to Property Theory (Cambridge University Press 2012)
been made to serve. Accordingly, it very soon became apparent, in regard to articles of the first class (for example, food and drink), that a certain form of private ownership was inseparable from use. For the essential characteristic of private property is the fact that it belongs to a given individual in such a way as to be incapable of belonging to another individual.”

It is also proved by CDPA 1988 s16:

“(1) The owner of the copyright in a work has, in accordance with the following provisions of this Chapter, the exclusive right to do the following acts in the United Kingdom—

(a) to copy the work;

(b) to issue copies of the work to the public;

[(b) to rent or lend the work to the public;]

(c) to perform, show or play the work in public;

[(d) to communicate the work to the public;]

(e) to make an adaptation of the work or do any of the above in relation to an adaptation”

However, this thesis argues that there is not an exclusive essence which can be used to suit various circumstances, especially under the development of technology. It is argued that the concept of property is entirely historically contingent and we

341 Hume, David, A Treatise of Human Nature: Being an Attempt to introduce the experimental Method of Reasoning into Moral Subjects (London, United Kingdom: British Library, 1739) supra 277
342 Copyright, Designs and Patents Act (1988) s.16(1)
have to accept the limitation of language.\textsuperscript{344} We should determine whether one item can be considered as property from legal perspectives according to the current circumstance in a specific case, rather than using previous property concepts to infer the conclusion.

2.6.2 How to understand the meaning of ‘real’

Due to the primary characteristic of intangibility,\textsuperscript{345} virtual property is compared with physical property and then is excluded from the scope of property. This chapter argues, however, that even though virtual is opposed to physical, virtual property also exists and it is real. We cannot identify physical with reality. The essence of ‘real’ is developed constantly with the historical progression. At the very start,

“The most central usage of the term ‘real’ is its use to characterize material things of ordinary size – things which a baby can handle and (preferably) put into his mouth. From this, the usage of the term ‘real’ is extended, first, to bigger things – things which are too big for us to handle, like railway trains, houses, mountains, the earth and the stars; and also to smaller things – things like dust particles or mites. It is further extend, of course, to liquids and then also to air, to gases and to molecules and atoms.”\textsuperscript{346}

It means that the progress of society and the extension of the knowledge of human beings\textsuperscript{347} extend the implication of the term ‘real’ constantly and we should consider

\textsuperscript{342} Pierson, Christopher, Just Property: Volume Two: Enlightenment, Revolution, and History (Oxford Scholarship Online 2016) supra 297
\textsuperscript{344} Hume, David, A Treatise of Human Nature: Being an Attempt to introduce the experimental Method of Reasoning into Moral Subjects (London, United Kingdom: British Library, 1739) supra 277
\textsuperscript{345} See this chapter at 2.4.1
\textsuperscript{346} Popper, Karl & Eccles, John The Self and Its Brain (Springer International 1977) supra 96
the term ‘real’ from a developing perspective. For virtual property, intangibility can not be used to exclude virtual property from the scope of property. Virtual property is still property, and it still exists even though it is intangible,

“It includes (amongst other things) website addresses and email addresses as well as certain other accepted immaterial property objects such as bank accounts, stocks, options and derivatives.”

After being familiar with the extension of the term of ‘real’, we should explore the principle behind the extension. According to the statement of Popper and Eccles, the entities which we conjecture to be real should be able to exert a causal effect upon the prima facie real things; that is, upon material things of an ordinary shape. For virtual property, although they cannot be handled by individuals physically, they can be purchased, they can be transferred, they are extremely relevant to individuals, so there is no reason to deny virtual property is real.

In other words, we seem to be inclined to accept something (whose existence has been conjectured) as actually existing if its existence is corroborated. However, we may say that this corroboration indicates,

“First, that something is there; at least the fact of this corroboration will have to be complained by any further theory. Secondly, the corroboration indicates that the theory that involves the conjectured

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347 Popper, Karl & Eccles, John The Self and Its Brain ibid.
350 Popper, Karl & Eccles, John The Self and Its Brain (Springer International 1977) supra 96
351 Popper, Karl & Eccles, John The Self and Its Brain ibid.
352 Popper, Karl & Eccles, John The Self and Its Brain ibid.
real entities may be true, or that it may be near to the truth (that it has a good degree of verisimilitude)."\textsuperscript{353}

It means that we should extend the criterion to determine whether one item can be considered as real or not. This is also suitable for virtual property. If virtual property could be accepted and corroborated by an independent virtual property theory, virtual property then should be considered as real.

\textbf{2.6.3 The process of Human Understanding}

The main issues for courts or legal researchers in coping with the cases of virtual property is that there are still some people who are not familiar with virtual property.\textsuperscript{354} However, we should not just avoid the issue because we have never thought about it, or because it is different from the traditional property with which we are familiar with, deny it or exclude it from the scope of property.\textsuperscript{355} No one can anticipate what will the world will become in the future, hence, we cannot expect people who have never heard about computers or the internet to confine the existence of virtual property.\textsuperscript{356} Admitting the limit of human knowledge will provide a place for people to progress, and it will also help people to accept new things.\textsuperscript{357}

From the perspective of human understanding\textsuperscript{358} it will provide justification to accept the existence of virtual property. It has been argued that all of our ideas come from our experiences,\textsuperscript{359} and if we want to admit that one thing is really existant, we have

\begin{itemize}
  \item \textsuperscript{353} Popper, Karl & Eccles, John *The Self and Its Brain* ibid.
  \item \textsuperscript{354} Christ, Roxanne and Peele, Curtis ‘Virtual worlds: personal jurisdiction and click-wrap licenses’ (2008) *supra* 138
  \item \textsuperscript{355} Jankowich, Andrew ‘Property and democracy in virtual worlds’ (2005) *supra* 220
  \item \textsuperscript{356} Fairfield, Joshua, ‘Virtual property’ (2005) *supra* 1
  \item \textsuperscript{357} Locke, John *Two Treaties of Government* (1st edn, Cambridge University Press 1960) *supra* 51
  \item \textsuperscript{358} Craig, Edward *Knowledge and the State of Nature* (Oxford: Clarendon Press 1990) *supra* 64
  \item \textsuperscript{359} Hume, David *An Enquiry concerning Human Understanding* (Oxford University Press, 2007) *supra* 62
\end{itemize}
to perceive it by our senses.\textsuperscript{360} All our ideas are nothing but copies of our impressions,\textsuperscript{361} or, in other words:

“that it is impossible for us to think of anything, which we have not felt, either by our external or internal senses.”\textsuperscript{362}

Applying human understanding theory will provide justification for accepting virtual property, because the emergence of virtual property, and it can be controlled by us, we start to pay attention to explore it. Due to the economic and social value of the virtual property, the virtual world has become an increasing important economic, entertainment and social environment in our daily life, virtual property which contains users’ amounts of investments plays an increasing significant role in our society. Therefore, this thesis argues that virtual property has become an experience of us, it can be concluded that virtual property is not a miracle, it really exists.

“A miracle is a violation of the laws of nature, and as a firm and unalterable experience has established these laws, the proof against a miracle, from the very nature of the fact, is as entire as any argument from experience can possibly be imagined.”\textsuperscript{363}

Property is an abstract idea people created according to the item they have perceived by sense.\textsuperscript{364} On the one hand, an abstract idea contains common characteristics summarized from amounts examples:

\textsuperscript{360} Hume, David \textit{An Enquiry concerning Human Understanding} \textit{ibid.}.
\textsuperscript{361} Craig, Edward \textit{Knowledge and the State of Nature} (Oxford: Clarendon Press 1990) \textit{supra} 64
\textsuperscript{362} Hume, David \textit{An Enquiry concerning Human Understanding} (Oxford University Press, 2007) \textit{supra} 62; Locke, John \textit{Two Treaties of Government} (1st edn, Cambridge University Press 1960) \textit{supra} 51
\textsuperscript{363} Hume, David \textit{An Enquiry concerning Human Understanding} \textit{ibid.}.
\textsuperscript{364} Hume, David \textit{An Enquiry concerning Human Understanding} \textit{ibid.}.
“For instance, the mind by leaving out of the particular colours perceived by sense, that which distinguishes them one from another, and retaining that only which is common to all, makes an idea of colour in abstract which is neither red, nor blue, nor white, nor any other determinate colour.”

On the other hand, due to the development of the world, definitely, there will be new items appear and the abstract ideas cannot contain these new items, hence, this thesis holds the opinion that we should update abstract ideas according to the improvement of the world. For virtual property, as the consequence of advanced technology, it is certain that it is different from the traditional property. We should not expect all kinds of property included in the abstract idea. On the other hand, compared with denying the existence of virtual property, updating the abstract idea ‘property’ through the knowledge of technology will be the better approach to understand virtual property.

This thesis argues that even though the notion of ‘abstracting ideas’ is a useful means by which to interpret the world, sometimes it also results in confusion. If we want to make the abstract idea clearer, we will use a phrase to describe it: it means that we will give it a name. However, can this name express the significance of the abstract idea adequately? The answer may be not, because we have to confess the limits of language. The name we use always refers to the whole abstract idea, not any particular item. If there are some items included in this abstract idea which contain unique characters which exceed expectation of the name, we should not

365 Berkeley, George, *The principle of Human understanding* (Thomas Nelson and Sons Ltd 1942)
367 Berkeley, George, *The principle of Human understanding* (Thomas Nelson and Sons Ltd 1942) *supra* 335
368 Berkeley, George, *The principle of Human understanding* (Thomas Nelson and Sons Ltd 1942) *ibid.*
exclude them just because of this, as a general name comes to signify any particular thing. Whereas, in truth, there is no such thing as one precise and definite signification annexed to any general name, they all signifying indifferently a great number of particular ideas. Hence, this thesis holds the opinion that different kinds of traditional property have different characters, let alone virtual property, a brand new type of property.

Abstraction of ideas is a useful tool for people to combine items which contain some common characteristic together in order to search them conveniently, however, it will be a really hard task to achieve, as no one can make sure that they inquire of all particular items when they draw the abstract idea.

“For example, what it is for a man to be happy, or an object good, every one may think he knows. But to frame an abstract idea of happiness, prescinded from all particular pleasure, or goodness, from every thing that is good, this is what few can pretend to. Hence, this faculty should be advanced by constant studying. They are difficult and not to be attained without pains and study; we may therefore reasonably conclude that, if such there be, they are confined only to the learned.”

By this means to interpret abstract ideas, it will be reasonable to argue that virtual property should be considered as a new kind of property.

### 2.7 Conclusion

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369 Berkeley, George, *The principle of Human understanding* (Thomas Nelson and Sons Ltd 1942) *ibid.*
371 Locke, John *Essays on the Law of Nature* *ibid.*
372 Berkeley, George, *The principle of Human understanding* (Thomas Nelson and Sons Ltd 1942) *supra* 335
The field of virtual property is still one need more attention and research. Even if they have heard about it, their concept of it is often unfomed, imprecise and mostly out-dated. With the development of technology, advanced technology has extended the connotation of many legal concepts, and the concept of property is a typical example. The concept of property varies according to the periods of human society. Hence, we should identify the concept of property depending on the contemporary social circumstance and the expectation of the public.

For the concept of virtual property, this chapter introduces the layer theory. The service provider’s codes which construct the platform and the virtual environment for users and ISPs sit at the infrastructure layer (1). This layer represents the computer code, programme and software. At the abstraction layer (2), this chapter identifies the unique computer code which consist the unique items in virtual world which have not transferred to users. Therefore, the property in this level have not been possessed by users. Finally, at the content layer (3), this thesis identifies the unique items contain the investment, like time, money and labour, from users. Obviously, the content layer (3) represents the virtual property belong to internet users.

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For the connotations concerning that which is real, of possession and of ownership, this chapter confines the arguments to the digital environment. This thesis will focus on the exploring the challenges from these related theory and concepts to traditional legal theory under the internet environment. The specific and detailed discussion will present in the further chapters.

At present virtual property exists only in theory as part of a hypothetical discussion and has not been protected by current legal system. Scholars and commentators have advanced a number of definitions, most similar in essence, but different with regard to the detail. It has been defined as 'any property interest that is both intangible and exclusionary'.\textsuperscript{376} It has also been defined as 'software code designed to behave like and have the qualities of a physical, real world chattel or piece or realty'.\textsuperscript{377}

This thesis argues that the reason for the call for the legal recognition of virtual property is that by treating these rights as a system rather than separated, common problems and expectations can be evaluated in an effort to create a generalised and internationally uniform governing law for an international legal phenomenon.\textsuperscript{378} This thesis contributes a systematic regulation for the research of virtual property.

\textsuperscript{376} Nelmark, David ‘Virtual property: the challenges of regulating intangible, exclusionary property interest such as domain names’ (2004) supra 110
\textsuperscript{377} Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
\textsuperscript{378} Hurter, Eddie ‘The international domain name classification debate: are domain names 'virtual property', intellectual property, property, or not property at all?’ (2009) 42The Comparative and International Law Journal of Southern Africa 288
Chapter 3. The development of privacy and misuse of private information in the United Kingdom

3.1 Introduction

This thesis argues that, based on the discussion in chapter two about the layer theory\textsuperscript{379} and the classification\textsuperscript{380} of virtual property, the valuable information generated by users’ online activities should be categorised as a type of users’ virtual property. This chapter will outline how layer theory provides a justification for the protection of personal information, especially under the uncertainty caused by the confusion among confidential information, privacy and private information.\textsuperscript{381} This


\textsuperscript{380} See chapter 2 at 2.3
thesis argues that users’ property rights over their private information in digital formats have not been recognised by current legal system, therefore, the virtual property theory establishes in this thesis contributes to recognise users’ virtual property rights over their private information. This thesis also argues that, once users’ online personal information is categorised as a type of virtual property, it will reduce the uncertainty not only in aspect of the recognition of personal information, but also in the aspect of the protection for ordinary users.

This chapter begins with a brief introduction to the development of privacy in the United Kingdom, and argues that the current protection from privacy is insufficient for protecting the users’ online personal information. The development of privacy in the United Kingdom has undergone a transition from no right of privacy, to using action of breach of confidence to protect privacy, and finally try to establish a tort of misuse of private information for the purpose to service out of the jurisdiction and arguable a right of privacy. This chapter suggests that protection of personal information is a developing area of law. Virtual property theory, especially the layer theory of virtual property, which categorises virtual objects contained users’ private information as users’ virtual property, could provide justification for the protection of personal information. Users’ virtual property rights over their private information in digital formats established by layer theory is a multiple and complex right system which contain privacy interest, proprietary interest and personality interest.

382 Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650 supra 11
383 See in European Convention of Human Rights Article 8.
384 See chapter 2 at 2.2, 2.3
386 See chapter 2 at 2.2.2
The protection from virtual property theory supports users claim of a virtual property right upon their personal information. Identifying the proprietary interest of information owners will also clarify the obligation of ISPs and companies. It could clarify the limitation on the usage of personal information. Companies should not only gain the consent of information owner, but also avoid overusing and intruding users’ personal information.

In order to explain the feasibility of the protection from virtual property theory, this chapter introduces the legislation related to personal information in China which tries to establish a personality right which both focus on the property aspect and personality aspect of users’ private information.

This chapter will conclude by suggesting that the protection of individuals’ information is a developing area of law. In the UK the protection from privacy and confidence is insufficient, and virtual property theory established by this thesis could support owners claim property right upon their virtual property which contains their private information.

3.2 Background: the transformation to information society.

Information is an intricate and multifaceted notion.\textsuperscript{387} In term “information” in colloquial speech is currently predominantly used as an abstract mass-noun used to denote any amount of data, code or text that is stored, sent, received or manipulated in any medium.\textsuperscript{388} Information, as a concept, can be interpreted and defined

\begin{itemize}
\item Efroni, Zohar Access-Right: The Future of Digital Copyright (Law Oxford Scholarship Online 2011)
\item “Outside law, information is subject to various analytical frameworks. To illustrate, Rautenberg summarized several alternatives, conceiving information as (1) a message, (2) the meaning of a message, (3) the effect of the message, (4) a process, (5) knowledge, or (6) an entity in the world.” See Matthias Rauterberg, About a Framework for Information and Information Processing of Learning Systems, in Information System Concepts
\end{itemize}
according to the context of the discussion and discipline to which it is relevant: from a communication perspective, information includes data, knowledge, and opinions that answer questions and reduce uncertainty. In technical writing, information is defined with the statistical distribution of elements in a set and consequently with the power of code to identify certain things or ideas. Generally, information is often used as a synonym for data, facts, or knowledge. The nature of information is to inform audience and reduce uncertainty in specific context. However, the focus of this chapter is primarily on the nature and characteristics of information in relation to its interaction with law. Therefore, the conception of information in this chapter refers to the particular type of information which reflect individuals’ personalities and activities, transferred and possessed by information technology.

The information technology mentioned in this chapter refers to computing and communications technologies whose rapid evolution is almost taken for granted today. These technologies take many forms such as personal computers, smart phones, internet technologies, as well as AI and robotics. Information technology focuses economic and social activity on information-gathering, analysing, storing, presenting, and disseminating information in text, numerical, audio, image, and video formats—as a product itself or as a complement to physical or tangible products.

Information technology is the merger of computing technologies and communications technologies which makes vast amounts of information and data instantly available.

55 (Eckhard D. Falkenberg & Wolfgang Hesse, eds., 1995). Rautenberg mentioned this list in the context of his learning systems analysis.


390 Ritchie, David, *Information* ibid.

391 ‘Today’s increasingly sophisticated information technologies cover a wide range of technical progress: Microprocessors and workstations... Special-purpose electronic hardware... Media... Convergence... Software’ See in National Research Council, *Cryptography’s Role in Securing the Information Society* (National Academy Press, Washington D.C. 1996) supra 4

almost everywhere. New information technologies are integrating the world in global networks of instrumentality. Computer-mediated communication generates a vast array of virtual communities.

With the development and popularity of advanced information technology, the spread, format and approaches to get, store and analyse information is getting more and more relevant to information technology. Information is an integral part of all human activities, all processes of our individual and collective existence are directly shaped (although certainly not determined) by the new technological medium.

“The naturalization of information, I want to show, is neither a historically nor systematically isolated program or occurrence. It depends on related developments in the natural sciences, mathematics, and technology, each of these constituting a troublesome practical and conceptual inheritance.”

Advanced information technology seems to increase the spread of information and extend the notion of information. Furthermore, the current process of technological transformation expands exponentially because of its ability to create an interface between technological fields through common digital language in which information is generated, stored, retrieved, processed, and transmitted. We live in a world that, in the expression of Nicholas Negroponte, has become digital. In terms of the nature of information in the internet era, Lash and Castells suggest that:

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395 Castells, Manuel, *The Rise of the Network Society* *ibid.*
396 Janich, Peter, Hayot, Eric, Pao, Lea *What is information* (University of Minnesota Press 2018)
397 Negroponte, Nicholas *Being Digital* (Coronet Books 1995)
“Internet technologies have resulted in information becoming intangible in nature and detached from physical copies such as individual books or newspapers. Information is now highly mobile, moving rapidly and un-predictably in ‘flows’, resulting in spatial and temporal compression.”

The impact of information technology to our society has increased considerably, advanced information technology has brought us into an information society. The transition to information society is manifest in the artefacts of the electronics industry and is characterized as a struggle between data processing and information transmission. Whilst information technology extends the notion of information itself, dominant functions and processes in the information society are increasingly organized around networks as well. Information technologies have some form of computation at their core and human users interface with them mostly through applications and other software operating systems. With the benefits of the transition to the information society, there is also created some vulnerabilities for users. On the one hand, this transition to information society caused the conflict between

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400 Moosavian, Rebecca, ‘Keep Calm and Carry On: Informing the Public under the Civil Contingencies Act 2004’ (2014) supra 49
information sharing and misuse of private information. For example, easier access for users in general implies easier access for unauthorized users.\textsuperscript{404}

On the other hand, the format of information has distinct from traditional information because of the development of digital technology. With the emergence of internet and the application of digital technology, a variety of novel information formation has emerged and information can be stored and analysed more flexibility than before. In this case, there is not a criterion to confirm the legal status of this new format of information, and traditional approach cannot deal with the different interests between individuals and companies. Targeted advertisements are a typical example of this new format.\textsuperscript{405} Target advertisements are firmly in consistent with consumers’ preference. The emergence of new formats of information give rise to conflicts between users’ personal information right, and companies’ economic interests on users’ personal information. This conflict and corresponding solutions will be developed in following sections of this chapter.

According to the legal theory established by Larry Lessig, the pace of change in information technology is so rapid that it leaves the slow and deliberative process of law and political policy behind and in effect these technologies becomes lawless, or extralegal.\textsuperscript{406} This chapter holds the opinion that due to the hysteresis of the nature of law, law cannot keep up with development of technology and society. Therefore,

\textsuperscript{404} ‘As the availability and use of computer-based systems grow, so, too, does their interconnection. The result is a shared infrastructure of information, computing, and communications resources that facilitates collaboration at a distance, geographic dispersal of operations, and sharing of data. With the benefits of a shared infrastructure also come costs. Changes in the technology base have created more vulnerabilities, as well as the potential to contain them. For example, easier access for users in general implies easier access for unauthorized users.’ See in National Research Council, Cryptography’s Role in Securing the Information Society (National Academy Press, Washington D.C. 1996) supra 4

\textsuperscript{405} Mckinnon, Kayla ‘Nothing Person, It’s just Business: How Google’s Course of Business Operates at the Expense of Consumer privacy’ (2018) 33 ITPL 187

\textsuperscript{406} Lessig, Lawrence, Code and Other Values of Cyberspace (New York: Basic Books. 1999)
this chapter argues that virtual property theory, especially the layer theory, which categorizes virtual items include users’ personal information as their virtual property, could provide justification for the protection for users and deal with the challenges brought by the transition to information society.

3.3 The development of privacy and misuse of private information in the United Kingdom

With the purpose of providing solutions to deal with the conflicts between information owners and information users, this thesis establishes a framework of personal property right on individuals’ personal information which is categorized as a type of virtual property by layer theory. As a specific type of virtual property, due to the characteristic of personal information, for the protection for personal information, there is the possibility of the overlap between privacy and information property right. This thesis argues that traditional protection from privacy cannot meet the rapid development of advanced information technology. The emergence of misuse of private information is a typical example of this trend which recognize users’ virtual property right rather than privacy over users’ private information. Therefore, this chapter start with the discussion about the development of privacy in the United Kingdom.

The protection for privacy in United Kingdom has undergone a serious development. It undergone the transition from no right of privacy to using action of breach of confidence to protect privacy, and finally try to establish a tort of misuse of private information and arguable a right of privacy.

Mo, Jojo ‘Misuse of private information as a tort: The implications of Google v Judith Vidal-Hall’ (2017) supra 211
From the legislative perspective, the right of privacy under Article 8 of the European Convention on Human Rights was incorporated into English law by the Human Rights Act 1998. This chapter argues that, even though the ‘privacy’ right has been recognized as a conventional right by Article 8 ECHR, Article 7 EU Charter of Fundamental Rights and Article 8 HRA under the current UK legal framework, is it necessary to protect privacy by statute? On the other hand, even the EU Charter includes users’ right to data protection under Article 8, according to the ECtHR, the right to privacy (Article 8 ECHR) is broad enough to encompass users’ right to data protection. It should be noted that, the above right is granted to against the public. However, in the virtual world, in terms of the users’ data right, there is a pressing need to deal with to what extent and in what circumstances, ISPs can use

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408 ‘Right to respect for private and family life
1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.’ See in European Convention on Human Rights Article 8

409 ‘Right to respect for private and family life
1. Everyone has the right to respect for his private and family life, his home and his correspondence.
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410 ‘Right to respect for private and family life
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411 ‘Respect for private and family life
Everyone has the right to respect for his or her private and family life, home and communications.’ See in Chapter of Fundamental Rights of European Union Article 7

412 ‘Right to respect for private and family life
1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.’ See in Human Rights Act 1998 Article 8
users’ personal data in digital formats. Therefore, the current legislative framework
cannot handle the conflicts reflected in users’ virtual property.

From a practical perspective, the European Court of Human Rights (ECtHR) has
clarified the broad nature of ‘private life’ without offering an exhaustive concept.\textsuperscript{413} In
\textit{Copland v the United Kingdom}\textsuperscript{414}, in accordance with purpose of Article 8 of the
Convention, private and business telephone conversations and work-related emails
are included within the notions of ‘private life’ and ‘correspondence’. It seems that
users’ personal data has been protected under the conventional right. However, this
chapter argues that, even though the notion of ‘private life’ has been interpreted
broadly, it cannot include new digital formats of users’ personal information.
Moreover, considering the logic of Article 8 ECHR , Article 7 EU Charter of
Fundamental Rights  and Article 8 HRA,  it is concluded that the conventional right
has been recognized is primarily dealing with the competing interests between the
public and the individual. However, the conflict reflected by the virtual property which
contain users’ personal information is much more complex – for instance, it raises
issues such as to what extent ISPs could collect users’ personal information, and
how to identify the legal status of users’ personal information. Therefore, this chapter
argues that there is a pressing need to provide justification to establish a tort of
misuse of private information.

It should also be noted that, in order to reduce online copyright infringement,
Article17 of the European Commission’s Directive on Copyright which encourages
information society service providers to implement measures such as effective

\textsuperscript{413} SidabrasandDziautasevLithuaniaAppnos55480/00and59330/00[E CtHR,24July2004][43]
\textsuperscript{414} Copland v the United Kingdom (Appno62617/00)(2007)45EHRR37[41].
content recognition technologies. This does not deal with the niceties of the issues that this thesis raises.415

“In conclusion, under the Convention, any interference with Articles 8 and 10 must firstly be ‘in accordance with the law’; secondly, it must pursue one or more of the legitimate aims included within Articles 8(2) and 10(2) and thirdly, be ‘necessary’ and ‘proportionate’. Importantly, a failure to satisfy one prong constitutes a violation regardless of conformity with the other two prongs.”416

This chapter argues that, at the very outset, we should clarify the relationships between the right regulated in different legislation.

“the rights enshrined in Article 8 ECHR ‘corresponded’, within the meaning of Article 52(3), to those enshrined in Article 7 Charter (respect for private and family life) and Article 8 Charter (protection of personal data), in the same way as the rights enshrined in Article 10 ECHR ‘corresponded’ to those enshrined in Article 11 Charter (freedom of expression and information).”

However, the argument in this thesis is based on the current UK legal framework, therefore, it is still press need to find a single approach to clarify the legal status of users’ personal information and then provide legal protection.417

417 Advocate General’s Opinion in Case 70-10 Scarlet Extended SA v Société belge des auteurs, compositeurs et éditeurs SCRL (SABAM [2012] ECDR 4 [AG 31]
In giving the judgment of the Court of Appeal in *Murray v Express Newspapers plc*\(^{418}\)

Sir Anthony Clarke MR helpfully summarised the principles stated by Lord Nicholls in *Campbell*\(^{419}\) as follows at para 24:

“... (i) The right to freedom of expression enshrined in article 10 of the Convention and the right to respect for a person’s privacy enshrined in article 8 are vitally important rights. ... the individual’s rights are nevertheless not infringed because of the combined effect of article 8(2) and article 10.”\(^{420}\)

In *Murray*\(^{421}\) the Court of Appeal endorsed the two stage test for whether there has been misuse of private information. At stage one, the question is whether the claimant has a reasonable expectation of privacy in the relevant information; if so, at stage two, the question is whether that expectation is outweighed by the countervailing interest of the publisher’s right to freedom of expression.

In relation to both stage one and stage two, general guidance can be found in the growing body of domestic legal precedent and also the jurisprudence of the European Court of Human Rights (“ECtHR”) on articles 8 and 10 which the court must take into account. Under section 12(4) of the HRA, where the proceedings relate to material “which the respondent claims, or which appears to the court, to be journalistic, literary or artistic material (or to conduct connected with such material)” then the court “must have particular regard” to “any relevant privacy code.” \(^{422}\)

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\(^{418}\) *Murray v Express Newspapers Plc* [2008] EWCA Civ 446, 2008 WL 1867537

\(^{419}\) *Campbell v MGN Limited* [2002] EWCA Civ 1373, 2004 WL 852411


\(^{421}\) *Murray v Express Newspapers Plc* [2008] EWCA Civ 446, 2008 WL 1867537

\(^{422}\) *Duchess of Sussex v Associated Newspapers Ltd* [2021] EWCA Civ 1810, 2021 WL 05647562
This section argues that, with the development of information technology, which increase the formats of personal information, individuals’ information is more capable of being collected and possessed by companies. This is why this thesis contends that it is urgent to offer protection in case of misuse of personal private information. This chapter suggests that the virtual property theory, especial layer theory, which categorises virtual objects that contain users’ private information as uses’ virtual property, could be used to suggest that users could claim property right on their virtual property, and to then achieve the purpose to protect users’ private information.

At the very early stage, it is widely accepted that English law recognizes no right of privacy. This statement expressed by Glidewell L.J. in Kaye v Robertson:

“It is well-known that in English law there is no right to privacy, and accordingly there is no right of action for breach of a person’s privacy. The facts of the present case are a graphic illustration of the Parliament considering whether and in what circumstances statutory provision can be made to protect the privacy of individuals.”

However, after that, both academic commentary and extra-judicial commentary by judges have suggested that a development of the present frontiers of a breach of confidence action could fill the gap in English law at that time. This statement indicates that invasion of privacy could be recognized as a breach of confidence and could be protected by the law of confidence. This trend was identified by Sedley LJ in Douglas v Hello! Ltd:

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424 Michael Douglas, Catherine Zeta-Jones, Northern & Shell plc v Hello! Limited 2000 WL 1841643 para.61
“We have reached a point at which it can be said with confidence that the law recognises and will appropriately protect a right of personal privacy.”

Applying the law of confidence to protect privacy also confirmed by Lord Nicholls in *Campbell v MGN Limited*:

> “The common law or, more precisely, courts of equity have long afforded protection to the wrongful use of private information by means of the cause of the action which became known as breach of confidence.”

However, on the one hand, applying the law of confidence to protect individuals’ privacy is just the response to deal with particular cases related to privacy protection and have less long-term significance. On the other hand, breach of confidence is more relevant to the commercial development of the society, technology and business practice. The law of confidence is a developing area of the law. Therefore, dealing with the cases related to the invasion of individuals’ privacy by applying the action of breach of confidence will increase the difficulties in practicing this approach. First, it causes the ambiguity between the natural significance of privacy and confidence. The statement in *Hellewell v Chief Constable* is a typical example:

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425 *Michael Douglas, Catherine Zeta-Jones, Northern & Shell plc v Hello! Limited* 2000 WL 1841643 *ibid.* at para.110 However, it should also be noted that this judgement is not universally accepted.


427 *Michael Douglas, Catherine Zeta-Jones, Northern & Shell plc v Hello! Limited* 2000 WL 1841643 109

428 “Moreover, breach of confidence is a developing area of law, the boundaries of which are not immutable but may change to reflect changes in society, technology and business practice.” See in *Michael Douglas, Catherine Zeta-Jones, Northern & Shell plc v Hello! Limited* 2000 WL 1841643 165

429 *Hellewell v Chief Constable* [1995] 1 WLR 804
"If someone with a telephoto lens were to take from a distance and with no authority a picture of another engaged in some private act, his subsequent disclosure of the photograph would, in my judgment, as surely amount to a breach of confidence as if he had found or stolen a letter or diary in which the act was recounted and proceeded to publish it. In such a case, the law would protect what might reasonably be called a right of privacy, although the name accorded to the cause of action would be breach of confidence. It is, of course, elementary that, in all such cases, a defence based on the public interest would be available."\textsuperscript{430}

Second, the three elements essential to a cause of action for breach of confidence, namely (1) the information was of a confidential nature, (b) it was communicated in circumstance importing an obligation of confidence and (3) there was an unauthorised use of the information, which was established in \textit{Coco v AN Clark},\textsuperscript{431} has undergone a profound development in subsequent cases. In \textit{Attorney-General Appellants v Observer Ltd.}, Lord Goff stated that:

\begin{quotation}
I have expressed the circumstances in which the duty arises in broad terms, not merely to embrace those cases where a third party receives information from a person who is under a duty of confidence in respect of it, knowing that it has been disclosed by that person to him in breach of his duty of confidence, but also to include certain situations, beloved of law teachers - where an obviously confidential document is wafted by an electric fan out of a window into a crowded street, or where an
\end{quotation}

\textsuperscript{430} \textit{Hellewell v Chief Constable [1995] 1 WLR 804 ibid.}
\textsuperscript{431} \textit{Coco v A.N. Clark (Engineers) Limited [1968] supra 205}
obviously confidential document, such as a private diary, is dropped in a public place, and is then picked up by a passer-by."432

The statement from Lord Goff can be regarded as a development in the expansion of the breach of confidence which are used to cope with cases related to the invasion of individual’s privacy. This trend is also encapsulated in *Campbell v MGN Limited* where Lord Nicholls stated that:” This cause of action has now firmly shaken off the limiting constraint of the need for an initial confidential relationship."433

However, there are new challenges which cannot be resolved by the expansion of the breach of confidence. First of all, the advanced information and internet technology have made the individual’s personal information can be collected and analysed more flexibly than before. The information which was misused in recent cases do not involve the invasion of individual’s privacy, they are just private or even personal. Theses information are not closely relevant to users’ private information, they have not reached the criterion of privacy. In this case, the breach of confidence will not be the appropriate approach for the protection of users. Secondly, traditional cases always involved the disclosure or publication of private information. The judges should balance the respect for individuals’ private life434 and the right to freedom of expression435 by analysing the Article 8 and 10 of ECHR.436 However, in recent cases, users’ personal information has just been collected, analysed, controlled, shared by specific groups of individuals and companies, and this information has not been disclosed or published to the public.

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434 See European Convention on Human Rights Article 8 ‘Everyone has the right to respect for his private and family life, his home and his correspondence.’
435 See European Convention on Human Rights Article 8 ‘Everyone has the right to freedom of expression.’
436 See in European Convention of Human Rights Article 8 and Article 10
Taking these challenges into account, the privacy law in the United Kingdom continues to develop. Lord Nicholls proposed misuse of private information:

“The continuing use of the phrase of confidence and the description of the information as confidential is not altogether comfortable. Information about an individual's private life would not, in ordinary usage, be called confidential. The more natural description today is that such information is private. The essence of the tort is better encapsulated now as misuse of private information.” 437

This statement makes the difference between confidential information and private information clearer. This distinction is also recognised by Gauld P and Blanchard J in New Zealand case Hosking v Runting:

“Privacy and confidence are different concepts. To press every case calling for a remedy for unwarranted exposure of information about the private lives of individuals into a cause of action having as its foundation trust and confidence will be to confuse those concepts.” 438

In the recent case Google v Vidal-Hall, the difference between invasion of privacy and breach of confidence is further interpreted. Misuse of private information is suggested to be categorised as a kind of tort.

“Against the background we have described, and in the absence of any sound reasons of policy or principle to suggest otherwise, we have concluded in agreement with the judge that misuse of private information should now be recognised as a tort for the purposes of

437 Campbell v MGN Limited [2004] EWCA Civ 1373 2004 WL 852411 14
438 Hosking v Runting & Others [2004] NZCA 34 48
service out the jurisdiction. This does not create a new cause of action. In our view, it simply gives the correct legal label to one that already exists." \( ^{439} \)

The protection for private information which is strongly impacted by the development of information recording and processing technologies – which continues to develop and update is a developing area of law. Misuse of private information tends to avoid individuals’ private information being collected, possessed and analysed unauthorised or without consent. The traditional approach, no matter protection for privacy or breach of confidence, cannot deal with legal issues related to users’ private information in digital formats reflected in recent cases. Hence, this chapter suggests that the virtual property theory (and especially the layer theory established in chapter two) could support owners claim virtual property rights upon their virtual property which contain their personal private information. The protection from virtual property theory could also avoid the overlap between privacy and virtual property right.

In order to explain the feasibility of the proposed suggestion, the next section introduces the legislation related to personal information in China which tries to establish property right upon personal information.

3.4 Current personal data protection legal framework under GDPR

With regards to the protection private information which in digital formats, this thesis argues that, current legal framework cannot provide sufficient protection for users’, In

\(^{439}\) Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650 supra 11

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For privacy claims, the claimant must specify:

1. the information as to which the claimant claims to have (or to have had) a reasonable expectation of privacy;

2. the facts and matters upon which the claimant relies in support of the contention that they had (or have) such a reasonable expectation;

3. the use (or threatened use) of the information by the defendant which the claimant claims was (or would be) a misuse; and

4. any facts and matters upon which the claimant relies in support of their contention that their rights not to have the specified information used by the defendant in the way alleged outweighed (or outweigh) any rights of the defendant to use the information in that manner.  

For claims for misuse of confidential information or breach of confidence, the claimant must specify in the particulars of claim:

1. the information said to be confidential;

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440 William Stadler v Currys Group Limited [2022] EWHC 160 (QB) The claimant had purchased a smart television from the defendant. The television allowed the user to access third party apps, including Amazon Prime. The claimant later returned the television to the defendant for repair. The defendant did not ask the claimant to clear and/or remove any of the apps. The defendant determined that any repair would be disproportionately costly and so offered to write-off the unit and compensate the claimant with a voucher. The claimant accepted the offer on the understanding that the television would be destroyed. The defendant then re-sold the television without performing a factory reset or data wipe. Subsequently a movie was purchased for £3.49 by someone using the claimant’s Amazon account through the television. The defendant reimbursed the claimant £5.00 for the cost of the movie.

441 William Stadler v Currys Group Limited [2022] EWHC 160 (QB)
(2) the facts and matters upon which the claimant relies in support of the contention that it was (or is) confidential information that the defendant held (or holds) under a duty or obligation of confidence;

(3) the use (or threatened use) of the information by the defendant which the claimant claims was (or would be) a misuse of the information or breach of that obligation. 442

In the present case, there was no evidence that the defendant had any actual knowledge of the information in question or made use of it. 443 It followed that there could have been no unauthorised use or misuse of the information by the defendant. It would be artificial to characterise the disposal of the television as a misuse of the information itself. At best, it could be said that in failing to wipe the television, the defendant was responsible for breaching a duty of data security, but that was insufficient on the facts to make out claims for either breach of confidence or misuse of private information. 444 Therefore, this thesis argues that traditional approach cannot deal with the circumstance in the present case.

The deterritorialization of the Internet and international communications technology has given rise to acute jurisdictional questions regarding who may regulate online activities. In the absence of a global regulator, states act unilaterally, applying their own laws to transborder activities. The EU’s “extraterritorial” application of its data protection legislation—initially the Data Protection Directive (DPD) and, since 2018, the General Data Protection Regulation (GDPR)—is a case in point. The GDPR applies to “the processing of personal data of data subjects who are in the Union by

a controller or processor not established in the Union, where the processing activities are related to: (a) the offering of goods or services . . . to such data subjects in the Union; or (b) the monitoring of their behaviour . . . within the Union.” It also conditions data transfers outside the EU on third states having adequate (meaning essentially equivalent) data protection standards.

Once there is infringement of personal data, based on the traditional approach (breach of confidence, misuse of private information), there will be a consideration between data protection under GDPR and breach of confidence, however, other point is to clarify the pecuniary loss of data subject, in Ashley v Amplifon Ltd, “I will direct a trial of the misuse of private information claim together with the claim for breach of the UK GDPR.”\textsuperscript{445} However, this thesis argues that in order to improve the efficiency to protect personal data, proposed virtual property theory relied on the layer theory and twofold virtual property right system could clary the legal status of personal information directly.

In Johnson v Eastlight Community Homes\textsuperscript{446} The claims in misuse of private information, breach of confidence and breach of Article 8 ECHR should accordingly be struck out. The claim in negligence was formally withdrawn during the hearing by the claimant. They would not materially change the overall picture presented by the GDPR claim and were likely to obstruct the just disposal of proceedings by taking up a disproportionate and unreasonable amount of court time and costs.

There was no basis for the claim to have been issued in the High Court. The presentation and processing of the case to date in this forum constituted a form of procedural abuse by the claimant.

\textsuperscript{445} Adrian Ashley v Amplifon Limited [2021] EWHC 2921 (QB)
\textsuperscript{446} Johnson v Eastlight Community Homes [2021] EWHC 3069 (QB)
This judgment will have serious implications for claimant firms, making clear that low-level data breach claims are not suitable for the High Court. There will also be costs implications arising from the dismissal of the breach of confidence, misuse of private information and Article 8 ECHR claims.

This thesis argues that currently individuals’ personal information has been stored, recorded and collected in various digital formats. *Blackledge v Persons Unknown*\(^447\) is one of the first judgments ordering a third-party host to take down a website which contains defamatory publications. The judgment also provides valuable guidance in relation to defamation claims against persons unknown who operate online.

In *Dr Mary Fairhurst v Mr Jon Woodard*\(^448\), the claimant brought claims against the defendant, her neighbour, in harassment, nuisance and breach of the Data Protection Act 2018 arising from his use of security cameras and lights at and around his property.

Images and audio files of the claimant were personal data within the meaning of the GDPR article 4(1). The transmission of such data to the defendant’s phone, computer or other device, the retention of that data and its onward transmission to others (whether neighbours, the police, or the cloud for storage) amounted to processing of personal data within the meaning of article 4(2). The defendant, as the person determining the purpose and means of that personal data was, at all material times, a data controller within the meaning of article 4(3) and therefore had to comply with the principles set out in article 5(1).

\(^447\) *Blackledge v Persons Unknown* [2021] EWHC 1994 (QB), 2021 WL 02954348

\(^448\) *Dr Mary Fairhurst v Mr Jon Woodard* 2021 WL 04780468
“the audio personal data collected and processed by means of this Driveway Camera is even more problematic and detrimental than video data in my opinion. For those reasons I am satisfied that the Defendant's processing of the Claimant's personal data by means of the Driveway Camera is not lawful.”  

“I am satisfied that the Claimant's claim that the Defendant has breached the provisions of the DPA 2018 and the UK GDPR succeeds. She is entitled to compensation and orders preventing the Claimant from continuing to breach her rights in the same or a similar manner in the future.”

In terms of the relationship between GDPR and national authority, in *Facebook Ireland Ltd v Gegevensbeschermingsautoriteit*, Advocate General Bobek advised the ECJ to rule as follows: The provisions of the GDPR permitted the supervisory authority of a Member State to bring proceedings before a court of that State for an alleged infringement of that regulation with respect to cross-border data processing, despite not being the lead supervisory authority, provided that it did so in the situations and according to the procedures set out in the same regulation.

The GDPR did not allow a supervisory authority from continuing legal proceedings started before the date on which it had become applicable but which concerned conduct that occurred after that date.

