CHAPTER 1: INTRODUCTION

1.0 Research Background

This thesis is concerned with the various intangible resources that are accessible through the internet and found in the world wide web (www) which are collectively referred to as digital resources. Digital resources in this context refers to intangibles comprising online contents and different types of online creations and appliances that are possibly created and developed from the usage of the internet or information technologies in furtherance of achieving its purposes or specified tasks in cyberspace. However, this thesis will focus on and discuss, with emphasis and in detail, the digital resources in cyberspace such as personal information, identification data and location data, company information, meta-tags and keywords, emails, social networking accounts, wireless networks, domain names and hyperlinks, data in cloud computing and creative works and in online creative communities on the basis that these digital resources have only received inadequate legal recognition and protection. In this thesis, these digital resources are collectively referred to as the ‘body of unregulated digital resources’.

The common perception is that digital resources found in cyberspace are just resources which everyone takes for free. Although digital resources are available over the internet that does not mean that everyone can use and take advantage of them without the relevant owners’ consent. In fact, the internet consists of many important resources which together make up the entire structural component of the internet and they need to be protected. The creation of the internet and cyberspace together was to enhance the
sharing of information and resources across the globe.\(^1\) However, all these great capabilities such as the instantaneous transferability and sharing in cyberspace has created problems and legal issues which were not there before when the internet was created merely for the purpose of sharing information and knowledge among researchers and academics. The difference between then (when the internet was only available for researchers and academics) and the present day (when the internet is available to the world at large) is that the amount of information and knowledge shared among the people has changed significantly. During the earlier days, knowledge and information were targeted and only shared between researchers and academics and their access was limited due to the then technical capabilities and geographical restrictions.\(^2\) Nowadays, the internet is available to everyone and it has no technical or geographical restriction of any kind. When there is a vast amount of information or resources potentially available to every internet user there is a need for norms, rules, regulations and laws to regulate the various activities occurring in cyberspace.\(^3\) Hence, the lack of proper norms, adequate rules, regulations and laws have rendered the activities in cyberspace unregulated. As a result of that, many resources found in cyberspace have been grossly misused and abused. For example, data on personal preferences and lifestyles have been collected for marketing purposes without first securing the consent of the particular individual. This amounts to a gross violation of privacy.

Digital resources are intangibles (without physical existence) and many such intangibles were historically regarded as of no real value because they were difficult to quantify in terms of their value in the early days. However, many people believe that wealth today

\(^1\) Duranske, B., Navigating The Legal Landscape of Virtual Worlds (ABA, 2008)
\(^2\) There were different information on different computers with different programmes
\(^3\) Refer to Murray, A., Information Technology Law (OUP 2010) for general reading. This examines how the law and legal process of the UK interacts with the modern 'information society' and the fast-moving process of digitisation.
is found in the form of intangibles. This breakthrough and change of perception happened when people finally realised that intangibles do play a significant and important role in our society. For example, a trademark is a valuable asset of a company. It has no physical existence or intrinsic value (value of a company, stock, currency or product determined through fundamental analysis - also known as fundamental value). However, the value of a trademark lies in its ability to help the company’s business grow. Trademarks convey intellectual and emotional attributes and messages about a company and its reputation, products and services. Hence, the creation of intellectual property laws indicates that many intangibles require more comprehensive and effective legal protection. However, thus far, such significant changes in the perception towards intangibles have not been extended to digital resources in cyberspace.

The question before us is whether such changes in the perception towards intangibles can be extended to digital resources in cyberspace through the intellectual property regime? This thesis advances seven arguments why intellectual property laws should not be extended to the body of unregulated digital resources.

1. Intellectual property laws confer private ownership on copyright holders whereas the body of unregulated digital resources requires recognition of a new set of rights in the ecosystem of stakeholders that balance the regulation and protection of this body of digital resources.

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4 Jacqueline Lipton, Property Offences into 21st Century, 1999 (1), The Journal of Information, Law & Technology, p2
Individuals are now raised in societies that endow them with digitalised knowledge. Consequently, these individuals make use of their acquired knowledge to create intellectual works of all kinds. Society has now entered into a new phase of capitalism based on the accumulation of knowledge assets, rather than physical production tools, and knowledge is of paramount importance. Intellectual works are building blocks and knowledge is a social product. Therefore, individuals should not have exclusive and perpetual ownership over their work because these works and knowledge are meant to be shared among society at large. Overly protecting intellectual works may lead to privatising many materials and works which make them unable to maintain the desired balance between private interests and public needs. Such over-protective framework on access and sharing of knowledge would result in a negative impact on the development of society.

2. Intellectual property laws are inapplicable to digital resources because intellectual property rights protection and the cyber regime have different ideologies and objectives. Copyright law gives a copyright holder certain exclusive rights over the work, including, most famously, the exclusive right to copy the work. Among other rights and subject to some important exceptions, others cannot copy the work without permission. These rights are no doubt seriously threatened by the extent that technology makes it easy to copy. In Netanel’s book, the author explains the unacceptable burdens, such as too many limitations, that modern copyright laws now place on the freedom of speech

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9 https://www.eff.org/deeplinks/2014/04/without-intellectual-property-day Date Accessed: 01.07.2015
over the internet.\textsuperscript{10} This supports the argument in this thesis that intellectual property laws should not be applied to the body of unregulated digital resources. Strengthening the law on intellectual property protection while holding technology constant, the intellectual property right is stronger. However, proliferation and advancement of copying technology while holding the intellectual property right law constant, the intellectual property right holder’s ability to protect his/her intellectual property has been weakened.\textsuperscript{11} As a result, intellectual property rights and its protection are always at war with technology and cyberspace.\textsuperscript{12} This argument is supported by Professor Lawrence Lessig where he stated that much of the future of ideas demonstrate how the expanding scope of intellectual property protection threatens the internet as an innovation commons.\textsuperscript{13} It is to be noted that in the body of unregulated digital resources, there is a continuous evolution of technology and it cannot be held ‘constant’. Law has to be drafted in an environment of continuous improvement and advancement of technology where rights are recognised and accorded to the various stakeholders of that ecosystem.

3. The body of unregulated digital resources relies on the concept of natural property rights with due regard for the public domain and not on an artificial set of rights as used in intellectual property laws. A distinction is to be drawn between artificial intellectual property rights and natural property rights.\textsuperscript{14} Like all forms of coercion, artificial property rights create a zero-sum situation\textsuperscript{15} in which one party benefits at the other’s

\textsuperscript{10} Lawrence Lessig, Code, 2\textsuperscript{nd} edition, Basic Books, 2006, p171; also refer to Netanel, N., Copyright’s Paradox (OUP 2010) explains the unacceptable burdens that modern copyright law now places on freedom of speech over the internet
\textsuperscript{11} Lawrence Lessig, Code, 2\textsuperscript{nd} edition, Basic Books, 2006, p172
\textsuperscript{12} Lawrence Lessig, Code, 2\textsuperscript{nd} edition, Basic Books, 2006, p172
\textsuperscript{14} Kevin A. Carson, “Intellectual Property”: A Libertarian Critique, Center for a Stateless Society Paper No. 2 (Second Quarter 2009), p10
\textsuperscript{15} It is a mathematical representation of a situation that each participant’s gain (or loss) of utility is exactly balanced by the losses (or gains) of the utility of the other participant(s). The total gains of the participants are added up and the total losses are subtracted, they should be the sum of zero Spangler, Brad. “Positive-Sum, Zero-Sum, and Negative-Sum Situations.” Beyond Intractability. Eds. Guy Burgess and Heidi Burgess. Conflict Information Consortium, University of Colorado, Boulder. Posted: October 2003 <http://www.beyondintractability.org/essay/sum> Date Accessed: 02.07.2015
expense.\textsuperscript{16} There is gain by one side and a corresponding loss by the other. However, natural property rights benefit everyone by securing the individual’s claim to the product of his own effort.\textsuperscript{17} The Lockean theory of natural property right is not absolute and it must be balanced with due regard for the public domain.\textsuperscript{18} Locke’s theory of natural property right raises the question of absoluteness of certain rights, balancing of benefits and burdens and contemplation of collective or aggregative entitlements or obligations.\textsuperscript{19} However, such balanced consideration, contemplative collective or aggregative entitlements or obligations are not found in the intellectual property law regime. As the internet is meant to provide a forum for the sharing of knowledge or resources that would benefit society as a whole,\textsuperscript{20} it requires a delicate balance between an individual’s right in property and the public interest. Therefore, it is submitted that intellectual property law should not be extended to protect the body of unregulated digital resources.