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449 Dr Mary Fairhurst v Mr Jon Woodard 2021 WL 04780468
450 Dr Mary Fairhurst v Mr Jon Woodard 2021 WL 04780468 *ibid.*
451 *Facebook Ireland Ltd v Gegevensbeschermingsautoriteit* [2021] 1 W.L.R. 5161
452 *Google Spain SL v Agencia Espanola de Proteccion de Datos (AEPD)* [2014] QB 1022
GDPR article 58(5) had direct effect, to the extent that a national supervisory authority could rely on it in order to commence or continue legal proceedings before national courts, even if that provision had not been specifically transposed into national law.

This thesis argues that even GDPR could provide regulation for the protection of personal data, it should also deal with the conflict between it and national legislation, in other words, the court should consider the Territorial Scope of the GDPR. In *Soriano v Forensic News LLC*[^53] Mr Callus emphasized three decisions of the CJEU on the predecessor data protection directive, namely Directive 95/46[^454]. These are: *Google Spain SL v Agencia Espanola de Proteccion de Datos (AEPD)*[^454], *Weltimmo sro v Newzeti Adatvedelmi es Informacioszabadsag Hatosag*[^455] and *Verein fur Konsumerenteninformation v Amazon EU Sarl*[^456].

The facts of Google Spain were that Google set up a subsidiary in Spain which was intended to promote and sell advertising space there. Google Search had its seat elsewhere. The CJEU held that the relevant processing did not have to be carried out by the establishment itself, here the Spanish entity, because the test was “in the context of”. That criterion was satisfied because (1) Google Spain was established in a Member State, (2) its activities were intended to promote and sell advertising services in that Member State with a view to rendering the search engine more profitable, and (3) it was involved in orienting the controller's commercial activity towards those living in Spain. It followed that these commercial activities were inextricably linked to Google's core business and were therefore generated "in the

[^453]: *Soriano v Forensic News LLC* [2021] EWHC 56 (QB), 2021 WL 00136094
[^454]: *Google Spain SL v Agencia Espanola de Proteccion de Datos (AEPD)* [2014] QB 1022
[^455]: *Weltimmo sro v Newzeti Adatvedelmi es Informacioszabadsag Hatosag* [2016] 1 WLR 863
[^456]: *Verein fur Konsumerenteninformation v Amazon EU Sarl* [2017] QB 252
context of it. In my view, Google Spain is not a case about the meaning of "established" or "establishment", and has only marginal relevance to the current issues.

The facts of Weltimmo were that a Slovakian company operated a website dealing in Hungarian properties. Weltimmo therefore differed from Google Spain inasmuch as there was no branch or subsidiary in the Member State in issue. However, the website was written in Hungarian and the company had a representative there as well as a letter box and bank account. The CJEU held that (1) the absence of a branch or subsidiary was not the determining factor, (2) the test for "establishment" would be satisfied if there was "any real and effective activity – even a minimal one – exercised through stable arrangements", and (3) "both the degree of stability of the arrangements and the effective exercise of the activities in that other Member State must be interpreted in the light of the specific nature of the economic activities and the provision of services concerned".

The facts of Amazon were that the company, registered in Luxembourg, was carrying out commercial sales in Austria where it had no registered office or establishment. The issue for the national court would be whether Amazon's activities in Austria arose in the context of its core business in Luxembourg.

Even GDPR seems to provide data protection for data subject, in some circumstance it is still difficult to recognize the claims of data protection.

In *Nihal Mohammed Kamal Brake, Andrew Young Brake v Geoffrey William Guy, The Chedington Court Estate Limited, Axnoller Events Limited*457, with regard to the

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457 *Nihal Mohammed Kamal Brake, Andrew Young Brake v Geoffrey William Guy, The Chedington Court Estate Limited, Axnoller Events Limited* [2021] EWHC 671 (Ch), 2021 WL 01134799
claim for breach of confidence, applying the principles as summarised in Coco v AN Clark\textsuperscript{458}, the judge noted from the review carried out by the defendants' solicitor that, at most, only a minority of emails might be said to have the necessary quality of confidence. The judge then considered submissions on reasonable expectation of privacy. He accepted that Mrs Brake had originally set up the axnoller domain, that the account was password protected, that only Ms Holt and Mr Windus had been given access to it, that in consequence Mrs Brake controlled it, that she had used it to send personal emails before, after Chedington acquired the business, and that Dr Guy knew or expected this to be the case. But he rejected the submission that the way that the account had been set up, protected and operated gave Mrs Brake a reasonable expectation of privacy and confidence. In the light of his findings that there was no obligation of confidence nor a reasonable expectation of privacy, the judge observed that it was strictly speaking unnecessary for him to address the question of any misuse of any private or confidential information.

In Jenny Perryman v The Information Commissioner, Norfolk County Council\textsuperscript{459}

Article 5(1) GDPR states that personal data must be processed 'lawfully and fairly'. In order to be lawful, one of the lawful bases of processing in article 6(1) GDPR must apply. The only potentially relevant basis here is article 6(1)(f):

“Processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party, except where such interests are overridden by the interests or fundamental rights and

\textsuperscript{458} Coco v AN Clark [1968] F.S.R. 415
\textsuperscript{459} Jenny Perryman v The Information Commissioner, Norfolk County Council 2021 WL 01405985
freedoms of the data subject which requires protection of personal data, in particular where the data subject is a child.”

On the basis of the above, the tribunal concludes that the disclosure of the names of these employees would be lawful and fair.

In *SMO (A Child) v Tiktok Inc*\(^{460}\) The court granted anonymity to a child claimant in an intended representative action against the social media platform TikTok for misuse of private information and processing personal data in breach of Regulation 2016/679 (GDPR) and the Data Protection Act 2018.

The common law exceptions did not include the rights or interests of children, other than in the context of wardship. But by virtue of the Human Rights Act 1998 there is now, effectively, a statutory exception. The Court must act compatibly with the Convention Rights, including the right to respect for private life protected by Article 8. And Article 6 provides that the general rule of open justice may be departed from "where the interests of juveniles or the protection of the private life of the parties so require." This does not provide any automatic protection for children.

In terms of the balance between public interest and children information, For the purposes of this case, it is appropriate to pose the question identified by Lord Rodger in *Guardian News and Media Ltd*\(^{461}\): 

"whether there is sufficient general public interest in publishing a report of the proceedings which identifies [the Applicant] to justify any resulting curtailment of his right and his family’s right to respect for their private and family life." As Lord Reed pointed out in *A v British*

\(^{460}\) *SMO (A Child) v Tiktok Inc* [2020] EWHC 3589 (QB), 2020 WL 07775347

\(^{461}\) *Guardian News and Media Ltd* [2010] UKSC 1 [2010] 2 AC 697 [52]
Broadcasting Corporation (Secretary of State for Justice Intervening) [2015] AC 5588 [85], key factors when balancing the public interest in open justice against competing considerations are "the purpose of the open justice principle, the potential value of the information in question in advancing that purpose and, conversely, any risk of harm which its disclosure may cause to the maintenance of an effective judicial process or to the legitimate interests of others."

In terms of the consent of data subject, according to the judgement in Orange Romania SA v Autoritatea Nationala de Supraveghere a Prelucrarii Datelor cu Caracter Personal (ANSPDCP) consent was not valid if a contract contained a clause stating that the data subject had been informed of and had consented to the collection and storage of a copy of his or her ID for identification purposes, when the contract could be misleading as to the possibility of concluding the contract if the customer refused to consent to the storage of the ID. Consent was also not valid if data subjects had to complete an additional form setting out that refusal.

The ECJ ruled that the definition of consent and consent as a lawful basis for processing in the Data Protection Directive arts 2(h) and 7(a) and the GDPR arts 4(11) and 6(1)(a) must be interpreted as meaning that it was for the controller to demonstrate that the data subject had, by their active behaviour, given their consent to the processing of their personal data and that they had obtained, beforehand, information relating to all the circumstances surrounding that processing, in an intelligible and easily accessible form, using clear and plain language, allowing them

462 Orange Romania SA v Autoritatea Nationala de Supraveghere a Prelucrarii Datelor cu Caracter Personal (ANSPDCP) (C-61/19)
to easily understand the consequences of that consent, so that it was given with full knowledge of the facts.

A contract for the provision of telecommunications services which contained a clause stating that the data subject had been informed of, and had consented to, the collection and storage of a copy of their identity document for identification purposes did not demonstrate that they had validly given their consent, as provided for in those provisions, to that collection and storage, where any of the following to apply:

The box referring to that clause had been ticked by the controller before the contract was signed.

The terms of that contract could mislead the data subject as to the possibility of concluding the contract in question, even if they refused to consent to the processing of their data.

The freedom to choose to object to that collection and storage was unduly affected by that controller, in requiring that the data subject, in order to refuse consent, had to complete an additional form setting out that refusal.

3.5 An alternative approach to protect personal information in China

With the development of advanced internet technology, individuals’ behaviors especially the online footprint have been recorded and analysed by ISPs more flexibly. Coping with this trend, there are two types of views among Chinese legal
researchers\textsuperscript{463}: one is that usage of personal information should be controlled strictly in the era of big data; another view is that the development and utilization of personal information is the inevitable trend of the development economy. ‘The Cybersecurity Law of the People's Republic of China’\textsuperscript{464} which was enacted in 2017, sets some limitation for the usage and transmission of personal data from the perspective of infrastructure security. The ‘Civil Code Draft’, which categorized personal information as a new type of object of intellectual property previously, deleted this categorization in the revised edition 2018. Therefore, in China, the legal status of personal information is still unclear.\textsuperscript{465} This chapter introduces the development the protection for personal information in China from the perspective of legislation which categorize personal information as citizens’ private property step by step.

In 2002, with the purpose to protect the information security on networks, the Standing Committee of the National People's Congress enacted a decision to protect individual citizen’s electronic information. It clarified the obligation of network ISPs and tried to cope with the conflicts between ISPs and individual citizens.\textsuperscript{466}

The decision from the Standing Committee of the National People’s Congress can be regarded as the first official document in China designed for the protection for individual's personal information. In this decision, it claims that ‘The state protects electronic information by which individual citizens can be identified and which involves the individual privacy of citizens.’\textsuperscript{467}

\textsuperscript{463} Long Weiqiu ‘On the Construction of New Data Property and its System Structure’ (2017) 35 Tribune of Political Science and Law 1
\textsuperscript{464} ‘Cybersecurity Law of the People's Republic of China’ 2017
\textsuperscript{465} Zhang, Ping ‘The legislative Choice of Personal Information Protection in the Age of Big Data’ (2017) 12 Journal of Peking University (Philosophy and Social Science 26
\textsuperscript{466} See in Decision of the Standing Committee of the National People's Congress on Strengthening Information Protection on Networks
related to individuals’ privacy are the object of the protection provided by this decision. This decision has significant meaning for balancing different interests between network service provider and users. Firstly, because it identified that electronic personal information cannot be obtained by theft or any other illegally means, this kind of information can also not be sold or illegally shared by any organization or individual. Secondly, it clarified the obligation of network ISPs when they gather and use electronic personal information of citizens in business activities. Network ISPs and other enterprises and institutions shall gain the owner’s consent and abide by the law and regulations. Network ISPs also have the obligation to prevent electronic personal information of citizens gathered in their business activities from being divulged, damaged or lost. Finally, it stipulated the user’s obligation: users have made sure the information they provided for the network ISPs is true.

467 See Article 1 in Decision of the Standing Committee of the National People’s Congress on Strengthening Information Protection on Networks

468 See Article 1 in Decision of the Standing Committee of the National People’s Congress on Strengthening Information Protection on Networks. ‘All organizations and individuals may not obtain electronic personal information of citizens by theft or any other illegal means and may not sell or illegally provide others with electronic personal information of citizens.’

469 See Article 2 in Decision of the Standing Committee of the National People’s Congress on Strengthening Information Protection on Networks. ‘Network service providers and other enterprises and institutions shall, when gathering and using electronic personal information of citizens in business activities, adhere to the principles of legality, rationality and necessarily, explicitly state the purposes, manners and scopes of collecting and using information, and obtain the consent of those from whom information is collected, and shall not collect and use information in violation of laws and regulations and the agreement between both sides. Network service providers and other enterprises and institutions shall, when gathering and using electronic personal information of citizens, publish their collection and use rules.’

470 See Article 4 in Decision of the Standing Committee of the National People’s Congress on Strengthening Information Protection on Networks. ‘Network service providers and other enterprises and institutions shall take technical measures and other necessary measures to ensure information security and prevent electronic personal information of citizens gathered in their business activities from being divulged, damaged or lost. When any information divulgence, damage or loss occurs or may occur, remedial actions shall be taken immediately.’

471 See ‘Network service providers which provide the website access service for users, handle landline or mobile phone network access procedures for users or provide the information publishing service for users shall, when signing agreements with users or confirming the provision of services, require users to provide their true identity information.’ In Article 6 of Decision of the Standing Committee of the National People’s Congress on Strengthening Information Protection on Networks
However, this decision caused confusion between the usage of personal information and privacy. The protection for personal information from this decision is insufficient. Therefore, in 2004, in order to distinguish personal information and privacy, the Supreme People's Court promulgated ‘Provisions of the Supreme People's Court on Several Issues concerning the Application of Law in the Trial of Cases involving Civil Disputes over Infringements upon Personal Rights and Interests through Information Networks’ to identify the scope of personal information:

“Where a network user or network service provider (NSP) discloses through network a natural person's individual privacy such as genetic information, medical records, health inspection materials, criminal records, home address, and private activities, or any other personal information, which causes damage to any other person, and the infringed party requests the assumption of tort liability by the network user or NSP, the people's court shall support such a request”

The primary contribution of this document is that it identified that: disclosure of citizens’ personal information could be labelled as a tort, and that users can claim for compensation based on this tort. However, this document only focused on the protection for disclosure of personal information, it did not take other interfere approaches into account.

The latest legislation related to personal information right is the ‘General Provisions of the Civil Law of the People's Republic of China’. Compared the legislation in the

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472 See article 12 in ‘Provisions of the Supreme People’s Court on Several Issues concerning the Application of Law in the Trial of Cases involving Civil Disputes over Infringements upon Personal Rights and Interests through Information Networks’

United Kingdom, privacy and personal information right were stipulated in General Provisions of the Civil Law of the People's Republic of China,

“Article 110: A natural person enjoys the rights of life, inviolability and integrity of person, health, name, likeness, reputation, honor, privacy, and marital autonomy, among others.”474

“Article 111: The personal information of a natural person shall be protected by law. Any organization or individual needing to obtain the personal information of other persons shall legally obtain and ensure the security of such information, and shall not illegally collect, use, process, or transmit the personal information of other persons, nor illegally buy, sell, provide, or publish the personal information of other persons.”475

The enaction of the General Provisions of the Civil Law of the People's Republic of China has two aspects of significance: firstly, it clarified that personal information is an independent right conferred to citizens, citizens have the right to prevent other individuals or organization from infringing their personal information right. Secondly, based on the stipulation of Article 110 and Article 111, privacy and personal information rights were stipulated as two separated private rights. However, this stipulation is just an abstract identity for the personal information right. It also left many questions for further development, for instance, the accurate definition and legal status of personal information. This chapter suggests that, categorizing citizens’ personal information as their virtual property in legislation will help information owners to claim property right upon their personal information.

3.6 Primary arguments related to personal information in China

With the emergence of big data and data economy, it is widely accepted in China that: data is increasingly becoming a new type of property with great economic value. Meanwhile, the relationship between personal information and data economy is becoming more complex.

“The trend of data economy and data capitalization has facilitated the development of data property, which leads to the establishment of a new property type.”

Traditional regulations cannot meet the requirement of reasonably adjusting such relationship. The current legal construction in China regarding the relationship between personal information and data, under circumstances of data economy, should consider the structural essence of data economy, especially its dual-direction dynamic character – users’ private information transmitted between ISPs and users based on the information recording and processing technology. However, Professor WeiQiu has stated that the relevant theory still needs to be further developed. In order to balance the interest between users and data operators, from the prospect of legal framework in China, it is necessary to set up a two-stage right based on the distinction between personal information and data assets. Firstly, at the level of personal information or original data, individuals should be entitled to

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478 This will be developed in more detail in “The influence of virtual property theory on the protection of personal information” in this Chapter
479 Xie, Yuanyang ‘The value of personal information- from the perspective of information theory’ (2015) 9 Tsinghua University Law Journal 3
480 Long, WeiQiu ‘On the Construction of New Data Property and its System Structure’ (2017) 35 Tribune of Political Science and Law 1
use a personality right and property right. Secondly, under the circumstances of data capitalization, data operators should be entitled to exercise their operating right and property (asset) right, based on the requirement of data operation and profit-driven mechanism. This two-stage right aims to balance the conflict between ordinary users and data operators.

The two-stage right confirms the property right of ordinary users upon their personal information, whilst it also establishes property rights for data operators over data assets. However, this chapter argues that the virtual object which contains the users’ personal information, based on the virtual property established in Chapter Two, should be regarded as users’ virtual property. Users could claim property rights upon their virtual property virtual personal information is one types of their virtual property right. The data operator could be entitled to use that personal information if they have the consent from users.

In order to support that notion that users could claim property right upon their personal information, an exploration of the nature of personal information is necessary. In terms of the nature of personal information, personal information has both personality and property interests. Personality interests emphasize the self-determination right of personal information; property interest pays attention to the personal information economic value. Just because personal information contains

481 Zhang, Ping ‘The legislative Choice of Personal Information Protection in the Age of Big Data’ (2017) 6 Journal of Peking University (Philosophy and Social Science) 60
484 Gao, Zhiming ‘An Theoretical Analysis of the Personality Interests and Property Interests of Personal Information (Journal of Dalian of Technology’ (2018) 3 Social Science 56

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both personality and property interest, this thesis establishes an independent virtual property theory rather than accept the current single protect pattern.

With regards to the protection for personal information, there are various suggestions\textsuperscript{485} from legal researchers. Using tort law to protect users’ personal information right is one suggestion of them. This type of view suggests that all kinds of personal information are protected by tort law, and tort law protection of non-sensitive personal information does not hinder the flow of information.\textsuperscript{486}

“Tort law provides two protection paths for personal information.\textsuperscript{487} One is the network information infringement clause of Article 36 of the Tort Liability Law and its judicial interpretations, and the other is the fault infringement clause of Article 6 of the Tort Liability Law in conjunction with Article 111 of the General Principles of Civil Law.”\textsuperscript{488}

However, Fuping considers that the protection for personal information should transferred from the perspective of private right to the perspective of public interest.\textsuperscript{489} The right to the protection of personal information, however, is not an independent and absolute right, but an institutional arrangement at the level of

\textsuperscript{485} Some scholars suggests using tort law to protect personal information, see in Wu Weiguang ‘Critical Reviews on Theory of Private Right Protection of Personal Data Information Against the Background of Big-data Technology’ (2017) 3 Politics and Law 33; some scholars suggest applying property law for the protection of personal information, see in Wu Weiguang ‘Critical Reviews on Theory of Private Right Protection of Personal Data Information Against the Background of Big-data Technology’ (2017) 3 Politics and Law 33 and others categorise personal information as individuals’ personality right, see in Zhang Xinbao \textit{Legal Protection of Privacy} (Mass Press 2004).


\textsuperscript{487} Wu, Weiguang ‘Critical Reviews on Theory of Private Right Protection of Personal Data Information Against the Background of Big-data Technology’ (2017) 3 Politics and Law 33

\textsuperscript{488} Zhang, Li ‘On the Right to Personal Information from the Perspective of Legal Philosophy’ (2010) 2 Hebei Law Science 78

\textsuperscript{489} Gao, Fuping ‘Protection of Personal Information: from Individual Control to Social Control’ (2018) 3 Law Research 53
fundamental rights.\textsuperscript{490} Personal information has social and public properties because it concerns not only the interests the individual whose personal information is to be protected, but also the interests of other individuals and the society as a whole.\textsuperscript{491} Because of its individualistic foundation and its disregard for the social and public properties of personal information, the theory of personal information should undergo a transition from one based on personal control to one based on social control. Therefore this thesis argues, in accordance with the purpose to protect users’ personal information, we should clarify the relationship between ISPs and users, public interests and individuals’ interest. This thesis establishes twofold virtual property rights which could clarify the different legal status between ISPs and users. Due to its privacy factors, personal information has been protected much more strongly than before.\textsuperscript{492} The desire to protect personal information consists of the common connotation of the “right to be forgotten”, privacy rights and personal information rights.\textsuperscript{493} The former two rights focus on the protection of the dignity interests of personal information,\textsuperscript{494} while the latter concentrates on protecting economic interests of the personal information.\textsuperscript{495} The emergence of the “right to be forgotten”\textsuperscript{496} has impacted the enforcement of personal information protection on various aspects. As for the current enforcement of personal information protection in China:

\begin{footnotesize}
\textsuperscript{490} Liu, Deliang ‘Proprietary protection of personal information’ (2007) 3Law Research 22
\textsuperscript{492} Wang, Liming ‘On the Legal Protection of the Right to Personal Information’ (2013) 4 Modern Law 62
\textsuperscript{493} Zhang, Li'an and Han Xuzhi ‘The Private Law Attribute of Personal Information Rights in the Age of Big Data’ (2016) 5 Law Forum 119
\textsuperscript{494} Yu, Fei ‘The Method of Distinguishing Rights and Interests in Tort Law’ (2011) 4 Law Research 104
\textsuperscript{495} Mei Xiaying ‘The Legal Attributes of Data and Its Positioning in Civil Law’ (2016) 9 Chinese Social Science 77
\textsuperscript{496} Zhang, Xinbao Legal Protection of Privacy (Mass Press 2004)
\end{footnotesize}
“It can be mainly characterized into two, namely the privacy protection system and the personal information protection system, neither of which is perfect. Given this, China should break through the limitation of the special personality theory in civil law, establish a legal system centered on personal information, and attach importance to the application of ISPs' self-regulation.”

In China, there has not be a definitive approach to protect citizens' personal information. In terms of the privacy, most personal information, especial the online footprint, have not reached the criterion of privacy, therefore privacy is not an appropriate approach to protect personal information. In terms of the personal information protection system, due to the uncertainty of the legal status of users’ personal information, there has not an independent statute. Therefore, it is also pressing need to establish an independent personal information system.

The object of protection of the personal information protection law is not just the right of self-determination or the right of personality. The personal information right is a multiple right:

“The personal information protection law is the pre-protection standard to prevent the abuse of personal information, and it aims to protect four kinds of interests, such as the interest of awareness of personal information being processed, the interest of completeness and correctness of personal information, the interest of maintaining

497 Zhang, Yu ‘The Discussion on the Protection of Online Personal Information: Stress on the Right to Be Forgotten’ (2017) 16 Presentdar Law Science 1
specific purpose by processing of personal information and the privacy interest. "499

The compensation clause of personal information protection law is not applicable to the protection of the right of personality, and it is applied in the protection of property interests prior to the torts law. A series of positive claims of the personal information protection law have the different purposes with the defense claims of civil law, so both of them can be appealed by rights holders, although sometimes concurrence may happen.500

In terms of the stipulation of General Principles of the Civil Law of the People’s Republic of China, although Article 111 of the General Provisions of the Civil Law of the People’s Republic of China provides for the protection of personal information, it is too concise and abstract. It not only fails to define the legal nature of personal information in a comprehensive and clear manner, but also fails to effectively cope with the application of laws owing to the coincidence of personal information and the objects of other personality rights, the protection of personal information property interests, and the coordination of the personality interests of information subjects.501 This thesis argues that virtual property theory established in this thesis could recognise the legal status of users’ virtual property and then clarify the difference between virtual property right and relevant right.

Finally, in order to cope with the uncertainties caused by General Principles of the People’s Republic of China and to clarify the further development of personal information in China, The Civil Law Research Office Draft of the Personality Rights Law (List) of the People’s Republic of China stipulates the regulation of ‘personal information’ and links with Article 111 of General Principles of the Civil Law. As a draft for consultation, it still has many flaws, especially on such key issues as the legal nature of personal information,\textsuperscript{502} the boundary of privacy, and the content of basic personality rights. Firstly, we should clarify the civil rights nature of personal information, and replace it with a personal information right. Secondly, we must distinguish personal information right from privacy,\textsuperscript{503} and set up an independent chapter for personal information right in the Personality Rights Law. Finally, we should decide on the content of the personal information right through a general- to-specific legislation procedure, perfecting personal information right in the Personality Rights Law.\textsuperscript{504} Therefore this thesis establishes an independent virtual property theory which introduces the virtual property layer theory and recognizes the twofold virtual property right system.

In conclusion, in China, the accepted definition of information is that personal information refers to any private information which refers directly or indirectly to the identification of certain natural persons but has no immediate connection with public interest.\textsuperscript{505} Personal information has been accepted as a multiple private right which

\textsuperscript{503} Ju, Ye, Ling Xuedong ‘Infringement of Personal Information of Internet Consumers in the Background of Big Data and Legal Relief’ (2016) 11 Hebei Law Science 56
\textsuperscript{505} Li, Chengliang ‘Boundaries of Personal Information Protection: The Case of Online Evaluation Platforms’ (2016) 6 Journal of Wuhan University (Philosophy and Social Science Edition) 23
contains both personality and property interests. Property rights in personal information\textsuperscript{506} have been recognized as a new kind of property right according to which the subject can control the commercial value of his personal information; therefore it is limited to the context of commercial utilization of personal information.

“In the information age, personal information gradually possesses potential commercial value thus it deserves to get proprietary protection. Theoretically, personal information shall be understood and protected based on the value it presents, i.e., to give it protection of personal right when it safeguards the subject’s personal interest, and to give it proprietary protection when it safeguards the subject’s property interest.”\textsuperscript{507}

3.7 The influence of virtual property theory on the protection of personal information

Due to personal information’s economic value and potential for further industry development, there are many economic interests related to personal information which is pivotal for the operation of smart devices companies.\textsuperscript{508} “Personal data is the new oil of the Internet and the new currency of the digital world.”\textsuperscript{509} However, a potential for conflicting interests between individuals and companies in the personal information is created. According to the report from Ernst and Youg (2015): “81% companies agree that data should be at the heart of all decision making but only 31%

\textsuperscript{506} Xu, Ming ’Privacy Crisis in the Big Data Era and Its Tort Law Response’ (2017) 1 Chinese Law Review 146
\textsuperscript{507} Liu, Deliang ‘Proprietary protection of personal information’ (2007) 3Law Research 22
\textsuperscript{508} Storr, Christine and Storr, Pam, \textit{Internet of Things: Right to Data from a European Perspective} (Springer, Singapore 2017)
\textsuperscript{509} Kuneva M (2009) Keynote speech of the former European consumer commissioner, roundtable on online data collection, targeting and profiling. SPEECH/09/156. Brussels. 31 Mar 2009
of companies have significantly restructured their operations to help do this.\textsuperscript{510} The report also indicated that the data companies collected mainly come from Back office systems and the Customer relationship management systems (50%), followed by website usage, social media, sales and billings and mobile apps.

![Companies' main resource of data](chart1.png)

Chart 1: Companies main resources of data.\textsuperscript{511}

Take social media for example, Table 1\textsuperscript{512} presents what types personal information companies collected. If the social network collected set types of personal data, it was awarded plus (+), and if it did not collect it, it was assigned minus (-).


\textsuperscript{512} Peras, Dijana, Mekovec, Renata and Picek, Ruben ‘Influence of GDPR on social networks used by omnichannel contact center’ (2018) 6 MIPRO 21
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However, due to the potential value of customers’ personal data for business the question arises whether a company or any organization collecting, storing, analyzing and/or sharing data in the virtual world has a right to the data it processes. In other words, how to protect the individual’s personal information is still in flux. 513

“The use of personal information for purposes other than those for which it was collected, the increased sharing between public and private organizations, collections without the data subject’s consent, sharing without consent and improper access to sensitive data collections are key international concerns about the secondary market in personal information.”514

In terms of the balance between the different interests between companies and individuals, even the potential customers’ personal information play an increasing important role in the operation of the companies and the business value of many companies today is based on their ability to collect, store, analyze and share personal information, this chapter argues that, individual rights are stronger than

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514 E. Rose Data Users versus Data Subjects: Are Consumers Willing to Pay for Property Rights to Personal Information (Proceedings of the 38th Hawaii International Conference on System Sciences - 2005)
potential business rights.\textsuperscript{515} Because there has not been a legal basis for companies to collect, store, analyze and share individuals’ personal information, companies always use contractual clauses to support their collecting behaviors. However, the protection for personal data has been established through different legislations.\textsuperscript{516}

Taking these concerns into consideration, this chapter proposes a framework of a personal information property right which is based on the virtual property theory (especially the layer theory).\textsuperscript{517}

As one of the oldest rights in legal history, property law, especial in the western world, mainly concerns the regulation of scarce resources.\textsuperscript{518} In the virtual world which based on the internet environment, however, bits and bytes are rarely be considered as a type of scarce resource, as data can easily be copied, transmitted and shared, and one individual’s use of data cannot exclude another from using the same data, the latter is referred to as non-rivalrous nature of data.\textsuperscript{519} This chapter argues that, however, once the data constitute the individuals’ personal information or the data has been used to create virtual goods, it is rivalrous and scarce. Rivalrousness could exclude others from interfering users’ virtual property rights. “Personal information is intangible property since it is non-physical.”\textsuperscript{520} To this extent, it is not reasonable to use the same arguments for data as for personal digital information,\textsuperscript{521} which is categorized as a type of virtual property based on virtual

\textsuperscript{515} Grützmacher, Malte ‘Dateneigentum–Ein Flickenteppich’ (2016) 32 Computer Und Recht 485
\textsuperscript{516} The protection for personal data has been established in General Data Protection Regulation (GDPR) in EU legislation and in The Data Protection Act 2018 in United Kingdom.
\textsuperscript{517} See Chapter 2 at 2.2.2
\textsuperscript{518} Mattei, Ugo, Basic principles of property law: a comparative legal and economic introduction (Praeger 2000)
\textsuperscript{519} Lessig, Lawrence, Code: and other laws of cyberspace (Basic Books 1999)
\textsuperscript{520} Moore, Arthur Dearth, ‘Intangible Property: Privacy, Power and Information Control ’ (1998) 3 American Philosophical Quarterly 365
\textsuperscript{521} Storr, Christine and Storr, Pam Internet of Things: Right to Data from a European Perspective (Springer, Singapore 2017) supra 443
property layer theory. In this sense, the property right upon virtual property (include personal digital information) should be established.

“Property rights on intangible property refer to one’s ability to control or restrict access to physical manifestation of one’s personal information in the form of database records, web server records and mailing lists.”522

However, this information property right is distinguished from traditional property rights which mainly concentrate on the exclusive aspect of owners, whereas the information property rights highlight the dual nature of information ownership. The dual nature of information ownership supports both the control right of the information owners and the access right of others.523

Virtual property rights established by the virtual property theory524 in chapter two can be claimed by owners based in different types of virtual property, and the virtual items contain users’ personal information is one of the types of them such as the information included in users’ online communicate account, the browsing history and the online shopping preference. The protection for personal information from virtual property theory could make clear the difference among privacy, confidential information and personal information. It could also avoid the overlap between the privacy and personal information. Once virtual objects included private information which were categorized as users’ virtual property, it will be easy to identify the proprietary interest of information users.

522 E. Rose Data Users versus Data Subjects: Are Consumers Willing to Pay for Property Rights to Personal Information (Proceedings of the 38th Hawaii International Conference on System Sciences 2005) supra 446
523 Lipinski, Tomas and Britz, Johnnes ‘Rethinking the ownership of information in the 21st century: Ethical implications’ (2000) 2 Ethic and Information Technology 49
524 See Chapter 2 at 2.2.2
As a type of virtual property, personal information property rights are included in the proposed virtual property rights system. The proposed virtual property rights system established by layer theory is distinguished from traditional property rights which mainly highlight the exclusionary right of owners. As virtual property exists by the support of advanced technology, not only the relationship between virtual property owners and others should be coped with carefully - the contract between ISPs and ordinary users is also significant. Based on the property right theory established by Demsetz,\textsuperscript{525} property rights are divided property into two groups, namely legal property and economic property rights. Legal property rights focus on the exclusive aspects of the right and economic property rights highlight uses’ ability to benefit from use, existence, consumption or exchange, such as the right of the owner of the copyright in a work to rent or lend the work to the public. In terms of the property rights upon virtual property, this thesis divided it into quasi-exclusive control of users and access right of others. The quasi-exclusive control right is sub-divided into the control between users and ISPs, and control between users and others. The property rights upon virtual property will be developed in more detail in the following chapter.

3.8 Conclusion

Due to the development of the digital technology, users’ private information can be stored in a various of digital formats. Users’ private information will be collected, stored and analyzed in ever more novel way. Therefore, traditional protect patterns, (privacy, breach of confidence) cannot deal with the current legal issues related to users’ private information in digital formats.

\textsuperscript{525} Demsetz, Harold, ‘Toward a Theory of Property Rights’ (1967) 57 American Economic Review 347
This thesis argues that categorizing users’ private information in digital formats as a type of virtual property could provide sufficient legal protection for users. Once users’ virtual property right over their private information has been recognized, it not only clarifies the legal status of users’ private information, but also balances the different interests between users and service providers on users’ private information.

Chapter 4 The framework of virtual property rights system

4.1 Introduction

Given the existing economic values and potential societal benefits that virtual property will bring, there is an urgent need to provide legal protection for virtual property as traditional protect patterns cannot deal with current legal issues reflected by virtual property. Due to feelings of ownership and the desire for security in their investment, virtual property users acquire legal protection for their virtual property. Therefore, this chapter starts with the analysis of the ownership of different types of virtual property.

526 Samtani, Anil, Angelia King Wen Jie, Jeanne Soon Hui Min and Queenie Chew Wan Xiu ‘Virtual property - a theoretical and empirical analysis’ (2012) 3 European Intellectual Property Review 1

virtual property. Based on the layer theory, this chapter argues that virtual items sit at the first and second level should be categorised as ISPs’ virtual property, comparatively, for the virtual items sit at the content layer, users should be the rightful owner.

In accordance with the purpose to establish virtual property system, this chapter adopts the Hohfeldian methodology to provide justification for granting ownership to users. Once a specific virtual item belongs to a particular user through the user’s investment (money, time and creation), it is obvious for other users to distinguish this virtual item from other virtual objects which have not belong to any individual. Therefore, this chapter argues that, in this case, it is reasonable to grant users ownership over their virtual property to prevent others infringing their virtual property rights.

Taking the sophisticated relationship among virtual property owners, other users and ISPs into consideration, this chapter divides the conflicts which virtual property owners should deal with into two groups, ‘conflicts between users and ISPs’ and ‘conflicts among users’. Based on the analysis of the two groups of conflicts, this chapter proposed a twofold virtual property rights system.

For the conflicts among different users, this chapter adopts ‘relative-exclusive property rights’ or ‘external property rights’ to represent the exclusive property rights which can be used by owners to prevent other users violating their virtual property (virtual theft is a typical example of this type of violation). For the relation between

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528 See chapter 2 at 2.2.2
530 Yen Truong, Olivia, ‘Virtual Inheritance Assigning more Virtual Property Rights’ (2009) supra 1
owners and ISPs, this chapter adopts ‘restrained-exclusive property rights’ or ‘fundamental property rights’ to regulate the relationship between users and ISPs and clarifies their obligations and rights.

Through the comparison between twofold virtual property rights system and previous virtual property theory, this chapter concludes that the twofold virtual property rights system could provide integrated legal protection for owners over their virtual property and avoid overlap between contract law and property law in practice.

4.2 Ownership of virtual property

“There is nothing which so generally strikes the imagination, and engage the affections of mankind, as the right of property; or that sole and despotic domination which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe. And yet there are very few, that will give themselves the trouble to consider the origin and foundation of that right.”

With these words of Blackstone, it is necessary for scholars to draw attention to the issues of ownership of property. Therefore, this chapter starts with the analysis of the ownership of different types of virtual property. In accordance with the purpose to clarify the ownership of virtual property and the virtual property rights, the statements

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531 See in Bragg v. Linden Research, Inc., supra 5
532 For example Hegel’s free will theory, Locke’s labour theory and Demsetz’s property rights theory See in Hegel The Philosophy of Right (1st edn, London George Bell And Sons 1896) supra 53; Locke, John Two Treaties of Government (1st edn, Cambridge University Press 1960) supra 51; Demsetz, Harold, ‘Toward a Theory of Property Rights’ (1967) supra 457
in this chapter are based on the layer theory\textsuperscript{534} introduced in chapter two. In terms of the ownership of virtual property, based on layer theory, specific types of virtual property sit on different levels belonging to particular owners.

With regards to the virtual items sitting at the first and second level,\textsuperscript{535} they represent the virtual environment and specific virtual character and programme. One of the common characteristic they have is that they all created by ISPs through code and algorithms which are defined as a specified sequence of steps for producing a solution to a problem.\textsuperscript{536} A computer, or its software, is a composition of individual algorithms (written in a programming language) that are designed to solve problems.\textsuperscript{537} Hence this chapter holds the opinion that virtual items sit at the first and second level should be categorised as ISPs’ virtual property.\textsuperscript{538}

This chapter argues that even if there are various formats of virtual property sitting at the first – the virtual platform and environment designed by ISPs which provide fundamental basis for the virtual world, and second level – the specific virtual items designed by particular computer code sequence which have not been transmitted to users, the ownership of these types of virtual property is supported by s.9(3) of the Copyright, Designs and Patents Act (CDPA) which regulated the ownership of computer-generated work:

\textsuperscript{534} See in chapter 2 at 2.2.2
\textsuperscript{535} “At the first level sits the service provider’s codes which facilitate the construction of the whole virtual environment. Items at this level can be considered as a platform not only for users but also for service providers to perform and behave. At the second level, this thesis identifies the unique computer code which comprise of the unique items in virtual world, the service, programme and software provided by service providers are typical examples of items exist in this level.” See this in Chapter 2 at 2.2.2
\textsuperscript{536} Neapolitan, Richard, Naimipour, Kunarss, \textit{Foundations of algorithms} (Jones & Bartlett Learning, Burlington 2010)
\textsuperscript{537} Neapolitan, Richard, Naimipour \textit{K Foundations of algorithms ibid.}
\textsuperscript{538} See in Chapter 2 at 2.2.2
“In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.”\textsuperscript{539}

This is understood to mean that the programmer is the author of computer-generated work.\textsuperscript{540} In \textit{Nova Productions Ltd v Mazooma Games Ltd, Kitchin},\textsuperscript{541} based on s.9(3) of CDPA 1988, J commented that composite frames in the game are artistic works and they belong to the programmer who created them by writing the program.

“In so far as each composite frame is a computer-generated work then the arrangements necessary for the creation of the work were undertaken by Mr Jones because he devised the appearance of the various elements of the game and the rules and logic by which each frame is generated and he wrote the relevant computer program. In these circumstances I am satisfied that Mr Jones is the person by whom the arrangements necessary for the creation of the works were undertaken and therefore is deemed to be the author by virtue of s.9(3).”\textsuperscript{542}

Even this judgement can be considered as the evidence to support the ownership of ISPs (programmers) virtual property sitting at the first and second level. Once virtual property combines users’ skill, labour or private information, they should be labelled

\textsuperscript{539} Copyright, Designs and Patents Act (1988) s.9(3)
\textsuperscript{540} Julia, Dickenson, Alex, Morgan and Birgit, Clark ‘Creative machines: ownership of copyright in content created by artificial intelligence applications’ (2017) 33 European Intellectual Property Review 1; Garnett, Kevin , Rayner James, Jonathan and Davies,Gillian Copinger and Skone James on Copyright (London Sweet & Maxwell 1999) supra 224
\textsuperscript{541} Nova Productions Ltd v Mazooma Games Ltd [2006] EWHC 24 (Ch) [2006] E.M.L.R. 14
\textsuperscript{542} Nova Productions Ltd v Mazooma Games Ltd [2006] EWHC 24 (Ch) [2006] E.M.L.R. 14 at [105]
as users’ virtual property, such as when users spend time in completing particular task in the online games, they can obtain the special virtual weapons and virtual items, due to the weapons and items containing users’ labour, time and other investment, they should be labelled as users’ virtual property. Another example is users’ online account, when users create their only account with account number and password, the unique account and content included in this account should be categorised as users’ virtual property. Therefore, this chapter argues that virtual property sits at the content layer (3) is users’ virtual property.\(^{543}\) In *Express Newspapers v Liverpool Daily Post*,\(^{544}\) in order to prove that the published sequence which is generated by a computer should be protected by copyright, Whitford J commented:

“The computer was no more than the tool by which the varying grids of five-letter sequences were produced to the instructions, via the computer programmes, of Mr. Ertel. It is as unrealistic as it would be to suggest that, if You write Your work with a pen, it is the pen which is the author of the work rather than the person who drives the pen.”\(^{545}\)

Even this statement resulted in ambiguity as to who the actual owner is.\(^{546}\) The pen analogy could be understood that the users should be the owner of the program, however the spirit of law tend to grant ownership to programmers. A similar discussion can also be found in the argument about the protection of AI-assisted output.

\(^{542}\) See in chapter 2 at 2.2.2  
\(^{544}\) *Express Newspapers Plc. v Liverpool Daily Post & Echo Plc. and Others* [1985] 1 W.L.R. 1089  
\(^{545}\) *Express Newspapers Plc. v Liverpool Daily Post & Echo Plc. and Others* [1985] 1 W.L.R. 1089  
\(^{546}\) Guadamuz, Andres ‘Do androids dream of electric copyright? Comparative analysis of originality in artificial intelligence generated works’ (2017) 2 Intellectual Property Quarterly 169
“Authorship status will be accorded to the person or persons that have creatively contributed to the output. In most cases this will be the user of the AI system, not the AI system developer, unless the developer and user collaborate on a specific AI production, in which case there will be co-authorship. If “off-the-shelf” AI systems are used to create content, co-authorship claims by AI developers will also be unlikely for merely commercial reasons, since AI developers will normally not want to burden customers with downstream copyright claims. We therefore expect this issue to be clarified in the contractual terms of service of providers of such systems.”

This chapter argues that, if users just used and experienced the virtual property created by ISPs, the programmer is clearly the owner in accordance with s.9(3) CDPA. Once virtual property combines users’ skill, labour and personal information, it then should be categorised as users’ virtual property and ownership should be granted to ordinary users.

4.3 Virtual property rights

4.3.1 Justification for virtual property rights

Because technology, especially internet technology, continues to evolve at a rapid pace, individuals tend to participate in various virtual worlds. Virtual world users invest a considerable amount of time, effort and often money on the objects they create and use in virtual worlds. They hold feelings of ownership and the desire for

security in their investment, and due to this virtual property users wish to acquire legal protection for their virtual property. Therefore, this chapter argues that virtual property owners should be granted legal rights over their virtual property rather than only the contractual permission from ISPs by End Users License Agreement.

"Increasingly, virtual property holders and like-minded legal commentators are arguing that the law may achieve this goal by granting virtual property holders legal rights in virtual property rights apart from and independent of the contract-based rights that virtual property holders already have."

Compared with previous arguments that virtual property should be protected by existing property law, this chapter tends to establish an independent virtual property rights system. We can find support from the protection for intellectual property.

"Right to property

1. Everyone has the right to own, use, dispose of and bequeath his or her lawfully acquired possessions. No one may be deprived of his or her possessions, except in the public interest and in the cases and under the conditions provided for by law, subject to fair compensation

551 Virtual property holders already have some rights to their virtual property, but those rights emanate from the contract between the user of a virtual world and the developer of the software that creates the virtual world. See F. Gregory Lastowka & Dan Hunter, The Laws of the Virtual Worlds, (2004) 92 Cal. L. Rev. 1, 5 (explaining that “if property rights ... exist in virtual assets, the allocation of those rights will depend largely on the [EULA].”)
552 Lawrence, Dan ‘It really is just a game: the impracticability of common law property rights in virtual property’ (2008) supra 125
553 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
being paid in good time for their loss. The use of property may be
regulated by law in so far as is necessary for the general interest.

2. Intellectual property shall be protected." 554

In *Balan v Moldova*, 555 a state had no basis to use a photograph in its national
identity cards without the photographer's permission and its actions constituted a
disproportionate interference with the photographer's rights under the European

“The concept of “possessions” referred to in the first part of art.1 of
Protocol 1 has an autonomous meaning which is not limited to
ownership of physical goods and is independent from the formal
classification in domestic law: certain other rights and interests
constituting assets can also be regarded as “property rights”, and thus
as “possessions” for the purposes of this provision. The issue that
needs to be examined in each case is whether the circumstances of
the case, considered as a whole, confer on the applicant title to a
substantive interest protected by art.1 of Protocol 1." 556

As virtual property should be treated as a new and distinct form of property. Due to
the specific characteristics of virtual property 557 and the conflicts reflected from the
emergence of virtual property, namely the conflicts between individuals and ISPs
and the conflicts between individuals and others, virtual property rights are distinct
from traditional property rights. The term “virtual property” is an unfortunate

554 See in Article 17, Article 17(2) EU Charter of Fundamental Rights Protocol 1; see also in Protocol 1, Article 1
European Convention on Human Rights
555 See in *Balan v Moldova* (19247/03)
556 See in *Balan v Moldova* (19247/03) *ibid.*
557 Virtual property is intangible, rivalrous, persistent, and interconnected code that mimics real world
characteristics. See in Chapter 2 at 2.4
misnomer. It gives the impression that any property rights inherent to such subject matter are fleeting, inappropriate or non-existent. This chapter argues that current property rights can and should be extended to virtual property regardless of which specific relationship between the ordinary users and the ISPs arises.558

There is little or no controlling case law defining ordinary users’ virtual property rights over items obtained by them within the virtual world. Furthermore, to the extent that some guidelines purport to provide some semblance of rules and regulations, they are one-side.559 As the direct guidance between ordinary users and ISPs in the digital era, End Users licence Agreements (EULA) and Terms of Services (ToS), on the one hand, grants companies intellectual property rights over the objects in the internet environment,560 on the other hand, promise companies to collect, store,
share and analyse users’ personal information\textsuperscript{561} which could bring huge revenue for the companies.\textsuperscript{562}

Virtual property rights traditionally have arisen through contracts.\textsuperscript{563} These contracts have usually been End User License Agreements,\textsuperscript{564} which carved out the terms and limits of the users’ rights.\textsuperscript{565} Unsurprisingly, since these agreements are unilaterally drafted by the developer of the virtual world, the developer usually retains control over all property contained in that virtual world.\textsuperscript{566} In this relationship, the developer has the unilateral-and perhaps unconscionable-power to deprive the user of all access for any reason at any time as they maintain all property rights.\textsuperscript{567} One of the problems with EULA is that ISPs construct them without negotiating with users.\textsuperscript{568}

\textsuperscript{561} “We collect information to provide better services to all our users — from figuring out basic stuff like which language you speak, to more complex things like which ads you’ll find most useful, the people who matter most to you online, or which YouTube videos you might like. The information Google collects, and how that information is used, depends on how you use our services and how you manage your privacy controls. When you’re not signed in to a Google Account, we store the information we collect with unique identifiers tied to the browser, application, or device you’re using. This helps us do things like maintain your language preferences across browsing sessions. When you’re signed in, we also collect information that we store with your Google Account, which we treat as personal information.” See Google Privacy policy at https://policies.google.com/privacy?gl=US&hl=en

\textsuperscript{562} “Tension permeates the governing agreements because virtual worlds are controlled by authoritarian proprietors and are populated by crowds of participants who seek unscripted interaction. Just as the anonymity of online communities may encourage mischievous participant behavior, so too may the nearly absolute proprietary power encourage a tendency toward arbitrary rulemaking and exclusion.” Id. at 7-8; see also Amy Jo Kim, Killers Have More Fun, Wired (May 1998), http://www.wired.com/wired/archive/6.05/ultima.html (describing the temptation to become a harassing player-killer in the virtual world Ultima Online).

\textsuperscript{563} Sheldon, David, ‘Claiming Ownership, but Getting Owned: Contractual Limitations on Asserting Property Interests in virtual Goods’ (2007) \textit{supra} 44 (stating, “Instead of relying solely on the default protections of intellectual property law, providers turned to contract to allocate rights to virtual items.”).

\textsuperscript{564} \textit{Ibid.}

\textsuperscript{565} See \textit{ProCD, Inc. v. Zeidenberg, supra} 13 (discussing information on end user license agreements which are also known as Shrink Wrap Contracts, and further stating that ProCD’s software came with a license which “appears on a user’s screen every time the software runs, [and] limits use of the application program . . . .” ).

\textsuperscript{566} Sheldon, David, ‘Claiming Ownership, but Getting Owned: Contractual Limitations on Asserting Property Interests in virtual Goods’ (2007) \textit{supra} 44

\textsuperscript{567} (“end user license agreements enable providers to unilaterally alter terms of agreements, and users discovering these changed terms cannot easily terminate established avatars, which presents an argument of unconscionability due to elements of procedural and substantial unconscionability being met by the existence of ‘surprise’ to an established user when a term suddenly changes, and the potential that a provider, having the majority of property rights, suddenly terminating access to the virtual world would ‘shock the conscience’ of an established user.”) see in Sheldon, David, ‘Claiming Ownership, but Getting Owned: Contractual Limitations on Asserting Property Interests in virtual Goods’ (2007) \textit{supra} 44

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This allows ISPs to constrain ordinary users from claiming property rights over virtual property they obtain.\textsuperscript{569}

“As authors and performers tend to be in the weaker contractual position when they grant licences or transfer their rights, they need information to assess the continued economic value of their rights, compared to the remuneration received for their licence or transfer, but they often face a lack of transparency.”\textsuperscript{570}

Virtual worlds, including Second Life, Blizzard and Facebook, are hosted on privately owned servers. The EULAs of these virtual companies are generally extremely favourable to ISPs.\textsuperscript{571} Take the terms of service of Facebook for example, in terms of the content generated by ordinary users which has been in subject of intellectual property law, on the one hand, Facebook states that ordinary users have intellectual

\textsuperscript{568} For users, if they want to obtain the access to the particular virtual world, they have to accept the EULA or ToS provided by service providers. See in F. Gregory Lastowka & Dan Hunter, The Laws of the Virtual Worlds, (2004) \textit{supra} 482

\textsuperscript{569} Most modern EULAs are almost universally a form of click-wrap agreement. Click-wrap agreements are electronic contracts that users “click” to accept the terms in order to proceed to installing software associated with the EULA. Courts have found that click-wrap agreements, standing alone, are enforceable since granting a preliminary injunction in Hotmail Corp. v. Van$ Money Pie in April 1998. See generally Hotmail Corp. v. Van$ Money Pie Inc., No. C-98 JW PVT ENE, 1998 WL 388389 (N.D. Cal. Apr. 16, 1998). Therefore, since users usually sign away most, if not all of their legal rights within EULAs, there is little recourse when significant dispute arises. See in Nathan J. Davis ‘Presumed Assent: The Judicial Acceptance of Clickwrap’ (2007) 22 Berkeley Tech. L.J. 577 (discussing the Courts acceptance of click-wrap agreements despite the conventional wisdom against the practice).

\textsuperscript{570} “Therefore, the sharing of adequate and accurate information by their contractual counterparts or their successors in title is important for the transparency and balance in the system governing the remuneration of authors and performers. That information should be up-to-date to allow access to recent data, relevant to the exploitation of the work or performance, and comprehensive in a way that it covers all sources of revenues relevant to the case, including, where applicable, merchandising revenues. As long as exploitation is ongoing, contractual counterparts of authors and performers should provide information available to them on all modes of exploitation and on all relevant revenues worldwide with a regularity that is appropriate in the relevant sector, but at least annually. The information should be provided in a manner that is comprehensible to the author or performer and it should allow the effective assessment of the economic value of the rights in question. The transparency obligation should nevertheless apply only where copyright relevant rights are concerned. The processing of personal data, such as contact details and information on remuneration, that are necessary to keep authors and performers informed in relation to the exploitation of their works and performances, should be carried out in accordance with Article 6(1)(c) of Regulation (EU) 2016/679.” See in \textit{DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL} of 17 April 2019

\textsuperscript{571} Lastowka, Greg ‘User-generated content and virtual worlds’ (2008) V \textit{supra}133
property upon these content, on the other hand, once users signed this Terms of Services, Facebook get the permissions from users to host, use, distribute, modify, run and copy these content generated by users.

“Specifically, when you share, post or upload content that is covered by intellectual property rights (e.g. photos or videos) on or in connection with our Products, you grant us a non-exclusive, transferable, sublicensable, royalty-free and worldwide licence to host, use, distribute, modify, run, copy, publicly perform or display, translate and create derivative works of your content.”  

However, this thesis argues that, contractual clauses between users and companies, such as EULA and TOS, should not be considered as the licence to grant companies the rights over the content generated by users.

With regard to the content have not been protected by intellectual property law, users’ personal information and users’ online activities, Facebook will get the right to collect, store, distribute, analyse and share them when users signed the TOS.

“You give us permission to use your name and profile picture and information about actions that you have taken on Facebook next to or in connection with ads, offers and other sponsored content that we display across our Products, without any compensation to you.”

This chapter argues that, in terms of the protection for users’ private information, even the enforcement of General Data Protection Regulation (GDPR) grants data

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572 see Facebook Terms of Service at https://www.facebook.com/terms.php
573 Ibid.
subject some rights upon their personal data, like right to rectification\textsuperscript{574} right to erasure\textsuperscript{575} and right to restriction of processing\textsuperscript{576}. This thesis argues that the protection from the GDPR is inefficient. Firstly, the provisions in GDPR mainly regulate the relationship and conflict between data subject and controller and processor, however, users could also encounter the infringement from other citizens. Compared with GDPR, the proposed virtual property theory categorised users’ right over their personal information as a legal property right and emphasis the exclusive aspect of their right. Secondly, the consent from data subject required by GDPR is not always users’ genuine willing, as there is no option provided for them if they would receive the service from ISPs.

\textsuperscript{574} “The data subject shall have the right to obtain from the controller without undue delay the rectification of inaccurate personal data concerning him or her. Taking into account the purposes of the processing, the data subject shall have the right to have incomplete personal data completed, including by means of providing a supplementary statement.” See in General Data Protection Regulation Article 16

\textsuperscript{575} “The data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay where one of the following grounds applies:
(a) the personal data are no longer necessary in relation to the purposes for which they were collected or otherwise processed;
(b) the data subject withdraws consent on which the processing is based according to point (a) of Article 6(1), or point (a) of Article 9(2), and where there is no other legal ground for the processing;
(c) the data subject objects to the processing pursuant to Article 21(1) and there are no overriding legitimate grounds for the processing, or the data subject objects to the processing pursuant to Article 21(2);
(d) the personal data have been unlawfully processed;
(e) the personal data have to be erased for compliance with a legal obligation in Union or Member State law to which the controller is subject;
(f) the personal data have been collected in relation to the offer of information society services referred to in Article 8(1)” See in General Data Protection Regulation Article 17

\textsuperscript{576} “The data subject shall have the right to obtain from the controller restriction of processing where one of the following applies:
(a) the accuracy of the personal data is contested by the data subject, for a period enabling the controller to verify the accuracy of the personal data;
(b) the processing is unlawful and the data subject opposes the erasure of the personal data and requests the restriction of their use instead;
(c) the controller no longer needs the personal data for the purposes of the processing, but they are required by the data subject for the establishment, exercise or defence of legal claims;
(d) the data subject has objected to processing pursuant to Article 21(1) pending the verification whether the legitimate grounds of the controller override those of the data subject.” See in General Data Protection Regulation Article 18
Even some ISPs start to grant users attractive rights via their EULA in order to attract more users. Due to the regulation from property law for the protection of virtual property is inadequate, some scholars suggest applying contract law to regulate virtual world. They highlight that contract law provides virtual worlds with something necessary for their prosperity: flexibility. This thesis argues that just because the regulation from contract law is flexible, contract law is not the proper approach to protect virtual property, especially protecting ordinary users’ virtual property rights. First of all, the regulation from contract just aim to clarify the rights and obligations between ISPs and users. However, as the owner of virtual property, users also encounter the infringement from other users. In this sense, contract law cannot provide adequate justification for users claim. On the flip side, as a type of a legal rights, virtual property rights should be stipulated by legislation rather than contracts.

In order to deal with the conflicts between users and ISPs and provide a systematic protection for users’ virtual property rights, this chapter aims to establish the framework of virtual property rights based on the layer theory. Even the intangibility of virtual property should not be considered as a reason to deny owners claiming property rights over their virtual property, it still important to note that entitlements secured upon traditional physical property are independent of

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577 Linden Lab, for example, altered its EULA in November 2003 to allow users to own all intellectual property rights in anything they create inside of Second Life. Other developers have taken this a step further and granted users rights beyond those found in a normal property-rights regime. Blizzard, for example, offers a free “item restoration” service in World of Warcraft. If users accidentally destroy a virtual item. Blizzard will provide them with a new one. Furthermore, Blizzard offers this service even if the user intentionally destroyed an item and later regretted the decision. See Brett Bums, Note, Level 85 Rogue: When Virtual Theft Merits Criminal Penalties, 80 UMKC L. REV. 831, 831, 836 n.44 (2012)


579 See in chapter 2 at 2.2.2
entitlements in intangible property according to the basic distinction between intellectual property and property in tangible resources.580

This chapter also argues that clarify the users’ virtual property rights could provide justification for the inheritability of virtual property. Email accounts are a typical example of virtual property. According to the news, a deceased Marine’s parents requested access to their son’s Yahoo email account.581 Initially, Yahoo refused to provide access to the family members, as based on its internal privacy policy, email accounts are terminated when account holders passed away. Finally, the family went to court and the judge Michigan granted the family an order compelling Yahoo to turn over the account.582

As a type of virtual property, email accounts and content included in these accounts not only contain account holders’ significant personal information, but also are meaningful to their family members. The crucial legal issues reflected by this case is whether email account (virtual property) could be categorised as holders’ heritage. The conflicts between successors and companies are more and more vigorous.583

580 For instance, the rights to a hardcover book are separate from the rights to the expression it contains. Therefore, being tangible or intangible predicts the applicable property regime with respect to the resource in question.
581 “The Marine, Justin Ellsworth, 20, was killed in November by a roadside bomb in Falluja while assisting civilian evacuations before the large-scale military offensive against insurgents in the city, according to a report in the Detroit Free Press. But when Ellsworth’s father John tried to recover his e-mail account, he was barred due to Yahoo’s policy of not giving e-mail passwords to anyone besides the account holder.” Available at https://www.cnet.com/news/yahoo-denies-family-access-to-dead-marines-e-mail/ accessed 5 July 2021
582 “E-mail provider Yahoo has pledged to give the family of a Marine killed in Iraq full access to their son’s e-mail account, ending a court battle that began after his parents sought messages he wrote before his death. An Oakland County probate judge signed an order Wednesday directing Yahoo Inc. to provide the contents of the e-mail account used by Lance Cpl. Justin M. Ellsworth, 20, who was killed Nov. 13 while inspecting a bomb in Al Anbar province. Yahoo!, which originally refused the family’s request to hand over the account, did not fight the order and gave the family a CD containing more than 10,000 pages of material.” Available at http://www.nbcnews.com/id/7581686/ns/world_news-mideast_n_africa/t/yahoo-gives-dead-marines-family-e-mail-info/#.XKZiZdgmaUk accessed 5 July 2021
583 Take Gmail for example: Accessing a deceased person’s mail
If you need access to the Gmail account content of an individual who has passed away, in rare cases we may be able to provide the contents of the Gmail account to an authorized representative of the deceased person.
Companies always use their internal privacy policy to refuse successors’ request. However, for successors, there is not a certain and acceptable justification for their request. Therefore, this chapter argues that, once virtual property rights system is established, virtual property could be categorised as decedents’ heritage and then successors’ request will be supported.

In terms of property rights, property law provides a useful starting place to examine ‘property rights’ within virtual worlds. Virtual worlds involve complex interactions amongst various players and the relationships between ordinary users and ISPs. Virtual property rights holders should not only have the right to exclude other users from infringing their virtual property rights but also have the right to deal with the conflicts between them and ISPs. However, based on the statement of traditional property law, property is loosely defined as “rights among people concerning things.” Therefore, property is often escribed as a bundle of rights, or more informally, a bundle of sticks rather than a thing. The common rights in this bundle are known as: the right to exclude, the privilege to possess/use, and the power of

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At Google, we’re keenly aware of the trust users place in us, and we take our responsibility to protect the privacy of people who use Google services very seriously. Any decision to provide the contents of a deceased person’s email will be made only after a careful review. If you are the authorized representative of a deceased person and wish to proceed with an application to obtain the contents of a deceased person’s Gmail account, please carefully review the following information regarding our two stage process:

**Part 1**

We require the following information:

1. Your full name
2. Your physical mailing address
3. Your email address
4. A photocopy of your government-issued ID or driver’s license
5. The Gmail address of the deceased person
6. The death certificate of the deceased person. If the document is not in English, please provide a certified English translation that has been prepared by a competent translator and notarized

Available at [https://www.everplans.com/articles/what-happens-to-my-email-accounts-when-i-die](https://www.everplans.com/articles/what-happens-to-my-email-accounts-when-i-die)

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584 Lastowka, Greg, *Virtual Justice the New Laws of Online worlds* (Yale University Press 2010)
587 Grey, Thomas, ‘The Disintegration of Property’ (1980) 22 American Society for Political and Legal Philosophy
This chapter tries to establish specific bundles of rights over virtual property.

4.3.2 Application of Hohfeldian methodology to virtual property

In accordance with the purpose to establish virtual property rights system, which distinguishes property rights over virtual property from traditional property rights and intellectual property rights, this chapter accepts the Hohfeldian methodology which had a profound impact on modern legal thought and in particular on the property law. Hohfeld introduced his model of fundamental legal conceptions and jural relations in the early twentieth century and his model will guide the search for rights and other entitlements as they exist, or may exist in the law. In order to deal with the uncertainty caused by the looseness usage of “right” and ambiguity of terminology, Hohfeld exhibited all of the various relations in a scheme of “opposites” and “correlatives”

Jural Opposites

<table>
<thead>
<tr>
<th>right</th>
<th>privilege</th>
<th>power</th>
<th>immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>no-right</td>
<td>duty</td>
<td>disability</td>
<td>liability</td>
</tr>
</tbody>
</table>

588 Honoré, Anthony Maurice, Ownership (Cambridge University Press 2012) Honorè seems to present the right of (positive) possession and the (negative) right to exclude as two “aspects” of the same legal position.

589 Hohfeld endeavoured to clarify the legal vocabulary and render the basic jural terminology more rigorous. He stressed “whether legal or non-legal, chameleon-hued words are a peril both to clear thought and to lucid expression.” He then insightfully arranged all legal positions in four pairs, which he denoted “the lowest common denominators of the law.” See in Newcomb Hohfeld, Wesley Fundamental Legal Conceptions as Applied in Judicial Reasoning (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19.

590 Newcomb Hohfeld, Wesley Fundamental Legal Conceptions as Applied in Judicial Reasoning ibid.

591 Eleftheriadis, Pavlos ‘The Analysis of Property Rights’ (1996) supra 60


593 Newcomb Hohfeld, Wesley Fundamental Legal Conceptions as Applied in Judicial Reasoning ibid.
The Hohfeldian model offers a short and straight answer to the question whether an individual has a right or not and meanwhile it provides a set of tools for evaluating legal positions in a given legal environment. This chapter applies Hohfeldian model to analyse the property rights over virtual property, why should users be conferred virtual property rights over their virtual property.

Based on the statement of Hohfeld and apply the Hohfeldian methodology to the property regime. The owner of a specific property can have a right-claim against others to prevent others’ unauthorized entry. The right of owner also means that others under a correlative duty not to infringe owners’ right. Under the circumstance that the term “right” is used loosely. If an individual has justification to prevent others from using or possessing a particular object, it is reasonable to deduce that the individual have a right-claim over the particular object. Therefore, in terms of the virtual property rights in virtual environment, this chapter argues that once a specific virtual item belongs to a specific user, this virtual item then has an unique and recognised virtual identity, other users could distinguish it from other virtual items which have not belongs to any individual. In this case, it is reasonable for owners to prevent others using, possessing and infringing the enforcement of owners’ right over the specific virtual item. From this perspective, users should be granted virtual property rights over their virtual property.

594 Newcomb Hohfeld, Wesley Fundamental Legal Conceptions as Applied in Judicial Reasoning ibid
595 Efroni, Zohar, Access-Right: The Future of Digital Copyright (Law Oxford Scholarship Online 2011) supra 357
With regard to power/disability, as demonstrated by Hohfeld’s example, the power of the owner of personal property is to extinguish his own legal interests through abandonment, transfer or contract.\textsuperscript{596} The criterion to determine whether an individual has a power over a property is “whether his volitional control is paramount may be said to have the (legal) power to effect the particular change of legal relations that is involved in the problem.”\textsuperscript{597} However, there is a precondition to enforce owners’ power to transfer his property to other individual, it is that the owner should be entitled to this rights, which owner tend to transfer, in the first place.\textsuperscript{598}

For virtual property, this chapter argues that, users are entitled to trade their virtual property using real currency. In this sense, the users have the power to transfer their virtual property interest, based on the precondition of the power-claim. Consequently it is reasonable to deduce that users have already obtained the property rights over their virtual property.

As mentioned previously, for the protection of the owner of virtual property, the owners should not only be granted the right to exclude other users from infringing their virtual property rights, but also that they should be granted the right to deal with the conflicts between them and the ISPs. Therefore, at the very outset of analysing the virtual property rights, this chapter analyses the types of conflicts that can arise among users of virtual worlds.

\textsuperscript{596} Newcomb Hohfeld, Wesley \textit{Fundamental Legal Conceptions as Applied in Judicial Reasoning} (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19
\textsuperscript{597} Newcomb Hohfeld, Wesley \textit{Fundamental Legal Conceptions as Applied in Judicial Reasoning} \textit{ibid.}
\textsuperscript{598} In some special situations, a person has the power to transfer good title without being the legal owner (e.g., abandonment or transfer to a good faith purchaser in commercial situations). However, the general rule remains that the power to transfer a good title is usually placed in the hands of the legal owner: “A non-owner’s power of sale is an exception to the nemo dat rule . . . which is the basic property principle that, in general, and for obvious reasons, I cannot transfer to you a property interest I do not have . . . As a non-owner I therefore have no power to transfer, unless I acquire the power from some other source.”) See Alison, Clarke & Paul, Kohler, \textit{Property Law: Cases and Materials} (Cambridge University Press 2005)
4.3.3 Conflicts between uses and ISPs

Ideally, when users create a certain virtual property in virtual world, the right over that property should be granted for the user. Hypothetically, the user is the absolute owner to exclude others from infringing their virtual property rights. However, due to the existence of EULA between users and ISPs, uses’ virtual property rights cannot be enforced properly.

In *Bragg v. Linden Research, Inc.*, plaintiff, March Bragg, Esq., claimed an ownership interest on his virtual property. Bragg argued that Linden Research Inc. unlawfully confiscated his virtual property and denied his access to their virtual world. This case rouse the attention to consider the conflicts between ordinary users and ISPs.

“Ultimately at issue in this case are the novel questions of what rights and obligations grow out of the relationship between the owner and creator of a virtual world and its resident-customers.”

Although the parties eventually settled outside the court and the court did not rule on any issue other than the arbitration clause of the TOS. This case still demonstrate the legal issue of the recognition of property rights in virtual world.

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599 *Bragg v. Linden Research, Inc.*, supra 5
600 The dispute in this case was triggered in 2006 when the plaintiff purchased an entire region of virtual land for $300. The plaintiff allegedly accessed a land auction site for property and purchased a parcel that had yet been released for auction. By doing so, he acquired that virtual land below Second Life’s cost. As a result, the company confiscated the land purchased and froze the plaintiff’s account, alleging that the property was improperly acquired through an “exploit.” Plaintiff filed this suit alleging conversion, fraud, unjust enrichment and breach of contract.
601 *Bragg v. Linden Research, Inc.*, supra 5
602 Yen Truong, Olivia, ‘Virtual Inheritance Assigning more Virtual Property Rights’ (2009) supra 1
“Until now, any content created by users for persistent state worlds, such as Everquest® or Star Wars Galaxies™, has essentially become the property of the company developing and hosting the world. . . . We believe our new policy recognizes the fact that persistent world users are making significant contributions to building these worlds and should be able to both own the content they create and share in the value that is created. The preservation of users’ property rights is a necessary step toward the emergence of genuinely real online worlds.”

This chapter argues that, for the protection of the users’ virtual property rights, contract should not be the only guidance. Virtual property rights should not be stipulated by the agreement between users and ISPs. Therefore, this chapter proposes the virtual property rights system. Once the virtual property system is established and accepted, users’ virtual property will be able to be categorised as a type of legal property right. Consequently, users could not be restrained by the regulation of EULA.

4.3.4 Conflicts among users

The virtual world has reached a tipping point from ‘play’ to ‘reality,’ with the trend that virtual property reality is becoming so realistic that the boundary between virtual world and real life is ambiguous. Users tend to react in a very real manner in virtual world.

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604 Bragg v. Linden Research, Inc., supra 5
605 Yen Truong, Olivia, ‘Virtual Inheritance Assigning more Virtual Property Rights’ supra 1
606 For instance, in October 2008, Tokyo police arrested a woman whose sudden divorce in a virtual world made her so angry that she killed her online husband’s digital persona. The woman accessed the man’s account by using his identification and password, and deleted his virtual avatar. Although the woman was not plotting any real world retribution or murder, she was jailed on “suspicion of illegally accessing a computer and
“People regard their virtual, second lives with as much significance as they do their real lives. Equally, people value their virtual property as much as they do their real and tangible possessions. Virtual properties—such as email addresses, websites, avatars, video game characters, virtual accessories, and any other intangible digital commodities—are more prevalent and abundant today than ever before. Although virtual property is not physical or tangible, proprietors of virtual property consider themselves to be owners of such property.”

As discussed previously, all types of virtual property exist in virtual environment and based on the support of ISPs. Due to the economic value of virtual property, like traditional property in real world, virtual property owners also encounter infringement by other users. This is especially so in terms of the popularity of virtual property trade market which caused the virtual property theft.

“The ability to convert virtual property into real-world currency has enabled the rise of a serious problem faces by many in virtual world environments, that of virtual property theft.”

manipulating electronic data.” If convicted, she could face real world penalties of a fine up to $5,000 or imprisonment up to five years. Available at https://www.telegraph.co.uk/news/worldnews/asia/japan/3248106/Japanese-woman-arrested-after-murdering-virtual-husband-in-online-computer-game.html accessed 7 July 2021

Yen Truong, Olivia, ‘Virtual Inheritance Assigning more Virtual Property Rights’ (2009) supra 1

The number of people actively participating in these environments has grown dramatically over recent years, with current reports indicating the number of registered virtual world users exceed 1 billion world-wide, while the total number of internet users in 2011 was reported to exceed 2 billion, implying that nearly 1 in 2 people use virtual worlds. Virtual world’s expert Marcus Eikenberry estimates the real world market value attributed to virtual property sales to be between $10 and $50 US billion dollars. See in A. Watters. (2010). Number of Virtual World Users Breaks 1 Billion, Roughly Half Under Age 15 Available: http://www.readwriteweb.com/archives/number_of_virtual_world_users_breaks_the_1_billion.php See also in S. Acharya. (2011). ITU estimates two billion people online by end 2010. Available: http://www.itu.int/net/pressoffice/press_releases/2010/39.aspx; M. Eikenberry. (2011). Real Money Trade is a Billions Dollar a year Industry. Available: http://www.youtube.com/watch?v=r2Y3fVwlgw

Nicholas Patterson, Michael Hobbs and Tianqing Zhu ‘A cyber-threat analytic model for autonomous detection of virtual property theft’ (2017) supra 480
“The issue of virtual property theft is a serious problem which has ramifications in both the real and virtual world.”

Virtual world users invest a considerable amount of time, effort and often money to create virtual property. Therefore, there is pressing need to protect virtual property owners from the infringement of others.

For instance, a Dutch court convicted two teenagers of virtual theft. Two fourteen years old boys forced a thirteen year old victim to hand over virtual goods in online game, a mask and an amulet, and to transfer the items to their account. Even the lawyers argued that “virtual goods do not really exist, and transferring them does not conflict with the rules of the game.” Eventually, court confirmed that “these virtual goods are goods (under Dutch law), so this is theft.”

Compared with the economic aspect reflected by conflicts between users, unfortunately, the legal issues reflected by virtual property among users are far more serious. In June 2005 Qiu Chengwei, a ‘Legend of Mir III’ player, due to the economic conflict between another player Zhu Caoyuan, murdered Zhu. Qiu had lent the victim a rare, enchanted in-game sword, which the victim then sold for approximately $870. Initially, Qiu contacted the authorities and sought justice, however the authorities refused to take any steps to redress the injury. Therefore,

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610 Nicholas Patterson, Michael Hobbs and Tianqing Zhu ‘A cyber-threat analytic model for autonomous detection of virtual property theft’ (2017) ibid.
611 Yen Truong, Olivia, ‘Virtual Inheritance Assigning more Virtual Property Rights’ (2009) supra 1
this chapter argues that once virtual property rights have been confirmed, it will reduce uncertainty in dealing with conflicts among such users.

4.4 Virtual property rights system

4.4.1 Justification for the establishment of virtual property rights system

In terms of virtual property, no matter which level virtual property lies on,\(^616\) it is obvious that virtual property is intangible and accessed via technology such as a computer, smart phone, MP3 player, and other electric devices.\(^617\) As a new kind of personal property, in order to protect the property rights of owners, the concept of ownership of virtual property should not be ignored. Due to its’ intangible characteristic, unlike traditional physical property, the emergence of virtual property challenges the conventional ownership theory. As regard external material objects, it is natural to speak of ownership. A person ‘owns’ a book, house, or a car. The terminology of ownership is also extended to some things other than material objects. A person may ‘own’ a copyright, leasehold property, goodwill, a business, patent right.\(^618\) The ownership of virtual property will differ from both traditional physical property ownership and Intellectual property. From the point of traditional theory, a more promising approach is try to classify the things that can be owned. An obvious classification is into material objects and things that are not material objects (incorporeals)\(^619\). However, from the modern view of scholars, the scope of the

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\(^{616}\) “the property at first level belonging to service providers and provide underlying environment for further development. The items at the second level are created by service providers and protected by IP, and they also belong to service providers. Eventually the property at the content layer (3) are user’s virtual property because users invest time, money and labour on them.” See in chapter 2 at 2.2.2

\(^{617}\) Amber, Cushing, ‘ “It’s Stuff That Speaks to Me”: Exploring the Characteristics of Digital Possessions’ (2013) 64 Journal of the American Society for Information Science and Technology 1723

\(^{618}\) Honoré, Anthony Maurice, Ownership (Cambridge University Press 2012) supra 516

\(^{619}\) Honoré, Anthony Maurice, Ownership (Cambridge University Press 2012) ibid.
“thing” which can be owned has been extended. It seems, therefore, as if a more useful classification of things owned than that into corporeals and incorporeals would be into material objects and rights in them, claims, and collections of objects and claims. Whether the object of ownership is material or not should not be key point to determine one item can be owned or not. The notion of ownership has been altered by the development of technology and society.

“Since, among forms of property holding, claims on collections and funds are now of outstanding importance economically, we might say that, over a wide field, either the character of things owned has altered or the character of ownership has altered. I see no reason for preferring one form of expression to the other; our investigation has revealed, what we began by suspecting, that the notions of ownership and of the thing owned are interdependent. We are left not with an inclination to adopt a terminology which confines ownership to material objects, but with an understanding of a certain shift in meaning as ownership is applied to different classes of things owned.”

It is clear that, the most important form of acquisition of property is derived from having possession of an object. However, advanced technology has extended our knowledge of possession. Our ‘possession’, the things we call our own, increasingly

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620 Garnett, Kevin, Rayner James, Jonathan and Davies, Gillian Copinger and Skone James on Copyright (London Sweet & Maxwell 1999) supra 224
621 Honoré, Anthony Maurice, Ownership (Cambridge University Press 2012) supra 516
622 Honoré, Anthony Maurice, Ownership (Cambridge University Press 2012) supra 516
623 Erlank, Wian, Acquisition of ownership inside virtual worlds (International Property Law Conference 2010) supra 345
extend beyond the tangible. The focus in this thesis on the unique characteristic of ownership over virtual property.

This thesis argues that the greatest difference between the ownership of real property and the ownership of virtual property is not just only derived from the intangible characteristic of virtual property. The difference is also arise from the format of possession. Even digital possession is quite different from physical possession. We could find support from the possession of intellectual property right which is also not physical possession. Intellectual property theory will provided methodology for understanding digital possession and then provide justification for the accept of virtual property. Historically, copyrights and patents have determined and protected by intellectual property. In terms of virtual property, the greatest difficulty is to distinguish the different digital possession among different groups of virtual property. As discussed in chapter two, we can divide virtual items into three groups.

Each layer virtual property has their unique characteristic, therefore, the ownership of each layers should be deal with differently. This thesis intends to expend this area of scholarship by exploring the difference of possession and ownership among different groups of virtual property.

4.4.2 Twofold virtual property rights system

Instead of arguing that virtual property should be categorised as users' private property, and that owners have a justification to claim virtual property rights over

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624 Watkins, Rebecca, Denegri-Knott, Janice and Molesworth, Mike 'The relationship between ownership and possession: observations from the context of digital virtual goods’ (2016) 32 Journal of Marketing Management 44


626 See in chapter 2 at 2.3
their virtual property, this chapter sought to determine the answer to the following question: if virtual property can be owned as private property, what kind of property is it? What kinds of property rights on which owners claims? The virtual property rights system this chapter established accepts that virtual property rights are not simple exclusive private rights as discussed previously, the operation of virtual property’s function should be supported by the ISPs. The enforcement of owners’ virtual property rights impacted deeply by EULAs. Initially, users should get the access to the virtual world through signing EULAs, and users’ behaviours and interconnection in the virtual world are also protected by ISPs’ technical support through the EULAs. The virtual property rights established by this chapter is a twofold rights system. This chapter argues that the establishment of virtual property rights system should not be only based on the conflicts between users and ISPs but also concerns the conflicts between users and other users. Due to the existence of EULAs, to virtual property owners, the legal position of ISPs and other users is quite different in the virtual environment. This is also the core point, to distinguish virtual property rights from traditional property rights. This chapter adopts ‘restrained-exclusive property rights’ or ‘fundamental property rights’ to describe the “rights” users can claim against ISPs, meanwhile “relative-exclusive property rights” or ‘external property rights’ are used to describe owners’ property interests against other users.

627 See in chapter 4 at 4.3
628 Detailed discussion See in subsequent action in this chapter
629 Detailed discussion See in subsequent action in this chapter
4.4.2.1 ‘Relative-exclusive property rights’ or ‘External property rights’

From the perspective of the relationship between owners and other users (excluding ISPs), owners should claim exclusive virtual property rights over their virtual property and exclude others from infringing these rights. However, unlike physical possession over traditional property in real world, there are external proofs to demonstrate the possession of virtual property. This thesis argues that in the internet environment, once a virtual item belongs to a specific individual, it then has a unique virtual identity (It is usually an account or a domain name) which distinguishes it from other virtual items. Other internet citizens could obviously recognize that it has been owned by an individual and they should not claim any property rights over them.

The right to exclude is the primary aspect, perhaps the most important among all private property aspects. Some commentators consider the right to exclude the very essence of private property. Taking the necessity to rely on the virtual environment into consideration, the degree of the exclusive aspect of virtual property rights is not as strong as the degree of the exclusive aspect of traditional private property rights. Hence this chapter adopts ‘relative-exclusive property rights’ to describe the virtual property rights which are used to against other users. Moreover, based on the classification of virtual property established in chapter two, virtual property could be divided in three groups. The degree of exclusiveness of different

630 Pierson, Christopher Just Property: Volume Two: Enlightenment, Revolution, and History (Published to Oxford Scholarship Online: October 2016) supra 297
631 Epstein, Richard, Possession as the Root of Title (1979)13 Ga. L. Rev. 1221 ; Cf . Morris R. Cohen, Property and Sovereignty (1927) 13 Cornell L.Q. 8
632 “The first group of virtual property are all the items users get from service providers can be used directly without any further creation and exploration; the second group of virtual property are the virtual items which contain users’ personal information and the third group of virtual property contain the virtual items recreated by users.” See in Chapter 2 at 2.3
groups is varied. This chapter will analyse the specific virtual property rights of three groups respectively in following sections.

The first group of virtual property contains the virtual items that users obtained from ISPs directly. Except for the agreements between users and ISPs, users are expected to claim full exclusive property rights over this type of virtual property. Even if unlike traditional physical property which can be possessed by users physically, owners still have the right to exclude others from infringing the right to exclude, the privilege to possess or use and the power of transfer over this group of virtual property. This type of virtual property can be considered as the reflection of traditional physical property in virtual world. For instance, the virtual tables or virtual house in the virtual world.

In terms of the second group of virtual property which contains users’ private information, the tort of misuse of private information will be the efficient approach compared with the traditional protect patterns – privacy or breach of confidence. However, the current justification for the establishment of the tort of misuse of private information is insufficient. In this case, the proposed virtual property rights system which grant users property rights over their private information included in their virtual accounts, can provide justification for the establishment of the tort of misuse of private information. It also provides justification for dealing with the inherent issues of virtual property. Other users are under the duty not to access to such personal information. In contrast, users have the right to exclude, the privilege to possess and use, and the power to transfer their private information like users’ email address or messages in social media account.

633 See in Chapter 2 at 2.3
634 See in chapter 3 at 3.3
There is another point that should be noted. The EU General Data Protection Regulation (GDPR) has been used to restrain companies and other ISPs from collecting, storing, analysing and sharing users’ private information. However, this chapter argues that GDPR only aims to clarify the obligations and rights between companies and data subject. The protection for users to avoid invasion from other users is still inadequate. The twofold virtual property rights system, which distinguish the relationship between users and ISPs from the relation among users, can deal with this issue effectively by granting users legal virtual property rights.

With regard to the protection of the third group of virtual property, which contains virtual items recreated by users, they are rich with users’ creations and original ideas. This chapter argues that this type of virtual property should be considered as users’ intellectual property and intellectual property rights should be granted on them rather than hold by ISPs through EULAs. If users generated content has not meet the criterion of copyright, this chapter argues that users should be conferred the virtual property right over such virtual property.

When users’ ‘relative-exclusive property rights’ are infringed by others, in order to confirm users’ pecuniary loss, users always need the technical support from ISPs to record evidence, confirm the valuation of virtual property and prove their identity. In other words, the enforcement of ‘relative-exclusive property rights’ should always rely on the ISPs’ technical support.

635 See in General Data Protection Regulation Article 24 to Article 43
4.4.2.2 ‘Restrained-exclusive property rights’ or ‘Fundamental property rights’

Due to the existence of EULAs and TOS in virtual environment, for virtual property owners, the legal position of ISPs is quite different from other users. The enforcement of users’ property rights restrained by terms of EULAs and TOS. Hence, this chapter adopts ‘restrained-exclusive property rights’ to describe users’ property claims against ISPs. On the other hand, once users encounter the infringement from other users, they need the technical support from service provides to prevent trespass and confirm the damage. Therefore, this type of property rights also described as ‘fundamental property rights’.

Virtual items sit at the first and second level created by ISPs, and users obtain the access to use and recreate virtual items through End Users License Agreement. Relying on the classification of virtual property, this chapter argues that, for the first group of virtual property which do not contain users’ private information and creation, the exclusiveness of users’ virtual property rights is constrained. Users can exclude other users rather than ISPs. However, service provider under the obligation, for instance update their online service and provide technical support for users, to guarantee the usage and experience of uses over this type of virtual property.

With regard to the second and third group of virtual property, there still many limits for users in EULAs. This chapter hold the opinion that the virtual property are the

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636 See in chapter 2 at 2.2.2
637 See SEGA End Users Licence Agreement at http://www.sega.co.uk/EULA
5.1 You acknowledge that all ownership rights, intellectual property, trade secret and all other proprietary rights in the Game and the Online Features (including, without limitation, any computer code, themes, objects characters, character names, stories, locations, concepts, artwork, storylines, likenesses, moral rights,
users’ private property and users can claim and integrate property rights over them. Virtual property rights system grant users’ legal property rights over their virtual property and contractual clause cannot restrain the enforcement of this legal property right.

4.5 Case studies around the world

4.5.1 US

In Bragg v. Linden Research, Inc., plaintiff, March Bragg, Esq., claims that the account and avatars he created in the second life are his virtual property. Defendants, the operators of the virtual world, unlawfully confiscated his virtual property and denied him access to their virtual world. Therefore, Bragg claims that defendants infringed his virtual property rights. Although the judgement did not clarify the confusion about the virtual property rights of Bragg, it admitted that virtual items created by players have economic value. However, this chapter argues that it is insufficient to clarify the types of virtual property rights users have and the relationships between ISPs and users. In Eros LLC v Simon and Ors and Eros LLC v Leatherwood & Ors, Eros LLC, in both cases, sued for copyright and structural or landscape designs, self-generated levels created using the Game editor, musical compositions, dialogue, or any other content protected by UK or international intellectual property protection laws) are owned or licensed by SWS, that rights in the Game are licensed rather than sold to you (subject to the license granted in clause 2), and that you have no rights in or to the Game or the Online Features other than the right to Use them strictly in accordance with the terms of this EULA.

5.2 You acknowledge that you shall acquire no proprietary rights in past or stored gameplay, Game progress, character or other achievements within the Game.