4. Describing the relationship between intellectual property law and digital resources, Eric Goldman in his concluding remark said that although copyright and other intellectual properties remained relevant in the context of cyberspace, no new law or legislation designed to increase the rights of intellectual property owners on the internet were currently needed on the basis that any such law or legislation would only but destroy the delicate balance between the protection of digital resources and the freedom of sharing of knowledge and resources in cyberspace.\textsuperscript{21} Based on Eric Goldman’s concluding remark, it is argued that increasing the level of protection in intellectual

\textsuperscript{16} Kevin A. Carson, “Intellectual Property”: A Libertarian Critique, Center for a Stateless Society Paper No. 2 (Second Quarter 2009), p10
\textsuperscript{17} ibid
\textsuperscript{18} John Locke, The Second Treatise of Government (Indianapolis: Bobbs-Merrill, 1952) ch. 5
\textsuperscript{19} John Locke, The Second Treatise of Government (Indianapolis: Bobbs-Merrill, 1952) ch. 5
\textsuperscript{20} Kevin A. Carson, “Intellectual Property”: A Libertarian Critique, Center for a Stateless Society Paper No. 2 (Second Quarter 2009), p10; also refer to Jay Nock, Our Enemy, the State (Delavan, Wisc.: Hallberg Publishing Corp., 1983), p. 80
\textsuperscript{21} Eric Goldman, The Intellectual Property Renaissance in Cyberspace: Why Copyright Law could be Unimportant on the Internet, 12 Berkeley Tech. L. J. 15
property law would not be the appropriate measure for the protection of the body of unregulated digital resources in cyberspace.

5. The non-applicability of intellectual property law regime to the body of unregulated digital resources is further supported by the argument that many digital resources are not qualified as intellectual property or are unable to satisfy the requirements accordingly. For example, one of the limits of the application of intellectual property rights in cyberspace is that intellectual property such as copyright can only protect ideas that have been illustrated or given in a material form. In the Malaysian Copyright Act of 1987 (Act 332), the meaning of fixation and material forms have been defined as follows:

“Fixation” means the embodiment of sounds, images or both, or the representation thereof, in a material form sufficiently permanent or stable to permit them to be perceived, reproduced or otherwise communicated during a period of more than transitory duration by using a device;

“Material form” in relation to a work or a derivative work, includes any form (whether visible or not) of storage from which the work or derivative work, or a substantial part of the work or derivative work can be reproduced;

Back-up copy of computer program

Section 40 (3): For the purposes of this section—

22 The material form of a work does not need to be permanent, but it does require it to be a form from which the work can be reproduced
23 as at 1st July, 2012
(a) a reference to a copy of a computer program or of an adaptation of a computer program is a reference to any article in which the computer program or adaptation is reproduced in a material form; and

(b) a reference to an express direction, in relation to a copy of a computer program, or of an adaptation of a computer program, includes a reference to a clearly legible direction printed on the copy or on a package in which the copy is supplied.

Based on the Malaysian Copyright Act 1987 as stated above, any story would have to be written or printed before copyright protection could be applied. The issue is that there are many digital resources available in cyberspace which may not be embodied in a material form as defined under the 1987 Malaysian Act. Therefore, it is arguable whether the body of unregulated digital resources can be protected under the copyright law regime as they lack the material form.\textsuperscript{24} Section 40 of the 1987 Malaysian Act covers the back-up copy of a computer program and Section 40(3)(a) states that a reference to a copy of a computer program or of an adaptation of a computer program is a reference to any article in which the computer program or adaptation reproduced is considered to be in a material form. However, it is uncertain whether this provision applies equally to the body of unregulated digital resources which may be transmitted or transferred through web servers or other servers such as cloud servers which provide storage and other services.

A case on point in the context of copyright law in reference to material form was the United Kingdom case of Bookmarkers’ Afternoon Greyhound Services Ltd. V Wilf

Gilbert (Staffordshire) Ltd.,\textsuperscript{25} which held that the display of images on a video display unit in private constituted a reproduction in a material form on the basis that the words ‘material form’ under the United Kingdom Statute were wide enough to embrace ‘materialisation on television monitor’.\textsuperscript{26} In the United States of America, in the case of MAI Systems Corp. v. Peak Computer, Inc.,\textsuperscript{27} it was held that RAM (Random Access Memory) was “sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration.” In the case of Religious Tech. Ctr. v. Netcom On-Line Communications Servs., Inc.,\textsuperscript{28} it was held that an Internet Service Provider serving as a passive conduit for copyrighted material is not liable as a direct infringer. The court held a direct infringement claim required a volitional act:

“[a]lthough copyright is a strict liability statute, there should still be some element of volition or causation which is lacking where a defendant’s system is merely used to create a copy by a third party.”\textsuperscript{29}

The implications of the above discussion for the body of unregulated digital resources are that many of the unregulated digital resources could not be protected under the Malaysian Copyright law on the basis that they are not in a material form as required and defined under the 1987 Act. The 1987 Act has a limited scope in its application in cyberspace. The argument is that copyright laws ought to protect not the physical object itself, but the idea in which it is embodied. In other words, for an idea to be protected under copyright law, it has to be in a physical and material form. The issue is why such an idea should be embodied in a physical or material form in order for it to be so

\textsuperscript{25} [1994] F.S.R. (Ch)
\textsuperscript{26} Bookmarkers’ Afternoon Greyhound Services Ltd. v Wilf Gilbert (Staffordshire) Ltd. [1994] F.S.R. (Ch)
\textsuperscript{27} 991 F.2d 511 (9th Cir. 1993)
\textsuperscript{28} 907 F. Supp. 1361 (N.D. Cal. 1995)
\textsuperscript{29} 907 F. Supp. at 1370
protected. It seems to suggest that it is a technical issue in considering whether the digital resource is represented in a material form. A digital resource is capable of being reproduced in material form such as through web server or other devices when one chooses to adopt a wide interpretation of the meaning of representing in a material form as in the United Kingdom and the United States of America. However, such liberal interpretation and understanding of digital resources and the mechanics of online systems have not been reflected in the current Malaysian Copyright laws. It is submitted that the laws need to be developed further and to take into account the technological advances in modern information and computer technologies.