5.3 You acknowledge that you have no right to access the Game in source code form.’

638 Bragg v. Linden Research, Inc., supra 5
639 “It was alleged he paid only $300 for an entire region known as ‘Taessot’. Linden Labs suspended Bragg’s account for investigation, and then closed the account for violation of the Terms of Service-dissolving his virtual assets. Bragg declared that this process caused him actual losses of between $4,000 and $6,000, and filed a civil suit against Linden Labs for breach of contract and unfair trade practices.” See in Murray, Andrew Information Technology Law-The Law and Society (4th edn, oxford University Press 2016)
640 Eros LLC v Simon and Ors 1:07-cv-04447-SLT-JMA (DC ED NY), 3 December 2007
trademark infringement. Even both cases related to virtual property, they do not examine and clarify the particular legal issues related to virtual property rights. They only focused on the intellectual property infringement reflected by virtual property and contractual clauses between ISPs and users. As demonstrated by the mentioned cases in US, it is notable that, even cases related to virtual property have been occurred, there has not an integrated discussion about virtual property rights, the judgement always focus on resolving the particular issues reflected in these cases.

4.5.2 Netherlands

In Netherlands, Habbo Hotel is a popular networking website for Youngers. Hobbo users created their own characters, known as avatars, and decorated hotel rooms and played a number of games, paying with credits. Just in this virtual world, Dutch police have made their first arrest of an online thief — a 17-year-old accused of stealing virtual furniture from rooms in the Habbo Hotel. A spokesperson for the Amsterdam Police state that” We are trying to bring charges of theft. It is a little

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642 Eros LLC v Leatherwood & Ors 8:2007-cv-01158 (DC MD Fla.), 19 March 2008
642 “Eros were the producer of a Second Life sex aid, known as the SexGen Bed, a digital bed with built-in sex position animations which allowed avatars to have virtual sex in Second Life. Their products were extremely popular and were widely pirated. They identified Mr Simon and Mr Leatherwood as two of the pirates copying their goods and siled the lawsuits in the New York and Florida respectively.” See in Andrew Murray Information Technology Law-The Law and Society (4th edn oxford University Press 2016) at 107
643 For example: Who should be the owner of virtual property? Which kind of virtual property rights the owner should have? To what extent does a user’s time and effort expended in a virtual world lead to the need for recognition of virtual property rights?
644 “Habbo Hotel was launched seven years ago by Finnish Internet company Sulake, which now claims the website has 80 million registered users in 31 countries.” See in World’s first arrests for ‘virtual theft’ The Telegraph available at https://www.telegraph.co.uk/technology/3355134/Worlds-first-arrests-for-virtual-theft.html accessed 5 July 2021
645 “An Amsterdam police spokeswoman confirmed a report that the teenager was accused of stealing 4,000 euros (2,844 pounds) worth of virtual furniture by hacking into the accounts of other users.” “Four other 15-year-olds have also been questioned in the case, which was instigated by the Web site. They are suspected of moving the stolen furniture into their own online hotel rooms.” See in Dutch police arrest teenage online furniture thief Reuters available at https://uk.reuters.com/article/oukoe-uk-dutch-online-theft-idUK1453844620071114 accessed 5 July 2021
difficult and new. There has not yet been a judgment in a case like this.” “The furniture may not be physical objects but because it represents a certain value we think theft is involved.” Even the decision of the policeman is from the perspective of criminal law, the precondition of this decision is admitting the virtual items in Habbo enrich of economic values and should be categorised as users’ personal private property. Another virtual theft case in Netherlands mentioned in previous chapter. Both cases recognising the behaviour stealing other users' virtual items as virtual theft, rather than establishing an integrated virtual property rights theory.

4.5.3 China

The first case related to virtual property in China occurred in the online game ‘Red Moon’, the plaintiff Li Hongchen, one of the players of ‘Red Moon’, claimed that his virtual equipment was stolen by other users and his game account was confiscated by the defendant. The defendant, the Arctic Ice Technology Development Co., Ltd, disputed that: on the one hand, they do not have the obligation to protect users’ online equipment and if they helped the plaintiff to investigate other users’ game account will infringe others’ privacy. Unfortunately, the court recognised this case as a contractual dispute rather than the infringement of property rights. However, this case arose the attention on the protection of virtual property. In a further case in 2013, plaintiff Kong Fanxing, the player of XYQ (Menghuan Xiyou), claimed that:

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646 See in World’s first arrests for ‘virtual theft’ The Telegraph available at https://www.telegraph.co.uk/technology/3355134/Worlds-first-arrests-for-virtual-theft.html accessed 5 July 2021
647 See in this chapter at Conflicts among users
648 As the typical civil law jurisdiction, this thesis choose Chinese case to analyse the protection of users’ virtual property rights.
all virtual equipment came from his money, time and energy spend on the game, these virtual items should be owned by him. However, the defendant closed his account, confiscated his virtual items and deleted his game currency. This is an infringement on his virtual items. In terms of the judgement of this case, due to the absence of integrated virtual property system, the court eventually made a decision based on the agreements between them.

This thesis argues that the absence of integrated virtual property systems caused insufficient justification for the court to make a decision on the protection of virtual property. Even in 2017, General Provisions of the Civil Law of the People's Republic of China states that:" Where any laws provide for the protection of data and network virtual property, such laws shall apply." It just demonstrates that virtual property should be protected, however, it did not clarify who is the owner of virtual property and which kind of virtual property rights owners could acclaim. This article is considered as an abstract provision for the protection of virtual property. And further detailed provisions have not been established.

4.6 Comparison between twofold virtual property theory and other property theory

With the purpose to explain the advantage of twofold virtual property rights system, this chapter will now compares existing property theories, which have been used as the justification for the protection of virtual property, with the proposed twofold virtual property rights theory.

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650 See in 广州市天河区人民法院（2013）穗天法民二初字第 4742 号民事判决书 (Guangzhou Tianhe District People’s Court (2013) Sui Tian Fa Min Er Chu Zi No. 4742 Civil Judgment)
651 See in ‘General Provisions of the Civil Law of the People’s Republic of China’ Article 127
4.6.1 Inner spirit and outer possession could just demonstrate a private property rather than clarify the types of property rights

According to Hegel’s free will theory, the necessity and significance of property is to supersede and replace the subjective phrase of personality, rather than to satisfy our needs. All of the things are absolutely objective, which is completely different from the inner spirit. The reason why one thing can be regard as one’s private property is that the thing becomes the embodiment of one’s internal spirit.

“A person has the right to direct his will upon any object, as his real and positive end. The object thus becomes his. As it has no end in itself, it receives its meaning and soul from his will. Mankind has the absolute right to appropriate all that is a thing.”

As the important doctrine of the necessity of private property, Hegel stated that:” Since property gives visible existence to my will, it must be regarded as “this” and hence as “mine.”

However, in order to claim the ownership of private property, just put one’s will upon the property is not enough, as the end of ownership theory is to cope the conflicts between owners and other users. “When I make an object mine, I give it a predicate, which must be manifested in its outer form, and not remain merely in my inner will.” In this situation, the action of possession is regarded as the next step to
realize the claim of ownership and then make the material of an object my property.\textsuperscript{658}

“In order to fix property as the outward symbol of my personality, it is not enough that I present it as mine and internally will it to be mine; I must also take it over into my possession.”\textsuperscript{659}

In terms of the act of possession, Hegel divided it into three types,\textsuperscript{660} the simple bodily grasp, the reform and he mark or designate of the object.\textsuperscript{661} This categorisation of the act of possession indicates that there should be different and specific form of possession based on the particular object.\textsuperscript{662} This doctrine is important for the emergence and the development of intellectual property, it also supports the acceptance of the ownership of virtual property, as it allows for the extension of the act of possession.

This chapter argues that, however, even though Hegel’s free will theory provide justification for determining whether an object can be categorised as private property, it also establishes that possession is the precondition of getting ownership, and it has not clarified which kind of property rights owners can claim. Especially for virtual property—a new types of private property, merely labelling them as users’ private property is insufficient. Therefore, this chapter proposes the twofold virtual property rights system, which based on the different conflicts owners encountered in virtual world.

\textsuperscript{658} Hegel The Philosophy of Right ibid.
\textsuperscript{659} Hegel The Philosophy of Right ibid.
\textsuperscript{660} du Bois-Pedain, Antje ‘Hegal and the Justification of Real-World Penal Sanctions’ (2016) 29 Canadian Journal of Law and Jurisprudence 37
\textsuperscript{661} Hegel The Philosophy of Right ibid.
\textsuperscript{662} Frank, Arthur, Politics and History: Montesquieu, Rousseau, Hegel and Marx/Marxism and Hegel (1st edn, Verso 2007)
4.6.2 Labour theory could clarify the property rights however cannot allocate virtual property rights among users, ISPs and others.

According to the labour theory, people have a nature right to their preservation. The World is shared in common and individuals’ labour make specific object become their private property.

“The labour of his Body, and the Work of his Hands, we may say, are properly his. Whatsoever then he removes out of the State that Nature hath provided, and left it in, he hath mixed his labour with, and joyed to it something that is his own, and thereby makes it his property”\(^\text{663}\)

Even the labour theory established by Locke mainly focus on the property rights upon existing objects. It also provides justification for the acceptance of virtual property.

Based on the layer theory, at the content layer sits the unique items contain the investment, like time, money and labour, from users.\(^\text{664}\) No matter which types of virtual property sits on the content layer, it contains different forms of individuals’ labour, namely: money, personal information, original ideas and creativity. However, the labour theory only provides the justification for the establishment of private property and mainly focus on the existing physical objects. It did not clarify the specific property upon different types of property, especial under the development of technology which arise new formats of property.

This chapter also argues that the justification provided by Locke’s labour theory for the establishment of virtual property rights theory is fundamentally flawed, both in

\(^\text{663}\) Locke, John Two Treaties of Government (1st edn, Cambridge University Press 1960) supra 51
\(^\text{664}\) See in Chapter two 2.2.2
Locke’s original statement and in modern revised edition. Based on the statement of Locke, labour theory is primarily applied to clarify the origin of property rights and provide justification for the person who first claimed the resources out of nature. Once the first person was entitled the initial nature right owner to a resource, Locke argued that man-made law would step in to delineate the contours of those rights and govern disputes among right-holders.665 In terms of virtual property, all ordinary users’ property should be based on the virtual environment which is created by service provider, thus any labour done within them cannot qualify as taking resources out of nature.666

Even Locke’s labour theory could provide justification for users to claim property rights over their virtual property, the ensuing rights to them must be wholly secondary to the property rights of the ISPs who create the virtual environment themselves.667 Therefore, this chapter proposed a virtual property rights system which could balance the different interests between ordinary users and ISPs, and also protect users against others.

665 “Labour, in the beginning, gave a right of property... The several communities later settled the bounds of their distinct territories and, by laws within themselves, regulated the properties of the private men of their society, and so, by compact and agreement, settled the property which labour and industry began...” Locke, John Two treaties of Government (Cambridge University Press 1960 27) supra 51

666 “Noting that the labor-based origination of property rights does not apply after resources are initially removed for nature.” See in Locke, John Two Treaties of Government (1st edn, Cambridge University Press 1960) ibid.

4.6.3 New property rights should be established because of new benefit-cost possibilities caused by new technology

The property rights theory established by Demsetz mainly define private property rights from economic and social perspectives. Taking social elements into account, Demsetz define property rights as

“An instrument of society and derive their significance from the fact that they help a man form those expectations which he can reasonably hold in his dealings with others.”\(^{668}\)

From the economic perspective, the function of property is defined as “the internalization of beneficial and harmful effects.” In this sense, private property right can be understood by their association with the emergence of new or different beneficial and harmful effects. However, these beneficial and harmful effects are influenced by changes in knowledge and the emergence of advanced technologies. Therefore, this thesis argues that in order to cope with the new benefit-cost possibilities caused by new technology, new property rights should be established. Virtual property rights are the typical examples of these new property rights.

All in all, compared with previous property theory, twofold virtual property rights system proposed in this chapter not only distinguishes the conflict between users and ISPs from the conflicts between users and other users, but also clarifies which kinds of property rights users can claim based on the classification of virtual property.

\(^{668}\) Demsetz, Harold, ‘Toward a Theory of Property Rights’ (1967) _supra_ 457
4.6.4 The Twofold virtual property rights system

As demonstrated by layer theory, virtual items sat in the content layer should be categorised as users’ private virtual property. Due to the existence of End Users License Agreements, the relationship between users and others are distinguished from the relationship between users and ISPs. In other words, as the owner of virtual property, they should not only deal with the conflict between them and others but also deal with the relationship between them and ISPs. This chapter argues that even in this instance, it should be noted that if conflicts between users and ISPs occur, the enforcement of users’ virtual property right should also be based on the support of ISPs.

The twofold virtual property rights system divides owners’ property rights into two groups. One is called ‘relative-exclusive property rights’ or ‘external property rights’. It is designed to avoid the infringement from other users. It can indicate the owners’ legal status. Once owners’ virtual property infringed by others, this type of virtual property right can provide justification of the legal protection for owners. The other type of virtual property right is ‘restrained-exclusive property rights’ or ‘fundamental property rights’ which is designed to indicate the rights and obligations between users and ISPs. On the one hand, it can protect owners’ virtual property from ISPs’ arbitrary action. On the other hand, when owners’ virtual property infringed by others, ISPs have the obligation to provide technical support for users. For instance, ISPs should help users to record the evidence to proof the infringement from others.

From the theoretical perspective, the establishment of the twofold virtual property rights system makes clear the legal position of virtual property and clarifies the specific property rights owners could claim. It also indicates the different legal
positions of ISPs and others with regards to the protection of virtual property. Comparatively, in practice, the twofold virtual property rights system provides justification for judges to make decisions on the protection of owners’ right rather than retrained by the provisions of End Users License Agreements. The clarity of the legal positions of virtual property break the restrictions of EULAs, and restructure the obligation of ISPs.

4.7 Conclusion

The economic value of virtual property has been widely accepted; however the integrated virtual property rights system has not been established. Due to the desire for the ownership of their virtual property, virtual property users acquire the legal protection for their virtual property. As direct guidance in virtual world, End Uses License Agreements only focus on the regulation of the obligations and rights between users and ISPs, nevertheless, compared with traditional physical property, the conflicts which virtual property owners should deal with are more sophisticated.

This chapter divides the conflicts virtual property owners encounter into two groups, ‘conflicts between users and ISPs’ and ‘conflicts among users’. Based on this classification, this chapter establishes a twofold virtual property rights system. For the conflicts among different users, this chapter adopts ‘relative-exclusive property rights’ or ‘external property rights’ to describe the virtual property rights which are used to against the infringement from other users. Even owners need the technical support from ISPs to record evidence once their virtual property rights are infringed by others, for other users, owners could claim exclusive virtual property rights over their virtual property and exclude other users from infringing these rights. For the conflicts between users and ISPs, this chapter adopts ‘restrained-exclusive property
rights’ or ‘fundamental property rights’ to describe users’ property claims against ISPs. This type of virtual property rights indicate that ISPs not only have the obligation to protect the operation of users’ virtual property, but they also have the obligation to assist users to avoid the infringement from other users.

Twofold virtual property rights system clarifies the obligations and rights between users and ISPs and provide legal justification for the protection of users’ virtual property. It also helps judges to deal with the overlap between contract law and property law when judges need to make decisions on cases related to the protection of virtual property.
Chapter 5 Analysis and modification of terms of EULAs in the virtual world

5.1 Introduction

Copyright contractual clauses in EULAs between ISPs and users are a popular approach used to regulate behaviours in the virtual world. However, in accordance with the purpose to provide legal protection on users’ virtual property rights, this chapter argues that contractual clauses are not the appropriate approach to provide protection for virtual property rights as they lack sufficient negotiation and their legal status have not been fully clarified.

The virtual world could be described as a computer program that creates a replicated environment through graphical representations of physical objects, existing online in the form of massive multiusers platform. Taking the characteristic and operation of the virtual world into consideration, with the

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671 See in chapter 2 at 2.2.1
672 This is the preferred definition of the thesis. The virtual world is also defined as a market-based and contract-based world. “The Internet might also police itself in an unregulated market-based, contract-based world.” See in Gong, Jennifer ‘Defining and addressing virtual property in international treaties’ (2011) supra 121.
674 “[A] computer program with three defining features:
intention to regulate the behaviour in virtual world, ISPs usually use End User License Agreement (EULA) to regulate the allocation of rights between themselves and users.

By analysing the current provisions provided by EULAs this chapter classifies the variant types of virtual property into four categories.

For users’ rights over their virtual property in the virtual world, ISPs only acknowledge that users maintain intellectual property over user generated content which has been protected by current intellectual property law. However, this chapter suggests applying a twofold virtual property rights system to modify such terms in EULAs.

(1) Interactivity: it exists in one computer but can be accessed remotely (i.e. by an internet connection) and simultaneously by a large number of people, with the command inputs of one person affecting the command results of other people.

(2) Physicality: people access the program through an interface that simulates a first-person physical environment on their computer screen . . .

(3) Persistence: the program continues to run whether anyone is using it or not; it remembers the location of people and things, as well as the ownership of objects.” See in Kevin W. Saunders, ‘Virtual Worlds-Real Courts’ (2007) 52 Vill. L. Rev. 187

As a part of the installation process for the client-side software that allows an end-user to connect to a virtual environment, the end-user must agree to a click-through contract, a EULA, outlining the terms under which the software developer licenses the software to the end-user. In any commercial software, the EULA is a major determinant of the respective rights of both the end-user and software developer, containing warranty disclaimers, hold harmless provisions, and other measures to protect the developer from liability.” See in Lawrence, Dan ‘It really is just a game: the impracticability of common law property rights in virtual property’ (2008) supra 125; Howard Rheingold The Virtual Community (The MIT Press 2000)


This chapter categorise virtual property into four groups: Virtual items users get from service providers directly and without any reproduction; virtual objects that contain users’ personal private information; virtual information which contain users’ original ideas and that are not protected by copyright law; users’ online footprint.

“Permission to use content that you create and share: Some content that you share or upload, such as photos or videos, may be protected by intellectual property laws. You own the intellectual property rights (things such as copyright or trademarks) in any such content that you create and share on Facebook and the other Facebook Company Products you use. Nothing in these Terms takes away the rights you have to your own content. You are free to share your content with anyone else, wherever you want.” See in Facebook Terms of Service available at https://www.facebook.com/terms.php

“This chapter adopts “restrained-exclusive property rights” or “fundamental property rights” to describe the “rights” users can claim against service providers, meanwhile “relative-exclusive property rights” or “external property rights” are used to describe owners’ property interests against other users.” See in Chapter 4 at “Twofold Virtual Property Rights System”
With regards to the terms related to the first category of virtual property, this chapter argues that users’ exclusive property rights were only impacted, due to the existence of EULAs between users and ISPs, to ISPs, for others, users still hold exclusive property rights over this type of virtual property. This chapter suggests that ISPs should clarify users’ impacted-exclusive property rights in EULAs and also clarify the restriction for users’ virtual property only between them and users, not extend to the relationship between users and others.

In terms of the protection of users’ own original virtual property, this chapter argues that for user generated content which has been protected by current copyright law, the EULA should not be used as a license to transfer the right from users to ISPs. Moreover, there is no justification for ISPs to use the EULA to grant themselves many non-exclusive rights over users’ virtual property. Therefore this chapter will propose suggestions for the modification of the terms in EULA which allocate virtual property rights in the virtual world.

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680 The operation of users’ virtual property rights should rely on the virtual environment established by service providers. Users’ behaviours in virtual world should also in compliance with the regulation of EULAs. Therefore, the conflicts and relationship between users and service providers are different from the conflicts and relationship among users. The operation of users’ virtual property should also respect service providers’ rights in virtual world which regulated in the terms of EULAs. From this perspective, users’ virtual property rights against service providers are impacted and restricted by EULAs compared with users’ virtual property rights against other users.

681 Because all users’ virtual property should rely on the virtual environment which is created by service providers, even this chapter argues that service providers cannot use contractual clauses to violate users’ virtual property rights, service providers still can use these contractual clauses to regulate users’ behaviours in the virtual world and with the purpose to improve service or protect other users’ virtual property rights, service providers could terminate users’ account.

682 Ibid.

683 “By submitting, posting or displaying Content on or through the Services, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods (now known or later developed). This license authorizes us to make your Content available to the rest of the world and to let others do the same. You agree that this license includes the right for Twitter to provide, promote, and improve the Services and to make Content submitted to or through the Services available to other companies, organizations or individuals for the syndication, broadcast, distribution, promotion or publication of such Content on other media and services, subject to our terms and conditions for such Content use. Such additional uses by Twitter, or other companies, organizations or individuals, may be made with no compensation paid to you with respect to the Content that you submit, post, transmit or otherwise make available through the Services.” See in Twitter Terms of Service available at https://twitter.com/en/tos
With regards to the terms in collecting users’ personal information, this chapter argues that the limitation for ISPs in collecting users’ personal information is insufficient. ISPs should be acquired to add terms in EULAs to clarify users’ personal information right and then get users’ consent to collect their personal information.

5.2 Background of End Users Licence Agreements (EULA)

EULAs were designed by ISPs to clarify the terms of use between ISPs and users.684

Some EULAs come in the form of “click-wrap” agreements, and there are also many other forms of EULA, like “browse-wrap” and “shrink-wrap” agreements. All of these individually negotiated terms in EULAs have in common a lack of negotiation, as the contract is designed by ISPs and acceptance is indicated by some act other than a written signature.

With the advent of advanced digital and information technology, the virtual world is becoming a primary platform for users to interact with other users with the purposes of social use and business. However, the online interaction service is provided by ISPs who created and produced the virtual world. Signing and agreeing the contract is the precondition for users if they need the access to specific virtual worlds. The key point is that, due to the desire to enter the virtual world and enjoy the service, users are normally not aware of the specific terms of these types of contract provided by ISPs. In some circumstance they did not recognise what they have signed is a contract. The lack of users’ awareness will cause a gap between

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685 King, Chelsea ‘Forcing Players to Walk the Plank: Why End User License Agreements Improperly Control Players’ Rights Regarding Microtransactions in Video Games’ (2017) supra 101
688 “where a list of boxes appears on the user’s screen with a button that says “Next,” which the user will continue to click until finally the button changes to “I accept” or “I agree.” See in Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ (2007) supra 160
689 However, this chapter also admits that not all EULA lack of the written signature, for those professional designed software which for some particular purpose, they still need a written signature. For the majority of EULA designed by service providers, they do not need a written signature.
690 Jankowich, Andrew ‘Property and democracy in virtual worlds’ (2005) supra 220
the users’ expectation about the rights upon their virtual property and the actual rights and obligations regulated by the provisions in contract provided by ISPs.695

This chapter argues that the reason causing the gap between users’ expectation of the rights upon their virtual property, and their actual rights is that there is not a clear recognition of the legal status of their virtual property. Users’ virtual property cannot be protected by current laws if the legal status of their virtual property has not been recognised. There will be no justification for the protection of their virtual property. Due to the variation in the businesses of different companies, there are numerous different types of virtual property in different virtual worlds. With the purpose of analysing the relationship between users and ISPs and the provisions in contract, this chapter classifies the various types of virtual property into four categories: virtual items users get from ISPs directly and without any reproduction;696 virtual objects which contains users’ personal private information;697 virtual information which contains users’ original ideas and which have not been protected by copyright law;698 and finally, the users’ online footprint.699 It is also should be noted that, the business of companies is extremely diverse, and different types of companies concentrate on different types of virtual property. Therefore, this chapter also divides companies into four groups: social media companies (like Wechat, Facebook and Twitter); online

2; Lawrence, Dan ‘It really is just a game: the impracticability of common law property rights in virtual property’ (2008) supra 125; Jacob Rogers, Note, ‘A Passive Approach to Regulation of Virtual Worlds’ (2008) 76 GEO. WASH. L. REV. 405

695 This chapter also admits that in some particular circumstances, users can recognise the terms related to their personal information. However, majority of users did not recognise the existence of the terms related to their personal information.

696 Virtual weapons in online games are the typical example of this type of virtual property, the virtual service users get from service providers is also an example of this type of virtual property.

697 This type of virtual property contains users’ emails and chats with friends by communications software. This type of virtual property always contains users’ personal information.

698 This type of virtual property contains the pictures users post in social media or the comments which contain users’ original ideas post in the virtual world.

699 Users’ online footprint and browse history are the typical example of this type of virtual property.
account companies (like Gmail and Yahoo); online games companies (like Second Life and Blizzard); and online search and shopping companies (like Google, Baidu and Amazon).\textsuperscript{700} Hence, this chapter will analyse various types of users’ virtual property under the classification of different companies.

\section*{5.2.1 The advent of EULAs}

As the creator of a virtual environment, ISPs can use computer code to control what goes on within a virtual world.\textsuperscript{701} Computer code plays a technical role in governing users’ behaviours in the virtual world.\textsuperscript{702} However, for the rules which cannot be easily written into computer code, ISPs uses EULA to regulate the allocation of rights and obligations in virtual world.\textsuperscript{703}

“Usually, online service providers make large initial investments in computer hardware, software, and intellectual property to establish a community or web-space with long-term growth potential. Service providers then license access to these expensive resources to users. Users manipulate, interact with, and develop these resources according to certain rules set by the service provider, as would a licensee acting within the bounds of a licence.”\textsuperscript{704}

\begin{footnotesize}
\textsuperscript{700} The classification established in this thesis based on the business scope of different companies. Social media companies focus on the content users’ post in their account. Online account companies concentrate on the communicate information between users and their friends, online game companies mainly about users’ virtual experience and virtual items in the online games and online search and shopping companies focus on users’ online footprint and shopping preference.


\textsuperscript{704} Blazer, Charles, ‘The Five Indicia of Virtual Property’ (2006) supra 18
\end{footnotesize}
For users, EULAs permit them access to operate the product pursuant to rules and it follows that if users do not abide by an EULA, ISPs can terminate their access into virtual world. For ISPs, EULAs could be considered as a tool to favour their interests in virtual world. However, this chapter argues that, even though a EULA can have a positive effect on regulating users' behaviour and protecting users' experience in virtual world, users' legal virtual property rights should not be regulated via contractual clauses.

5.2.2 History of EULA

Under the development of information technology, in order to protect authors' copyright right in the digital world, there have been many contractual statutory provisions in practice to achieve the progress of the expansion of copyright.

“In the digital environment licensing contracts, rather than outright sales, are predominant. The market for electronic services is growing

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706 “Developers need to control user behavior in order to protect the integrity of the virtual world and guarantee a positive user experience. Disruptive users could, for example, verbally harass other users or undermine the virtual-world economy, thereby driving away business. Although user restraints could theoretically be programmed into the underlying virtual-world code, this is not always technically feasible. Thus, EULAs offer an easier, more flexible way to control user behaviour.” See in Cifrino, Christopher ‘Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be The Governing Paradigm in The Law of Virtual Worlds’ (2014) supra 2
707 ‘The heart of the argument on appeal concerns whether the terms of the Artistic License are conditions of, or merely covenants to, the copyright license. Generally, a “copyright owner who grants a nonexclusive license to use his copyrighted material waives his right to sue the licensee for copyright infringement” and can sue only for breach of contract. Sun Microsystems, Inc., v. Microsoft Corp., 188 F.3d 1115, 1121 (9th Cir.1999); Graham v. James, 144 F.3d 229, 236 (2d Cir.1998). If, however, a license is limited in scope and the licensee acts outside the scope, the licensor can bring an action for copyright infringement. See S.O.S., Inc. v. Payday, Inc., 886 F.2d 1081, 1087 (9th Cir.1989); Nimmer on Copyright, § 1015[A] (1999). ‘See in Robert JACOBSEN, Plaintiff-Appellant, v. Matthew KATZER and Kamind Associates, Inc. (doing business as KAM Industries), Defendants-Appellees. No. 2008-1001.
rapidly, and users’ access to copyright content is increasingly governed by contract."708

Compared with the copyright contractual clauses, in the virtual world, the situation is more complicated.709 As the legal position of virtual property has not been recognised by existing law,710 there is not a predictable approach in the protection of users’ virtual property when those users interact with other users in the virtual world. As the creator and distributor of a virtual world,711 the ISPs turn to use contracts to allocate rights on virtual items rather than rely solely on the default protection of intellectual property law. As the EULA gives more certainty and encapsulates more things. Copyright comes in when it no longer works.

“Instead of relying solely on the default protections of intellectual property law, providers turned to contract to allocate rights to virtual items. These contracts generally take the form of the familiar end user license agreement (EULA) that accompanies practically every software transaction.”712

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710 “The history of U.S. laws on virtual property is short and limited. The only existing statute to be considered a potential fit for virtual property protection is the Computer Fraud and Abuse Act (CFAA).’ See in Lawrence, Dan, Note, ‘It Really Is Just A Game: The Impracticability of Common Law Property Rights in Virtual Property’ (2008) supra 125

711 “Developers invest large amounts of money in equipment, capital, software and intellectual property and are therefore generally unwilling to abandon any assets of value, intangible or otherwise.” See in Abramovitch, Susan & Cummings, David, ‘Virtual Property, Real Law: The Regulation of Property in Video Games’ (2007) supra 36

The contract between users and ISPs generally take the form of the familiar End Users License Agreements (EULA).\textsuperscript{713} As the precondition of getting access to a particular virtual world,\textsuperscript{714} the EULA is designed and provided by ISPs to regulate the obligations and rights of users. The right of users in their virtual property is currently governed almost exclusively by EULAs\textsuperscript{715} and their variants.\textsuperscript{716} This chapter argues that the purpose to establish the EULAs is primarily dominated by the focus of different companies. \textsuperscript{717} However, no matter how different the purpose to draft EULA is, EULAs favour the rights of the developer over the rights of the users.\textsuperscript{718}

“The purpose of the EULA is to protect the investment of the world-makers, to curb liability, and to allow game developers to retain a measure of control over the goings-on in the virtual world.”\textsuperscript{719} This chapter argues that the existence of current EULAs not only did not clarify the allocation of rights over virtual property between ISPs and users, but also causes confusion on the relationship between ISPs and users:

\begin{itemize}
  \item \textsuperscript{714} ‘EULAs have been characterized as “clickwrap,” a reference to real-world “shrinkwrap” contracts that are accepted upon removing the shrinkwrap from a product. Upon launching a virtual-world program, users are faced with the terms of the agreement, and can either click “I accept” (opening the virtual shrinkwrap and proceeding), or “I do not accept” (terminating the program).’ See in Cifrino, Christopher ‘Virtual Property,Virtual Rights: Why Contract Law, Not Property Law, Must Be The Governing Paradigm in The Law of Virtual Worlds’ (2014) \textit{supra} 2
  \item \textsuperscript{715}Jankowich, Andrew, ‘EULAw: The Complex Web of Corporate Rule-Making in Virtual Worlds’ (2006) \textit{supra} 621
  \item \textsuperscript{716}Variants include terms of service, terms of use and codes of conduct. See in Cifrino, Christopher ‘Virtual Property,Virtual Rights: Why Contract Law, Not Property Law, Must Be The Governing Paradigm in The Law of Virtual Worlds’ (2014) \textit{supra} 2
  \item \textsuperscript{717}Companies involve in different area and the relationship between them and their users is quite different, which caused that their purpose to draft the EULAs is different.
  \item \textsuperscript{718}Ludwig, Jordan, ‘Protection for Virtual Property: A Modern Restitutionary Approach’ (2012) \textit{supra} 2
  \item \textsuperscript{719}Westbrook, Theodore, Comment, ‘Owned: Finding a Place for Virtual World Property Rights’ 2006 Mich. St. L. Rev. 779 ‘Game designers can control what goes on in the game through contract. In most cases, in order to participate in virtual worlds, players must agree to the platform owner’s Terms of Service . . . or End User License Agreement . . . . The EULA covers features of proper play and decorum that cannot easily be written into the code. Game designers enforce social norms in the game space by kicking out (or threatening to kick out) people who violate the EULA.’ See in Glushko, Bobby, Note, ‘Tales of the (Virtual) City: Governing Property Disputes in Virtual Worlds’ (2007) \textit{supra} 97
\end{itemize}
“Using only contracts without further Internet-specific regulation challenges registration enforceability and true protection because EULAs and ToS's do not bind infringing parties to the property and contract clauses they often feature between ISP and user. Contracts cannot be the sole source of regulation and governance in the Internet world.”  

5.3 The conflicts between ISPs and users

As mentioned previously, users’ virtual property was classified into four categories. This chapter will analyse the conflicts between ISPs and users on four types of virtual property respectively.

With regard to the first category of virtual property (the virtual items users get from ISPs directly without any further reproduction), the avatar in massively multiplayer online role playing game (MMORPG) are a typical example. Players’ normal expectation about virtual property rights, especially the ownership interests on their virtual items, might be far removed from the terms of an EULA. With the

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720 Gong, Jennifer ‘Defining and addressing virtual property in international treaties’ (2011) supra 121
721 This chapter categorise virtual property into four groups: Virtual items users get from service providers directly and without any reproduction; virtual objects that contain users’ personal private information; virtual information which contain users’ original ideas and that are not protected by copyright law; users’ online footprint.
723 Marc, Andrew Spooner It’s not a Game Anymore, or Is It?: Virtual Worlds, Virtual Lives, and The Modern (MIS) Statement of The Virtual Law Imperative (University of Saint Thomas Law Journal 2012)
724 “Blizzard’s Ownership

With the sole exception of the Licensors’ Games, Blizzard is the owner or licensee of all right, title, and interest in and to the Platform, including the Games that are produced and developed by Blizzard (“Blizzard Games”), Custom Games derived from a Blizzard Game, Accounts, and all of the features and components thereof. The Platform may contain materials licensed by third-parties to Blizzard, and these third-parties may enforce their ownership rights against you in the event that you violate this Agreement. The following components of the Platform (which do not include content or components of the Licensors’ Games), are owned or licensed by Blizzard:

All virtual content appearing within the Platform, including the Blizzard Games, such as:
support of virtual environments, MMORPGs enable players to “interact with one another in real-time in a shared environment, even though these users may be separated by vast geographic distances.” Players acquire property by achieving particular tasks within the game or by purchasing items with real-world currency. Due to the purchase, and investment in the virtual items they have acquired, and also based on the actual possession of the virtual items, users naturally hold the opinion that they are the owner of their virtual item. As with copyright law that grants authors copyright protection over the works authors created, this chapter argues that EULAs also should need to provide legal protection for the users’ expectation on their virtual property. In order to clarify where the conflict between ISPs and users arises from, this chapter first analyses where users’ ownership interests come from. With the purpose of protecting users’ virtual property interests,

Visual Components: Locations, artwork, structural or landscape designs, animations, and audio-visual effects;
Narrations: Themes, concepts, stories, and storylines;
Characters: The names, likenesses, inventories, and catch phrases of Game characters;
Items: Virtual goods, such as digital cards, currency, potions, weapons, armor, wearable items, skins, sprays, pets, mounts, etc.;
All data and communications generated by, or occurring through, the Platform;
All sounds, musical compositions, recordings, and sound effects originating in the Platform;
All recordings, Game replays, or reenactments of in-game matches, battles, duels, etc.;
Computer code, including but not limited to “Applets” and source code;
Titles, methods of operation, software, related documentation, and all other original works of authorship contained in the Platform;
All Accounts, including the name of the Account and any Battle Tags associated with an Account. All use of an Account shall inure to Blizzard’s benefit. Blizzard does not recognize the transfer of Accounts. You may not purchase, sell, gift or trade any Account, or offer to purchase, sell, gift, or trade any Account, and any such attempt shall be null and void and may result in the forfeiture of the Account;
All Moral Rights that relate to the Platform, including Custom Games derived from a Blizzard Game, such as the right of attribution, and the right to the integrity of certain original works of authorship; and
The right to create derivative works, and as part of this Agreement, you agree that you will not create any work based on the Platform, except as expressly set forth in this Agreement or otherwise by Blizzard in certain contest rules, Blizzard’s Fan Policies, or addenda to this Agreement.” See in Blizzard End User License Agreement available at https://www.blizzard.com/zh-tw/legal/fba4d00f-c7e4-4883-b8b9-1b4500a402ea/blizzard-end-user-license-agreement see also in Ackerman, Justin ‘An online gamer’s manifesto: recognizing virtual property rights by replacing end user licensing agreements in virtual worlds’ (2012) supra 232

726 Stalmans, Chris ‘More Than just Games: Virtual Property Rights in Massively Multiplayer Online Games’ (2012) ASPER 203
727 Shen, Leah ‘Who Owns the Virtual Items’ (2010) supra 345
many commentators make their arguments based on the traditional legal theory, including labour theory,\textsuperscript{728} personhood theory\textsuperscript{729} and utilitarianism.\textsuperscript{730} Therefore, this chapter will analyse these theories respectively in the following section of this chapter.

5.3.1 Merits and shortcomings of Labour theory for the recognition of users’ virtual property rights

Labour theory provides a straightforward justification for users’ property interest upon their virtual property. Every person has property in their intellectual labour, so that whenever a person mixes their intellectual labour with something from commons, they thereby make it their property. Based on Locke’s labour theory, property rights are a natural right that arise once a person has invested labour in acquiring a property.

“The labour of his body, and the work of his hand, we may say, are properly his. Whatsoever then he removes out of the state that nature hath provided, and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property.”\textsuperscript{731}

After clarifying the original source of property interest, Locke furthers the exclusive aspect of property rights.

“It being by him removed from the common state nature placed it in, it hath by his labour something annexed to it, that excludes the common

\begin{flushright}
\textsuperscript{728} Locke, John \textit{Two Treaties of Government} (1st edn, Cambridge University Press 1960) \textit{supra} 51 \\
\textsuperscript{729} Hegel \textit{The Philosophy of Right} (1st edn, London George Bell And Sons 1896) \textit{supra} 53 \\
\textsuperscript{730} Bentham, Jeremy, \textit{An Introduction to the Principles of Morals and Legislation} (Batoche Books Kitchener 2000) \\
\textsuperscript{731} Locke, John \textit{Two Treaties of Government} (1st edn, Cambridge University Press 1960) \textit{supra} 51
\end{flushright}
right of other men. For his labour being the unquestionable property of the labourer, no man but ha can have a right to what that is once joined to, at least where there is enough, and as good left in common for others.”

In terms of users’ property interests over their virtual property, with the application of Locke’s labour theory, users deserve property rights based on their achievement, skills, efforts and purchase in virtual world. Moreover, because the labour of users was mixed with virtual property, the user should be the only owner of their virtual property. Like the application of labour theory to the field of intellectual property, it also went through the debates on “whether ideas are the product of labour?” “Whether or not labour theory covers intellectual property rights?” frankly, labour theory provides an approach to grant moral foundation to intellectual property rights.

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732 Locke, John Two Treaties of Government (1st edn, Cambridge University Press 1960) supra 51
733 See the copyright subsistence text of originality in University of London Press, Limited v University Tutorial Press, Limited. [1916] 2 Ch. 601
734 “what is distinctive about labor is that labor involves the use of individuals’ productive capacities, which involves decisions (potentially stretching across a significant chunk of an individual’s life) about how to utilize time, energy, resources, skills, and what opportunities to forgo, in the pursuit of ends. The more control individuals have over the exercise of these capacities, and the more they are able to benefit from their decisions, the more control they have over significant portions of their lives, and the more they are able to live their lives in accord with their own freely and reflectively chosen ends. Property rights help secure this control. Because of some of the unique features of ideas, only IPRs will suffice for securing this control for intellectual laborers.” See in Cwik, Bryan ‘Labor as the Basis for Intellectual Property Rights’ (2014) 17Ethic Theory Moral Prac 681
735 ‘It is well known that Locke’s theory of private property is theologically founded. Locke argues that God gave the world to human beings in common and provided them with reason to make use of it to the best advantage of their life. This argument theoretically leads to the formation of two provisos. The first is the ‘no waste’ proviso according to which appropriated resources must be used, otherwise they become common again. The second is the ‘enough and as good’ proviso. As it is well known, for Locke private appropriation is morally justified only if it leaves enough and as good to newcomers. Both provisos condition individual property rights and develop presuppositions of social reproduction. Therefore, it can be said that Locke’s theory justifies the transition from the ‘general’ right of common ownership in the state of nature to the ‘special’ right of private ownership in civil society.’ See in Theodoros Papaioannou Can Intellectual Property Rights be Morally Justified? The Case of Human Gene Patents DIME Working Papers on INTELLECTUAL PROPERTY RIGHTS http://ipr.dime-eu.org/ipr_publications
Even there are scholars which criticise labour theory,\(^{736}\) a labour theory of intellectual property is still powerful.\(^{737}\) The unanimous opinion was that in the UK for copyright purposes a work is “original”, and can therefore qualify for copyright protection, if it is the result of its author’s own skill, labour, judgment and effort. This approach has been confirmed in numerous English cases.\(^{738}\) In *University of London Press v. University Tutorial Press*,\(^{739}\) the defendant issued a publication which reproduced certain examination papers in which the claimant claimed copyright. On considering the claim, the court expanded on the meaning of originality for the purpose of copyright. The idea expressed in the work need not be original; it is the expression which must be original. If independent skill and labour have been applied in creating a work, this will suggest a new work which attracts copyright protection even if an existing work has been used as a reference point.

In terms of the application of labour theory to virtual property, this chapter argues that the user who has devoted a great deal of time becoming skilled and famous as a virtual world craftsman deserves property rights avoid having his creations unilaterally removed from the world by the developer.\(^{740}\) Labour theory provides justification for users’ ownership claims over virtual property, meanwhile it also causes the conflicts between ISPs and users on the ownership of virtual property.

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\(^{736}\) The principal problem with applying this theory is that it does not self-explain why labour added to a resource “held in common” should entitle one to a property right in such resource; if “yes”, what is meant by “intellectual labour” and “held in common”; and how far should one’s rights go in the fruits of his labour (as Robert Nozick observed, “If I pour my can of tomato juice into the ocean, do I own the ocean?”).


\(^{739}\) *University of London Press, Limited v University Tutorial Press, Limited*. [1916] 2 Ch. 601

\(^{740}\) This chapter also admits that in some circumstance users’ virtual property has not been removed by service providers via the contractual clauses in EULAs, however, the purpose to clarify this argument is to avoid this type of infringement.
Labour theory cannot distinguish the labour from users and labour from ISPs.\textsuperscript{741} There are different levels of investment in virtual world compared with the traditional property in real world. Therefore, this chapter argues that even virtual property contains both ISPs and users’ investment, their investment concentrate different level of virtual property. The allocation of ownership in virtual world should depends on the classification of virtual property. The virtual property right theory proposed in Chapter Four\textsuperscript{742} which is based on the layer theory\textsuperscript{743} can resolve the conflicts caused by the different levels of labours in virtual world effectively.