6. Another argument as to why intellectual property laws cannot be applied to the body of unregulated digital resources is that intellectual property protection is territorial whereas the regulation of the body of unregulated digital resources straddles several States’ jurisdictions. For example, protection of trademarks is based upon its registration in one country although one may register a trademark in more than one country. Protection is given through the national trademark application on a country-by-country basis.\textsuperscript{30} The country-by-country basis of registration poses many problems such as language translation especially so for highly technical terms and words. Other significant problems are backlogs at trademark offices, foreign exchange difficulties, maintenance, renewal, or registration updates of a change in ownership or name or address for each trademark registration and the whole process must be repeated for each registration of the desired trademarks in the next country concerned. Nevertheless, this national approach is still currently and commonly used by trademark owners to obtain

their foreign protection.\textsuperscript{31} Alternatively, one may choose to use the Madrid Protocol—the International Trademark System which is a one stop solution for registering and managing trademarks worldwide. However, it only applies and protects trademarks within the territories of members States\textsuperscript{32} through one centralised system.\textsuperscript{33}

7. Finally, when there is a dispute in relation to intellectual property it may be that of a single transaction in cyberspace which may involve the laws of several countries, and being so, it is not easy to decide which country should have the necessary jurisdiction over the matter in dispute. One may apply the existing jurisdictional rules and the choice of law or rules if the subject matter of the dispute is civil in nature. However, with the diversity and lack uniformity in intellectual property laws in various countries, forum shopping and other legal issues may arise which would complicate the matter further. The borderless nature of cyberspace poses significant serious challenges to the traditional principles of jurisdiction in intellectual property right claims.\textsuperscript{34}

Instead, a well thought-out and proper set of laws and legal principles are needed to maintain the delicate balance between the protection of digital resources and the freedom of sharing knowledge and resources in cyberspace.

If the intellectual property regime is not ideal for digital resources, the next question now confronting us is how should digital resources in cyberspace be adequately protected then. This is closely connected to the equally important issue as to how cyberspace activities should be regulated. There are basically two arguments here: one,


\textsuperscript{32} There are 95 members States

\textsuperscript{33} http://www.wipo.int/madrid/en/ Date Accessed: 06.06.2015

that cyberspace should not be regulated at all and the other that cyberspace should be effectively regulated by strict laws and regulations just like what has been done in the physical world for regulating various acts. Balkin explores rules that should govern virtual communities. For example, should the law step in to protect property rights when virtual items are destroyed or stolen?\textsuperscript{35} Pursuant to the first argument, it followed the hippie’s ideology of the mid-sixties that one should embrace the new culture of the World Wide Web which emphasises the individual’s freedom, freedom of expression, freedom of information and the unrestricted access of information.\textsuperscript{36} A Declaration of the Independence of Cyberspace\textsuperscript{37} stated that existing legal concepts of property, expression, identity, movement and context should not be applied to cyberspace and its users. Hence, cyberspace should not be regulated at all and ought to be free from any legal restraints.

Removing access barriers will accelerate research and enrich education. John Eggerton states:

“It is essential that we preserve the open internet and stand firmly behind the right of all people to connect with one another and to exchange ideas freely and without fear.”\textsuperscript{38}

Internet freedom enables dialogue between people, facilitates the exchange of ideas and culture while bolstering trade as well as economic growth.\textsuperscript{39} As internet generates knowledge and value from the end users, freedom of use and access is to some extent inherent in the design and architecture of the internet.\textsuperscript{40}

\textsuperscript{35} Balkin, J. and Noveck, B., The State of Play, Law, Games and Virtual Worlds (NYU Press 2006), this book explore the issues such as what rules should govern virtual communities? Should the law step in to protect property rights when virtual items are destroyed or stolen?
\textsuperscript{36} Also refer to de Sola Pool, The Technologies of Freedom (Harvard UP, 1983)
\textsuperscript{37} John Perry Barlow from Electronic Frontier Foundation. The Electronic Frontier Foundation is the leading non-profit organisation in defending civil liberties in the digital world.
\textsuperscript{38} John Eggerton, Genachowski, Obama on Same Open Net Page, Broadcasting and Cable, September 23, 2010
\textsuperscript{39} John Eggerton, Genachowski, Obama on Same Open Net Page, Broadcasting and Cable, September 23, 2010
\textsuperscript{40} Shanthi Kalathil, Internet Freedom: A Background Paper, October 2010
Professor Lawrence Lessig stated that this new medium has allowed anyone to become a publisher and people could communicate and associate in ways that they had never done before.\footnote{Lawrence Lessig, \textit{Code, Version 2.0}, published by Basic Book, 2\textsuperscript{nd} Edition, 2006, Chapter 1} It was argued that an architecture of a ‘code’ was better than laws to regulate any misconduct in cyberspace on the basis that laws could only regulate ‘through the threat of ex-post sanction’ that is after the event had occurred. While a code, in constructing a social world, regulates immediately.\footnote{Lawrence Lessig, \textit{The Constitution of Code: Limitations on choice-based Critiques of Cyberspace Regulation}, 5 Comm Law Conspectus 181, p184} Although a code may be better than laws in this sense, but nevertheless, a proper set of laws and legal principles must be established to regulate misconduct in cyberspace on the basis that laws and legal principles would set the standard of behaviour expected from the users of the internet.

One of the main problems in applying the existing cyber-specified laws is that they are too specific to those situations contemplated at the time of its enactment. As soon as those laws are finally enacted they may be already outdated for information and cyber technologies develop rapidly. That is the reason why we need to have liberal concepts, norms and broad legal principles to be applied in cyberspace. Whether it is the law in the traditional sense or an architecture of a ‘code’ according to Professor Lawrence Lessig, the standard of behaviour needs to be ascertained, similar to the physical world in which a system must be in place to regulate and to sanction such behaviour that falls short of the standard required. Without such standard, the perpetrators are able to take advantage of the unregulated domain and are thus able to pursue their wrongful activities unhindered in cyberspace. This thesis makes a fundamental assumption that

\begin{center}
http://assets.aspeninstitute.org/content/uploads/files/content/images/internet_Freedom_A_Background_Paper_0.pdf
\end{center}

Date Accessed: 06.07.2016, also refer to Brand, S., \textit{The Media Lab: Inventing the Future at MIT}, Viking Penguin, 1978, p7 in which Stewart Brand stated that “Information wants to be free, Information also wants to be expensive …That tension will not go away.”
digital resources need more protection. This argument might be considered controversial. Many would argue that the success of public computer networks and the internet depends on free access and usage of information and that those who enter and make use of the facilities must accept those inherent characteristics. This thesis will present the reasons and justifications in proposing an appropriate system to regulate and to sanction behaviour that falls short of the standard required in dealing with digital resources in cyberspace. The reasons are that the lack of proper regulations would make the online environment an alternate forum for illegal and criminal activities. In this thesis, it is proposed that rights to digital resources are to be recognised and protected for the first time in this triangulation between humankind, internet technology and the law. In turn, this set of regulations should encourage greater creativity in the use of the internet.

There are two arguments for the realm of digital resources. On one hand, internet users have argued that since the original purpose of creating the World Wide Web was for the sharing of information and knowledge and as such digital resources should be unregulated and ought to be made freely available to everyone. However, the problems of unregulated use of digital resources are that digital resources are prone to be grossly misused and abused. It would create a negative impact in society rather than pursue and achieve the greatest benefit in the sharing of knowledge. This may lead to a situation which could be described as the ‘Tragedy of the Commons’ in which it described the tragedy of the unregulated commons and the consequence of the commons being overused and abused. Many digital resources do not have adequate protection from the existing cyber laws and are as such similar to the circumstances of the tragedy of the commons.

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44 Garrett Hardin, The Tragedy of the Commons, 162 Sci 1243-48 (1968)
On the other hand, creators of digital resources argue that digital resources need to be regulated because the creators have invested their labour and money and will not be rewarded when it is free access to any user free usage of their work and the effect is that productivity will be driven to a low-level. However, if digital resources are to be protected by the law, one has to consider the cost of establishing a comprehensive legal framework, sophisticated multi-level law enforcement as well as a mechanism to monitor and to regulate the internet. Hence, we have two conflicting views in which one contended that digital resources should be free for all while the other would argue vehemently that digital resources should be protected by the law. It is challenging to decide which side of the argument carries more weight because each of them has their own reasons and justifications.

Although there is a strong sentiment on the freedom of information, however, this thesis is of the view that digital resources should be regulated and protected on the basis that many digital resources in cyberspace are valuable resources and have significant impact in the real physical world when they are misused. Without proper regulatory framework or a system of laws, it is difficult to maintain order and to prevent misuse of digital resources in cyberspace. In the real physical world, the law serves the functions of establishing standards, maintaining order, resolving disputes, and protecting liberties and rights. These functions are equally important to protect digital resources in cyberspace. By examining the fundamental choice between the freedom of information and the protection of digital resources, it is submitted that digital resources should be protected on the basis that proper laws would enhance the optimal use of digital resources in cyberspace by setting the standards of behaviour, maintaining order,
resolving disputes among competing parties who have interests in digital resources and protecting the rights and interests of the creators of digital resources.

The most ideal solution is that digital resources should be regulated and at the same time it should maintain its greatest benefit: that of sharing knowledge among the internet users. This thesis argues that this proposal is the most ideal solution to establish a proper system and a set of laws to regulate and protect digital resources in cyberspace.

The question is what kind of law and when should it be used to regulate the body of unregulated digital resources in cyberspace. To answer this question, one should refer to Susan W. Brenner's article\textsuperscript{45} which states that:

“at some point, we can do away with cyber crime because most crimes will involve \textit{the use of the} computer in some way, and all crime will be cyber crime…”

Although Susan W. Brenner wrote about cybercrime in general, nevertheless, an analogy could be drawn from her learned observation. Her statement suggested that eventually cyber crime will replace the traditional crime that we know of, because every crime in future will somehow and somewhere involve the use of a computer. The divergence between the two regimes of crimes is that it lies in the respective venues in which the commission of crime takes place. Cyberspace is in a separate domain but it has to co-exist alongside with the physical world.

\textsuperscript{45} Susan W. Brenner, \textit{Is there such a Thing as 'Virtual Crime'?}, 4 Cal Cr Law Rev 1
Despite some of the apparent inadequacies of the traditional laws in dealing with different types of wrongful conducts in cyberspace, the established traditional legal principles remain relevant in the new technological age on the basis that cyberspace is inseparable and interconnected with the real world in many ways. Internet has not in itself created a totally new vice.\textsuperscript{46} It has made the traditional vice now more accessible to the general public \textit{via} the online medium from virtually anywhere.

When traditional law is relevant in the context of cyberspace, the next issue to be considered is what kind of traditional law should be applied to digital resources. There are several areas of the traditional laws that are capable of being applied to digital resources such as contract law and tort law. One could consider the time tested property laws and its principles to be applied to digital resources on the basis that the common law of property has been applied traditionally to ensure that resources are well-used. Digital resources equally require a system of law similar to that of property law which is able to ensure that they are well-used and utilised beneficially. Writers such as Joshua A. T. Fairfield contend that a theory of ‘virtual property’ is critical to ensure the efficient use of internet resources.\textsuperscript{47} He further contended that virtual property shared three legally relevant characteristics with the real world property, namely, rivalry, persistence and interconnectivity. Joshua A. T. Fairfield pointed out that as digital resources have been created and they shared the legally relevant characteristics of real property, as such, it would make common law of property an obvious possible source of law for digital resources.\textsuperscript{49}

\textsuperscript{48} Take note that not all digital resources are rivalous
However, the setback of property law and its concept is that, any attempt to maintain a traditional notion of property will become increasingly more problematic in its application in that the modern global information age with its digital resources found in cyberspace are intangibles and they do not fit into the traditional property concept. Therefore, a new and unorthodox concept of property is required.

1.0.1 A new and unorthodox property concept.

Property law will be able to protect emerging interests in digital resources so that they may be productively used. As new technology develops and a new market opens, there will be changes in property law which will alter those rights that are poorly attended in the new market. However, the challenge is to articulate a theory by which privatisation of digital resources would result in efficiency especially when some of the digital resources are non-rivalrous in nature. Therefore, in the search for the most appropriate concept of property to be applied in cyberspace, reference could be made to Vincenzo Vinciguerra’s article where he stated that there were different concepts of property that were relied upon in different legal systems and the two main theories that he would focus on were property as a ‘commodity’ and property open to social needs. His emphasis was on the social aspects of ownership for the interests of society as a whole, as opposed to those confined solely to the owner’s right. The social aspect of property rights is ideal for cyberspace on the basis that the creation of the internet and cyberspace was originally for the purpose of sharing information and resources. However, this social function of property rights and its ability to alienate have received

50 Jacqueline Lipton, *Property Offences into 21st Century, 1999 (1)*, The Journal of Information, Law & Technology, p1
many critics.\textsuperscript{54} In fact, the ability to alienate is recognised as a necessary prerequisite for an individual to establish his or her right as an owner. Harold Demestz in his article stated that the primary function of property rights was that of guiding incentives to achieve greater internationalisation of externalities.\textsuperscript{55}

The concept of social function of property rights and the ability to alienate would provide the fundamental basis and underlying framework as to how the concept and institution of property should be evolved and formulated for the modern online environment. The social function of property is an important function to be observed in search for the new definition and concept of property in the digital world. Gregory Alexander and Eduardo Peñalver stated that:

[A]ny adequate account of human flourishing must stress two characteristics. First, human beings develop the capacities necessary for a well-lived, and distinctly human life only in society with, indeed, dependent upon, other human beings. To put the point even more directly, living within a particular sort of society, a particular web of social relationships, is a necessary condition for humans to develop the distinctively human capacities that allow us to flourish.\textsuperscript{56}

In order to achieve that, we need to have an abstract notion to describe property as a collection or a bundle of rights which would allow in many ways wherein a property can be divided and enjoyed by different parties as to its relationship between the parties that are clearly defined and well-managed. Digital resources are meant to be shared, accessed and transferred and hence it is of utmost and paramount importance that this

\textsuperscript{54} One of them is F. Von Hayek who was very skeptical about ‘social functions’ of property rights. Commodification to its maximum extent is a necessary prerequisite for individuals to pursue their own ends and in doing so to pursue their individual liberty

\textsuperscript{55} The American Economic Review, Volume 57, Issue 2, May 1967, 347-359

\textsuperscript{56} Gregory S. Alexander & Eduardo M. Peñalver, Properties of Community, 10 Theoretical Inquiries I Law 127, 135 (2009)
relationship is managed among users of digital resources in cyberspace. A well-defined system which consists of rights for digital resources would include various rights existing in digital resources. Rights such as a right to decide how the digital resources should be used and specification of all the relevant attributes of each use as well as the contingencies of such use in every digital resource are necessary. With a well-defined set of property rights, laws and principles in place, it will prevent and reduce the misuse and abuse of digital resources and ensure that adequate protection is accorded to digital resources.