5.3.2 Merits and shortcomings of Personhood theory in clarifying users’ virtual property rights

An alternative justification for the property rights in virtual world is derived from personhood theory,\textsuperscript{744} which is rooted in Hegel’s free will theory\textsuperscript{745} and Kants’ moral philosophy.\textsuperscript{746} Personhood theory concentrates on the relationship between particular objects and individuals. If there is a close relationship between an object and individual, the individual can be entitled the owner of the object and the object can be categorised as the individual’s personal property.\textsuperscript{747}

\textsuperscript{741} Nozick, Robert, \textit{The Nature of Rationality} (Princeton University Press 1993)
\textsuperscript{742} See in Chapter Four
\textsuperscript{743} See in Chapter 2
\textsuperscript{744} Jane Radin, Margaret , ‘Property and Personhood’ (1982) supra 52 (outlining the personhood theory of property).
\textsuperscript{745} “A person has the right to direct his will upon any object, as his real and positive end. The object thus becomes his. As it has no end in itself, it receives its meaning and soul from his will. Mankind has the absolute right to appropriate all that is a thing.” See in Hegel \textit{The Philosophy of Right} (1st edn, London George Bell And Sons 1896) supra 53
\textsuperscript{746} Kant, Immanuel Kant \textit{Grounding for the metaphysics of morals} (SparkNotes Philosophy Guide Series, Spark 2014) supra 54
\textsuperscript{747} Hegel \textit{The Philosophy of Right} (1st edn, London George Bell And Sons 1896) supra 53
“These objects are closely bound up with personhood because they are part of the way we constitute ourselves as continuing personal entities in the world.”

“An object is closely related to one’s personhood if its loss causes pain that cannot be relieved by the object’s replacement. If so, that particular object is bound up with the holder.”

Personhood theory affords protection based on the degree of relationship between object and individuals, moreover, the more attached an individual is to a piece of property, the greater the rights the law should grant. On this view, for virtual property, users believe that the relationship between them and virtual property is more closed than the relationship between virtual property and service provider. Therefore, they desire virtual property rights over their virtual property.

5.3.3 Merits and shortcomings of Utilitarian Theory in clarifying virtual property rights

The third justification for recognising property rights over virtual property derives from utilitarian theory which proposed by Jeremy Bentham.

748 Jane Radin, Margaret, ‘Property and Personhood’ (1982) supra 52
749 Economic language, though awkward in this realm, would say that the holder of such an object has a large amount of consumer surplus that would be very difficult to ascertain accurately. The holder typically would not think about the object in monetary terms at all. Applying economic reasoning to things of high sentimental value presents difficulties because such things are likely to represent a large proportion of a person’s total “wealth.” See Kennedy, ‘Cost-Benefit Analysis of Entitlement Problems: A Critique’ supra 57; See also Baker, ‘The Ideology of the Economic Analysis of Law’ (1975) supra 57
750 Jane Radin, Margaret, ‘Property and Personhood’ (1982) supra 52
752 Bentham, Jeremy, An Introduction to the Principles of Morals and Legislation (Batoche Books Kitchener 2000) supra 658
“By utility is meant that property in any object, whereby it tends to produce benefit, advantage, pleasure, good, or happiness, (all this in the present case comes to the same thing) or (what comes again to the same thing) to prevent the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered: if that party be the community in general, then the happiness of the community: if a particular individual, then the happiness of that individual.”

Relying on the utilitarian theory, the rationality of all actions are determined by its consequences: The preferable course of action is the one that creates the greatest happiness for the greatest number of people. Applying this principle to virtual property, a recognition of users’ virtual property rights could inevitably increase users’ happiness when they engage in virtual world. In return, users will invest more time and money in the virtual world which could bring profit for the ISPs and in addition greater rights will lead to greater certainty. The certainty will increase the investment not only from users but also from outside investors. Furthermore, the certainty of users’ virtual property rights would ensure transactions related to virtual property among different users more efficient.

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756 Christ, Roxanne and Peele, Curtis ‘Virtual worlds: personal jurisdiction and click-wrap licenses’ (2008) supra 138
757 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
After analysing where does users' ownership interests over their virtual property come from, this chapter then do further analysis on conflicts between ISPs and users by using case law from a variety of jurisdictions.758

5.4 Practical analyse in the contractual clauses in the virtual world

In Bragg v Linden research, Inc.,759 the main conflict between plaintiff, March Bragg, and defendant, Linden Research Inc. is the ownership of a parcel of virtual land named “Taessot” which is purchased by Bragg through real money but was took away by Linden eventually. 760 On April 30, 2006, when Bragg acquired a parcel of virtual land named "Taessot" for $300. Linden sent Bragg an email advising him that Taessot had been improperly purchased through an "exploit." Linden took Taesot away. It then froze Bragg's account, effectively confiscating all of the virtual property and currency that he maintained on his account with Second Life.761 With regards to the conflicts between ISPs and users over the virtual items users get from ISPs directly, the ownership is the primary dispute. The virtual items that exist in online

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758 Taking the popularity of variety virtual worlds across the world into consideration, in order to clarify the conflicts between users and service providers, this chapter analyse different cases related virtual property from a variety of jurisdictions.

759 This case occurred in the US. In the US case, Bragg v. Linden Research, Inc., supra 5 (E.D. Pa. 2007). In the US there are many cases related to virtual property rights in the virtual world, however, the decision of Bragg v. Linden Research, Inc. is relevant clear and main focus on the enforcement of clauses in EULA.

760 “In 2005, Plaintiff Marc Bragg, Esq., signed up and paid Linden to participate in Second Life. Bragg claims that he was induced into “investing” in virtual land by representations made by Linden and Rosedale in press releases, interviews, and through the Second Life website. Bragg also paid Linden real money as “tax” on his land. By April 2006, Bragg had not only purchased numerous parcels of land in his Second Life, he had also digitally crafted “fireworks” that he was able to sell to other avatars for a profit. Bragg also acquired other virtual items from other avatars.

The dispute ultimately at issue in this case arose on April 30, 2006, when Bragg acquired a parcel of virtual land named “Taessot” for $300. Linden sent Bragg an email advising him that Taessot had been improperly purchased through an “exploit.” Linden took Taesot away. It then froze Bragg's account, effectively confiscating all of the virtual property and currency that he maintained on his account with Second Life.” See in Marc BRAGG, Plaintiff, v. LINDEN RESEARCH, INC. and Philip Rosedale, Defendants. No. CIV.A.06 4925. May 30, 2007

games are a typical example of this type of virtual property. The claims of users mainly depends on their further investment on the virtual item they get from service provider, however, ISPs limit users’ property rights over this type of virtual property by using contractual clauses in EULAs.

With regards to the conflict between ISPs and users over the second category of virtual property, virtual objects contain users’ personal private information, the primary dispute is on misuse of users’ private information.

On 8 July 2019, British Airways was facing a record fine of £183m due to unauthorised access to their customers’ personal information including log in, payment card, and travel booking details as well name and address information.762

With the development of computer technology which interacts with internet technology, internet users’ personal information can be stored in a variety of formats.763 On the other hand, this trend also arouses users’ attention on the protection of their personal information.764 The different interests between users and ISPs on users’ personal information is the main origin of the conflicts between them in the second category of virtual property which contain users’ private personal information.

In terms of the third category of virtual property - virtual information which contain users’ original ideas and have not been protected by copyright law the main conflicts between users and ISPs concern the ownership of intellectual property rights.765 As

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765 Efroni, Zohar, Access-Right: The Future of Digital Copyright (Law Oxford Scholarship Online 2011) supra 357
the first producer of virtual world and included virtual property, the ISPs always use contractual clauses to maintain their intellectual property rights over virtual items.\textsuperscript{766} However, this chapter argued that these contractual clauses could ignore the reproduction by users and restrict users’ intellectual property rights.

In \textit{ProCD, Inc. v. Zeidenberg},\textsuperscript{767} with the purpose of prohibiting their customers from reselling ProCD’s own compilation of telephone numbers, ProCD used contractual clauses to claim intellectual property rights over their compilation of telephone numbers.\textsuperscript{768} The key point of this case is that it deals with the conflicts and the fundamental relationships between the reach of a contract and the copyright balancing exercise on the work which has not been protected by copyright law.\textsuperscript{769}

The conflicts between contractual clauses and current legislation and policy also occurred in \textit{SAS Institute Inc v World Programming Ltd},\textsuperscript{770}

\textsuperscript{766} See in Blizzard End Users License Agreements available at https://www.blizzard.com/en-us/legal/fba4d00fc7e4-4883-b8b9-1b4500a402ea/blizzard-end-user-license-agreement

\textsuperscript{767} Supra

\textsuperscript{768} “In ProCD, a manufacturer of computer software (ProCD), information from over 3,000 directories into a telephone containing approximately 95 million telephone listings (at expense) and developed a search engine to be used in conjunction database. In order to effectively market the software, the database at different prices—higher prices for commercial lower prices for private users. A problem arose, however, berg bought a private user package, but ignored the license, listings, and made the database commercially available over through his own proprietary search engine. ProCD sued claiming copyright infringement and breach of the shrinkwrap agreement.” See in ProCD, Inc. v. Zeidenberg supra

\textsuperscript{769} “Pro CD used contractual clauses to prohibit their customers from reselling ProCD’s own compilation of telephone numbers. Traditionally, such compilations would have had protection under US copyright law because of the “sweat of the brow” by the company in compiling the telephone numbers. However, following Feist, the “sweat of the brow” test was overruled and such compilations lost copyright protection. ProCD therefore used a contractual clause to provide copyright style protection. The clause was contained in a shrink wrap licence, to which users had to agree in order to access the compilation data. The case was heard before both the Western District of Wisconsin, and on appeal, the Seventh Circuit. Both courts took a broad approach in establishing a policy towards contractual clauses which extend copyright style protection over potentially copyright works. In the Western District of Wisconsin it was decided that contractual clauses could not be used to provide copyright style protection where copyright itself would not provide protection. On appeal, the Seventh Circuit reached the opposite conclusion, due to copyright being a property right, and contract being a personal right. However, to reiterate the above point, both courts drew up a policy towards contractual clauses that extend copyright style protection and that seek to preclude copyright law.” Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) supra

\textsuperscript{770} Supra
“A key element of the findings in the English Proceedings had been that the terms of the software licence agreements between SAS and WPL allegedly prohibiting the use WPL had made of SAS’s software were null and void by operation of Council Directive 91/250 (“the Software Directive”) which permitted WPL’s conduct as pro-competitive and that WPL accordingly had an overriding defence.”

In this case, SAS, the copyright holder of the analytical system (the SAS system), had brought proceedings against WPL for infringement of copyright and breach of contract based on the provisions in the license between SAS and WPL. However, the defence of WPL derives from the operation of Council Directive 91/250 (“the Software Directive”). The key problem reflect from this case is that how to deal with the enforcement of provisions in the contract between ISPs and users when it is contrary to the current legislation and policy.

In accordance with the judgement of this case, this chapter argues that, the policy should not be interpreted narrowly by ISPs and the contractual clause should be invalid when they are contrary to the provisions of the current policy.

“Accordingly, the Directive cannot be read narrowly as SAS suggests. The Software Directive encapsulates a policy that ideas and principles which underlie any element of a computer program are not protected by copyright. As such it envisages a world where licences can only operate outside the ambit of that liberty.”

Therefore, this chapter suggests that it is urgent to clarify the legal status of users’ virtual property legislatively. The uncertainty of the legal status of users’ virtual property can cause the confusion in how to protect users’ virtual property and then there will be not a effective and single approach to provide protection. Users’ virtual property rights can be violated by contractual clauses or others.

In terms of the intellectual property right in the virtual world, undoubtedly, the service provider generally holds the intellectual property rights over the virtual environment, however, once the virtual items are produced or created by users with their original input, there should be an opportunity to grant users’ copyright over such virtual items. Because users’ creation fulfils the principles of copyright subsistence in University of London Press, Limited v University Tutorial Press, Limited. 774

“The word “original” does not in this connection mean that the work must be the expression of original or inventive thought. Copyright Acts are not concerned with the originality of ideas, but with the expression of thought, and, in the case of “literary work,” with the expression of thought in print or writing. The originality which is required relates to the expression of the thought. But the Act does not require that the expression must be in an original or novel form, but that the work must not be copied from another work - that it should originate from the author.” 775

Conferring users copyright over their virtual property is also in accordance with the purpose of copyright law to encourage authors’ creation. Even the majority of ISPs used contractual clauses in EULAs to maintain their own intellectual property rights

774 University of London Press, Limited v University Tutorial Press, Limited. [1916] 2 Ch. 601
and restrict users’ claims on intellectual property rights over users’ recreation of their virtual property.\textsuperscript{776} This chapter argues that users’ copyright claims over their virtual property should not be regulated by contractual clauses. The allocation of virtual property rights in the virtual world should be based on the layer theory\textsuperscript{777} and the classification\textsuperscript{778} of virtual property initially. It should also rely on distinction between the investment of ISPs and users. Compared with the essence of copyright, a right in rem,\textsuperscript{779} which is always described as a right of holders to against the whole world, the essence of contract is to regulate the boundary of rights and obligations \textit{in personam} between parties to the contract.\textsuperscript{780}

“A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create ‘exclusive rights.’ Someone who found a copy of SelectPhone (trademark) on the street would not be affected by the shrink wrap license--though the federal copyright laws of their own force would limit the finder's ability to copy or transmit the application program.”\textsuperscript{781}

Obviously, users’ copyright claims over their virtual property is against the whole world rather than just the ISPs.\textsuperscript{782} If the contract between users and ISPs is the sole

\textsuperscript{776} “Linden Lab owns Intellectual Property Rights in and to the Service, including but not limited to the Linden Content, Software, the Servers, and the Websites related thereto, and in and to our trademarks, service marks, trade names, logos, domain names, taglines and trade dress (collectively, the "Linden Marks").” see in Linden Lab Terms of Service available at https://www.lindenlab.com/tos#tos2

\textsuperscript{777} See in chapter 2 at 2.2.2

\textsuperscript{778} See in Chapter 2 at 2.3

\textsuperscript{779} Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) supra 15

\textsuperscript{780} “The general rule of privity of contract is that only parties to a contract can acquire rights and liabilities under that contract. It follows that if you are not a party to a contract then you cannot sue upon it, or be sued under it.” Emily Finch, and Stefan Fafinski \textit{Law Express: Contract Law} (5th edn, Pearson Education Limited 2016)

\textsuperscript{781} ProCD, \textit{Inc. v Zeidenberg}, supra 154 at 656 & 658
guidance and justification to protect users’ right over their virtual property, once the infringement comes from other users, this kind of protection is insufficient. Because of the privity of contract, the contract between ISPs and users only regulate the rights and obligations between ISPs and users. Once the violation comes from other users, who are not the party of contract, the protection provided by the contract is insufficient. Therefore, this chapter holds the opinion that the justification for the EULA to regulate the ownership of the copyright on users’ virtual property is insufficient.783

With regards to the virtual items containing users’ personal information, and users’ personal profiles reflecting their online footprint, the primary conflict between ISPs and users are their different interests concerning the information about users’ online activities.784 In the world of big data785, the conflict is more obvious. The information about users’ online activities is significant to decision making and investment of companies.786

782 “A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create ‘exclusive rights.’ Someone who found a copy of SelectPhone (trademark) on the street would not be affected by the shrinkwrap license-- though the federal copyright laws of their own force would limit the finder’s ability to copy or transmit the application program.” See in ProCD, Inc. v Zeidenberg 86 F.3d 1447 (7th Circuit, 1996)
784 “It is a situation which has come about as a result of the unprecedented, and exponentially increasing, amount of data produced in the world today, which are typically collected from a wide array of sources, including search engines, social networking sites, credit and debit card usage, scientific and medical records, and radio frequency identification technologies.” See in Pearce, Henry ‘A systems approach to data protection law and policy in a world of big data?’ (2016) 22 C.T.L.R. 90
785 “he term Big Data refers to data sets whose size is beyond the capacity of a traditional tool database to capture, store, manage and analyze. It represents the next frontier in innovation, competition and productivity. With respect to such a large volume of data in many varieties and moving at such speed, the traditional tools of capture and analysis are insufficient or economically unviable. Characterized commonly by the 3Vs: volume (great volume), variety (various modalities, types of data) and velocity (rapid generation, processing of data), over time, other Vs have come to characterize Big Data: value, veracity and validation. Ultimately, Big Data can be characterized by 6Vs.” see in Bagnoli, Vicente ‘Competition for the effectiveness of big data benefits’ (2015) 46 International Review of Intellectual Property and Competition Law 629

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“In competitive terms, Big Data can be understood as the ability to collect, process and analyze large volumes and a wide range of data in a sufficient period of time to obtain information giving the holder the ability to establish business strategies and, in some situations comprising an essential facility, market power and even a dominant position to unilaterally interfere in the functioning of the market.”

Companies can make conclusions about users’ shopping plans and preference by analysing the information reflected in their browser history and other online activities. Based on this type of analysis, companies can make a decision to transfer users’ personal information to particular advertising companies. Targeted advertising is a typical example of this kind of business mode.

“Big data is also used for generating profit via online advertising since they enable behavioural and personalised (targeted) advertising.”

However, this chapter argues that there is not sufficient justification for companies’ collecting, analysing and sharing behaviour.

“Where processing is based on consent, the controller shall be able to demonstrate that the data subject has consented to processing of his or her personal data.

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788 “With a non-targeted advertisement, such as those seen on a billboard or on a promotional card, consumers have the ability to disregard the message if they are not interested in the product or service offered. However, with targeted advertising, advertisements of products or services viewed by consumers follow them even after exiting the website.” See in Mckinnon, Kayla ‘Nothing Person, It’s just Business: How Google’s Course of Business Operates at the Expense of Consumer privacy’ (2018) supra 375
789 Jan Kupčík Stanislav Mikeš ‘Discussion on big data, online advertising and competition policy’ (2018) 39 E.C.L.R. 393
If the data subject’s consent is given in the context of a written declaration which also concerns other matters, the request for consent shall be presented in a manner which is clearly distinguishable from the other matters, in an intelligible and easily accessible form, using clear and plain language. Any part of such a declaration which constitutes an infringement of this Regulation shall not be binding.”

As the subject of this type of information, users might not have not consented to the tracking of their behaviour. Not all users are likely to carefully read the EULA clauses when they agreed to the EULA. With the advent of advanced internet technology, users might not even know when and how their online activities were analysed.

In Google Inc. v Judith Vidal-Hall, the defendant, Google, collected private information about the claimants. The claimants are three individuals who used Apple computers between the summer of 2011 and about 17 February 2012. Each of them accessed the internet using their Apple Safari browser (the Browser-Generated Information, or ‘BGI’) without the claimants’ knowledge and consent, by using ‘cookies’. The BGI was then aggregated and used by the defendant as part of its commercial offering to advertisers via its ‘doubleclick’ advertising service. This meant advertisers could select advertisements targeted or tailored to the claimants’ interests, as deduced from the collected BGI, which could be and were displayed on the screens of the claimants' computer devices. It is obvious that the case of Google has drawn the attention to the protection of the information reflected through the

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790 See in General Data Protection Regulation article 7
791 See in chapter 2 at 2.5.3
793 *Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner* (Court of Appeal (Civil Division))(2015) EWCA Civ 311 2015 WL 1310650 supra 11
794 *Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner* [2015] EWCA Civ 311 2015 WL 1310650 supra 11
users’ online activities. This chapter argues that the legal status of users’ online activities have not been recognised. In this case, this chapter suggests categorising users’ online activities as a type of virtual property, for that will be a suitable approach to provide legal protection.

5.5 Current Provisions Provides by EULA

Even different ISPs focus on different aspects of interests reflected by virtual property due to their particular business scope. The majority of provisions provided by EULAs can be divided into two categories: Ownership of the content created by users, and data policy.

With regards to the rights over the content created by users, the EULA of ISPs mainly focus on the items which has been protected by intellectual property.

“We need certain permissions from you to provide our services: Permission to use content that you create and share: Some content that you share or upload, such as photos or videos, may be protected by intellectual property laws. You own the intellectual property rights (things such as copyright or trademarks) in any such content that you create and share on Facebook and the other Facebook Company Products you use. Nothing in these Terms takes away the rights you have to your own content. You are free to share your content with anyone else, wherever you want.”

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797 See Facebook Terms of Service available at https://www.facebook.com/terms.php.
In EULAs, ISPs usually recognise that users retain their intellectual property rights over content users’ uploads and submission. Even in this case, EULAs also grant ISPs many rights on the content over which users hold intellectual property rights. This type of right usually is described as “a non-exclusive, transferable, sublicensable, royalty-free and worldwide licence to host, use, distribute, modify, run, copy, publicly perform or display, translate and create derivative works of your content.” However, this chapter argues that EULAs are not equivalent with the licence which provide legal permissions by right holder. For users, the EULA is just an agreement to get the access to particular virtual world. EULA is not a licence related to the transfer of users’ intellectual property rights. It is unfair for users to recognise this type of terms of EULA when they signed the agreement before access to virtual world.

For the content which reproduced by users, the terms of EULAs have not clarified which type of rights over this type of virtual property. Therefore, this chapter

798 “You retain any and all Intellectual Property Rights you already hold under applicable law in Content you upload, publish, and submit to or through the Servers, Websites, and other areas of the Service, subject to the rights, licenses, and other terms of this Agreement, including any underlying rights of other users or Linden Lab in Content that you may use or modify.” See in Linden Lab Terms of Service available at https://www.lindenlab.com/tos#tos2

799 See also I Twitter terms of Service available at https://twitter.com/en/tos “By submitting, posting or displaying Content on or through the Services, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods (now known or later developed).”


802 “User Created or Uploaded Content. The Platform may provide you an opportunity to upload and display content on the Platform, such as on the Blizzard forums, and/or as part of a Game, including the compilation, arrangement or display of such content (collectively, the “User Content”). User Content specifically does not include a Custom Game, as defined in Section 1.D.ii.1. below. You hereby grant Blizzard a perpetual, irrevocable, worldwide, fully paid up, non-exclusive, sublicensable, right and license to exploit the User Content and all elements thereof, in any and all media, formats and forms, known now or hereafter devised. Blizzard shall have the unlimited right to copy, reproduce, fix, modify, adapt, translate, format, prepare derivatives, add to and delete from, rearrange and transpose, manufacture, publish, distribute, sell, license, sublicense, transfer, rent, lease, transmit, publicly display, publicly perform, provide access to, broadcast, and practice the User Content as well as all modified and derivative works thereof and any and all elements
argues that no matter the virtual objects which have been protected by intellectual property law or the content created by users which has not been protected by intellectual property law, the EULA should not be regarded as a licence to grant ISPs broader rights over these virtual items.

In terms of the legal status of ISP and EULAs, in Mircom International Content Management & Consulting (MICM) Ltd v Telenet BVBA v Proximus NV and another, the GDPR art.6(1), subparagraph 1, point (f), read in conjunction with the E-Privacy Directive art.15(1) must be interpreted as meaning that it precluded in principle, neither the systematic recording, by the holder of intellectual property rights as well as by a third party on his or her behalf, of IP addresses of users of peer-to-peer networks whose internet connections had allegedly been used in infringing activities (upstream processing of data), nor the communication of the names and of the postal addresses of those users to that right holder or to a third party in order to enable it to bring a claim for damages (downstream processing of data). However, initiatives and requests in that regard must be justified, proportionate, not abusive and provided for by a national legislative measure that limited the scope of rights and obligations under EU law. The ECJ stated that the latter did not impose an obligation on a company such as Telenet to communicate personal data to private individuals

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804 “However, to provide our services, we need you to give us some legal permissions (known as a ‘licence’) to use this content.” See Facebook Terms of Service available at https://www.facebook.com/terms.php

805 “When you upload, submit, store, send or receive content to or through our Services, you give Google (and those we work with) a worldwide license to use, host, store, reproduce, modify, create derivative works (such as those resulting from translations, adaptations or other changes we make so that your content works better with our Services), communicate, publish, publicly perform, publicly display and distribute such content.” See in Google Terms of Service available at https://policies.google.com/terms?hl=en#toc-content

806 Mircom International Content Management & Consulting (MICM) Ltd v Telenet BVBA v Proximus NV and another (Case C-597/19)
in order to be able to bring proceedings before the civil courts for copyright infringements. However, EU law allowed the Member States to impose such an obligation.

It could be considered that, in acquiring exploitation licences which it does not intend to execute, Mircom is in reality seeking to rely on those licences improperly in order to acquire licensee status enabling it to initiate the judicial proceedings provided for in Directive 2004/48 with the aim of obtaining the data of those who have infringed the copyright and related rights in respect of the works to which those licences relate. By having those data, it is able to contact those infringers to threaten them with legal proceedings in order to obtain a lump-sum payment as an amicable settlement.

“The EC Impact Assessment (the Impact Assessment) asserts that while some services have become key players in material distributed online, right holders are not always able to determine whether and under what conditions right holders can make their content available on the services and obtain fair remuneration. However, it stresses that these terms are at odds with copyright licensing contracts, as such services are under no legal obligation to bargain with right holders, but only reach voluntary ‘monetisation agreements’ (EC 2016a, 138–139).”

Furthermore, there is not sufficient legal justification to support these terms. Users’ virtual property rights cannot be just regulated by EULAs which are provided by ISPs without users’ consent. It is not reasonable to expect users who do not have professional knowledge to read and understand clauses in EULAs. Even if these

rights were limited to the purpose of improving service,\textsuperscript{808} that is a different matter to users monitoring the implementation of contractual rights and clauses.

The other concern is on the protection of information reflected by users’ online activities. The scope of information that ISPs could collect according to the terms of EULA is extremely broad.\textsuperscript{809} Due to the continuous development of internet technology, users’ online activities are monitored by ISPs in more covert ways.\textsuperscript{810} This chapter argues that there remain many uncertainties based on the terms of EULAs. First of all, users’ acceptance of EULA cannot be considered as the consent for service provider collecting their personal information.\textsuperscript{811} ISPs do not clarify all the ways they use users’ personal information and not all users can read and understand clause in EULA.\textsuperscript{812} For users, the EULA is just the precondition to get the access to virtual world, however, the EULA contain various terms which regulate all aspects of the virtual world. This is unfair and unreasonable for users. Secondly, EULAs grant ISPs many rights over users’ personal information,\textsuperscript{813} however, it has not clarified users’ rights over their personal information. Finally, the justification for

\textsuperscript{808} “this is solely for the purposes of providing and improving our Products and services as described in Section 1 above.” Seen in Facebook Terms of Service available at https://www.facebook.com/terms.php; “The rights you grant in this license are for the limited purpose of operating, promoting, and improving our Services, and to develop new ones.” See in Google Terms of Service available at https://policies.google.com/terms?hl=en#toc-content

\textsuperscript{809} According to the Facebook Data Policy, the information Facebook can collect include: “Things that you and others do and provide (Information and content you provide; Networks and connections; Your usage; Information about transactions made on our products; Things others do and information that they provide about you); Device information (Device attributes; Device operations; Identifiers; Device signals; Data from device settings; Network and connections; Cookie data); Information from partners” see in Facebook Data Policy available at https://www.facebook.com/about/privacy/update

\textsuperscript{810} “We collect information you provide directly to us when you request products, services or information from us, register with us, participate in public forums or other activities on our sites and applications, respond to customer inquiries or surveys, or otherwise interact with us. We also record some of this information automatically when you use our Services. We also may receive some of this information from third parties.” See Linden Lab Privacy policy available at https://www.lindenlab.com/privacy


\textsuperscript{813} Users’ personal information could be collected, stored, transferred, analysed and shared with other partners. See in Google Privacy Policy available at https://policies.google.com/privacy?hl=en#infosecurity
ISPs to design the terms of EULAs to grant them broader rights over users’ personal information is insufficient. Based on previous discussion on users’ virtual property rights, as a type a legal private right, users’ rights over their virtual property cannot be regulated by contractual clauses between them and ISPs.

The new data protection rules in the EU impose several steps to be taken by anyone who processes personal data, including for research purposes. According to the Privacy by Design principle (Article 25 of the GDPR), the processing, already at the conception phase, has to be designed in such a way as to respect the data protection principles set forth in Article 5 of the GDPR (such as lawfulness, data minimization, purpose and storage limitation, integrity and confidentiality). Most importantly, data subjects have to be provided with information about the processing in a concise, transparent, intelligible and easily accessible form, using clear and plain language (Articles 12-14 of the GDPR). Other rights of data subjects, such as access (Article 15 of the GDPR) and erasure (Article 17 of the GDPR), also need to be observed. Furthermore, several instruments such as a record of data processing activities (Article 30 of the GDPR) or a record of data breaches (Article 33(5) of the GDPR) need to be implemented in research institutions.

In Duchess of Sussex v Associated Newspapers Ltd\textsuperscript{814}, the Duchess of Sussex brought an action in misuse of private information, infringement of copyright and breach of data protection rights in respect of the publication in the MailOnline and Mail on Sunday of parts of a five-page letter that she wrote to her father in August 2018, following her marriage to the Duke of Sussex.

\textsuperscript{814} Duchess of Sussex v Associated Newspapers Ltd [2021] EWCA Civ 1810, 2021 WL 05647562
The Defendant appeals against the orders of Warby J (as he then was) dated 11 February 2021 and 5 May 2021, granting summary judgment on the Duchess’ claims in misuse of private information, subsistence and infringement of copyright, and consequential matters.

This is a relatively rare example of the Court being willing to enter summary judgment in both a claim for misuse of private information and breach of copyright, where defences were being advanced which the Defendant alleged should be decided at trial.

The case contains an exposition of the law of privacy and in particular, is one of the very few reported cases in this jurisdiction concerning this area of the law as it relates to a private letter and the meaning of “correspondence” in Article 8 of the ECHR.

In addition, it indicates that an intention not to disclose private information is not an essential ingredient of the cause of action, highlighting the level of control that a person may be entitled to exercise over the dissemination of their own private information.

In terms of the Article 10 and the freedom of expression in internet, the cases Vladimir Kharitonov v. Russia\(^8\), OOO Flavus and Others v. Russia\(^9\), Bulgakov v. Russia (no. 20159/15), and Engels v. Russia\(^10\) (no. 61919/16) concerned the blocking of websites in Russia.

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\(^8\) Vladimir Kharitonov v. Russia (application no. 10795/14)
\(^9\) OOO Flavus and Others v. Russia (application no. 12468/15, 23489/15, and 19074/16)
\(^10\) Engels v. Russia (no. 61919/16)
The cases concerned different types of blocking measures, including “collateral” blocking (where the IP address that was blocked was shared by several sites including the targeted one); “excessive” blocking (where the whole website was blocked because of a single page or file), and “wholesale” blocking (three online media were blocked by the Prosecutor General for their coverage of certain news).

The Court highlighted the importance of the Internet as a vital tool in exercising the right to freedom of expression. Among other things, it found that the provisions of Russia’s Information Act used to block the websites had produced excessive and arbitrary effects and had not provided proper safeguards against abuse.

On 23 June 2020, European Court of Human Rights delivered no less than four judgments against Russia all of which concern the blocking of access to websites. The Court held that Russian authorities had violated the applicants’ right to freedom of expression on the internet, as well as their right to an effective remedy in all four cases.

Even since the 2015 judgment of Cengiz and Others v. Turkey818, which was the most recent Strasbourg Court judgment on blocking access to websites before the four Russian judgments, the significance of the internet as a medium and forum for freedom of expression has grown exponentially. Within this context, the four new judgments against Russia provide important and timely standards on this topic. It is particularly significant that the Court has, for the first time, referred to the blocking of entire websites as an extreme measure comparable to banning a newspaper or TV station and, also, acknowledged the content-neutral nature of filter-bypassing technologies and the arbitrariness of blocking shared IP addresses.

818 Cengiz and Others v. Turkey
The provisions of GDPR can not provide sufficient protection for users’ personal information, as discussed by previous arguments. The data policy designed by ISPs in EULAs cannot meet the requirements of GDPR, and on the other hand they cannot clarify the legal status of users’ personal information. Therefore, this chapter argues that terms of dada policy in EULAs should be modified bases on the two-fold virtual property right system.

5.6 The current situation of EULAs

Due to the liberty to use terms to restrict users’ rights over their virtual property, EULAs are attractive to ISPs as “they can enhance profit while mitigating risk.”

“The continued evolution of software and the EULAs . . . has led to the current environment wherein users are required to consent to long and complex click wrap agreements in order to use virtually any software product. Additionally, mass production of software has essentially led to one-size-fits-all EULAs with no room for negotiation. Further, the nature of software distribution is such that users are often not presented with the EULA terms until after they have already purchased the software. While most EULAs provide that the user can return the software if they do not assent to the terms of the EULA, this is often impractical. As such, the software industry has essentially become one

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819 “Characterizing the transaction between the software developer and the customer as a license allowed developers to implement their own restrictions on end-users, such as non-transferability of the license to use the software.” See in Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ (2007) supra 160

820 Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ ibid.
where software developers and distributors can unilaterally impose one-sided terms on end-users with little or no room for negotiation.” 821

This chapter argues that, essentially, because the protections provided by EULAs mainly favour ISPs, from the perspective of protecting users’ virtual property right, the usage of EULAs should be restricted and terms related to virtual property right should also be modified. 822

ISPs employing EULAs within the virtual world are merely a natural extension of existing practice in the software industry. 823 However, taking the special characteristics of virtual property 824 and virtual property rights 825 into consideration, broadening usage of EULAs into the virtual world has caused unique problems specially related to the recognition of users’ virtual property rights.

5.7 Governance in the virtual world by contract

Even though users often get access to virtual worlds via ISPs, virtual worlds provide users opportunities to create their own content. Despite the social media platform in which users could pose pictures, stories, comments etc. which contain their original ideas, even in multiple online games, many online virtual items also enrich users’ creative input. However, for ISPs, they just acknowledge that users retain intellectual property rights which users already hold under current law when they upload the content to the virtual world. 826 With the purpose of protecting their own interests in

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821 Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ ibid.
824 See in Chapter 2 at 2.4
825 See in chapter 4 at virtual property rights system
virtual world, hosts still use terms in EULAs to grant themselves many rights upon user generated content.827

“In response to this argument, platform developers instituted the second paradigm in an attempt to limit the rights granted by copyright law to game players. Platform designers felt that copyright law granted too many rights to individual users, thereby making the structure of virtual worlds unstable by possibly allowing consumers to bring infringement claims against platform providers. Comprehensive agreements are now used and “agreed to” by users before they enter the relevant virtual world, firmly placing the governance of virtual property under the realm of contract law.”828

Because of the uncertainty of users’ virtual property rights, ISPs have attempted to design the terms of EULAs to control rights in the virtual world given to users.829 In this case, EULAs are defined as “a type of software agreement that serves to create

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826 “You retain any and all Intellectual Property Rights you already hold under applicable law in Content you upload, publish, and submit to or through the Servers, Websites, and other areas of the Service, subject to the rights, licenses, and other terms of this Agreement, including any underlying rights of other users or Linden Lab in Content that you may use or modify.” See in Linden Lab Terms of Service available at https://www.lindenlab.com/tos#tos2

827 “Except as otherwise described in any Additional Terms (such as a contest’s official rules) which will govern the submission of your User Content, you hereby grant to Linden Lab, and you agree to grant to Linden Lab, the non-exclusive, unrestricted, unconditional, unlimited, worldwide, irrevocable, perpetual, and cost-free right and license to use, copy, record, distribute, reproduce, disclose, modify, display, publicly perform, transmit, publish, broadcast, translate, make derivative works of, and sell, re-sell or sublicense (through multiple levels)(with respect to each Product or otherwise on the Service as permitted by you through your interactions with the Service), and otherwise exploit in any manner whatsoever, all or any portion of your User Content (and derivative works thereof), for any purpose whatsoever in all formats, on or through any media, software, formula, or medium now known or hereafter developed, and with any technology or devices now known or hereafter developed, and to advertise, market, and promote the same. You agree that the license includes the right to copy, analyze and use any of your Content as Linden Lab may deem necessary or desirable for purposes of debugging, testing, or providing support or development services in connection with the Service and future improvements to the Service.” See in Linden Lab Terms of Service available at https://www.lindenlab.com/tos#tos2


a contract between a software developer and the purchaser of the software.\textsuperscript{830} The governance of EULAs is a precondition for users to get access to virtual worlds, in other words, “an EULA is usually entered into by the user clicking on an “I agree” button that pops up on a computer screen before a purchased program begins to run.”\textsuperscript{831} However, this chapter argues that, as the primary mechanisms used by ISPs to control virtual world, an EULA is constructed by the ISPs with little or no input from users.\textsuperscript{832} By acknowledging the role of EULA in regulating users behaviours in the virtual world, this chapter argues the terms in EULAs are related to users’ virtual property rights.\textsuperscript{833}

5.8 The twofold virtual property rights system is more appropriate than current contractual clauses of EULAs to regulate virtual property in the virtual world

As mentioned in Chapter 4,\textsuperscript{834} users’ virtual property rights do not just regulate the allocation of rights and obligations between ISPs and users. They are also involved in the relationship between users.\textsuperscript{835} Virtual property rights are twofold virtual property rights rather than a type of contractual rights. This part will analyse the terms related to virtual property rights in EULA based on the classification of virtual property.\textsuperscript{836}

\textsuperscript{830} Glushko, Bobby, Note, ‘Tales of the (Virtual) City: Governing Property Disputes in Virtual Worlds’ (2007) \textit{supra} 97
\textsuperscript{832} Glushko, Bobby, Note, ‘Tales of the (Virtual) City: Governing Property Disputes in Virtual Worlds’ \textit{supra} 97
\textsuperscript{833} This chapter argues that, as a type of private property right, users’ virtual property rights over their virtual property should be granted by law rather than the contractual clauses in the EULA.
\textsuperscript{834} See in Chapter 4 at 17
\textsuperscript{835} See in Chapter 4
\textsuperscript{836} This chapter classified the variant types of virtual property into four categories: virtual items users get from service providers directly and without any reproduction; virtual objects contain users’ personal private
In terms of the protection for users’ virtual property rights over the virtual items that users get from ISPs directly, there is little in EULAs to clarify the ownership of this type of virtual property, as from the perspective of ISPs, they are the creator of this type of virtual property and they hold the right over them.\footnote{Blazer, Charles, ‘The Five Indicia of Virtual Property’ (2006) supra 18} However, this chapter argues that, once this type of virtual property is possessed by users by signing the EULA, users should not only deal with the conflict between them and ISPs, they should also handle the infringement from other users. Therefore, there should be a virtual property right over this type of virtual property granted to users. As proposed in Chapter 4, users’ virtual property rights should be a twofold virtual property rights system which distinguish the conflicts between users and ISPs and conflicts among users.\footnote{See in chapter 4 at 4.4.2} Once twofold virtual property rights have been recognised, EULAs could use terms to regulate the obligations between users and service provider. However, the EULA should also support users’ virtual property rights claim over this type of virtual property.

With regards to the protection for the virtual items which contain users’ original ideas, EULA usually use “user generated content”\footnote{“User Created or Uploaded Content. The Platform may provide you an opportunity to upload and display content on the Platform, such as on the Blizzard forums, and/or as part of a Game, including the compilation, arrangement or display of such content (collectively, the “User Content”).” See in Blizzard End User License Agreement available at https://www.blizzard.com/en-us/legal/fba4d00f-c7e4-4883-b8b9-1b4500ea402ea/blizzard-end-user-license-agreement} to describe this type of virtual property. Most of ISPs acknowledge users’ intellectual property claims over the content which has been protected by current intellectual property law.\footnote{“You retain your rights to any Content you submit, post or display on or through the Services. What’s yours is yours — you own your Content (and your incorporated audio, photos and videos are considered part of the Content).” See in Twitter Terms of Service available at https://twitter.com/en/tos#intlTerms} However, there is a wide range of user generated content that has not been subject to current intellectual
property law.\textsuperscript{841} Therefore, this chapter argues that virtual items exist in virtual world are special formats of expression of users’ original ideas. Even if some of them have not been protected by intellectual property law, ISPs should not use terms in EULA to restrict users’ virtual property right claims over this category of virtual property. Moreover, for the items which has been protected by current intellectual property law, EULAs should not be a typical intellectual property licence which is used to regulate the transfer of intellectual property right between right holders and recipient.

In terms of the protection for the virtual items which contain users’ personal information and users’ online footprints, ISPs usually use a privacy policy to regulate the usage of users’ personal information. From the perspective of ISPs, if they have not breached users’ privacy, it will be reasonable for them to collect users’ personal information through the terms in EULAs. For ISPs, users’ privacy interests and regulation of GDPR\textsuperscript{842} is the legal issues they should deal with as to when they can collect, store, analyse and share users’ personal information. However, this chapter argues that, with the development of information technology,\textsuperscript{843} users’ personal information is more accessible to ISPs than before.\textsuperscript{844} Meanwhile users’ expectation for the protection of their personal information is reaching a high standard.\textsuperscript{845} This chapter holds the opinion that not all personal information reaches the expectation for the respect for individuals’ private life,\textsuperscript{846} however, personal information should not be allocated and collected by service provider only through the terms of EULA.

\textsuperscript{841} Like the reproduction from users on the virtual property provided by service providers and the comments post by users in social media.
\textsuperscript{842} See in General Data Protection Regulation
\textsuperscript{843} Marshall, McLuhan and Bruce, Richard, Powers the global village: transformations in world life and media in the 21st century (New York: Oxford University Press, 1989) supra 372
\textsuperscript{845} Fedelma Good, Samantha Sayers and Olivia Wint ‘GDPR series: how to legitimise your profiling activities’ (2018) 18 P. & D.P. 7
\textsuperscript{846} See European Convention on Human Rights Article 8 ‘Everyone has the right to respect for his private and family life, his home and his correspondence.’
Even if there could be some special terms in EULA to regulate the usage of users’ personal information, it should firstly clarify users’ virtual property rights claims over their personal information. This chapter argues that as users’ personal information stored in the virtual world is a special format of their private information, the twofold virtual property rights system proposed in Chapter 4 is the appropriate approach to protect users’ interests over their personal information.

5.8.1 Application of the twofold virtual property rights system to EULAs

Before discussing the modification of terms in EULAs which are related to the protection of users’ virtual property rights, it should be noted that this chapter will not analyse all terms of the EULAs. As demonstrated by twofold virtual property rights system, the right users hold to against service provider is ‘restrained-exclusive property rights’ or ‘fundamental property rights’. Therefore, it is reasonable for ISPs to use EULAs to regulate behaviour in the virtual world. This chapter only focuses on the terms in EULAs related to the restriction to users’ virtual property rights.

In respect of the terms about the users’ virtual property rights over the first category of virtual property, this chapter argues that, according to the ‘restrained-exclusive property rights’ established in the chapter 4, taking the relationship between users and ISPs into consideration, ISPs hold copyright over the virtual items they created.