This thesis has selected and adopted a three-fold approach namely, the exclusive right of use determination within the Bundle of Rights theory, the rights-based concept of property and the Common Property Institution to protect the body of unregulated digital resources. The reasons for adopting the three-fold approach are that the exclusive right of use determination within the bundle of rights theory is able to create and formulate the various rights for digital resources and hence manage and regulate the relationship among parties who have rights and interests in digital resources. The rights-based concept of property is able to re-define and re-conceptualise the concept of property in order to accommodate the intangible nature of digital resources in cyberspace. The common property institution serves as the underlying concept as to how digital resources should be managed and utilised, while enabling the sharing of information and digital resources in cyberspace. Extending the property concept through the three-fold approach to the body of unregulated digital resources is called “propertisation” in this thesis. There are 40 recommendations that recognise a new right to regulate and protect this body of unregulated digital resources have been made. Thus, this thesis pursues and examines how digital resources in cyberspace can be adequately and appropriately regulated and be protected through propertisation.
1.1 Statement of Research Problems.

There are numerous important, essential and valuable digital resources in cyberspace, many of which are still being formulated through inventions and improvements, that form a part of the existing structural architecture of the internet. However as these resources are made available over the internet, the general public has paid little attention towards its protection. There is an inadequacy of laws that protect these digital resources. It is proposed that one avenue is by granting legal recognition and legal status to such digital resources by way of propertisation under the exclusive right of use determination, the rights-based concept of property together with the setting up of the Common Property Institution followed by the application of the traditional sources of laws which together they will be able to provide an appropriate and adequate legal protection for digital resources in cyberspace.

In addition to the statement of research problems, the following are some specific problems of digital resources which will be discussed in detail in this thesis.

1.1.1 Problems of Digital Resources:

1. The current laws which regulate digital resources such as personal information, identification data and location data collected in cyberspace have not been provided an effective, appropriate and adequate protection as there are a lot of
cases with regards to misuses and abuses of personal information, identity and location data.

2. The disclosure of company information is currently regulated under the principles of the law of confidentiality, trade secret law, employment contract, patent and the duty of good faith or fidelity. However, when company information is made available over the internet or an online system, the above laws and principles seem to be incapable of providing adequate, relevant and effective protection.

3. The use of meta-tags and keywords in search engines are regulated generally under the law of contract. The problem with meta-tags and keywords are that individual or company contracts drafted and designed for the exclusive use of meta-tags and keywords are unable to maintain the exclusive position due to the use of the ‘standard’ unfair contractual terms dictated by the search engines companies.

4. The problem with emails and social networking accounts is that it is difficult to decide on the legal ownership of the relevant email or social networking account because there is no law addressing this matter. This thesis focuses on the issues arising from the contractual terms and conditions in relation to the use of these resources.

5. There are numerous domain name registries available. The use of domain names are highly competitive and are on a ‘first come, first served’ basis. The
problem with the domain names is that the domain name owner may use the same name as a trademark name by which it would create confusion amongst the internet users and consumers in the general commercial market. The Internet Corporation for Assigned Names and Numbers (ICANN) is a system that unifies the domain names system and the trademarks system. However, there are still setbacks in this ICANN system.

6. The problem in hyperlinks is the lack of relevant laws or other legal guidelines to regulate the linking of various websites with one another. Hyperlinks are being established without a legal framework underpinning them. When a hyperlinkage has been abused, the result is that it would lead to the wrongful endorsement of certain products and services in the internet and create such bad commercial image which affects businesses’ reputation.

7. The issues of privacy and ownership of digital resources that arise from the use of the resources provided in cloud computing are that users of such cloud computing may lose control of his or her data stored with the cloud provider. The laws governing these are also unclear and inadequate.

8. There is a current trend towards open access to academic and educational products. More and more institutions and individuals are sharing learning resources over the internet openly for free under the Open Educational Resources (OER). This raises copyright issues as well as policy considerations. Furthermore, the problem with Online Creative Communities is that when creative works are reused and remixed by the others, it attracts copyright infringement. The absence of clear governing laws results in many creators
deciding not to share their work due to fear of inadequate protection and legal consequences.

9. The problem of applying enacted cyber-specific laws to regulate digital resources is that they are too specific in nature and are targeted at specific acts that are prohibited by such enacted law. What is needed is a set of well-structured and comprehensive laws to regulate any misconduct or unlawful act and at the same time provide sufficient legal protection for digital resources and effective remedies to those who have suffered harm as a result of the wrongful acts.

10. When the concepts of Bundle of Rights and Common Property Institution are applied, there will be multiple or concurrent ownership in digital resources. Hence, the proof of digital ownership and property rights would inadvertently become an issue and a proper and well-thought out system to manage those rights efficiently and effectively is required

1.2 Research Objectives

Based on the research problems stated above, this research seeks to achieve the following objectives:

(1) To extend the concept of property to the body of unregulated intangible digital resources given their unique characteristics and vulnerability (under the proposed concept of ‘propertisation’);
(2) To examine the historical development of the concept of property and its implications on digital resources;

(3) To apply the three-fold approach to protect the body of unregulated digital resources: the exclusive right of use determination within the Bundle of Rights theory, the Rights-based concept of property and the Common Property Institution;

(4) To legally establish the contents of the exclusive right of use determination.

(5) To examine the impact of propertisation on the applicability of traditional property laws and identify possible challenges to be encountered in adopting the three-fold approach.

1.3 Research Questions

This research will attempt to seek answers to the following questions:

(a) What is the body of unregulated digital resources? What are the unique characteristics and vulnerabilities of digital resources and the current problems faced by these digital resources in cyberspace?

(b) How the concept of property has evolved and what are the implications of propertisation for the body of unregulated digital resources?

(c) How the three-fold approach (the exclusive right of use determination within the bundle of rights theory, the rights-based concept of property and the common property institution) is to be applied for the protection of the body of unregulated digital resources?

(d) What are the contents of the exclusive right of use determination?
(e) What are the impacts of propertisation and the possible challenges to be encountered in the existing system of laws if they are to be adopted and implemented?

1.4 Research Methodology

This study examines the various notions and theories pertaining to the concept and the institution of ‘property’ and its related issues. As this is a conceptual study, the focus would be on various property concepts, theories and doctrines. The research methodology is purely based on library research and is also very much based on the literatures of existing scholarly articles such as academic journals, articles, books, theses, research papers, conference proceedings, local and international cases, governmental documents and reports on the relevant topics of this research.

1.5 Research Scope and Limitation

This thesis focuses on the body of unregulated digital resources and does not include digital resources that are qualified as intellectual property as they have received legal protection from the intellectual property law such as Copyright, Trademarks and Patents law.57

This thesis also does not address the impact of state threats and public interest of the body of unregulated digital resources because such resource is considered state intelligence and not property that can be owned by individuals.

57 The meaning and the scope of unregulated digital resources will be dealt with in Chapter 2 of this Thesis
This thesis also does not deal with the issues of piracy of digital resources because the body of unregulated digital resources is not qualified as Intellectual Property. 58

This thesis provides general discussions and conceptual analyses on the concept of property and theories to be applied to digital resources. The analyses found in this research refer to Malaysian laws used for purposes of illustration only. Further references are also made from laws of the other countries such as the United States of America and the United Kingdom, being countries that have embraced the common law regime.

1.6 Chapter Outline

The present thesis comprises seven chapters. Each of the chapters deal with specific issues and answers relating to the research questions as stated above that are related to the present study. An overview of each chapter is as follows:

Chapter 1 presents the research background, statement of research problem, research objectives, research questions, research methodology, research scope and limitations and the relevant individual chapter’s outline.

Chapter 2 examines the fundamental aspects of resources and digital resources in particular as the latter forms the subject matter of this thesis. This chapter provides a broad understanding of digital resources and the common characteristics of this body of unregulated digital resources. This chapter further elaborates the important role of this

58 Refer to Johns, A., Piracy, The Intellectual Property Wars from Gutenberg to Gates (University of Chicago Press, 2009) for general reading. This book explores the intellectual property wars from the advent of print culture in the fifteenth century to the reign of the Internet in the twenty-first. It examines the broader implications over open access, fair use, free culture, and the like. The author argues that piracy has always stood at the center of our attempts to reconcile creativity and commerce.
body of unregulated digital resources in the modern architecture and operation of the internet, problems associated with its common characteristics and the inadequacies of the existing laws leading to unregulated digital resources.