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847 See in chapter 4 at 4.4.2
848 “Due to the existence of End Users License Agreement (EULA) and Terms of Service (TOS) in virtual environment, for virtual property owners, the legal position of service providers is quite different from other users. The enforcement of users’ property rights restrained from the regulation of EULA and TOS. Hence, this chapter adopts “restrained-exclusive property rights” to describe users’ property claims against service providers. On the other hand, once users encountered the infringement from other users, they need the technical support from service provides to prevent trespass and confirm the damage. Therefore, this type of property rights also described as “fundamental property rights” see in Chapter 4
849 the virtual items which they get directly from service providers and without further reproduction.
However, it does not mean that ISPs can deny users’ property claim in this type of virtual property. As users’ exclusive property rights are only restrained when dealing with conflicts between services providers and users, however, in coping with conflicts among different users, users still hold exclusive property rights over their virtual property. Therefore, this chapter suggests that ISPs should clarify users’ twofold virtual property rights by using contractual clauses in EULA before restraining users’ virtual property rights. ISPs should also distinguish the relationship between them and users and the relationship between different users.

With regards to the contractual clauses related to the allocation of intellectual property rights in the virtual world, this chapter argues that, for virtual items containing users’ original ideas which have not been protected by current intellectual property law, ISPs cannot use contractual clauses to restrict users’ virtual property rights. As demonstrated by Chapter 4, users should be granted a type of legal virtual property rights over the virtual property. The virtual items should be considered as a special format of expression of users’ original ideas. Therefore, this chapter holds the opinion that it is unreasonable to use terms in EULAs to restrict this category of virtual property rights. For user generated content which has been protected by current intellectual property law, EULAs should not be used as a license to transfer the right from users to ISPs. Moreover, there is no justification for ISPs to use EULAs to grant them many non-exclusive rights over users’ virtual property. For users, EULAs are just a precondition for access to the virtual world and as a type of

\[850\] See in chapter 4 at 4.4.2
legal private right, users’ virtual property rights cannot be restricted by contractual clauses.\textsuperscript{851}

With regards to the contractual clauses related to users’ personal information and online footprints, most ISPs just use terms to confine the usage of users’ personal information to improve the service.\textsuperscript{852} However, this chapter argues that the scope of users’ personal information service collected is too broad,\textsuperscript{853} moreover, there are no terms in EULAs clarify the rights users could hold over their personal information. Even though the DPA\textsuperscript{854} and GDPR\textsuperscript{855} have already provided legal protection for users’ personal information, the legal status of users’ personal information has not been recognised. The twofold virtual property rights system\textsuperscript{856} aims to categorise users’ personal information as a type of virtual property and then provide legal protection for them.

\section*{5.9 Conclusion}

As the direct regulation in the virtual world, EULAs play an important role in the allocation of virtual property rights. However, as EULAs are designed by ISPs, users

\begin{footnotesize}
\textsuperscript{851} Fairfield, Joshua, ‘Virtual property’ (2005) supra 1

\textsuperscript{852} Zhang, Ping ‘The legislative Choice of Personal Information Protection in the Age of Big Data’ (2017) 6 Journal of Peking University (Philosophy and Social Science) 60

\textsuperscript{853} According to the Facebook Data Policy, the information Facebook can collect include: “Things that you and others do and provide (Information and content you provide; Networks and connections; Your usage; Information about transactions made on our products; Things others do and information that they provide about you); Device information (Device attributes; Device operations; Identifiers; Device signals; Data from device settings; Network and connections; Cookie data); Information from partners” see in Facebook Data Policy available at https://www.facebook.com/about/privacy/update

\textsuperscript{854} See in Data Protection Act

\textsuperscript{855} See in General Data Protection Regulation

\textsuperscript{856} “Due to the existence of End Users License Agreement, to virtual property owners, the legal position of service providers and other users is quite different in virtual environment. This is also the core point to distinguish virtual property rights from traditional property rights. This chapter adopts “restrained-exclusive property rights” or “fundamental property rights” to describe the “rights” users can claim against service providers, meanwhile “relative-exclusive property rights” or “external property rights” are used to describe owners’ property interests against other users.” See in Chapter 4
\end{footnotesize}
might not be aware of the terms in EULAs.\textsuperscript{857} Due to the lack of users’ awareness, contractual clauses in EULAs cause a gap between the users’ expectation on the rights over their virtual property and the actual allocation of virtual property rights in the virtual world.\textsuperscript{858} Users’ property claims over their virtual property could be provide justification through traditional legal theories, including labour theory,\textsuperscript{859} personhood theory\textsuperscript{860} and utilitarianism.\textsuperscript{861}

From the practice perspective, even though EULAs exist in a variety of formats, the provisions provided by EULAs primarily relate to the ownership of the content crated by users and users’ data. In order to analyse these provisions in EULAs, this chapter divides virtual property into four categories.\textsuperscript{862} Based on this classification of virtual property, this chapter argues that, for users’ intellectual property rights over the virtual items they created or reproduced in the virtual world, EULAs are not equivalent with the copyright licence which provided legal permissions by right holder.\textsuperscript{863} For the virtual items that contain users’ personal information, this chapter suggests that it is pressing need to clarify the legal status of users’ personal

\textsuperscript{857} Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ (2007) \textit{supra} 160

\textsuperscript{858} Andrew, Jankowich, ‘EULAw: The Complex Web of Corporate Rule-Making in Virtual Worlds’ (2006) \textit{supra} 621

\textsuperscript{859} Locke, John, \textit{Two Treatises of Government} (1st edn, Cambridge University Press 1960) \textit{supra} 51 This chapter argues that based on the Labour theory, users deserve property right over their virtua property by mixing their investment with their virtual property.

\textsuperscript{860} Hegel \textit{The Philosophy of Right} (1st edn, London George Bell And Sons 1896) \textit{supra} 53 This chapter argues that users could deserve virtual property rights over their virtual property based on the relationship between them and virtual property in the virtual world.

\textsuperscript{861} Bentham, Jeremy, \textit{An Introduction to the Principles of Morals and Legislation} (Batoche Books Kitchener 2000) \textit{supra} 658 Recognition of users’ virtual property rights could inevitably increase users’ happiness when they engage in virtual world. In return, users will invest more time and money in the virtual world which could bring profit for the service providers and in addition greater rights will lead to greater certainty.

\textsuperscript{862} This chapter categorise virtual property into four groups: Virtual items users get from service providers directly and without any reproduction; virtual objects that contain users’ personal private information; virtual information which contain users’ original ideas and that are not protected by copyright law; users’ online footprint.

\textsuperscript{863} Reuveni, Erez, ‘On Virtual Worlds: Copyright and Contract Law at the Dawn of the Virtual Age’ (2007) \textit{supra} 45
information and personal information should not be allocated and collected by ISPs only through the terms of EULA.

Therefore, this chapter applies the twofold virtual property rights system\textsuperscript{864} to EULAs. Users’ virtual property rights could provide protection for users to deal with not only the conflicts between them and ISPs but also the conflicts between them and others.\textsuperscript{865} This chapter then suggests that it is pressing need to clarify users’ virtual property rights through legislation.

\textsuperscript{864} “Due to the existence of End Users License Agreement (EULA) and Terms of Service (TOS) in virtual environment, for virtual property owners, the legal position of service providers is quite different from other users. The enforcement of users’ property rights restrained from the regulation of EULA and TOS. Hence, this chapter adopts “restrained-exclusive property rights” to describe users’ property claims against service providers. On the other hand, once users encountered the infringement from other users, they need the technical support from service providers to prevent trespass and confirm the damage. Therefore, this type of property rights also described as “fundamental property rights”” see in Chapter 4

\textsuperscript{865} “A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create ‘exclusive rights.’ Someone who found a copy of SelectPhone (trademark) on the street would not be affected by the shrink wrap license—though the federal copyright laws of their own force would limit the finder’s ability to copy or transmit the application program.” See in ProCD, Inc. v Zeidenberg, supra 154 at 656 & 658
Chapter 6 A proposal for reform of the protection of virtual property

6.1 Introduction

This chapter argues that there are shortcomings as detailed in previous chapters about the traditional single property right model, property law, contractual law or copyright law. Users’ virtual property rights should be categorized as a new comprehensive property right. Therefore, this chapter proposes a reform about the reform of the virtual property theory.
At the very outset, this chapter sets out the conceptual reform related to virtual property. The concept of virtual property should be interpreted in accordance with the development of technology virtual property is undergoing a constant process of change. This chapter argues that virtual property should be interpreted by layer theory which distinguishes users’ virtual property from internet ISPs - ISPs’ virtual property.\textsuperscript{866}

The proposed reform divides virtual property into three layers: (1) an infrastructure layer, (2) an abstraction layer and (3) a content layer. The (1) infrastructure layer represents the platform and basis of the whole virtual property world; the (2) abstraction layer represents the virtual items designed by ISPs but have not been transmitted to users; the (3) content layer represents the virtual item combine with users’ personal investment, including but not limit time, labor and time. Virtual property in (1) the infrastructure layer and (2) the abstraction layer should be protected as computer software or artistic works created by writing program under current copyright framework. However virtual property in (3) the content layer should be protected by the proposed twofold virtual property rights system.

The twofold virtual property rights system deals with the conflict between users and ISPs, and the conflict between users and others through different approach. The legal status of ISP is quite different from the legal status of other users, particularly with regards to the relationship between virtual property owners. For the infringement from others, uses could claim exclusive virtual property rights. However, the implementation of this type exclusive virtual property right needs the technical support from ISPs and also is impacted by the status of ISPs in the virtual world.

\textsuperscript{866} See in chapter 2 at 2.2.2
Therefore, the proposed twofold virtual property rights system adopts ‘relative-exclusive property rights’ or ‘external property rights’ to describe these types of virtual property rights. On the contrary, in order to cope with the conflicts between users and ISPs, this thesis adopts ‘restrained-exclusive property rights’ or ‘fundamental property rights’ are used to describe users’ property claims against ISPs.

From a practical perspective, the twofold virtual property rights system will recognize users’ property interests over their virtual property which users get from ISPs directly without further creation; it can also provide a justification for establishing a tort of misuse of private information to protect the virtual property containing users’ private information, and it could help the court to recognize users’ originality over users’ generated content.

Finally, this chapter proposes a sample of the text of protection for virtual property which can be inserted into the current copyright law framework.

6.2 Background

This thesis argues that users’ virtual property rights are, at present, not sufficiently protected by existing legislation. It is apparent that current research related to the

867 “But there is another kind of code, rarely discussed in the technical or legal literature. This kind of code I term “virtual property.” There is, however, a problem. In general, we continue to govern virtual property through the law of intellectual property. Even where there has been some recognition that virtual property is somehow “different,” no clear articulation of that difference has been offered. As a result, holders of intellectual property rights have been systematically eliminating emerging virtual property rights by the use of contracts called End User License Agreements (“EULAs”). Despite (or perhaps because of) these contracts, no distinct protection for property rights in virtual property has appeared in the United States, even though millions of people and billions of dollars are involved in gray-market transactions in such property. In comparison, China, Taiwan, and Korea have already made significant steps toward protecting ownership
protection of virtual property rights have their own specific and unique attributes, however, such differences have direct negative effects on the functioning of the virtual world in particular on the freedom and liberty of users’ investment and enthusiasm in the virtual world, as there has not been an integrated approach to clarify and protect users’ virtual property rights.

This thesis holds the opinion that protection for users’ virtual property rights could also facilitate the further development of the internal market in the virtual world. Therefore, this chapter suggests that it is pressing need and necessary to harmonize current protection for virtual property between the encouragement for developing the virtual world, and then establish an independent virtual property rights system.

Based on the layer theory and the classification of virtual property proposed in chapter two, virtual property exists in varying forms but only virtual property in the

868 "cyberspace is neither a bad analogy nor a metaphor. Cyberspace is a descriptive term. It describes the degree to which some kinds of code act like spaces or objects. Taking this approach frees us to apply the developed body of property law to assist in solving inefficient allocations of rights on the internet. It also provides us with a useful tool for separating the intellectual property interest from the property interest in code. And finally, it provides a useful tool for restraining abuses of contract online." See in Fairfield, Joshua, ‘Virtual property’ (2005) supra 1

869 “At worst, enforcement of such rights in virtual property could lead to liability that renders the operation of virtual worlds unsustainable. Instead of imposing such property rights, contract law should continue to govern. EULAs allow developers to appropriately tailor user rights to user demand, with the highly competitive virtual-world market ensuring that users get what they want. A property law regime would be the end of the virtual world as we know it; contract law should make users feel just fine.” See in Cifrino, Christopher, ‘Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be The Governing Paradigm in The Law of Virtual Worlds’ (2014) supra 2; “As new issues in virtual property ownership continue to materialize, a new field of law emerges--society has advanced to the next stage.” See in Eng, Kenneth ‘Content Creators, Virtual Goods: Who Owns Virtual Property?’ (2016) supra 679

870 “the property at first level belonging to service providers and provide underlying environment for further development. The items at the second level are created by service providers and protected by IP, and they also belong to service providers. Eventually the property at the content layer (3) are user’s virtual property because users invest time, money and labour on them.” See in Chapter 2 at 2.2.2
content layer (3) should be categorized as users’ private property. Consequently, the virtual property rights should be integrated and comprehensive rather a single type property right. It is not reasonable to expect just property law, or contract law, or copyright law to provide sufficient protection for users’ virtual property rights. It is more appropriate to apply particular approach to protect specific types of virtual property based on the classification of virtual property.

In accordance with the discussion about virtual property in the previous chapter, this chapter suggests that virtual property should be explicitly stipulated in the current copyright framework. As the “Copyright, Designs and Patents Act 1988”

871 “For the first grouping of virtual property, users are expected to claim property right on items considered as the user’s private property. Inevitably, users should have the right to claim private property right on these items. For instance, all the items users get from service providers can be used directly without any further creation and exploration. User’s weapons that exist in online games are typical example of this group. The second group of virtual property will be the items that contain personal information. They do not contain much of economic value, however, they are very important to users as they contain user’s significant and confidential personal information. In other words, the items in this group can be described as personal data. Email addresses and online bank accounts are the typical examples of this group of virtual property. In terms of the protection of this group, the protection of misuse of private information will be an effective approach. Eventually, the third group of virtual property contains the items recreated by users, and they are rich of the user’s creation and original ideas. Hence this thesis suggests that this kind of virtual property can be considered as user’s copyright, to be protected by IP. For instance, the original work users write in social media, and the items recreated by users with their original ideas, are typical examples of this group.” See in Chapter 2 at 2.3

872 See in Chapter 2 at 2.2.2 “Finally, at the content layer (3), this thesis identifies the unique items contain the investment, like time, money and labour, from users. Obviously, the content layer (3) represents the virtual property belonging to internet users.”

873 “Contrastingly, today’s virtual property has grown--and will continue to grow--to retain enormous value. There is no straightforward solution to the ownership problems that the emergence of virtual property has created. Legislative action would ideally grant end-users a protectable property right by creating a separate virtual property regime, but the existence of valuable virtual goods is still in its infancy. For the time being, the judicial branch can appropriately balance the shortfalls of the contractual regime by extending copyright protection to qualifying virtual property. As new issues in virtual property ownership continue to materialize, a new field of law emerges--society has advanced to the next stage.” See in Eng, Kenneth ‘Content Creators, Virtual Goods: Who Owns Virtual Property?’ (2016) supra 679

874 Virtual property right is a comprehensive property right system rather than a single property right. Based on the classification of virtual property, different types of virtual property should be protected by different approaches.

875 “The virtual property rights system this chapter established accepts that virtual property rights are not simple exclusive private right, as discussed previously, the operation of virtual property’s function should be supported by the service providers. The enforcement of owners’ virtual property rights restrained from the regulation in the agreements between ordinary users and companies. The virtual property rights established by this chapter is a twofold rights system.” See in chapter 4
(CDPA) states in s.1 that copyright is a property right, virtual property rights should also be a type of legal property right. Taking into account the apparent difference between virtual property and traditional real property, this thesis suggests that it is appropriate to categorize virtual property rights as a new type of copyright right. Under the current copyright framework, copyright remains an appropriate form of exclusive rights for ISPs who have created the virtual world, however, for users’ virtual property which sits in the content layer (3), this thesis suggests copyright should also be an appropriate approach. As copyright is also a property right, both virtual property rights and copyright rights are linked to the development of technology and are also distinct from traditional property rights due to their intangible characteristic. However, the proposed virtual property system will clarify the operation of the virtual property rights system and balance the interests among ISPs, users and others.

In order to explain this further this chapter will divide discussion into two parts. The first part focuses on the clarification of rethinking on concepts relevant with virtual property; this part could also be considered as the justification for the second part. The second part concentrates on the reform of the current copyright framework, and

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876 "Copyright is a property right which subsists in accordance with this Part in the following descriptions of work—
(a) original literary, dramatic, musical or artistic works,
(b) sound recordings, films [or broadcasts], and
(c) the typographical arrangement of published editions." See in Copyright, Designs and Patents Act 1988 Article 1
877 "literary work means any work, other than a dramatic or musical work, which is written, spoken or sung, and accordingly includes—
(a) a table or compilation [other than a database], . . .
(b) a computer program[, . . .
(c) preparatory design material for a computer program] [and
(d) a database;]" See in Copyright, Designs and Patents Act 1988 Article 3
878 See in Chapter 2 at 2.2.2 “Finally, at the content layer (3), this thesis identifies the unique items contain the investment, like time, money and labour, from users. Obviously, the content layer (3) represents the virtual property belonging to internet users.”
explains how the twofold virtual property rights system\footnote{Taking the sophisticated relationship among virtual property owners, other users and service providers into consideration, this thesis divides the conflicts which virtual property owners should deal with into two groups, “conflicts between users and service providers” and “conflicts among users”. Based on the analysis of the two groups of conflicts, this thesis proposed a twofold virtual property rights system. For the conflicts among different users, this thesis adopts “relative-exclusive property rights” or “external property rights” to represent the exclusive property rights which can be used by owners to prevent other users violating their virtual property (virtual theft is a typical example of this type of violation). For the relation between owners and service providers, this thesis adopts “restrained-exclusive property rights” or “fundamental property rights” to regulate the relationship between users and service providers and clarifies their obligations and rights.”} works under current legislation.

6.3 Conceptual reform

6.3.1 Reform of the concept of virtual property

To clarify the intrinsic meaning of virtual property, it is necessary to clarify the meaning of property at the very outset.\footnote{Locke, John, Two Treaties of Government (1st edn, Cambridge University Press 1960) supra 51 “[w]hatsoever [man] removes out of the state that nature hath provided and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property.”}

“Instead of rejecting convenient terms because they are ambiguous or not comprehensive, it is better to explain their meanings, or, in the language of old Hobbes, ‘to snuff them with distinctions and definitions,’ so as to give a better light.”\footnote{(1915) i6 Ariz. 540, 558.}

The continuous development of internet and information technology have extended the scope and object of property.\footnote{Deloitte Technology Spotlight-Recognizing Revenue from Sales in a virtual world (Industry Spotlight 2013) supra 77; Bartle, Richard Designing Virtual Worlds (1st edn, New Riders 2004) supra 105; A.K.Jain and Choudhary, Gaurav ‘Internet of things: A survey on architecture, technologies, protocols and challenges’ (2016) supra 148; Erlank, Wian Property in Virtual Worlds, doctoral dissertation at Stellenbosch University, at 22-23, available at http://ssrn.com/abstract=2216481 accessed 2 July 2021} This chapter argues that not only intangible property should be categorized as owners’ private property,
The notion of property develops as a result of technological development. Property, as the consequence of the development of technology, is undergoing a process of change:

“We must first recognize that the concept of property has itself undergone development. The story of the origin of property is not a story of the spontaneous generation of the modern concept of property, arriving fully-fledged in an underprepared world.”

“The idea of changes in property regimes attendant upon economic and social development, including the emergence of new ‘needs’, population pressure, and effective scarcity.”

The term property, within legislation and case law, refers to the legal relationship reflected by property rather than the ordinary use in our daily life. Distinguishing legal concept of property from the ordinary usage of property will be of benefit in exploring the intrinsic meaning of property.

In terms of the concept of virtual property, instead of a traditional single approach model, this chapter suggests adopting an integrated rights system to interpret virtual

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883 “We must first recognize that the concept of property has itself undergone development. The story of the origin of property is not a story of the spontaneous generation of the modern concept of property, arriving fully-fledged in an underprepared world” See in Hume, David A Treatise of Human Nature: Being an Attempt to introduce the experimental Method of Reasoning into Moral Subjects (London, United Kingdom: British Library, 1739) supra 277.


885 Pierson, Christopher, Just Property: Volume Two: Enlightenment, Revolution, and History (Published to Oxford Scholarship Online 2016) supra 297.


property, namely the layer theory.\textsuperscript{888} The layer theory divides virtual property into three layers (infrastructure layer (1), abstraction layer (2) and content layer (3)) based on distinguishing between codes which constitute a platform of the virtual world and codes which consist of the user generated content.\textsuperscript{889}

This chapter also argues that there are various formats of virtual property in the virtual world, and that the number and types of formats are still increasing with the development of internet and information technology.\textsuperscript{890} In this sense, layer theory could distinguish different types of code and content in the virtual world, distinguishing the underlying software and the user generated content.\textsuperscript{891} Virtual items in infrastructure layer (1) and abstraction layer (2) should be categorized as ISPs’ copyright and be protected as computer software under current copyright law.\textsuperscript{888}

\begin{footnotesize}
\begin{enumerate}
\item See in chapter 2 at 2.2.2
\item The layer theory established in this thesis is modified from the layer theory proposed by Abramovitch, Susan. “Within virtual worlds, there are three possible levels of “property”: 1. First level: At its core, all virtual property is ultimately computer code, which is protected by copyright law. 2. Second level: Items in the virtual world – avatars, swords, clothes, buildings, etc. – are the virtual world’s equivalent of the same property items in the physical world. 3. Third level: It is possible that the in-game virtual property itself is a form of intellectual property. For example, an in-game book is both a “physical” item of property, but also represents a “tangible” representation of the copyright in that book. Another example would be the creation of a clothing line in a virtual world: in such a case, there could be intellectual property rights in the form of designs or trade marks inherent in the clothes, while someone also could “own” the physical embodiment of the items of clothing in that line. However, as in the real world, intellectual property rights would not exist for every object.” See Abramovitch, Susan, Virtual Property in Virtual Worlds (2009) 2 at https://www.lexology.com/library/detail.aspx?g=5a3f3b03-a077-45d4-9981-36f713c92820 \textit{supra} 29
\item Deloitte Technology Spotlight-Recognizing Revenue from Sales in a virtual world (Industry Spotlight 2013) \textit{supra} 77; Bartle, Richard Designing Virtual Worlds (1st edn, New Riders 2004) \textit{supra} 105
\item "Much computer code is just one step removed from a pure idea. It is non-rivalrous; that is, one person’s use of the code does not stop another person from using it. This kind of code is, correctly, protected by the law of intellectual property. Intellectual property protects the creative interest in non-rivalrous resources. If intellectual property did not exist, creators would not be able to recoup the costs of creation. But there is another kind of code, rarely discussed in the technical or legal literature. This kind of code is designed to act more like land or chattel than ideas. It pervades the internet and comprises many of the most important online resources. Often, this kind of code makes up the structural components of the internet itself. Domain names, URLs (uniform resource locators), websites, email accounts, and entire virtual worlds are all examples of this second type of code. They are rivalrous. If one person owns and controls them, others do not. They are persistent. Unlike the software on your computer, they do not go away when you turn your computer off. And they are interconnected. Other people can interact with them. This kind of code I term “virtualproperty.” Fairfield, Joshua, ‘Virtual property’ (2005) \textit{supra} 1
\end{enumerate}
\end{footnotesize}
framework, and virtual items that sit at the content layer (3) should be labeled as users’ private virtual property, and be protected by the virtual property system proposed in this chapter.

Applying layer theory to the virtual world, this chapter defines virtual property as a piece of property which relies on the internet environment provided by ISPs and reflect the legal relationship between users and ISPs and relationship between users and others. This type of property may include owners’ personal private information, recreation and other investment. Owners can claim different rights (privacy, ownership or intellectual property right) based on the particular investment included in virtual property.

6.3.2 Determination of the owner of virtual property

Based on the introduction of layer theory, the infrastructure layer (1) represents the virtual environment and the abstraction layer (2) represents specific virtual characters and programmes. One of the common characteristic of both layers is that they all created by ISPs through code and algorithms which is defined as a specified sequence of steps for producing a solution to a problem. Computer software is a composition of individual algorithms (written in a programming language) designed

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892 “literary work means any work, other than a dramatic or musical work, which is written, spoken or sung, and accordingly includes—
(a) a table or compilation [other than a database], . . .
(b) a computer program,[. . .
(c) preparatory design material for a computer program] [and
(d) a database];” See in Copyright, Designs and Patents Act 1988 Article 3
893 See in chapter 2 at 2.2.3
894 See in chapter 2 at 2.2.2
895 “At the first level sits the service provider’s codes which facilitate the construction of the whole virtual environment. Items at this level can be considered as a platform not only for users but also for service providers to perform and behave. At the second level, this thesis identifies the unique computer code which comprise of the unique items in virtual world, the service, programme and software provided by service providers are typical examples of items exist in this level.” See this in Chapter 2 at 2.2.2
896 Neapolitan, Naimipour, Foundations of algorithms (Jones & Bartlett Learning, Burlington 2010) supra 468
for specific goals. This chapter therefore holds the opinion that virtual items that sit at the infrastructure layer (1) and abstraction layer (2) should be categorised as ISPs’ virtual property and should be protected as computer software or artistic works created by writing program under current copyright framework.

In *Nova Productions Ltd v Mazooma Games Ltd, Kitchin* based on s.9(3) of CDPA 1988, Judge Kitchin J commented that: composite frames in the game are artistic works and they belong to the programmer who created them by writing program. This can be considered as a justification for the ownership of the virtual property sit at the infrastructure layer (1) and abstraction layer (2).

“In so far as each composite frame is a computer-generated work then the arrangements necessary for the creation of the work were undertaken by Mr Jones because he devised the appearance of the various elements of the game and the rules and logic by which each frame is generated and he wrote the relevant computer program. In these circumstances I am satisfied that Mr Jones is the person by whom the arrangements necessary for the creation of the works were undertaken.”

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897 Neapolitan, Naimipour, *Foundations of algorithms ibid.*

898 See in Chapter 2 at 2.2.2

899 “‘literary work means any work, other than a dramatic or musical work, which is written, spoken or sung, and accordingly includes—

(a) a table or compilation [other than a database], . . .

(b) a computer program[, . . .

(c) preparatory design material for a computer program] [and

(d) a database:]’” See in Copyright, Designs and Patents Act 1988 Article 3

900 *Nova Productions Ltd v Mazooma Games Ltd* [2006] EWHC 24 (Ch) [2006] E.M.L.R. 14

901 ‘In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.’ See in Copyright, Designs and Patents Act (1988) s.9(3)
undertaken and therefore is deemed to be the author by virtue of s.9(3).”

Therefore, when virtual property sits at the infrastructure layer (1) and abstraction layer (2) initially created by ISPs and have not transmitted to users, both types of virtual property should be categorised as computer software or artistic works created through programme. The programmers’ employed the ISPs are the author of both types of virtual property and the ISPs are the first owner of both types of virtual property.

In terms of the ownership of virtual property sitting at the content layer (3), to put a contrasting situation, this chapter argues that if the virtual property is created by ISPs without users’ interaction, the ISPs who employ programmers is clearly the owner in accordance with s.9(3) CDPA. Once virtual property combines users’ skill, labour, personal information and other types of investment and arrangement, it then should be categorised as users’ virtual property and the ownership should be granted to ordinary users. Users’ virtual property rights are different from copyright and traditional property rights based on the characteristic and classification of virtual property. A new and integrated virtual property right system should be established, rather than traditional single copyright model, property model or contract model. In

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902 Nova Productions Ltd v Mazooma Games Ltd [2006] EWHC 24 (Ch) [2006] E.M.L.R. 14 at [105]
903 “Where a literary, dramatic, musical or artistic work [or a film] is made by an employee in the course of his employment, his employer is the first owner of any copyright in the work subject to any agreement to the contrary.” See in Copyright, Designs and Patents Act (1988) s.11(2)
904 “In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.” See in Copyright, Designs and Patents Act (1988) s.9(3)
905 See the layer theory in Chapter at 2.2.2
906 See in Chapter 2 at 2.4
907 See in Chapter 2 at 2.3
the following pages this chapter explains what type of right should be granted to users over their virtual property.

6.3.3 Establishing a twofold Virtual property rights system

Users’ virtual property contains users’ different types of investment. No matter which format, to accrue the feelings of ownership and meet the desire for security\textsuperscript{908} and certainty\textsuperscript{909} in investment\textsuperscript{910} virtual property users will acquire legal protection for their virtual property.\textsuperscript{911}

“The word "right" is used generically and indiscriminately to denote any sort of legal advantage, whether claim, privilege, power, or immunity.”\textsuperscript{912}

This chapter argues that it is reasonable to grant users’ legal rights over their virtual property.\textsuperscript{913} Therefore, this chapter establishes an independent virtual property rights system, namely the twofold virtual property rights system. Based on the proposed twofold virtual property rights system for the protection of virtual property, the owners should not only be granted the right to exclude other users from infringing their virtual property rights, but also should be granted the right to deal with the conflicts between them and the ISPs.

The twofold virtual property rights system will both deal with the conflicts between users and ISPs and the conflicts between users and other users. Due to the

\textsuperscript{908} Tony, Honoré, \textit{The Quest for Security: Employees, Tenants, Wives} (1st edn, London: Stevens, 1982)

\textsuperscript{909} Frank, Jerome \textit{Law and the Modern Mind} (1st edn, Transaction Publishers 2009) \textit{supra} 117


\textsuperscript{911} Pearce, Celia ‘Emergent Authorship: The Next Interactive Revolution’ (2002) \textit{supra} 136

\textsuperscript{912} For judicial opinions recognizing the broad and generic significance of this term when loosely used, see the authorities discussed in (1913) 23 YALE LAW JOURNAL, i6, 30 ff.

\textsuperscript{913} See in Chapter Four at “Virtual property right”
contractual clauses in EULAs, the relationship between users and ISPs are quite different from the relationship between users and other users. Therefore, this chapter argues that the traditional single right model is not suitable for protecting users’ property rights over their virtual property. The legal relationship reflected by virtual property is complex and it is pressing need to distinguish the legal status of ISPs from the legal status of other users. Therefore, this chapter adopts ‘restrained-exclusive property rights’ or ‘fundamental property rights’ to describe the ‘rights’ users can claim against ISPs, meanwhile ‘relative-exclusive property rights’ or ‘external property rights’ are used to describe owners’ property interests against other users.

The distinction between rights between users and ISPs and rights between users and others can date back to the discussion about right in personam and right in rem.

“A paucital right, or claim, (right in personal) is either a unique right residing in a person (or group of persons) and availing against a single person (or single group of persons); or else it is one of a few

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916 The operation of users’ virtual property rights should rely on the virtual environment established by service providers. Users’ behaviours in virtual world should also in compliance with the regulation of EULAs. Therefore, the conflicts and relationship between users and service providers are different from the conflicts and relationship among users. The operation of users’ virtual property should also respect service providers’ rights in virtual world which regulated in the terms of EULAs. From this perspective, users’ virtual property rights against service providers are impacted and restricted by EULAs compared with users’ virtual property rights against other users.
917 Compared with the relationship between users and internet service providers, users’ virtual property rights against other users is more exclusive. Therefore this chapter use “relative-exclusive property rights” or “external property rights” to describe this type of virtual property.
918 “Jurisprudence distinguishes Rights, using the term in the strict legal meaning, into the two classes of Rights to Things and Rights against Persons, familiarly known in the civil law by the terms jura in rem and jura in personam.” See in Law of Property in Land (1st ed., 1874)
fundamentally similar, yet separate, rights availing respectively against a few definite persons. A multital right, or claim, (right in rem) is always one of a large class of fundamentally similar yet separate rights, actual and potential, residing in a single person (or single group of persons) but availing respectively against persons constituting a very large and indefinite class of people.”

With respect to users’ virtual property, even though End Users license Agreements (EULA) and Terms of Services (ToS) play an important role in the virtual world, the existence of contractual clauses in EULAs and ToS could only allocate the right in personam in the virtual world, EULAs and ToS could not alter the nature of users’ virtual property right: a new type of private property right. The contractual clauses in EULAs only operate in that fundamental sense rather than allocate users’ virtual property rights.

One of the problems with EULAs is that ISPs construct them without negotiating with users. This allows ISPs to constrain ordinary users from claiming property rights over virtual property they obtain.

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920 Jankowich Andrew, ‘EULAw: The Complex Web of Corporate Rule-Making in Virtual Worlds’ (2006) supra 621 (noting that “terms of service” is one of many labels for contracts between virtual world users and developers).

921 Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ (2007) supra 160

922 Most modern EULAs are almost universally a form of click-wrap agreement. Click-wrap agreements are electronic contracts that users “click” to accept the terms in order to proceed to installing software associated with the EULA. Courts have found that click-wrap agreements, standing alone, are enforceable since granting a preliminary injunction in Hotmail Corp. v. Van$ Money Pie in April 1998. See generally Hotmail Corp. v. Van$ Money Pie Inc., No. C-98 JW PVT ENE, 1998 WL 388389 (N.D. Cal. Apr. 16, 1998). Therefore, since users usually sign away most, if not all of their legal rights within EULAs, there is little recourse when significant dispute arises. See in Nathan J. Davis ‘Presumed Assent: The Judicial Acceptance of Clickwrap’ (2007) 22 Berkeley Tech. L.J. 577 (discussing the Courts acceptance of click-wrap agreements despite the conventional wisdom against the practice).
“As authors and performers tend to be in the weaker contractual position when they grant licences or transfer their rights, they need information to assess the continued economic value of their rights, compared to the remuneration received for their licence or transfer, but they often face a lack of transparency. Therefore, the sharing of adequate and accurate information by their contractual counterparts or their successors in title is important for the transparency and balance in the system governing the remuneration of authors and performers.”

Therefore, this chapter argues that any contractual clause, in an in personam situation, contrary to the intrinsic meaning of virtual property should be unenforceable.

“All contractual provision contrary to the exceptions provided for in Articles 3, 5 and 6 shall be unenforceable.”

“It must be recalled, next, that the copyright holder’s distribution right is exhausted, in accordance with article 4(2) of Directive 2009/24, on the occasion of the first sale in the European Union by that rightholder, or with his consent, of any copy, tangible or intangible, of his computer program. It follows that, by virtue of that provision and notwithstanding the existence of contractual terms prohibiting a further transfer, the rightholder in question can no longer oppose the resale of that copy.”

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923 See in DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019
924 Ibid.
Based on the discussion in Chapter Two, there are various formats of virtual property in the virtual world, and the virtual property layer theory has distinguished the virtual property belong to users from the virtual property created by ISPs.

From the Hohfeldian approach which has had a profound impact on modern legal thought and in particular on the property law, rights in personam result in a determined or single people is under a positive duty; by contrast, rights in rem result in not only the determined people but also a great many other persons are under a negative duty.

"Rights to things, jura in rem… imports in all persons generally the correlative negative duty of abstaining from any interference with the exercise of it by the owner; and by enforcing this duty the law protects and establishes the right. But a right of this kind does not import any positive duty in any determinate person, or require any act or intervention of such person for its exercise and enjoyment.

"Rights against persons, jura in personal, on the other hand… imports the correlative positive legal duty in the determinate person to act in the manner prescribed. It depends for its exercise or enjoyment upon the

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926 See in chapter 2 at 2.2.2
927 According to the layer theory, virtual property sits at the first and the second level belong to service providers and virtual property sits at the content layer (3) should be categorized as users’ virtual property. See in chapter 2 at 2.2.2
929 Eleftheriadis, Pavlos ‘The Analysis of Property Rights’ (1996) supra 60
930 “If B owes A a thousand dollars, A has an affirmative right in personal, or paucital right, that B shall transfer to A the legal ownership of that amount of money. If, to put a contrasting situation, A already has title to one thousand dollars, his rights against others in relation thereto are multital rights, or rights in rem. In the one case the money is owed to A; in the other case it is owned by A.” see in Newcomb Hohfeld, Wesley Fundamental Legal Conceptions as Applied in Judicial Reasoning (The Lawbook Exchange, ltd. Union, New Jersey 2000) supra 19
performance of that duty, and is secured by the legal remedies provided for a breach of performance.  

In terms of users’ virtual property right, even though this chapter adopts twofold virtual property rights system, this chapter insists that virtual property sits at the content layer (3) should be labelled as users’ private property rights in rem. The function of contractual clauses in EULAs are only to regulate users’ and ISPs’ actions and obligations in accordance with the operation of the virtual world, rather than allocate virtual property rights between users and ISPs. ISPs can use contractual clauses to instruct users which type of behaviors are forbidden in the virtual world, in return, users can also use contractual clauses to command ISPs to provide technical support for their experience in the virtual world. All in all, EULAs is the general regulation in the virtual world. However, ISPs should not use contractual clauses to allocate ownership of the virtual property in the virtual world.

6.4 Practical Reform

6.4.1 How does the twofold virtual property rights system work in the virtual world?

This section analyses the twofold virtual property rights system from a practical perspective. At the outset, it is necessary to clarify that the analysis in this section is

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931 Law of Property in Land (1st ed., 1874).
932 Because all users’ virtual property should rely on the virtual environment which is created by service providers, even this chapter argues that service providers cannot use contractual clauses to violate users’ virtual property rights, service providers still can user these contractual clauses to regulate users’ behaviours in the virtual world and with the purpose to improve service or protect other users’ virtual property rights.
933 This chapter argues that users’ virtual property are users’ legal property right and cannot be regulated only by contractual clauses in EULAs. See also in DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019 Article 7 “Any contractual provision contrary to the exceptions provided for in Articles 3, 5 and 6 shall be unenforceable.”
based on the classification of virtual property proposed in chapter two. The twofold virtual property rights system will recognize users’ property claims over the first group of virtual property, the proposed system will also provide justification for establishing a tort of misuse of private information, eventually, the system will recognize users’ originality in their generated content.

6.4.1.1 Recognizing users’ property claims over their virtual property

In respect of the situation where users obtain the virtual items from ISPs directly and without further reproduction, and when the conflicts arise from the desire of ownership between users and ISPs, the proposed twofold virtual property rights system could clarify the ownership of virtual property effectively. The proposed twofold virtual property rights system will also clarify the function of contractual clauses in EULAs in the virtual world.

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934 ‘For the first grouping of virtual property, users are expected to claim property right on items considered as the user’s private property. Inevitably, users should have the right to claim private property right on these items. For instance, all the items users get from service providers can be used directly without any further creation and exploration. User’s weapons that exist in online games are typical example of this group. The second group of virtual property will be the items that contain personal information. They do not contain much of economic value, however, they are very important to users as they contain user’s significant and confidential personal information. In other words, the items in this group can be described as personal data. Email addresses and online bank accounts are the typical examples of this group of virtual property. In terms of the protection of this group, the protection of misuse of private information will be an effective approach. Eventually, the third group of virtual property contains the items recreated by users, and they are rich of the user’s creation and original ideas. Hence this thesis suggests that this kind of virtual property can be considered as user’s copyright, to be protected by IP. For instance, the original work users write in social media, and the items recreated by users with their original ideas, are typical examples of this group.’ See in chapter 2 at 2.3

935 “By submitting, posting or displaying Content on or through the Services, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods (now known or later developed). This license authorizes us to make your Content available to the rest of the world and to let others do the same. You agree that this license includes the right for Twitter to provide, promote, and improve the Services and to make Content submitted to or through the Services available to other companies, organizations or individuals for the syndication, broadcast, distribution, promotion or publication of such Content on other media and services, subject to our terms and conditions for such Content use. Such additional uses by Twitter, or other companies, organizations or individuals, may be made with no
As an example of the above scenario, in the US, in *Bragg v Linden research, Inc.*, the plaintiff March Bragg claimed an ownership interest on his virtual property. Based on the classification of virtual property, virtual items which exist in online games are the typical examples of the first group of virtual property. In this case, according to the layer theory and proposed twofold virtual property rights system, it is obvious to clarify that Bragg’s account and virtual land named “Taessot” are Bragg’s virtual property - a type of legal property, and such virtual property rights cannot be infringed by contractual clauses between Bragg and Linden Research Inc. Contractual clauses in EULAs cannot grant ISPs any right to alter users’ virtual property right in the virtual world if users’ virtual property rights have been recognised and protected by proposed legislation. Any contractual clauses contrary to the intrinsic meaning of virtual property rights should be unenforceable. In this case, Linden does not have the right to froze Bragg’s account as EULAs are only a contract between users and ISPs to regulate their behaviours in the virtual world rather than allocate virtual property rights in the virtual world. Based on the

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936 This case occurred in the US. In the US case, *Bragg v. Linden Research, Inc.*, supra 5 (E.D. Pa. 2007). In the US there are many cases related to virtual property rights in the virtual world, however, the decision of Bragg v. Linden Research, Inc. is relevant clear and main focus on the enforcement of clauses in EULA.
937 The dispute in this case was triggered in 2006 when the plaintiff purchased an entire region of virtual land for $300. The plaintiff allegedly accessed a land auction site for property and purchased a parcel that had yet been released for auction. By doing so, he acquired that virtual land below Second Life’s cost. As a result, the company confiscated the land purchased and froze the plaintiff’s account, alleging that the property was improperly acquired through an “exploit.” Plaintiff filed this suit alleging conversion, fraud, unjust enrichment and breach of contract. In this case, even Linden recognized uses’ virtual property rights, they did not clarify the legal status of virtual property, they did not clarify the classification of virtual property neither. Compared with the layer theory and the twofold virtual property right, virtual property rights recognized by Linden is just contractual rights granted by Linden through contractual clauses in EULAs, rather a legal property right.
938 See in chapter 2 at 2.3
939 See in chapter 2 at 2.2.2
940 See in chapter 5
941 ProCD, Inc. v Zeidenberg, (WD Wis. 1996) at 656 & 658; and ProCD, Inc. v Zeidenberg 86 F.3d 1447 (7th Circuit, 1996).
942 See also in DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019 Article 7 “Any contractual provision contrary to the exceptions provided for in Articles 3, 5 and 6 shall be unenforceable.”
judgement of ProCD, Inc v Zeidenberg, the validation of contractual clauses in EULAs depends on whether the work has been protected by copyright law or not. Therefore this chapter argues that, with the purpose to prevent users’ virtual property rights from infringing by the EULAs, it is pressing need to clarify the legal status of users’ virtual property rights. Virtual property should be protected under the current copyright framework in UK but within a separate section.

When the conflict arises from the infringements with other users, based on the twofold virtual property systems, users have the exclusive right to exclude other users from infringing their virtual property rights.

The first case related to virtual property in China occurred in the online game ‘Red Moon’. Unfortunately, the court recognised this case as a contractual dispute rather than the infringement of property rights. This chapter argues that after establishing the twofold virtual property right system, users could sue other users who have deprived their virtual property directly and ISPs under the obligation to assist the court to solve this problem. Therefore, the twofold virtual property right system could help the court to deal with this type of cases more effectively. The proposed twofold virtual property right system can help the court to clarify users’ property interests over their virtual property, and then recognise the infringement by defendant.

943 ProCD, Inc v Zeidenberg, (WD Wis. 1996) at 656 & 658; and ProCD, Inc v Zeidenberg 86 F.3d 1447 (7th Circuit, 1996).
944 Jacobsen v Katzer 535 F.3d 1373 (Court of Appeals, Federal Circuit, 2008) at 1.
945 "That line of case law argues that whenever contracts are within "the general subject matter" of copyright law, then they should be subject to the copyright balancing exercise." Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) supra 15
946 See in chapter 5
6.4.1.2 The proposed system will provide a justification for establishing a tort of misuse of private information

In terms of the protection for the second group of virtual property which contains users’ private information, \(^948\) the twofold virtual property right system\(^949\) proposes an effective approach which categorises users’ private information in digital formats as their virtual property, to protect users’ private information in digital formats. Users’ online footprints are the typical example of this group of virtual property.

In *Google Inc. v Judith Vidal-Hall*, \(^950\) the defendant, Google, collected private information about the claimants\(^951\) internet usage via their Apple Safari browser (the Browser-Generated Information, or ‘BGI’) without the claimants’ knowledge and consent, by using a small string of text saved on the user’s device (‘cookies’). The BGI was then aggregated and used by the defendant as part of its commercial offering to advertisers via its ‘doubleclick’ advertising service. This meant advertisers could select advertisements targeted or tailored to the claimants’ interests, as deduced from the collected BGI, which could be and were displayed on the screens of the claimants’ computer devices. The proposed twofold virtual property rights system which suggests to regulate virtual property right under the current copyright framework will clarify the legal status of users’ digital personal information and then provide protection for users.

\(^948\) See in chapter 2 at 2.3
\(^949\) This chapter adopts “restrained-exclusive property rights” or “fundamental property rights” to describe the “rights” users can claim against service providers, meanwhile “relative-exclusive property rights” or “external property rights” are used to describe owners’ property interests against other users.
\(^950\) *Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner* [2015] EWCA Civ 311 2015 WL 1310650 supra 11
\(^951\) ‘The claimants are three individuals who used Apple computers between the summer of 2011 and about 17 February 2012. Each of them accessed the internet using their Apple Safari browser.’
One of the principle arguments is whether the information mentioned in Google Inc. v Judith Vidal-Hall is personal data under the Data Protection Act 2018 (DPA 2018) which amended by GDPR. In other words, through which perspective should personal data be interpreted? Should such data be construed in a broad or narrow way? The Court of Appeal stated that the correct approach may be to consider whether the data "individuates" the individual, such that the individual is able to be differentiated from others. It is not necessary for the data to reveal information such as the actual name of the individual. As the BGI told Google such information as the claimants' IP addresses, their rough geographic location and the websites they were visiting, the Court of Appeal stated that it is likely that the individuals were sufficiently individuated and that the BGI on its own constitutes "personal data". However, the definition of personal data from DPA 2018 can be interpreted from different perspectives. Section 1(1) of the DPA 2018 provides: “personal data” means data which relate to a living individual who can be identified—(a) from those data, or (b) from those data and other information which is in the possession of, or is likely to come into the possession of, the data controller…” Depending on different fact in different cases, judges may draw different conclusion following this definition. This uncertainty may cause confusion on the nature of personal data.

Another uncertainty raised in by Google Inc. v Judith Vidal-Hall was that once information mentioned in the case was identified as personal data, how should claimants be compensated when there is no pecuniary loss. In other words, one of

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952 Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650 supra 11
953 Ibid.
954 Ibid.
the difficulties for judges is to confirm the accurate loss of claimants in a specific case.955

Applying the twofold virtual property rights system, on the one hand, could provide justification for the protection of users’ private information in digital formats (like online footprints), as users’ online private information has been categorised as users’ virtual property – a new type of legal property right.

On the other hand, a twofold virtual property right system could also provide justification for the establishment of the tort of misuse of private information.956 The protection for individuals’ private information has undergone a series of development. After distinguishing privacy and confidence,957 users’ private information in digital formats should be categorised as a type of users’ virtual property.958

“Against the background we have described, and in the absence of any sound reasons of policy or principle to suggest otherwise, we have concluded in agreement with the judge that misuse of private information should now be recognised as a tort for the purposes of service out the jurisdiction. This does not create a new cause of action.

955 John v Associated Newspapers Ltd [2006] EWHC 1611 (QB); [2006] EMLR 772
956 Mo, Jojo ‘Misuse of private information as a tort: The implications of Google v Judith Vidal-Hall’ (2017) supra 211
957 “Privacy and confidence are different concepts. To press every case calling for a remedy for unwarranted exposure of information about the private lives of individuals into a cause of action having as its foundation trust and confidence will be to confuse those concepts.” See in Hosking v Runting & Others [2004] NZCA 34 48; “The continuing use of the phrase of confidence and the description of the information as confidential is not altogether comfortable. Information about an individual’s private life would not, in ordinary usage, be called confidential. The more natural description today is that such information is private. The essence of the tort is better encapsulated now as misuse of private information.” See in Campbell v MGN Limited [2002] EWCA Civ 1373 2004 WL 852411 14
958 Mo, Jojo ‘Misuse of private information as a tort: The implications of Google v Judith Vidal-Hall’ (2017) supra 211
In our view, it simply gives the correct legal label to one that already exists.\textsuperscript{959}

This chapter argues that, information and internet technologies have made the individual’s personal information be able to be collected and analysed through different formats.\textsuperscript{960} The information which was misused in recent cases\textsuperscript{961} do not involve the legal invasion of individual’s privacy; they are just private or even personal.\textsuperscript{962} The protection of private information should be strongly in accordance with the development of information technology.\textsuperscript{963} The traditional approach, no matter protection for privacy or breach of confidence, are not appropriate to deal with recent cases related to individuals’ private information.\textsuperscript{964} Therefore, it is a pressing need to provide a justification for establishing a tort of misuse of private information. In this sense, the twofold virtual property right system could protect users’ virtual property right by categorising users’ online private information as a type of legal property.

In \textit{Google Inc. v Judith Vidal-Hall},\textsuperscript{965} after applying twofold virtual property rights system, it is obvious to draw the conclusion that users’ BGI are their virtual property and could not be used by the defendant as part of its commercial offering to

\textsuperscript{959} Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650 \textit{supra} 11

\textsuperscript{960} ‘Today’s increasingly sophisticated information technologies cover a wide range of technical progress: Microprocessors and workstations... Special-purpose electronic hardware... Media... Convergence... Software’ See in National Research Council, ‘Cryptography’s Role in Securing the Information Society’, National Academy Press, Washington D.C. (1996) \textit{supra} 4


\textsuperscript{962} Mckinnon, Kayla ‘Nothing Person, It’s just Business: How Google’s Course of Business Operates at the Expense of Consumer privacy’ (2018) \textit{supra} 375

\textsuperscript{963} Castells, Manuel, \textit{The Rise of the Network Society} (London: Wiley-Blackwell 2010) \textit{supra} 364

\textsuperscript{964} Mo, Jojo ‘Misuse of private information as a tort: The implications of Google v Judith Vidal-Hall’ (2017) \textit{supra} 211

\textsuperscript{965} Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650 \textit{supra} 11

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advertisers via its ‘doubleclick’ advertising service. Contractual clauses in EULAs could not grant google the right to collect, store and analyse users' BGI.\textsuperscript{966}

In the debates over who owns the online account of deceased soldiers in the Iraq war.\textsuperscript{967} If we apply twofold virtual property rights system, it is reasonable to draw the conclusion that solders’ families could get solders’ email and company has no right to refuse families’ claim and company also under the obligation to provide technical support.\textsuperscript{968}

**6.4.1.3 Recognising originality in users generated content**

With respect to the protection for virtual property enrich users’ original ideas,\textsuperscript{969} ISPs usually use contractual clauses to acknowledge that users maintain intellectual property over user generated content which has been protected by current intellectual property law.\textsuperscript{970} However, the twofold virtual property rights system could also provide justification for the protection of virtual items that have not reached the criterion of copyright,\textsuperscript{971} even the right over this type of virtual property has been

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\textsuperscript{966} See in DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019

\textsuperscript{967} “A growing dispute is forming over who owns the online accounts of deceased soldiers in the Iraq war. The families of soldiers claim that the accounts - which often contain pictures and journals - are the property of the decedent's estate. The ISPs claim that the accounts cannot be released for privacy reasons - if property claims are able to touch online accounts, ISPs assert, the value of privacy that people find valuable in such accounts will be eliminated. Whether the accounts constitute property or not will drive how they are treated in probate, whether they are devisable, and whether they are alienable.” See in Fairfield, Joshua, ‘Virtual property’ supra 1

\textsuperscript{968} The families of soldiers argue that: ‘The information belongs to his son’s estate, just like his old high school papers, his sweaters and his soccer ball, and should be transferred to the next of kin.’ The email and Web hosting company, Mailbank. Com .Inc argued that: ‘While it empathizes with the family’s situation, its first priority is to protect the privacy of its customers. It is the company’s policy to support absolute privacy of our clients.’

Finally, the company refused to divulge any information about the accounts.

\textsuperscript{969} See in chapter 2 at 2.3

\textsuperscript{970} “Permission to use content that you create and share: Some content that you share or upload, such as photos or videos, may be protected by intellectual property laws. You own the intellectual property rights (things such as copyright or trademarks) in any such content that you create and share on Facebook and the other Facebook Company Products you use. Nothing in these Terms takes away the rights you have to your own content. You are free to share your content with anyone else, wherever you want.” See in Facebook Terms of Service available at https://www.facebook.com/terms.php
claimed by ISPs via contractual clauses in EULAs. On the other hand, the

971 ‘Pro CD used contractual clauses to prohibit their customers from reselling ProCD’s own compilation of telephone numbers. Traditionally, such compilations would have had protection under US copyright law because of the “sweat of the brow” by the company in compiling the telephone numbers. However, following Feist, the “sweat of the brow” test was overruled and such compilations lost copyright protection.’ Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) supra 15

972 “Blizzard’s Ownership
With the sole exception of the Licensors’ Games, Blizzard is the owner or licensee of all right, title, and interest in and to the Platform, including the Games that are produced and developed by Blizzard (“Blizzard Games”), Custom Games derived from a Blizzard Game, Accounts, and all of the features and components thereof. The Platform may contain materials licensed by third-parties to Blizzard, and these third-parties may enforce their ownership rights against you in the event that you violate this Agreement. The following components of the Platform (which do not include content or components of the Licensors’ Games), are owned or licensed by Blizzard:

All virtual content appearing within the Platform, including the Blizzard Games, such as:

Visual Components: Locations, artwork, structural or landscape designs, animations, and audio-visual effects;
Narrations: Themes, concepts, stories, and storylines;
Characters: The names, likenesses, inventories, and catch phrases of Game characters;
Items: Virtual goods, such as digital cards, currency, potions, weapons, armor, wearable items, skins, sprays, pets, mounts, etc.;
All data and communications generated by, or occurring through, the Platform;
All sounds, musical compositions, recordings, and sound effects originating in the Platform;
All recordings, Game replays, or reenactments of in-game matches, battles, duels, etc.;
Computer code, including but not limited to “Applets” and source code;
Titles, methods of operation, software, related documentation, and all other original works of authorship contained in the Platform;

All Accounts, including the name of the Account and any Battle Tags associated with an Account. All use of an Account shall inure to Blizzard’s benefit. Blizzard does not recognize the transfer of Accounts. You may not purchase, sell, gift or trade any Account, or offer to purchase, sell, gift, or trade any Account, and any such attempt shall be null and void and may result in the forfeiture of the Account;

All Moral Rights that relate to the Platform, including Custom Games derived from a Blizzard Game, such as the right of attribution, and the right to the integrity of certain original works of authorship; and

The right to create derivative works, and as part of this Agreement, you agree that you will not create any work based on the Platform, except as expressly set forth in this Agreement or otherwise by Blizzard in certain contest rules, Blizzard’s Fan Policies, or addenda to this Agreement.” See in Blizzard End User License Agreement available at https://www.blizzard.com/zh-tw/legal/fba4d00f-c7e4-4883-b8b9-1b4500a402ea/blizzard-end-user-license-agreement see also in Ackerman, Justin ‘An online gamer’s manifesto: recognizing virtual property rights by replacing end user licensing agreements in virtual worlds’ (2012) supra 232

973 See SEGA End Users Licence Agreement at http://www.sega.co.uk/EULA


5.1 You acknowledge that all ownership rights, intellectual property, trade secret and all other proprietary rights in the Game and the Online Features (including, without limitation, any computer code, themes, objects characters, character names, stories, locations, concepts, artwork, storylines, likenesses, moral rights, structural or landscape designs, self-generated levels created using the Game editor, musical compositions, dialogue, or any other content protected by UK or international intellectual property protection laws) are owned or licensed by SWS, that rights in the Game are licensed rather than sold to you (subject to the license granted in clause 2), and that you have no rights in or to the Game or the Online Features other than the right to Use them strictly in accordance with the terms of this EULA.

5.2 You acknowledge that you shall acquire no proprietary rights in past or stored gameplay, Game progress, character or other achievements within the Game.

5.3 You acknowledge that you have no right to access the Game in source code form.’
EULA should not be used as a license to transfer the copyright from users to ISPs.974

Both in the US case *ProCD, Inc. v. Zeidenberg*,975 and UK case *SAS Institute Inc v World Programming Ltd*,976 the key point is how to deal with the conflicts and the fundamental relationships between the reach of a contract and the copyright balancing exercise on the work which has not been protected by copyright law.977

By applying twofold virtual property rights system, this chapter argues that, uses’ virtual property right is a type of legal property and cannot be regulated and altered

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974 “By submitting, posting or displaying Content on or through the Services, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods (now known or later developed). This license authorizes us to make your Content available to the rest of the world and to let others do the same. You agree that this license includes the right for Twitter to provide, promote, and improve the Services and to make Content submitted to or through the Services available to other companies, organizations or individuals for the syndication, broadcast, distribution, promotion or publication of such Content on other media and services, subject to our terms and conditions for such Content use. Such additional uses by Twitter, or other companies, organizations or individuals, may be made with no compensation paid to you with respect to the Content that you submit, post, transmit or otherwise make available through the Services.” See in Twitter Terms of Service available at https://twitter.com/en/tos

975 This case occurred in the US. *ProCD, Inc. v Zeidenberg*, (WD Wis. 1996) at 656 & 658 “In the US, the focus of the law has been on the manner in which contractual clauses may extend the scope of copyright style protection. Unlike the UK, the focus is not on specific areas such as the making of back up copies. A line of US decisions focus dealing with non copyright works focus on the fundamental relationship between the reach of a contract and the copyright balancing exercise, which is patently not the case in the UK or EU. The line of case law in question concerns two hearings involving a company called Pro CD.” In ProCD, a manufacturer of computer software (ProCD), information from over 3,000 directories into a telephone containing approximately 95 million telephone listings (at expense) and developed a search engine to be used in conjunction database. In order to effectively market the software, the database at different prices—higher prices for commercial lower prices for private users. A problem arose, however, berg bought a private user package, but ignored the license, listings, and made the database commercially available over through his own proprietary search engine. ProCD sued claiming copyright infringement and breach of the shrinkwrap agreement.” See in ProCD, Inc. v. Zeidenberg supra 13

976 *Supra* 14

977 “Pro CD used contractual clauses to prohibit their customers from reselling ProCD’s own compilation of telephone numbers. Traditionally, such compilations would have had protection under US copyright law because of the “sweat of the brow” by the company in compiling the telephone numbers. However, following Feist, the “sweat of the brow” test was overruled and such compilations lost copyright protection. ProCD therefore used a contractual clause to provide copyright style protection. The clause was contained in a shrink wrap licence, to which users had to agree in order to access the compilation data. The case was heard before both the Western District of Wisconsin, and on appeal, the Seventh Circuit. Both courts took a broad approach in establishing a policy towards contractual clauses which extend copyright style protection over potentially copyright works. In the Western District of Wisconsin it was decided that contractual clauses could not be used to provide copyright style protection where copyright itself would not provide protection. On appeal, the Seventh Circuit reached the opposite conclusion, due to copyright being a property right, and contract being a personal right. However, to reiterate the above point, both courts drew up a policy towards contractual clauses that extend copyright style protection and that seek to preclude copyright law.” Griffin, James, ‘The interface between copyright and contract: Suggestions for the future’ (2011) *supra* 15
by contractual clauses. The contractual clause should be invalid when they are contrary to the provisions of the current policy.\footnote{See in DIRECTIVE (EU) 2019/790 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019 Article 7}

6.5 Proposal for legislative reform of virtual property system

At the very outset, this section starts with the current legal framework which is relevant to the protection for different types of virtual property. Article 8 ECHR\footnote{‘Right to respect for private and family life
1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.’ See in European Convention on Human Rights Article 8}, Article 7 EU Charter of Fundamental Rights\footnote{‘Respect for private and family life
Everyone has the right to respect for his or her private and family life, home and communications.’ See in Chapter of Fundamental Rights of European Union Article 7} and Article 8 HRA\footnote{‘Right to respect for private and family life
1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.’ See in Human Rights Act 1998 Article 8} have clarified the justifications for protecting individuals' private and family life, and they are an attempt to balance the different interests between public and private life. However, the types of users’ personal information has been broadened by advanced information technology. On the one hand, in many cases, users’ information is not very close to the users’ private life. On the other hand, in the majority cases which related to the protection of users’ personal information, they did not involve the disclosure of users’ personal information, users’ information are primarily collected, analysed, stored and shared. Therefore, this thesis argues that current legal framework can not provide sufficient protection for users' personal information.
In practice, the EU may need to make sure that decisions and agreements on the transfer of data from the EU to third countries contain adequate data protection guarantees, or that foreign-based data controllers and processors targeting EU residents sufficiently protect the latter's data. All this may also explain why the CJEU has, in a string of well-known rulings with a transatlantic dimension, such as Schrems, Canada-EU PNR, and Google Spain, so strongly emphasized the right to data protection over countervailing interests, such as security and the free flow of information. The CJEU thereby forced the EU to renegotiate agreements with third countries or forced foreign-based data controllers targeting the EU market to enhance the protection of EU residents’ data. This trend looks set to continue.

Pending and recent rulings cover questions on the reach of EU data protection jurisdiction abroad. One such request asks jurisdictional questions about which EU data protection supervisory authority may institute proceedings against, for instance, Facebook. Another recent case pertained to the question of whether de-referenced Google links should be de-referenced across the EU or the global internet; should only those in the EU see redacted search results or should everyone—no matter from where they access Google—see redacted results? The CJEU ruled that the scope of the DPD and GDPR did not require search engine operators to carry out de-referencing on all versions of the search engine. Such broad de-referencing is not, however, prohibited. The Court thus largely restrained its exercise of jurisdiction over foreign companies rather than foregrounding data protection at the expense of other important considerations.

In terms of the protection for the virtual property which contain users’ original ideas,
“while some services have become key players in material distributed online, right holders are not always able to determine whether and under what conditions right holders can make their content available on the services and obtain fair remuneration. However, it stresses that these terms are at odds with copyright licensing contracts, as such services are under no legal obligation to bargain with right holders, but only reach voluntary ‘monetisation agreements’ (EC 2016a, 138–139).”

Taking the uncertainty caused by the absence of legal protection for virtual property, this chapter proposes a reform suggestion for the protection of virtual property.

It is imperative that it should be clear that the virtual property right should be categorised as a type of legal property right. Users’ virtual property right should be protected and regulated by legislation rather than by contractual clauses. In accordance with the harmonization between current legal framework and virtual property rights, this chapter suggests that virtual property should be protected as a statutory instrument amending the CDPA. In the following pages, this chapter proposes a sample of the text of protection for virtual property under the current CDPA 1988 framework.

Section 1A

Object of protection

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983 Fairfield, Joshua, ‘Virtual property’ (2005) supra 1
1. This proposal concerns the legal protection of virtual property in any form.

2. For the purpose of this proposal, virtual property is divided into three levels, the property at infrastructure layer (1) belonging to ISPs and provide underlying environment for further development. The items at the abstraction layer (2) are created by ISPs and protected by copyright, and they also belong to ISPs. The property at the content layer (3) are user’s virtual property because users invest time, money and labour on them. Only virtual property sits at the content layer (3) should be protected by this proposal.

3. Virtual property sits at the content layer (3) can be categorised into three groups. The first category of virtual property are virtual items users obtained from ISPs directly and without reproduction. The second category of virtual property are the virtual items containing users’ private information in any form in the virtual world. The third category of virtual property are the virtual items contain users’ creative reproduction.

4. For the purpose of this proposal, virtual property shall mean independent virtual items containing users’ personal investment and arrangement in any digital form in the virtual world.

5. In accordance with the provisions of this proposal, the third category of virtual property should be protected by copyright, as literary works within the meaning of the Berne Convention for the protection of Literary and Artistic Woks.

6. Protection in accordance with this proposal shall apply to the expression in any form of a virtual property. Ideas and principles which underline any element of a virtual property are not protected by copyright under this proposal.
Section 2

Authorship of Virtual Property

The author of a virtual property shall be the person or group of natural persons who create the virtual property or put personal arrangements in the virtual property.

In respect of a virtual property created by a group of persons jointly, the exclusive rights shall be owned jointly.

Where a virtual property is created by an employee in the execution of his duties or following the instructions given by his employer, the employer exclusively shall be entitled to exercise all economic rights in virtual property, unless otherwise provided by contract.

Section 3

Twofold virtual property rights

A virtual property right, instead of being categorised as a single type of property right, should be regulated as a twofold virtual property right.

‘restrained-exclusive property rights’ should be granted to the owner against infringement from ISPs; ‘relative-exclusive property rights’ should be granted to owner against infringement from others.

6.6 How would the proposed reform suggestion would operate?

As a consequence of the development of internet and information technology, even this thesis suggests regulating virtual property under the current copyright framework, virtual property is still different from copyright, therefore, this thesis suggests that it
will be appropriate to draft an independent statute entitled with ‘Virtual Property Statute’ which will complement the current CDPA 1988.

As regards the draft of ‘Virtual Property Statute’, this thesis suggests to establish a particular virtual property protection office such as Copyright Hub. Members in this office should have knowledge both of the current legislation and computer science. The main aim of this office is to draft the ‘Virtual Property Statute’. It will also be responsible for collecting and analysing the practical issues and conflicts related to virtual property, and to then do amendment of the ‘Virtual Property Statute’. It is also responsible deal with the conflicts related to virtual property before the courts.

In terms of the enforcement of the ‘Virtual Property Statute’, taking into the relationship between virtual property and technology, in the UK, the Copyright Tribunal could provide suggestion when they hears cases. However, I propose that there should also be a professional based virtual property group which could provide professional suggestions for owner.

**6.7 Practical analysis of the implement of the proposed virtual property theory**

Based on the proposed virtual property theory, virtual property sits in the content layer (3) is divided into three groups and the virtual property right granted to users is a two-fold virtual property right. This section will analyse how does the proposed virtual property theory operated practically.

In terms of the first group of virtual property, take the virtual weapons in the online games for example, if users’ virtual weapon is froze and confiscated by ISPs, proposed two-fold virtual property right could deal with the conflict between
contractual clauses of EULAs and users’ virtual property right. Once users’ virtual property right is confirmed by ‘Virtual Property Statute’, ISPs cannot allocate the ownership of virtual property through the contractual clauses of EULAs, even ISPs can set other obligation for users to regulate users’ behaviours in the virtual world. Therefore, if user did not violate other obligation, ISPs confiscated users’ virtual weapon, users could claim the infringement of their virtual property right. Therefore, this thesis argues that proposed virtual property theory did not make all contractual clauses invalid, it just confirm users’ virtual property right legally. On the other hand, if users’ virtual weapon infringed by others, users could claim virtual property right definitely as there is not contractual clauses between users and others. In this case, ISPs should provide technical support for users to record evidence, confirm the valuation of virtual property and prove their identity.

With regards to the second group of virtual property, take users’ online footprint for example, because users’ virtual property right is confirmed by proposed ‘Virtual Property Statute’, ISPs cannot collect, store, analyse and share users personal information just based on the Privacy Policy attached in the EULAs. If they try to use users’ personal information, they need to provide an independent contract to demonstrate the ways they will deal with users’ personal information and which types of personal information they will collect and then get users’ consent. Otherwise, they will infringe users’ virtual property right granted by ‘Virtual Property Statute’. On the other hand, if users’ online footprint collected by others, users could claim whole virtual property right against this kind of infringement.

In terms of the third types of virtual property, for instance the short expression of users’ opinion or short comments which has not meet the criterion of copyright. ISPs
cannot allocate the ownership of this kind of virtual property by contractual clauses in EULAs, users could claim infringement of virtual property based on the clauses in ‘Virtual Property Statute’. If users’ UGC infringed by others, users could also claim infringement of virtual property based on the clauses in ‘Virtual Property Statute’ and in this case, ISPs should help users to record evidence and provide other types of technical support.

6.8 Conclusion

Relying on the discussion about the layer theory and the classification of virtual property, virtual property which sits at the infrastructure layer (1) and the abstraction layer (2) should be categorised as ISPs’ copyright and be protected as software under the current copyright framework; virtual property which sits at the content layer (3) should be categorised as users’ private virtual property right, and users should be granted twofold virtual property rights.

In terms of the protection of the first group of virtual property, the twofold virtual property right system can help courts to recognise users’ property internets over their virtual property. Contractual clauses in EULAs cannot grant ISPs any right to alter uses’ virtual property right in the virtual world.

With regards to the protection of the second group of virtual property, the twofold virtual property right system provide justification for the protection of users’ private information in digital formats and also provides justification for the establishment of the tort of misuse of private information.
With respect to the protection of the third group of virtual property, the proposed twofold virtual property right system could help courts to recognise originality over user generated content in the virtual world.

Therefore, users’ virtual property should be regulated by an independent statute entitled with ‘Virtual Property Statute’ which will complement the current CDPA 1988.
Chapter 7. Conclusion

7.1 Introduction

Compared with the definition of property, which is the consequence of the development of society and civilization, it is clear that the emergence of the concept of ‘virtual property’ is also deeply intertwined with the development of civilization and the improvement of technology. As the consequence of development of the society, the emergence of virtual property also challenges the traditional legal framework and legal theory in turn, especially for the traditional property concepts and intellectual property theory. Even if it is obvious that there are serious of legal issues reflected by the emergence of virtual property, exploring the roots of the research of virtual property remains also significant, particularly in terms of choosing a proper perspective which could explore the justification for accepting virtual property of understanding the essence of virtual property and to help the public to accept virtual property. It is inevitable that the research related to virtual property is interdisciplinary, so the solutions dealing with issues raised should be assessed systematically. Hence this chapter presents the solutions coping with virtual property from the perspective of ontology, philosophy, ownership theory, privacy and information protection and technology.

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984 Pierson, Christopher Just Property: Volume Two: Enlightenment, Revolution, and History (Published to Oxford Scholarship Online 2016) supra 297
985 See in chapter 1 at 1.5
The concept of virtual property and the layer theory which established in this thesis distinguishes users’ virtual property from other underlining software. The twofold virtual property rights system established in this thesis could identify the exclusive aspect of users’ virtual property, provide a justification for the protection of users’ private information, recognise users’ originality over their virtual property. The proposal which suggests that virtual property should be protected by an independent statute entitled with ‘Virtual Property Statute’ which will complement the current CDPA 1988 could clarify the legal status of virtual property from legislative perspective.

7.2 Primary concepts related to virtual property

This chapter argues that, in order to cope with the challenges reflecting from the emergence of virtual property, just taking corresponding measures according to specific cases related to virtual property is not sufficient. It necessary to explore the root causes of the issues of virtual property, and to provide a legal basis for the protection of virtual property. The beginning of the research of virtual property should be making the basic and fundamental concept of virtual property clear and explore the root of the issues of virtual property from different perspectives.

7.2.1 The concept of property

This part argues that even though the development of technology raises public awareness of virtual property and it is obvious that issues of virtual property belong to legal filed, virtual property is not totally new and we can use historical and philosophical methods to explore the essence of virtual property. The comparison
between virtual property and physical property can be traced back to the comparison between materialism and idealism where the significant difference is intangible.

From the historical perspective, if we are to understand how property has arisen, Grotius⁹⁸⁶ points out that, we must first recognize that the concept of property has itself undergone development. The story of the origin of property is not a story of the spontaneous generation of the modern concept of property, arriving fully-fledged in an underprepared world.⁹⁸⁷ The emergence of property is the product of the development of the world, and so it should also be improved with our world. This thesis argues that the concept of property designed previously cannot adapt to the current society. Virtual property should be brought within the scope of legal property with the emergence of advanced technology, especially computer technology.

The most important characteristic we can use to determine whether the item belongs to property or not is the exclusive use-right. From the statement of Grotius, we can find out the origin of this exclusive use-right⁹⁸⁸:

“there are some things which are consumed by use, either in the sense that they are converted into the very substance of the user and therefore admit of no further use, or else in the sense that they are rendered less fit for additional service by the fact that they have once been made to serve. Accordingly, it very soon became apparent, in regard to articles of the first class (for example, food and drink), that a certain form of private ownership was inseparable from use. For the essential characteristic of private property is the fact that it belongs to a

⁹⁸⁶ Grotius, Hugo De jure praedae Commentarius (1st edn, Clarendon Press, 1950) supra 284
⁹⁸⁷ Buckle, Stephen Natural law and the theory of property: Grotius to Hume (Oxford University Press 2002) supra 277
⁹⁸⁸ Grotius, Hugo, De jure praedae Commentarius (1st edn, Clarendon Press, 1950) supra 284
given individual in such a way as to be incapable of belonging to another individual.\textsuperscript{989}

For virtual property, users can control or use their virtual items which exist in virtual world exclusively. They fulfil the condition of exclusive use-right totally,\textsuperscript{990} so we have reason to consider them as a kind of property.

We can also make for a better understanding of virtual property through the exploration of the concept of property. One is the semantic concept of property. It views property as things. For the most part, property is tangible things – land, house, automobiles, tools, factories.\textsuperscript{991} According to the statement of this popular concept of property, we can find out that although it did not contain virtual property, it had already recognized that intangible things are also property. This will contribute to bring virtual property into the scope of property. The other way of understanding property is as a sophisticated concept. One might almost call it the legal concept, for it is very common among lawyers. It understands property as relations. More precisely, property consists in certain relations, usually legal relations, among persons or other entities with respect to things.\textsuperscript{992} For virtual property, it not only reflects the relationships between users and the other persons, it also reflects the relationships between users and the network ISPs. The conflicts and relations reflected from virtual property are more sophisticated than traditional physical property. From this perspective, virtual property is obviously a kind of legal property. This part argues that, no matter the popular concept of property or the legal concept, though both of them did not refer to virtual property, they also do not exclude virtual

\textsuperscript{989} Buckle, Stephen, \textit{Natural law and the theory of property: Grotius to Hume} (Oxford University Press 2002) supra 277
\textsuperscript{990} See in chapter 2 at 2.6.1
\textsuperscript{991} Munzer, Stephen, \textit{A Theory of Property} (1st edn, Cambridge University Press 2012) supra 124
\textsuperscript{992} Munzer, Stephen, \textit{A Theory of Property} \textit{ibid.}
property from the scope of property. Virtual property also meets the conditions they provide to allow consideration of such items as property. Hence, it will be reasonable to bring virtual property into the scope of property.

Even though there have been numerous definitions of property, all of them are high-level generalizations of the characteristic of the items have been discovered and considered as property at that time. However, this thesis holds the opinion that they are inadequate in the modern era. We have to confess, that, due to the development of the society and the emergence of advanced technology, people’s perception of property has been improved hugely. In terms of the development of property, distinct properties, wrote Pufendorf, were not settled at the same time, nor in all places alike: but property was gradually introduced, according as either the condition of things, “the number and genius of men required; or as it appeared requisite to the common peace.” If we accept the development of property, this will be a means to enable people to accept that virtual property is a kind of legal property.

This thesis contribute to arise attention to interpret property from different perspective. 7.2.3 Layer theory

The majority of virtual property theories tend to confuse different types of code and content in virtual worlds, equating the underlying software (the building blocks of virtual worlds) and the user generated content (virtual assets). In this regard, this

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993 Ryan, Alan, Property and Political Theory (Oxford: Basil Blackwell. 1984) supra 280
995 Pierson, Christopher, Just Property: Volume Two: Enlightenment, Revolution, and History (Published to Oxford Scholarship Online: October 2016) supra 297
996 Lib.4.c.4.pa.367.6.Pa.377.14
997 Easter Term 9 Geo.3.B.R at 2340
998 Nelmark, David, ‘Virtual property: the challenges of regulating intangible, exclusionary property interest such as domain names’ (2004) supra 110
thesis adopts layer theory\textsuperscript{999} and proposes three levels whereby property can possibly be identified within virtual worlds.

At the first level – infrastructure layer (1) sits the service provider’s codes which facilitate the construction of the whole virtual environment. Items at this level can be considered as a platform not only for users but also for ISPs to perform and behave. At the second level – abstraction layer (2), this paper identifies the unique computer code which comprise of the unique items which have not transmitted to users, the services, programs and software provided by ISPs are typical examples of this level of virtual property. Finally, Virtual property at the content layer (3) – content layer (3) are which can be personalized by users via their personal investment and arrangement.

With regards to the virtual items sitting at the first and second level, they represent the virtual environment and specific virtual character and programs. One of the common characteristics they have is that they all created by ISPs through code and algorithms which is defined as a specified sequence of steps for producing a solution.

\textsuperscript{999} The layer theory proposed in this paper is modified from Abramovitch “Within virtual worlds, there are three possible levels of “property”:
1. First level: At its core, all virtual property is ultimately computer code, which is protected by copyright law.
2. Second level: Items in the virtual world – avatars, swords, clothes, buildings, etc. – are the virtual world’s equivalent of the same property items in the physical world.
3. Third level: It is possible that the in-game virtual property itself is a form of intellectual property. For example, an in-game book is both a “physical” item of property, but also represents a “tangible” representation of the copyright in that book. Another example would be the creation of a clothing line in a virtual world: in such a case, there could be intellectual property rights in the form of designs or trade marks inherent in the clothes, while someone also could “own” the physical embodiment of the items of clothing in that line. However, as in the real world, intellectual property rights would not exist for every object.” See Abramovitch, Susan, Virtual Property in Virtual Worlds (2009) 2 at https://www.lexology.com/library/detail.aspx?g=5a3f3b03-a077-45d4-9981-36f713c92820 supra 29

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to a problem.¹⁰⁰⁰ A computer or software is a composition of individual algorithms (written in a programming language) that solve specific problems.¹⁰⁰¹

The ownership of these types of virtual property is supported by s.9(3) of the Copyright, Designs and Patents Act (CDPA) 1988 which regulated the ownership of computer-generated work:

“In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.”¹⁰⁰²

It will understood that the programmer is the author of computer-generated work.¹⁰⁰³ s.9(3) of the Copyright, Designs and Patents Act (CDPA) 1988 can be considered as the justification of the allocation of the virtual property sits at the first and second level. In other words, the discussion about the ownership of virtual property sits at the first and second level is relevant clear, the main argument is who is the owner of the virtual property sits at the content layer (3).

In terms of the virtual property sit at the content layer (3), even this judgement can be considered as the evidence to support the ownership of ISPs (programmers) upon virtual property sit at the first and second level, once virtual property combines users’ skill, labour or private information, they should be labelled as users’ virtual property, therefore, this paper argues that virtual property sits at the content layer (3) is users’ virtual property.

¹⁰⁰⁰ Neapolitan, Naimipour, *Foundations of algorithms* (Jones & Bartlett Learning, Burlington 2010) supra 468
¹⁰⁰² Copyright, Designs and Patents Act (1988) s.9(3)
¹⁰⁰³ Julia, Dickenson, Alex, Morgan and Birgit, Clark ‘Creative machines: ownership of copyright in content created by artificial intelligence applications’ (2017) *supra* 472
Compared with the layer theory proposed by Abramovitch\textsuperscript{1004}, layer theory established in this thesis provide a systematic perspective to interpret virtual property by distinguishing different types of virtual property in the virtual world. It also apply layer theory to the whole virtual world rather than only online game area.

\textbf{7.2.4 Classification of virtual property}

Based on the previous discussion, there has not been a particular approach to protecting virtual property sitting at the content layer (3). In order to provide an effective approach and eliminate the confusion among various types of virtual property, it is necessary to set up the classification of virtual property.

The classification of virtual property established by this thesis depends on the unique characteristic and format of virtual property. For the first grouping of virtual property, users are expected to claim property rights on items considered as the user’s private property. Inevitably, users should have the right to claim private property right over this type of virtual property. For instance, all the items users get from ISPs can be used directly without any further creation and exploration. The avatar in massively multiplayer online role playing game (MMORPG) and online services provided by internet companies are typical examples of this group of virtual property.\textsuperscript{1005} The second group of virtual property will be the items that contain personal information.\textsuperscript{1006} Possibly they do not contain much of economic value, however, they are very important to users as they contain user’s significant and confidential

\textsuperscript{1005} Kayser, Jamie ‘The New New-World: Virtual Property and The End User Licence Agreement’ (2006) supra 345
\textsuperscript{1006} Christ, Roxanne and Peele, Curtis ‘Virtual worlds: personal jurisdiction and click-wrap licenses’ (2008) supra 138}
personal information. In other words, the items in this group can be described as
personal data in digital formats. Online account and online footprint are the typical
examples of this group of virtual property. In terms of the protection of this group, if
they are categorised as users’ virtual property, then it is reasonable to apply the tort
of misuse of private information to protect users’ this type of virtual property.\textsuperscript{1007} The
third group of virtual property contains the items created by users, and they are rich
with the user’s creation and original ideas.\textsuperscript{1008} Hence this thesis suggests that this
kind of virtual property can be considered as user’s copyright. For instance, user
generated content is the typical example of this group.

Classification of virtual property established in this thesis is based on the natural
characteristic of different types of virtual property sits at different layer. And
classification of virtual property in this thesis contributes to clarify the specific
characteristic of different types of virtual property and then grant different virtual
property right to users in accordance with the twofold virtual property right system.

\textbf{7.2.5 The concept of virtual property}

This part argues that the current approach, that narrows down the scope of virtual
property depending on the limited research questions, is not appropriate. Depending
on the fact that technology is improving unceasingly, it is impossible to list all kinds of
virtual property. We should use inductive language,\textsuperscript{1009} which help us to generate
common character of virtual property that determine the final concept of virtual
property through researching variety of specific virtual property, to generalize the

\textsuperscript{1007} Vidal-Hall v Google Inc [2014] EWHC 13 (QB) \textit{supra} 74
\textsuperscript{1008} Chander, Anupam, ‘The New, New Property’ (2003) \textit{supra} 140
\textsuperscript{1009} Berkeley, George, \textit{The principle of Human understanding} (Thomas Nelson and Sons Ltd 1942) \textit{supra} 335
unique attributes of virtual property. Therefore, the concept should not only
demonstrate the physical and technological characteristics of virtual property by
using a technology-based approach, including things such as computer codes and
programs, but also present their legal attributes using legal languages. As discussed
before,\textsuperscript{1010} we should also acknowledge the limits of language. The definition of
virtual property cannot contain all kinds of virtual property, and we should not expect
the definition we set up now to be completely applicable in the future. Therefore,
virtual property in this thesis is defined as a piece of property in the virtual world
which reflects the legal relationship (right – obligations relationship) among users,
ISPs and others.

In terms of the concept of virtual property, compared with the previous virtual
property theory, the primary contribution of this thesis is to define virtual property
from both technical and legal perspective. From technical perspective, virtual
property can be described as virtual places or objects consisting of computer code
and are accessible for users and ISPs to perform under the virtual environment.\textsuperscript{1011}

With regards to the legal concept of virtual property, this thesis define it as a piece of
property which relies on the internet environment provided by ISPs and reflect the
legal relationship between users and ISPs and relationship between users and
others.\textsuperscript{1012} It also should be noted that the concept of virtual property defined by this
thesis is based on the argument about layer theory in the following part.

\textsuperscript{1010} See in chapter 2 at 2.6.3
\textsuperscript{1011} See in Chapter 2 at 2.2.3
\textsuperscript{1012} See in Chapter 6 at 6.3.1
7.2.6 The physical and legal attributes of virtual property

This part argues that, in terms of physical attributes, on the one hand, even if intangibility is the primary character of virtual property as they are designed by codes and programs, intangibility is only the pattern of a manifestation of their essential character. We should explore their essential character which distinguishes them from traditional property by researching their design processes and their internal elements. This kind of research will help us get a better understanding of the physical attribute of virtual property. On the other hand, we should use different approaches to analyse virtual property depending on their different rendering. Common attribute similar to traditional property should not be ignored. In terms of legal attributes, it is obvious that their physical character impact their legal attributes, and then, their legal attributes determines which kind of law should contain virtual property. However, we should make sense that the different aspect of their legal attributes will generate different legal issues of virtual property, hence we should research their legal attributes from different perspective. Therefore, this thesis categorises the characteristic of virtual property as intangibility, rivalrousness, persistence and interconnectedness.

7.2.7 Justification for virtual property

7.2.7.1 The meaning of intangible

This part argues that with the development of technology, the word ‘intangible’ should also be understood from a new angle. As we can see, the function of virtual property in virtual world is quite similar to the function of physical property in the real world. The house in virtual world is also constructed for virtual person to live. From
the perspective of the person in virtual world, the physical property in our world is also intangible. Therefore, we should treat the distinguish between “tangible” and “intangible” dialectically.

7.2.7.2 What is the meaning of ‘existence’?

In terms of existence, this part argues that, on the one hand, virtual property, even though sometimes we could only see them rather than touch them or hold them, is still perceived by our senses. We should accept their existence. We can find evidence from the statement of David Hume “It may, therefore, be a subject worthy of curiosity, to enquire what is the nature of that evidence, which assures us of any real existence and matter of fact, beyond the present testimony of our senses, or the records of our memory”1013 On the other hand, we can imagine that, we could not deny the existence of an item which we cannot confirm whether it exists or not: “yet we may hence conclude they have no existence except only while they are perceived by us, since there may be some other spirit that perceives them though we do not”1014, in this case, virtual property which can be perceived by our senses should be considered to exist.