Chapter 3 discusses the evolution of the concept of property and the extension of the existing concept of property to accommodate digital resources and the changes that need to be made thereto. This chapter also provides a fundamental understanding on the development and evolution of the concept of property and its implications. The phenomenon of the internet and creation of cyberspace have altered the concept and the function of property. This chapter further examines the common property institution and the rights-based concept of property – the bundle of rights theory. This chapter finally examines how the bundle of rights theory is applied in order to establish a stable common property institution to provide laws to regulate and protect the body of unregulated digital resources in cyberspace.

Chapter 4 explores and discusses the propertisation of the body of unregulated digital resources and examines the necessary element that needs to be fulfilled in order for such propertisation to take place. Elements of ‘exclusivity’: namely, labour and effort, personhood theory, privacy and contract are discussed that would enable this body of unregulated digital resources to attain property status. This chapter also explains the conceptual difference between the principles of the ‘right to exclude’ from the physical tangible property and the notion of exclusivity which applies in intangible resources. As the new concept of property draws on the principal right, ‘the exclusive right of use determination’ within the ‘bundle of rights’, this chapter proposes and formulates the contents of this principal right for unregulated digital resources.
Chapter 5 examines and considers the application of the traditional sources of law to regulate the body of unregulated digital resources, as a result of propertisation. This chapter examines how the exclusive right of use determination within the bundle of rights, and the common property institution applies to the body of unregulated digital resources in cyber cases and more importantly, to evaluate the effectiveness of such application in resolving the issues and concerns that have been raised in Chapter 2 of this thesis.

Chapter 6 examines the empirical challenges in the implementation of the exclusive right of use determination, the common property institution and the propertisation of the body of unregulated digital resources in the existing traditional laws for the regulation and management of the body of propertised and regulated digital resources. There are many challenges in adopting the right of exclusive use determination from the bundle of rights theory and the common property institution as these theories are quite distinct from the existing concepts of property. This chapter analyses the various issues and factors which seriously affect the suitability and adaptability of the proposed solution advocated by this thesis into the present system of laws. These issues and factors also refer to those challenges arising on implementation, certainty of laws, issue of concurrent ownership and the balancing of property rights with other legitimate competing rights in digital resources.

Apart from the issues as stated above, the issue of jurisdiction is also examined in view of the borderless nature of cyberspace. It is necessary to consider the extent of the existing jurisdictional rules to be applied to digital resources. Finally, this chapter recommends possible approaches and solutions to be adopted for the regulation and protection of the body of unregulated digital resources.
Chapter 7 summarises the important issues, arguments and findings in support of the present research. It highlights the proposals of the present thesis by examining the objectives of the present research and by establishing the most appropriate laws and theories to regulate and manage the body of unregulated digital resources.

The present thesis merely initiates the establishment and development of laws and theories that could provide adequate protection to the body of unregulated digital resources. There are many issues and concerns that go beyond the scope of this present research that would require further evaluation and critical analysis from time to time in view of the future development of digital resources and information technologies. It requires an ongoing effort, critical evaluation and further contribution on this proposed adoption.

1.7 Conclusion

This chapter provides the research background of this thesis, a statement of the research problem, the research objectives and research questions, research methodology, the research scope and its limitations and a synopsis of the various chapter outlines. This chapter will provide readers of this thesis a summary of this thesis with a basic understanding of the concerns outlined in this thesis and the reasons why the thesis embarked on this research that would contribute to the existing body of knowledge in relation to digital resources in cyberspace. The next chapter of this thesis examines the notion of digital resources and the problems faced by digital resources in cyberspace that needs to be resolved.
CHAPTER 2: THE BODY OF UNREGULATED DIGITAL RESOURCES

2.0 Introduction

The background and the development of the World Wide Web would provide a fundamental understanding of digital resources in cyberspace. This chapter introduces the meaning of digital resources as understood broadly and would further concentrate on unregulated digital resources which are currently inadequately regulated under the current laws. This chapter will also highlight the common characteristics of digital resources because some of these characteristics in themselves contribute to the inadequate protection situation, leading to the body of such unregulated digital resources. This chapter will also discuss the various problems associated with the use of such unregulated digital resources and will examine the various current inadequate laws dealing with these problems. Accordingly this chapter will focus on the following topics:

1. The background and the development of the World Wide Web;
2. The broad meaning of digital resources and how it differs from other types of resources;
3. An explanation of the phraseology of the ‘body of unregulated digital resources’;
4. The common characteristics of digital resources covering their shareable; accessible and non-rival resource nature and utility, transferability, replicability and exclusivity characteristics;

5. The problematic common characteristics of digital resources covering accessibility with emphasis on personal data, location data and hyperlinks, transferability and exclusivity with focus on domain name and meta-tag and keyword; shareability which focuses on emails and social networking accounts and wireless network and

6. In conclusion, this chapter would also highlight the loop holes and inadequacies of the existing laws to regulate and to protect the body of unregulated digital resources.

2.1 The background and the development of the World Wide Web

The origins of the Net could be traced back to the campus of the Massachusetts Institute of Technology (MIT) located on the banks of the Charles River near Boston. MIT was founded in 1861 by William Barton Rogers who was a natural scientist.59 From 1920 onwards MIT increasingly attracted the brightest and best of America's (and latterly the world's) scientists and engineers. In the middle decades of this century, MIT was looking at ideas about information, computing, communications and control.60

In 1960, scientists and engineers had designed and built the ARPANET, the computer network that revolutionised communications and which gave rise to the global Internet. However, rumors had persisted for years that the ARPANET had been built for the

60 Naughton, J., A Brief History of the Future: Origins of the Internet (W&N 2000), p52
protection of national security in the face of a nuclear attack. The main and primary intention for the creation of computers and the internet was for the purpose of sharing of information amongst researchers. However in the early days, there were different types of information stored in different computers’ systems and researchers had to individually log on to the different computers’ systems to gain access to the required and targeted digital information. There were also in existence different programmes installed into each computer. Sir Tim Berners-Lee was a renowned software engineer at CERN, a large particle physics laboratory located near Geneva, Switzerland. Sir Tim had then noticed the difficulty encountered in the sharing of information. He realised that there were already in existence millions of computers were connectable or were already connected with one another through the then fast-developing internet and Sir Tim held the belief that these millions of computers could share invaluable information by exploiting an emerging technology called hypertext.

The World Wide Web was originally initiated by Sir Tim. Sir Tim was then looking for a protocol to share information efficiently within the research world without the necessity of using the same type of hardware or software that were been used by the sender of the information as this would cause great inconveniences and delays. He proposed that ‘a large, hypertext database with typed links’ ought to be introduced to assist researchers around the globe in the sharing of information and their researches. Sir Tim has already by then written the three fundamental technologies that remained today the very foundation of our current widely used Web. They are known as HTML (HyperText Markup Language), URI (Uniform Resource Identifier) and HTTP (Hypertext Transfer Protocol). The project was started with the main objective that

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academic information should be freely made available and the dissemination of information to and by all support groups worldwide. The early adoption of the World Wide Web was actually limited for use by university-based Scientific Departments or Physics Laboratories. As the Web began to grow, Sir Tim realised that its’ true potential would only be unleashed if anyone wheresoever located on this globe could access and use the web without the need to incur any charge or fee or the need to have to ask for access or use permission.