7.2.7.3 How to understand the significance of ‘real’?

The primary obstacle to people who cannot accept virtual property is that they think such property is virtual,1015 thus not real. However, how to define ‘real things’? The ideas imprinted on the senses by the author of nature are called real things1016

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1014 Berkeley, George, The principles of Human knowledge (Thomas Nelson and Sons Ltd 1942) supra 335
1016 Berkeley, George, The principles of Human knowledge (Thomas Nelson and Sons Ltd 1942) supra 335
Whether this can be perceived by our senses rather than whether can be touched is the criterion to decide whether an item is real thing or not. By this means, definitely, virtual property should be accepted as a genre of reality and then help people to realize the importance of their virtual property.

### 7.2.7.4 How to identify the concept of possession?

In order to understand the ownership of virtual property properly, the issue of the concept of possession should not be ignored, as, on the one hand, understanding of possession is the essential and fundamental issue of the confirmation of ownership. In other words, the people who possess a property is usually the owner of the property. On the other hand, it is possible that we have different ideas about the essence of possession when we consider this question from different perspectives, hence, it will contribute to different conclusions of the confirmation of ownership. However, we have to accept that possession is difficult to confirm due to the different perspectives and the variety of objects of possession. “In the whole range of legal theory there is no concept more difficult than that of possession,” Sir John Salmond writes at the beginning of his discussion of possession.\textsuperscript{1017} Depending on the different character of the object of possession, we should use different approaches to recognise the issues of possession. ‘Possession’, we read in the cases, ‘is a word of ambiguous meaning’ – ‘there is, perhaps, no legal concept more open to a variety of meanings than “possession”.\textsuperscript{1018} Legal writers, far from cutting through this tangle of special terms and distinctions to a primary concept or logical ‘cluster’ of concepts, add or superimpose their own subdivisions. Bentham distinguishes physical possession from legal possession, exclusive possession from possession in

\textsuperscript{1017}Salmond, Jurisprudence (10th ed., 1947)
\textsuperscript{1018}Per Fry L.J., in Lyell v. Kennedy (1887) 18 Q.B.D. 796, 813
This thesis argues that for the confirmation of the ownership of virtual property, we should connect it with the character of virtual property closely, as the attribute of the object of possession determine the form of the actual possession.

Finally, we have to accept that the concept of possession is not isolated, and should be considered as a part of the development of our world. According to the different kinds of objects, there are a variety of forms of possession. By this means, for virtual property, actual possession or physical possession are not the only one form of possession. It is not necessary that the proprietor should always have the total actual possession in himself. A potential possession; a power of confining it to his own enjoyment, and excluding all others from partaking with him; is an object or accident of property.

7.2.7.5 What is the legal status of virtual property?

Virtual property should be considered as a kind of property, due to its specific character and intangibility. Nonetheless, there are profound differences between virtual property and real property. As discussed before, their specific attributes will cause their different legal status compared traditional property. It means that we should not use traditional property law and theory to stimulate virtual property simply as the legal issues reflected from virtual property are more complex than physical property, hence, the research of virtual property should be interdisciplinary. We

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1019 Bentham, General View of a Complete Code of Laws, in Collected Works
1020 Easter Term 9 Geo.3.B.R at 2363
1021 See in chapter 2 at 2.4
should balance the different attributes of particular legal issues reflected from virtual property and determine which kind of law should be used to cope with them.

7.2.7.6 The boundary of virtual property

In order to do better in comparing virtual property with traditional physical property, the primary task is identifying the boundary of virtual property. This part argues that the boundary of virtual property does not mean to list all kinds of virtual property or just present the scope of virtual property, or just to identify the boundary using distinguishing characteristic to help people to decide which kind of items can be considered as virtual property. We can make an analogy to the natural boundary of two countries. The significance of the boundary is to distinguish one from others, hence, first of all, the boundary of virtual property should use unique characteristics to distinguish virtual property from other kinds of property. On this level, it is inevitable to take advantage of technology theory and approach. So, this thesis promotes to import internet technology to identify the boundary of virtual property. Secondly, to compare with the nature boundary of two countries which separate one totally from the other, sometimes virtual property and physical property can be joined together into an integrated environment, so we should also consider the boundary of virtual property dialectically.\(^\text{1022}\)

7.3 Protecting private information in digital form from the perspective of the proposed virtual property theory

Due to the development of information technology and the popularity of the information dominated business which collect and analyse users’ personal

\(^{1022}\) Grotius, Hugo, *De jure praedae Commentarius* (1st edn, Clarendon Press, 1950) *supra* 284
information reflected by users’ online activities, users’ private information can be collected and stored more flexible. The current protection from privacy is insufficient for protecting the users’ online personal information. The protection for privacy in United Kingdom has undergone significant developments in recent history. It undergone the transition from no right of privacy to using action of breach of confidence to protect privacy, and finally try to establish a tort of misuse of private information.\textsuperscript{1023} The protection of personal information is a developing area of the law. Virtual property theory,\textsuperscript{1024} especially the layer theory\textsuperscript{1025} of virtual property, which categorises virtual objects containing users’ private information as users’ virtual property\textsuperscript{1026} could provide a justification for the protection of personal information. Personal information rights established by the layer theory is a type of users’ virtual property. It is a multiple and complex right system which contain privacy interest, proprietary interest and personality interest.

\textbf{7.3.1 The information society}

Information can be interpreted from different perspectives however the focus of this chapter is primarily on the nature and characteristics of information in relation to its interaction with law. Therefore, the concept of information in this chapter refers to the particular type of information which reflects individuals’ personalities and activities, transferred, possessed and analysed by information technology. The information technology mentioned in this chapter refers to computing and communications

\begin{footnotesize}
\begin{enumerate}
\item See in chapter 3 at 3.3
\item See chapter 2 at 2.2, 2.3
\item Abramovitch, Susan, ‘Virtual Property in Virtual Worlds’ (2009) 2 at \url{https://www.lexology.com/library/detail.aspx?g=5a3f3b03-a077-45d4-9981-36f713c92820} accessed 2 July 2021 \textsuperscript{supra} 29
\item See chapter 2 at 2.2.2
\end{enumerate}
\end{footnotesize}
technologies\textsuperscript{1027} whose rapid evolution is almost taken for granted today.

Obviously, the format and spread of information are deeply impacted by the information technology,

“Internet technologies have resulted in information becoming intangible in nature and detached from physical copies such as individual books or newspapers. Information is now highly mobile, moving rapidly and un-predictably in ‘flows’, resulting in spatial and temporal compression.”\textsuperscript{1028}

The impact of information technology upon our society has increased considerably, advanced information technology has brought us into an information society.\textsuperscript{1029} On the one hand, the transition to the information society confused the boundary of information and increased the conflict between the freedom of expression and the protection of private information. On the other hand, the format of information also undergone an increasing development which challenge the protection of private information.

7.3.2 Protection of private information from the perspective of virtual property theory

The development of the protection of private information in the United Kingdom undergone the transition from no right of privacy, to using breach of confidence to

\textsuperscript{1027} ‘Today’s increasingly sophisticated information technologies cover a wide range of technical progress: Microprocessors and workstations... Special-purpose electronic hardware... Media... Convergence... Software’ See in National Research Council, ‘Cryptography’s Role in Securing the Information Society’, National Academy Press, Washington D.C. (1996) supra 4

\textsuperscript{1028} Moosavian, Rebecca, ‘Keep Calm and Carry On: Informing the Public under the Civil Contingencies Act 2004’ (2014) supra 49

\textsuperscript{1029} National Research Council, Cryptography’s Role in Securing the Information Society (National Academy Press, Washington D.C. 1996) supra 4
protect privacy, and finally to try establish a tort of misuse of private information.  

At the very early stage, English law recognises no right of privacy.

“It is well-known that in English law there is no right to privacy, and accordingly there is no right of action for breach of a person’s privacy. The facts of the present case are a graphic illustration of the Parliament considering whether and in what circumstances statutory provision can be made to protect the privacy of individuals.”  

in in Douglas v Hello! Ltd, invasion of privacy can be recognised as a breach of confidence and protected by the law of confidence.

“We have reached a point at which it can be said with confidence that the law recognises and will appropriately protect a right of personal privacy.”

Eventually, private information is protected by the tort of misuse of private information.

“The continuing use of the phrase of confidence and the description of the information as confidential is not altogether comfortable. Information about an individual's private life would not, in ordinary usage, be called confidential. The more natural description today is that such information is private. The essence of the tort is better encapsulated now as misuse of private information.”

1030 See in chapter 3 at 3.3  
1032 Michael Douglas, Catherine Zeta-Jones, Northern & Shell plc v Hello! Limited 2000 WL 1841643 110  
1033 Campbell v MGN Limited [2002] EWCA Civ 1373 2004 WL 852411 14
In Google v. Vidal-Hall, misuse of private information is further suggested to be categorised as a kind of tort.

“Against the background we have described, and in the absence of any sound reasons of policy or principle to suggest otherwise, we have concluded in agreement with the judge that misuse of private information should now be recognised as a tort for the purposes of service out the jurisdiction. This does not create a new cause of action. In our view, it simply gives the correct legal label to one that already exists.”

This thesis argues that, categorising users’ private information which in digital format as a type of virtual property can recognise users’ interests over their private information. It can also clarifies the legal statues of users’ private information and provides a justification for the protection of private information. Ultimately, it will balance the different interests between users and companies over users’ private information in the virtual world.

7.4 Identification of the ownership of virtual property by establishing a twofold virtual property rights system

7.4.1 Ownership of virtual property

Virtual property in the content layer (3) contain users’ personal investment and should be labelled as users’ legal property. However, feelings of ownership and the desire for security and certainty in investment increase the conflicts

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1034 Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650 supra 11
between users and ISPs on the allocation of the ownership of virtual property. It is necessary to clarify the ownership of virtual property in different levels.

In terms of the ownership of the virtual property in infrastructure layer (1) and abstraction layer (2), they are designed by ISPs through code and algorithms which are defined as a specified sequence of steps for producing a solution to a problem. Therefore, this thesis argues that virtual property in the infrastructure layer (1) and the abstraction layer (2) should be categorised as computer software or artistic works created through computer programs. The programmers’ employed the ISPs are the author of both types of virtual property and the ISPs are the first owner of both types of virtual property.

“In so far as each composite frame is a computer-generated work then the arrangements necessary for the creation of the work were undertaken by Mr Jones because he devised the appearance of the various elements of the game and the rules and logic by which each frame is generated and he wrote the relevant computer program. In these circumstances I am satisfied that Mr Jones is the person by whom the arrangements necessary for the creation of the works were undertaken and therefore is deemed to be the author by virtue of s.9(3).”

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1036 Frank, Jerome Law and the Modern Mind (1st edn, Transaction Publishers 2009) supra 117


1038 Neapolitan, Naimipour, Foundations of algorithms (Jones & Bartlett Learning, Burlington 2010) supra 468

1039 “Where a literary, dramatic, musical or artistic work [or a film,] is made by an employee in the course of his employment, his employer is the first owner of any copyright in the work subject to any agreement to the contrary.” See in Copyright, Designs and Patents Act (1988) s.11(2)

1040 Nova Productions Ltd v Mazooma Games Ltd [2006] EWHC 24 (Ch) [2006] E.M.L.R. 14 at [105]
However, in terms of the ownership of the virtual property content layer (3), once virtual property transmitted to users and contain users’ personal investment they should be categorised as users’ virtual property. Based on the characteristic\textsuperscript{1041} and classification\textsuperscript{1042} of virtual property, compared with the traditional single property right model, an integrated virtual property rights should be established.

Traditional virtual property only focus on one type of virtual property and did not clarify the ownership of different types of virtual property. This thesis states that virtual items that sit at the infrastructure layer (1) and abstraction layer (2) should be categorised as ISPs’ virtual property and should be protected as computer software or artistic works created by writing program under current copyright framework. The programmers’ employed by the ISPs are the author of both categorises of virtual property and the ISPs are the first owner of both types of virtual property. However once virtual property combines users’ skill, labour, personal information and other types of investment and arrangement, the added part then should be categorised as users’ virtual property and the ownership should be granted to ordinary users.

7.4.2 The twofold virtual property rights system

“Increasingly, virtual property holders and like-minded legal commentators are arguing that the law may achieve this goal by granting virtual property holders legal rights in virtual property rights apart from and independent of the contract-based rights that virtual property holders already have.”\textsuperscript{1043}

\textsuperscript{1041} See in Chapter 2 at 2.4
\textsuperscript{1042} See in Chapter 2 at 2.3
\textsuperscript{1043} Lawrence, Dan, ‘It really is just a game: the impracticability of common law property rights in virtual property’ (2008) supra 125
With regards to the owner of virtual property, due to the existence of the End Users Licence Agreements, they should not only deal with the infringement from others but also should cope with the relationship between them and ISPs.

Therefore, this thesis establishes twofold virtual property rights system to clarify the virtual property right granted to users. The twofold virtual property right system adopts ‘restrained-exclusive property rights’ or ‘fundamental property rights’1044 to describe the ‘rights’ users can claim against ISPs, meanwhile ‘relative-exclusive property rights’ or ‘external property rights’1045 are used to describe owners’ property interests against other users.

7.4.2.1 ‘Relative-exclusive property rights’ or ‘External property rights’

In coping with the conflict between users and others (excluding ISPs), users could claim exclusive virtual property rights over their virtual property and exclude others from infringing their virtual property. Even if it is impossible for users to possess their virtual property physically which could demonstrate that this virtual property has been owned by user., in the virtual world, once a virtual item belongs to a specific individual or individual get the particular access to the virtual world, it then has a unique virtual identity (It is usually an account or a domain name) which distinguishes it from other virtual items. Other internet citizens could recognize that it has been owned by an individual and they should not claim any property rights over them. Therefore, this thesis holds the opinion that users are expected to claim integrated exclusive right to against others. However, it should also be noted that,

1044 Detailed discussion See in subsequent action in this chapter
1045 Detailed discussion See in subsequent action in this chapter
the operation of users’ virtual property should rely on the virtual environment which is created by ISPs. Once users' virtual property infringed by others, the enforcement of their exclusive property rights will be impacted by the contractual clauses in EULAs. For instance, once the infringement occurs, users’ need the technical support from ISPs to confirm the evidence and the compensation.

7.4.2.2 ‘Restrained-exclusive property rights’ or ‘Fundamental property rights’

Due to the existence of the contractual clauses in EULAs between users and ISPs, when conflicts occur between users and ISPs, the operation of users’ exclusive rights are restrained by EULAs. On the one hand, in order the protect the operation of the virtual world, ISPs regulate a series of obligations of the internet users through EULAs. Users always need to agree to these contractual clauses if they are to get the access to the internet service provided by ISPs. On the other hand, once users’ virtual property are infringed by others, ISPs are under the obligation to provide technical support to prevent trespass and confirm the damage.

Taking the previous arguments about the protection for virtual property into consideration, this thesis argues that, unlike traditional real property and copyright, virtual property should be protected based on their special characteristics and their unique formats rather than under a single property right model. Virtual property rights should be interpreted as a systematic property right. Due to the existence of End Users Licence Agreements, the relationships and conflicts reflected by virtual property are much more complicated than other types property. In terms of the types of virtual property right, this thesis argues that the owner of the virtual property in the content layer (3) should be granted an integrated virtual property right – a twofold
virtual property right. The ‘restrained-exclusive property rights’ or ‘fundamental property rights’ are used to deal with the conflict and relationships between users and ISPs. ‘Relative-exclusive property rights’ or ‘external property rights’ are used to describe owners’ property interests against other users. Twofold virtual property right system established in this thesis contribute to distinguish different types of conflicts reflected by virtual property. It clarifies the different aspect of users’ virtual property right which could provide sufficient protection for users.

7.5 Analysing contractual clauses in EULAs through the twofold virtual property rights system

7.5.1 Advent of EULAs

As the creator of the virtual world, in accordance with the operation of the virtual world, ISPs can use computer code to control what goes on within a virtual world. Computer code plays a technical role in governing users’ behaviours in the virtual world. However, for the rules which cannot be easily written into computer code, ISPs use EULA to regulate the allocation of rights and obligations in virtual world.

“Usually, online service providers make large initial investments in computer hardware, software, and intellectual property to establish a community or web-space with long-term growth potential. Service providers then license access to these expensive resources to users. Users manipulate, interact with, and develop these resources...”

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according to certain rules set by the service provider, as would a
licensee acting within the bounds of a licence.”

However, signing and agreeing the contract is the precondition for users if they need the access to specific virtual worlds. All of these individually negotiated terms in EULAs have in common a lack of negotiation, as the contract is designed by service providers and acceptance is indicated by some act other than a written signature. The key point is that, due to the desire to enter the virtual world and enjoy the service, users are normally not aware of the specific terms of these types of contract provided by service providers. Even in some circumstance they did not recognise what they have signed is a contract. The lack of users’ awareness will cause a gap between the users’ expectation about the rights upon their virtual

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1051 “where a list of boxes appears on the user’s screen with a button that says “Next,” which the user will continue to click until finally the button changes to “I accept” or “I agree.” See in Lively, Rebecca, ‘Microsoft Windows Vista: The Beginning or the End of End-User License Agreements As We Know Them?’ (2007) supra 160
1052 However, this chapter also admits that not all EULA lack of the written signature, for those professional designed software which for some particular purpose, they still need a written signature. For the majority of EULA designed by service providers, they do not need a written signature.
This chapter also admits that in some particular circumstances, users can recognise the terms related to their personal information. However, majority of users did not recognise the existence of the terms related to their personal information.
property and the actual rights and obligations regulated by the provisions in contract
provided by ISPs.\textsuperscript{1055}

Due to the dissymmetry between users and ISPs, EULAs are designed to favour the
rights of the developer over the rights of the users.\textsuperscript{1056} Therefore, this thesis argues
that current EULAs, on the one hand, did not clarify the right and obligations
between users and ISPs, and on the other hand, caused confusion on the legal
status of users’ virtual property rights.

7.5.2 Applying the twofold virtual property rights system to analyse
contractual clauses in EULAs

7.5.2.1 Identify the exclusive aspect of users’ virtual property
rights

In terms of the virtual property right over the virtual property which users get from
ISPs directly without further reproduction, there are few contractual clauses in
EULAs to allocate the ownership, as from the perspective of ISPs, they obviously
contain the ownership of this type of virtual property. However, based on the layer
theory, once virtual property transmitted to users, they are in the content layer (3)
and should be categorised as users’ virtual property. It also should be noted that,
relying on the twofold virtual property rights system, users’ virtual property right
should not only grant users rights against ISPs, but also grant the right to against the
infringement from others. Therefore, users’ virtual property rights over this type of


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virtual property should be interpreted by the twofold virtual property rights system rather than contractual clauses in EULAs.

7.5.2.2. Providing a justification for the protection of users’ private information

With respect to the virtual property right over the virtual property which contain users’ personal information, due to the uncertainty of the legal status of users’ personal information in the virtual world, ISPs always use data policy or privacy policy in EULAs to grant them the right to collect, analyse and store users’ private information. However, this thesis argues that the twofold virtual property rights should confer users’ property right over their digital private information. Personal information should not be allocated and collected by service providers only through the terms of EULAs.

7.5.2.3. Recognition of users’ originality over their virtual property

With regards to the virtual property right over virtual property that contains users’ original ideas, ISPs only recognise users’ intellectual property claims over the virtual property which has been protected by the current intellectual property law. However, there is still a series of virtual property which have not reached the criterion of copyright. In this case, the twofold virtual property rights system also grants users’ virtual property over this type of virtual property. In other words, this type of virtual property should not only be regulated by contractual clauses in EULAs.

From practical perspective, unlike traditional property dispute or contractual dispute, the layer theory and twofold virtual property rights system established in this thesis
can clarify users’ property interest over their virtual property, clarify the legal status of users’ personal information in digital format and recognize users’ originality over their virtual property.

### 7.6 A proposal for the reform of the virtual property

With the popularity and development of the digital technology, the formats of virtual property have increased exponentially. The relationship among users, ISPs and others are more complex than before. Especially under the virtual property layer theory and the classification of virtual property, the traditional single property model cannot deal with the legal issues reflected by virtual property. Therefore, it is necessary to reform the current regulation about virtual property.

#### 7.6.1 Conceptual reform

Virtual property should be interpreted through the layer theory. Virtual items in the infrastructure layer (1) and the abstraction layer (2) should be categorized as ISPs’ copyright and be protected as computer software under current copyright framework;\(^{1057}\) and virtual items that sit at the content layer (3) should be labeled as users’ private virtual property, and be protected by the virtual property system proposed in this thesis. Taking the complex relationship reflected by virtual property into account, the virtual property rights granted to users is a twofold virtual property

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\(^{1057}\) “literary work means any work, other than a dramatic or musical work, which is written, spoken or sung, and accordingly includes—
(a) a table or compilation [other than a database], . . .
(b) a computer program[,] . . .
(c) preparatory design material for a computer program] [and
(d) a database:]” See in Copyright, Designs and Patents Act 1988 Article 3
right. This twofold virtual property right adopts ‘restrained-exclusive property rights’ or ‘fundamental property rights’ to describe the “rights” users can claim against ISPs, meanwhile ‘relative-exclusive property rights’ or ‘external property rights’ are used to describe owners’ property interests against other users.

7.6.2 Practical reform

The practical reform proposed in this thesis based on the classification of virtual property established in chapter two.

7.6.2.1 Recognizing the exclusive aspect of users’ virtual property

Due to the complex relationship reflected by virtual property, virtual property owners should not only deal with the conflict between them and ISPs: they should also cope with the infringement from others. Therefore, this thesis argued that contractual clauses in EULAs cannot alter the exclusive characteristic of users’ virtual property right. Contractual clauses in EULAs cannot grant ISPs any right to alter users’ virtual property right in the virtual world if users’ virtual property rights have been recognised and protected by proposed legislation. In practical cases, once users’ exclusive virtual property rights have been recognised by the twofold virtual

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1058 The operation of users’ virtual property rights should rely on the virtual environment established by service providers. Users’ behaviours in virtual world should also in compliance with the regulation of EULAs. Therefore, the conflicts and relationship between users and service providers are different from the conflicts and relationship among users. The operation of users’ virtual property should also respect service providers’ rights in virtual world which regulated in the terms of EULAs. From this perspective, users’ virtual property rights against service providers are impacted and restricted by EULAs compared with users’ virtual property rights against other users.

1059 Compared with the relationship between users and internet service providers, users’ virtual property rights against other users is more exclusive. Therefore this chapter use “relative-exclusive property rights” or “external property rights” to describe this type of virtual property.

1060 ProCD, Inc. v Zeidenberg, (WD Wis. 1996) at 656 & 658

property rights system, it will help to clarify the legal nature of the conflict reflect in cases and then deal with effectively.

7.6.2.2 Identify users’ property right over their private information in digital formats

A large variety of types of users’ private information in the virtual world has occurred with the development of digital technology. Users’ private information can be collected, stored and analysed by companies in ways not hitherto considered. The majority of this information has not met the criterion of privacy.\textsuperscript{1062} It is pressing need to clarify the interests over such private information.

Applying the twofold virtual property rights system could clarify the legal status of users’ private information, and could identify users’ property right over their private information. It can also provide a justification for the protection of users’ private information.

“Against the background we have described, and in the absence of any sound reasons of policy or principle to suggest otherwise, we have concluded in agreement with the judge that misuse of private information should now be recognised as a tort for the purposes of service out the jurisdiction. This does not create a new cause of action. In our view, it simply gives the correct legal label to one that already exists.”\textsuperscript{1063}

\textsuperscript{1062} See in chapter 3 at 3.3
\textsuperscript{1063} Google Inc. v Judith Vidal-Hall, Robert Hann, Marc Bradshaw v The Information Commissioner [2015] EWCA Civ 311 2015 WL 1310650 supra 11
The twofold virtual property rights system could also distinguish the different interests between users and companies over users’ private information.

### 7.6.2.3 Recognising users’ originality over their virtual property

The popularity of social media provides platforms for users to pose and share their pictures, videos, comments and other works. If these works have reached the criterion of copyright, they are naturally protected by copyright law. However there are many forms of virtual property that have not reach the criterion of copyright for example in the US case *ProCD, Inc. v. Zeidenberg*,\(^\text{1064}\) and UK case *SAS Institute Inc v World Programming Ltd.*\(^\text{1065}\) The twofold virtual property rights system could clarify the legal statues of this type of virtual property and then provide legal protection for them. Telephone data, which can be used to identify users, should be categorised as users’ virtual property and ISPs cannot reveal users’ telephone data without users’ consent.

### 7.6.3 Legislative reform – a summary

Users’ virtual property right should be protected and regulated by legislation rather than by contractual clauses.\(^\text{1066}\)

As a result of these issues, there is a glaring need for clarification and resolution. Ideally, the solution would come in the form of legislation addressing the issues above.\(^\text{1067}\)

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\(^\text{1064}\) *Supra* 13
\(^\text{1065}\) *Supra* 14
\(^\text{1066}\) Fairfield, Joshua, ‘Virtual property’ (2005) *supra* 1
Taking into account the apparent difference between virtual property and traditional real property, this thesis suggests that it is appropriate to regulate virtual property rights under the current copyright framework. As copyright is also a property right, both virtual property rights and copyrights are the consequence of technology and are also distinct from the traditional property right.

From legislative perspective, there has not a certain proposal or approach to protect users’ virtual property, In accordance with the harmonization between current legal framework and virtual property rights, this thesis proposes that users’ virtual property should be regulated by an independent statute entitled ‘The Virtual Property Statute’ which will complement the current CDPA 1988.

As demonstrated in previous chapter, this thesis just provide a sample of legislative proposal, I will continue to extend and complete the full paper of ‘Virtual Property Statute’. From practical perspective, I will apply the proposal to explain and analyse the latest cases and then enforce the proposal. In other words, the enforcement of my proposal will be the next stage of my research.

7.7 Conclusion

The traditional approach to protecting users’ virtual property is reflected by the case Bragg v Linden research, Inc., which recognise users’ virtual property right as a single model of private right. This cannot provide sufficient protection for users, because conflicts concerning users virtual property are much more complicated than other types of property. Therefore, this thesis proposed an independent virtual property theory by establishing a layer theory and a twofold virtual property rights system.
The layer theory was first proposed by Abramovitch, however, Abramovitch’s analysis is only based on her research on the field of online games. It is not applicable for the whole virtual world. Secondly, Abramovitch’s analysis did not clarify the relationship and distinction among different levels. Finally, Abramovitch’s analysis did not recognise how the ownership of virtual property sits at different levels. Hence, this thesis modified Abramovitch’s layer theory by distinguishing different types of code and content in virtual worlds. The layer theory divides virtual property into three layers, namely infrastructure layer (1), abstraction layer (2) and content layer (3), based on distinguishing between codes which constitute a platform of the virtual world and codes which consist of the user generated content. The infrastructure layer (1) contains the internet service provides’ ISPs’ codes which constitute the platform of the virtual world. This level of virtual property could be considered as the fundamental basis of the operation of the virtual world. At the abstraction layer (2) sits the unique computer code which comprise of the unique items which designed by ISPs but have not transmitted to users in the virtual world. The content layer (3) are the virtual items which are closely relevant to specific individual due to their personal investment and arrangements.

Virtual items that sit at the infrastructure layer (1) and abstraction layer (2) should be categorised as ISPs’ virtual property and should be protected as computer software or artistic works created by writing programs under the current copyright framework. The programmers’ employed by the ISPs are the author of both categorises of virtual property and the ISPs are the first owner of both types of virtual property. However once virtual property combines users’ skill, labour, personal information and other types of investment and arrangement, the added part then should be categorised as users’ virtual property and the ownership should be granted to ordinary users.
In order to clarify the specific characteristic of different types of virtual property and then grant different virtual property right to users in accordance with the twofold virtual property right system. This thesis divides virtual property into three groups. The first group of virtual property are the items users get from ISPs can be used directly without any further creation and exploration; The second group of virtual property will be the items that contain personal information. Eventually, the third group of virtual property contains the items arranged or created by users, and they are rich with the user's creation and original ideas.

In terms of the concept of virtual property, compared with the previous virtual property theory, the primary contribution of this thesis is to define virtual property from both technical and legal perspective. From the technical perspective, virtual property can be described as virtual places or objects consisting of computer code and are accessible for users and ISPs to perform under the virtual environment. With regards to the legal concept of virtual property, this thesis defines it as a piece of property which relies on the internet environment provided by ISPs and reflect the legal relationship between users and ISPs and relationship between users and others.

In order to provide justification to establish an independent virtual property theory, this thesis discusses the necessity of the research of virtual property through rethinking the concept of ‘property’, the meaning of ‘real’ and the process of ‘human understanding’. The concept of property is historically contingent and the notion should be understood as relying on our interpretation of the world. It is argued that intangibility is not as important as previous theories argued, and that the distinction between material and immaterial things are irrelevant. This thesis analyses the
concept of property by questioning the confusion of usage of the property concept and why virtual property should be protected from the perspective of philosophy, conventional property theory and intellectual property law. The thesis then analyses the tendency to extend the scope and object of property, especially under the development of internet technology. This tendency could increase acceptance of virtual property and support the necessity of this research. This thesis also argues that we can find evidence to support the necessity of researching virtual property from the perspective of philosophy. The philosophical arguments concerning ‘human understanding’ argue that all of our ideas come from our experience and that interpretation of the world relies on perception. This thesis also draws distinctions between virtual property and relevant property rights (privacy, intellectual property, contract and chattels).

In terms of the protection for users’ private information in digital formats, this thesis proposes the development of privacy in the United Kingdom, and argues that the current protection from privacy is insufficient for protecting the users’ online personal information. The development of privacy in the United Kingdom has undergone a transition from no right of privacy, to using action of breach of confidence to protect privacy, and finally try to establish a tort of misuse of private information for the purpose to service out of the jurisdiction and arguably a right of privacy. This thesis suggests that protection of personal information is a developing area of law. Virtual property theory, especially the layer theory of virtual property, which categorises virtual objects contained users’ private information as users’ virtual property, could provide justification for the protection of personal information. This thesis also analyses the current personal data protection legal framework (Article 8 ECHR, Article 7 EU Charter of Fundamental Rights, Article 8 HRA and GDPR) and then
concludes that the conventional right has been recognized is primarily dealing with the competing interests between the public and the individual. However, the conflict reflected by the virtual property which contain users’ personal information is much more complex. Therefore, the current legal framework cannot deal with the protection about users’ private information in digital formats.

In terms of the property rights upon virtual property, this thesis divided it into quasi-exclusive control of users and access right of others. The quasi-exclusive control right is sub-divided into the control between users and ISPs, and control between users and others.

Taking the previous arguments about the protection for virtual property into consideration, this thesis argues that, unlike traditional real property and copyright, virtual property should be protected based on their special characteristics and their unique formats rather than under a single property right model. Virtual property rights should be interpreted as a systematic property right. Due to the existence of End Users Licence Agreements, the relationships and conflicts reflected by virtual property are much more complicated than other types property. In terms of the types of virtual property right, this thesis argues that the owner of the virtual property in the content layer (3) should be granted an integrated virtual property right – a twofold virtual property right. The ‘restrained-exclusive property rights’ or ‘fundamental property rights’ are used to deal with the conflict and relationships between users and ISPs. ‘Relative-exclusive property rights’ or ‘external property rights’ are used to describe owners’ property interests against other users. Twofold virtual property right system established in this thesis contribute to distinguish different types of conflicts.
reflected by virtual property. It clarifies the different aspect of users’ virtual property right which could provide sufficient protection for users.

This thesis accepts the Hohfeldian methodology which had a profound impact on modern legal thought and in particular on the property law to provide justification to establish the twofold virtual property rights system. In terms of the virtual property rights in virtual environment, this thesis argues that once a specific virtual item belongs to a specific user, this virtual item then has a unique and recognised virtual identity, other users could distinguish it from other virtual items which have not belongs to any individual. In this case, it is reasonable for owners to prevent others using, possessing and infringing the enforcement of owners’ right over the specific virtual item. From this perspective, users should be granted virtual property rights over their virtual property.

In order to clarify the significance of twofold virtual property rights system, this thesis draws a comparison between twofold virtual property theory and other property theory and concludes that Inner spirit and outer possession could just demonstrate a private property rather than clarify the types of property rights; Labour theory could clarify the property rights however cannot allocate virtual property rights among users, ISPs and others.

In terms of the contractual clauses in virtual worlds, this thesis argues that due to the lack of users’ awareness, contractual clauses in EULAs cause a gap between the users’ expectation on the rights over their virtual property and the actual allocation of virtual property rights in the virtual world. Users’ property claims over their virtual property could be provide justification through traditional legal theories, including labour theory, personhood theory and utilitarianism.
From practical perspective, unlike traditional property dispute or contractual dispute, the layer theory and twofold virtual property rights system established in this thesis can clarify users’ property interest over their virtual property, clarify the legal status of users’ personal information in digital format and recognize users’ originality over their virtual property.

From legislative perspective, there has not a certain proposal or approach to protect users’ virtual property. In accordance with the harmonization between current legal framework and virtual property rights, this thesis proposes that users’ virtual property should be regulated by an independent statute entitled ‘The Virtual Property Statute’ which will complement the current CDPA 1988. As regards the draft of the ‘Virtual Property Statute’, this thesis suggests establishing a particular virtual property protection office such as the Virtual Property Right Hub. In terms of the enforcement of the ‘Virtual Property Statute’, taking into the relationship between virtual property and technology, in the UK, Tribunal should provide guidance as to when the Tribunal would hear cases. This could include situations where there is a complex or novel legal dispute concerning new forms of virtual property, or when there are a large number of disputes arising which could be combined into a single hearing. However, this thesis also proposes that there should also be a professionally based virtual property group which could provide legal suggestions for owners of virtual property. This could be based within an organization such as the Citizens Advice bureau, in order to raise awareness and provide advice to those needing assistance with the protection of their virtual property.
Bibliography

Books and Reports

Aaron, R., _John Locke_, OUP, Oxford (1937).


Geist, M., ‘In the Public Interest’, Irwin Law, Ontario (2005).


Led Zeppelin "Battle of Evermore" (1971) Led Zeppelin IV

Led Zeppelin "Misty Mountain Hop" (1971) Led Zeppelin IV

Led Zeppelin "Over the Hills and Far Away" (1973) Houses of the Holy

Led Zeppelin "Ramble On" (1969) Led Zeppelin II


Librarian of Congress, ‘Statement of the Librarian of Congress Relating to Section 1201 Rulemaking’ available at


Patterson, L.R., ‘Copyright in Historical Perspective’, Vanderbilt University Press, Nashville (1968).


Vaidhyanathan, S., 'The anarchist in the library: how the clash between freedom and control is hacking the real world and crashing the system' Basic Books, New York (2004).


Woolhouse, R., Locke’s philosophy of science, and knowledge, OUP, Oxford (1971).


Articles & Book Chapters


AFP “China Tightens Supervision of Online Games” 2009 AFP at http://news.google.com/ (06 Dec 2009)


http://arstechnica.com/articles/culture/drmhacks.ars


Anon, ‘Angry with RIAA tactics’ , Silicon Valley.com at

Anon, ‘Ban hits Half-Life 2 pirates hard’ at

Anon, ‘Creative Commons License Upheld by Dutch Court’ at


Anon, ‘Feds crack down on Internet crime’, 25th August 2004, at
www.msnbc.msn.com/id/5819437/print/1/displaymode/1098

Anon, ‘Music download company agrees to pay out’, at
news.bbc.co.uk/1/hi/entertainment/music/3912823.stm


Anon, www.webreference.com/content/watermarks/tracking.html

Anon, http://www.theregister.co.uk/2004/05/18/five_years_ago/


B


BBC, 'Viruses turn to p2p nests', at http://news.bbc.co.uk/2/hi/technology/3409187.stm

Bednarik, R., A Figurian from the African Acheulian, 44(3) Current Anthropology 405 (2003)


Borland, J., 'Madonna's site hacked as file-sharers fight dirty' http://software.silicon.com/security/0,39024655,10003865,00.htm

Borland, J., 'RIAA stung by court ruling', at http://management.silicon.com/government/0,39024677,39117462,00.htm


Carroll L Alice in Wonderland (1865) A Bed Book


Citron DK “Cyber Civil Rights” (2008) 89 BUL Rev 61-125


DaCunha N “Virtual property, real concerns” (2010) 4 Akron Intell Prop J 35-72


Dvorak, J., ‘Creative Commons Humbug’ at http://www.pcmag.com/article2/0,1895,1838251,00.asp


EFF, ‘How not to get sued by the RIAA for file sharing’, at www.eff.org/IP/P2P/howtonotget sued.php


Everard, S., ‘Essential Facilities in the European Union: Bronner and Beyond’ 10 Columbia Journal of European Law 491


Fairfield JAT “Virtual Property” (2005) 85 BUL Rev 1047-1102


Fuchs M “The History of Computer Games - From Spacewar to Tournament” Mathias Fuchs Creative Technology at http://creativetechnology.salford.ac.uk/fuchs/modules/game_design/game_design_history.htm (20 May 2009)

Gaita, K., and Christie, A., “Principle or compromise? Understanding the original thinking behind statutory licence and levy schemes for private copying”, [2004] IPQ 422


Gatt A “Electronic Commerce – Click-Wrap Agreements: The Enforceability of Click-Wrap Agreements” (2002) 18 CLSR 404-410Geist, M., “Spanish Court Raises Doubts About Creative Commons License” at http://www.michaelgeist.ca/content/view/1568/196/


Gewirth, A., 'There are Absolute Rights' 32(129) Philosophical Quarterly 348

Gillmor, D., 'Cartel's copyright control loosening', at www.siliconvalley.com/mld/siliconvalley/4929834.htm


Goldstein, P., 'Derivative rights and derivative works in copyright', 30 Journal of the Copyright Society of the USA 209 (1983)

Gordon, J., 'Copyright.protection@Internet.net', 3 West Virginia Journal of Law and Technology 1.3 (1999).


Gray K “Property in Thin Air” (1991) 50 CLJ 252-307

Grimmelmann JTL “Virtual World Feudalism” (2009) 118 Yale LJ Pocket Part 126-130

Grimmelmann JTL “Virtual Worlds as Comparative Law” (2004) 49 NYL Sch L Rev 147-184

Gross, R., '9th Circuit Napster ruling requires p2p developers ensure no one misuses their system', at www.eff.org/ip/p2p/napster /20010226_rgross_nap_essay.html
Guilford, J., “Creativity”, 5 American Psychologist 444 (1950)


Heide, T., 'Copyright, Contract and the legal protection of technological measures – not the 'Old Fashioned Way': Providing a rationale to the Copyright exceptions interface', 50 Journal of the Copyright Society of the USA 315 (2003).


Hentoff, J., 'Compulsory licensing of musical works in the digital age: Why the current process is ineffective & how Congress is attempting to fix it' 8 Journal of High Technology Law 113 (2008)


Hutscal L “Designing your Game”s Database” Building Browsergames at http://buildingbrowsergames.com/2008/04/15/designing-your-database/ (20 Oct 2010)


IMPRIMATUR, Watermarking Technology for Copyright Protection: General Requirements and Interoperability’, at http://www.imprimatur.alcs.co.uk/download.htm

Isenberg, D., 'Watermarks', at www.webreference.com/content/watermarks


Juul J A Clash Between Game and Narrative (2001) Copenhagen: Institute of Nordic Language and Literature, University of Copenhagen


Kent S “Alternate Reality: The History of Massively Multiplayer Online Games” AMD.com at http://www.amd.com/usen/Processors/ProductInformation/0,,30_118_9485_9488%5E9563%5E9599%5E9793,00.html (20 May 2009)

Knowles, D., 'Hegel on Property and Personality' 33(130) Philosophical Quarterly 45.


Koster R “Property Rights in Virtual Worlds” 2007 Terra Nova at http://terranova.blogs.com/terra_nova/2007/06/property_rights.html#comment-6a00d8341c022953ef00e00980394e8833 (10 Oct 2010)


Lawrence DE “It Really is Just a Game: The Impracticability of Common Law Property Rights in Virtual Property” (2008) 47 Washburn LJ 505-549


Liebowitz, S., ' Focus on network effects, antitrust, and intellectual property', at www.ftc.gov/opp/intellect/liebowitz.pdf


Logie, J., 'I have no predecessor to guide my steps': Quintilian and Roman authorship', 22 Rhetoric Review 353 (2003).


Mahuire, J., 'Hitting p2p users where it hurts', at www.wired.com/news/digiwood/0,1412,57112,00.html

Mattern, R., “Locke on active power and the obscure idea of active power from bodies”, 11 Studies in History and Philosophy of Science 39 (1980)


McCann, A., ‘Enclosure without and within the Commons’, 14 Information and Communications Technology Law 217 (2005)


Miller D C “Determining Ownership in Virtual Worlds: Copyright and Licence Agreements” 22 Rev Litig 435-471


Milsom, “Trespass from Henry II to Edward III – Part I”, 74 LQR 195 (1958)


Netanel, 'Impose a non-commercial use levy to allow free peer to peer file sharing' 17 Harvard Journal of Law and Technology 1 (2003)


Norah, L., 'Invention to thwart p2p file sharing patented', at http://itvibe.com/news/default.asp?id=2510&highlight=invention%20to%20thwart -


Posner RA “Utilitarianism, Economics, and Legal Theory” (1979) 8 JLS 103-140


Ranon, C., ‘Honor among thieves: Copyright infringement in Internet fandom’, 8 Vanderbilt Journal of Entertainment and Technology Law 421


Reese, T., 'Wading through the muddy waters: The courts' misapplication of section 512(c) of the Digital Millennium Copyright Act’ 34 Southwestern Law Review 287 (2004-2005)


RIAA, 'RIAA moves against operators of pirate p2p systems housed on internal college networks', at www.riaa.org/PR_story.cfm?id=629


Rice, D.A., 'SEGA and Beyond: A Beacon for Fair Use Analysis ... At least as far as it goes', 19 University of Dayton Law Review 1131 (1994).


Stephens M “Sales of In-Game Assets: An Illustration of the Continuing Failure of Intellectual Property Law to Protect Digital-Content Creators” (2002) 80 Texas LR 1513-1534


Sutton, T., Hult, M., Chatterjee, I.N., 'How does §17200 relate to IP law?' 694 Practising Law Institute 139 (2003).


Vance, A., 'RIAA goes hunting for 532 more file-traders' available at http://www.theregister.co.uk/2004/01/21/riaa_goes_hunting/

Vance, A., 'More universities agree to RIAA/Napster protection', The Register at www.theregister.co.uk/2004/07/19/riaa_napster_six/)


Wakolbinger, J., ‘Compositions are being sold for a song: Proposed legislation and new licensing opportunities demonstrate the unfairness of compulsory licensing to owners of musical compositions’, [2008] University of Illinois Law Review 803


Williams, C., ‘Copyright lawyers accuse 25,000 UK videogame filesharers', The
Register available at http://www.theregister.co.uk/2008/08/20/davenport_lyons_25000/


Zhao, J., 'Look, its not there', at www.byte.com last accessed on 1 April 2003.