Thus, the use of the World Wide Web was lodged and over a short period of time it has now progressed at an unprecedented speed and has gone in fact beyond the boundaries of scientific usages by researchers and in effect its usage has been widened to the whole world at large. The advancement of web browsers which has facilitated the retrieving; presenting and traversing of information resources on the ‘www’ has together coincided with the growth of the commercial ‘ISP’ (Internet Service Provider) which jointly have provided easy access to the several internet service providers available in the internet industry and thus has further made ‘www’ much more accessible. In 1995, there were approximately 160 commercial Internet access providers in the United States of America alone. That was the beginning of the World Wide Web which we are now logging into everyday by millions of internet users round the clock.

Social networking and mobile networking have also become increasingly the most common and popular communications platforms. Social networking has now stood in

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66 Internet Service Provider (ISP) - History And Development, Internet Service Provider (ISP) - History And Development - Access, Isps, Bell, and Uunet http://ecommerce.hostip.info/pages/623/Internet-Service-Provider-ISP-HISTORY-DEVELOPMENT.html#ixzz3iZp0NawQ. Date Accessed: 11.08.2015
67 BI (Business Insider) Intelligence Calculates an Engagement Index for top major social networks and compares their performance in terms of time-spend terms per-user, on desktop and mobile
the position as the top internet activity. However, social networking has also in its course created a lot of legal issues such as unauthorised collection and disclosure of personal information, ownership and privacy issues and these issues will be discussed in detail in this thesis. The impact of such internet usage has been described as:

“...will change almost every aspect of our lives...private, social, cultural, economic and political...because [they] deal with the very essence of human society: communication between people. Earlier technologies, from printing to the telegraph...have wrought big changes over time. But the social changes over the coming decades are likely to be much more extensive, and to happen much faster, than any in the past, because the technologies driving them are continuing to develop at a breakneck pace. More importantly, they look as if together they will be as pervasive and ubiquitous as electricity.”

With the creation of the World Wide Web, its usage has significantly impacted upon all sectors of our society regardless of locality, race, religion or culture. Information technology has driven in an unprecedented level of innovative use of resources and has promoted numerous new ideas with greater efficiencies across nations regardless of geographic locations. The World Wide Web has created an efficient and effective vehicle and medium for the exchange information and such knowledge derived has been the catalyst for greater global integration and development. In the commercial world the acquiring of knowledge is power. Internet has played an indispensable and essential part in most businesses’ practices and transactions such as online banking, marketing and

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68 Emily Adler. Social Media Engagement: The Surprising Facts About How Much Time People Spend On The Major Social Networks, Business Insider Malaysia, DEC. 16, 2013 – One of the findings was that in America, an average American spends an average of 37 minutes daily on social media, a higher time-spend than any other major Internet activity, including email.


purchasing of goods and services which are now used as the very basic mode of communication between businesses. This medium has been recognised, appreciated, innovated and transformed into a super-segmented niche market that give rise to what has been undisputedly described as ‘a media for one’.

When the global internet networks are interconnected through the www, the Internet allows borderless data transfers instantly and it provides a variety of interactive real-time and time-delayed telecommunications services to anywhere where connectivity to the internet is securable. The World Wide Web has created a new and different avenue of social interaction that has facilitated groups and relationships to form that otherwise would not be able to and hence increasing and enhancing human relations and social connectivity.\textsuperscript{71}

\textbf{2.2 Broad Meaning of Digital Resources.}

\textbf{2.2.1 Comparison with Traditional Tangible Resources.}

An understanding of the broad meaning of digital resources is essential in order to understand the subject matter of the present thesis. This is further examined by way of comparison with the traditional tangible resources that are physical and tangible in nature, for example land and chattels; stock or supply of money, materials, staff and assets that can be drawn on by a person or organisation in order to function effectively. The common benefits of utilising both sets of resources effectively (physical and tangible) would enhance wealth, meeting needs or wants, ensure proper functioning of a system and well being. For example, traditional resources would include the use of land

\textsuperscript{71} Bargh, A. J. & McKenna, Y. A.,\textit{The Internet and Social Life}, Annual Psychology Review, 2004, 55, 573-590.
resources such as soil, water, animals and plants which are inter alia, needed for the production of food in order to sustain and meet human needs and survival. Generally, traditional resources are scarce and potentially can be depleted as to its utility.

Natural resource being one of the most common tangible is part of the traditional resources. It includes stocks of natural materials that exist within the natural environment which are scarce and economically useful in production. Examples of such natural resources include resources such as air, water, coal, natural gas and so on. In early history, natural resources were physically and legally accessible to everyone. It was free for all.

The scarcity of natural resources can also be expressed in a different context. A basic taxonomy of natural resources scarcity states that natural resources can be geochemically scarce (in terms of percentage of the earth’s crust), politically scarce (largely controlled by specific countries in which the resources are found), economically scarce (elevated extraction / acquisition costs which encompass technical availability and capital outlay) or technologically scarce (14 limited availability given current technology). The notion of scarcity plays an important role in managing the natural resources because one would seek an optimal use of scarce resources efficiently.

When natural resources are limited and its potentiality for depletion, it usually meant that consumption of it is at a faster rate than its replenishment. When natural resources

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72 Natural Resources: Definition, Trade Pattern & Globalisation, World Trade Report 2010
73 S. V. Ciriacy-Wantrup and Richard C. Bishop, “Common Property” as a Concept in Natural Resources Policy, Natural Resources Journal, October 1975, Vol 15, p717
Although the distinction between these four dimensions of scarcity is not absolute as claimed by Ricardo
are consumed and if they were not renewed then every unit so consumed would reduce the amount of resources available for future consumption.\textsuperscript{76} For example, coal was classified as a non-renewable resource on the basis that it would take thousands of years to turn dead trees into coal. Once it has been used, its quantity was diminished for future consumption. If such resource was not managed properly, a tension would then exist between users who would compete with one another for the share and the exploitation of resources.\textsuperscript{77} With the unprecedented growth in human population and accelerated resource consumption, humans would have to find solutions to resolve the scarcity and depletion of natural resources.\textsuperscript{78} The most important question was how each social unit would set goals in allocating resources to meet perceived or alleged needs.\textsuperscript{79}

On the other hand, intangible resources lack the characteristic of the physical existence.\textsuperscript{80} Digital resource is an example of such intangible resources. It cannot be physically measured like natural resources.\textsuperscript{81} Intangible resources are not scarce on the basis that they are not by nature limited and generally not subjected to depletion. Although intangible resources are not limited or subjected to potential depletion, they still need to be managed properly because when everyone exploit the intangible resources, creators of intangible resources are unable to have control and secure their rightful entitlement in terms of the rewards consumerering from their labour for the creation of such. When over exploitation persists, it will definitely discourage existing and potential creators to upgrade existing resources or to create more useful and

\begin{thebibliography}{99}
\bibitem{76} ibid
\bibitem{77} S. V. Ciriacy-Wantrup and Richard C. Bishop, "Common property" as a Concept in Natural Resources Policy, Natural Resources Journal, October 1975, Vol 15, p717
\bibitem{80} http://www.valuebasedmanagement.net/faq_characteristics_intangible_assets.html
\bibitem{81} http://www.valuebasedmanagement.net/faq_characteristics_intangible_assets.html
\end{thebibliography}
technologically advanced intangible resources in the future.\textsuperscript{82} Therefore, intangible resources also as such require a proper system to manage the use and access of it just like the tangible natural resources.

There are many intangible digital resources available in cyberspace. Digital resources in cyberspace not only refer to the commonly known resources such as information/data or software but would also include different types of online creations and appliances that could possibly be created and developed from internet or information technologies which then can be applied to achieve a particular purpose or to execute a task in cyberspace. For example, keywords or meta-tags used in search engine can also be classified as digital resources in cyberspace for they can be applied to achieve online optimisation functions. An internet wireless network can also be considered as a digital resource in cyberspace on the basis that it is an online connection which enables a person or an organisation to perform such desired function or to achieve a task in cyberspace.

There are wide ranges of digital resources available in cyberspace. This thesis will discuss the digital resources in cyberspace such as personal information, identification data and location data, company information, meta-tags and keywords, emails and social networking accounts, wireless network, domain names and hyperlinks, data in cloud computing, open educational resources and creative works in Online Creative Communities. These specific digital resources are discussed in detail in this thesis because they are inadequately protected by the existing laws (both traditional laws and cyber-specified laws). These digital resources have received limited or no attention from the legal perspective and posses no definite legal status. Because of that, these

\textsuperscript{82} This relates to the issues of Tragedy of the Commons which will be discussed in greater details in Chapter 3 of the present Thesis
digital resources are unregulated and are subjected to various misuses and abuses in cyberspace.

2.2.2 Unregulated Digital Resources.

The “body of unregulated digital resources” in this thesis refers to digital resources in cyberspace which currently are inadequately protected by reason of inadequate regulations as mentioned above. In examining the most appropriate approach to regulate and to manage the body of unregulated digital resources, there are two arguments in the realm of all digital resources. On one hand, internet users would argue that since the original purpose of creating the World Wide Web is for the sharing of information and knowledge and as such digital resources should remain and be unregulated and made freely available to everyone. However the problems that would ultimately be confronted by digital resources would be in that these digital resources will be or are prone to be grossly misused and abused.83 It would create a negative impact on society rather than pursuing and achieving the greatest benefit in the sharing of knowledge. This may lead to a situation which could be described as the ‘Tragedy of the Commons’84 in which it described the tragedy of the unregulated commons and the consequence of the commons as being overused and abused. This would eventually befall onto the body of unregulated digital resources.

Therefore in order to avoid the occurrence of the tragedy of the commons for digital resources, it is important to formulate and have a designated and proper set of laws in place to manage the use of digital resources before its usage goes beyond control.

83 David Bearman and Jennifer Trant, Authenticity of Digital Resources, D-Lib Magazine, June 1998, ISSN 1082-9873 - Giving examples of misuses of digital resources
84 Garrett Hardin, The Tragedy of the Commons, 162 Sci 1243-48 (1968)
With the understanding of the background and development of the World Wide Web, the broad meaning of digital resources and the meaning of body of unregulated digital resources, this chapter will now proceed to examine the common characteristics of digital resources.

### 2.3 Common Characteristics of Digital Resources.

#### 2.3.1 Shareable.

The creation of the World Wide Web and digital resources allowed many digital resources to be shared. The shareable nature of intangible resource allows it to be shared and used by multiple parties simultaneously without depriving the resource for other users.\(^\text{85}\)

The significance of turning a physical resource into sharable intangible digital resources can be seen at the Vatican library which began to digitalise its vast and remarkable archive in 2014.\(^\text{86}\) The Vatican rarely allowed scholars to access its collection and it is restricted to those who can travel to where the books and materials are physically stored.\(^\text{87}\) Although, the process of coding the archive will be highly complex, however,

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\(^{85}\) For example, music files (MP3s); downloaded video files of movies and music videos made available over the internet. Its contents and quantities would not be reduced regardless of the frequency of same being downloaded for they are intangible resources of its kind. Users of these digital resources need not be concerned with the number of copies available and the actual physical possession of such. Contrast that with traditional learning resources such as books and journals which have physical limitations in themselves. Although they are meant to be shared for research and other educational purposes, however traditional learning resources cannot be used by multiple parties simultaneously as opposed to digital resources.

\(^{86}\) Decade–old documents to be transferred into easy shareable digital data, January 22, 2015, The University of British Colombia, UBC News

\(^{87}\) *ibid*
the end result is significant as it will allow anyone with an interest to access not only the
text but also to user friendly tools to find patterns and facilitate analysis in previous
obscure raw archival materials.\textsuperscript{88} It was stated that:

“If you can share history, it makes people more thoughtful; you can see how we
got where we are and know that we can live in a different way or go in a
different direction.”\textsuperscript{89}

Another technological invention that is based on the idea of sharing is cloud computing.
Cloud computing refers to both the applications delivered as services over the Internet;
the hardware and systems software in the data centers that provide those services.\textsuperscript{90} The
data center hardware and software is called a cloud.\textsuperscript{91} When a cloud is made available in
a pay-as-you-go manner to the general public, it call a public cloud and the service sold
is known as utility computing. Cloud computing relies on the sharing of resources to
achieve coherence.\textsuperscript{92} It focuses on maximising the effectiveness of shared resources by
not only the shared resources by multiple users but also dynamically reallocate as per
demand.\textsuperscript{93} The advantages of cloud computing are that it increases the collaboration by
allowing all employees to share apps, documents and reports simultaneously whereever
they are and workmates can follow up their colleague’s records and to receive critical
updates in real time.\textsuperscript{94}

\textsuperscript{88} Ibid
\textsuperscript{89} Stated by Crompton in the Article ‘Decade–old documents to be transferred into easy shareable digital data’, January 22, 2015
The University of British Columbia, UBC News
\textsuperscript{90} Michael Armbrust, Armando Fox, Rean Griffith, Anthony D. Joseph, Randy Katz, Andy Konwinski, Gunho Lee, David
\textsuperscript{91} Ibid and also refer to http://parim.co.uk/cloud-computing-benefits-your-business
\textsuperscript{92} Ibid
\textsuperscript{93} Edited by Francisco V. Cipolla Ficarra, Kim Veltman, Domen Verber, Miguel Cipolla-Ficarra, Florian Kammüller, Advances in
New Technologies, Interactive Interfaces and Communicability, Second International Conference, ADNTIIC 2011, Huerta
Grande, Argentina, 5-7 December, 2011 Revised Selected Papers, p60
\textsuperscript{94} http://parim.co.uk/cloud-computing-benefits-your-business
Furthermore, it is a very flexible system that provides infinite computing resources available on demand. The pay-for-use computing resources on a short-term basis as needed make it possible for companies to start small and to increase hardware resources only when there is an increase in their needs. Cloud computing is a highly sophisticated technological invention that is a long-held dream of computing as a utility. However, the point to be taken on this remarkable technological invention is to demonstrate the power of having a proper system for sharing of resources and to reallocate those resources effectively.

2.3.2 Accessibility.

Internet is now made freely accessible to the public worldwide in an unprecedented scale. Numerous types of information and data that are found over the internet including information and data that are sensitive and/or implicate personal characters such as personal information are also now accessible to the public. Personal information includes names, social security numbers, mothers’ maiden names, identification numbers and credit card details. Furthermore, information technology has now made it easy to obtain personal information via online activity and the personal information and data collected could be stored and retrieved. For example, many websites use cookies to remember information relating to the user when the user log-in to access the contents in that particular website. The website can then use the information to keep the user signed-in without asking for log-in name or password again. This is for the purpose of

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95 Ibid
98 http://www.artbusiness.com/cookies.html Date Accessed: 24.06.2015
However, personal information such as names, passwords and other important personal information would be stored, recorded and retrieved through such website cookies.

Apart from massive amount of information and data that is accessible from the internet, the other aspect of accessibility is concern with the degree of accessible of a webpage. As most of the digital resource are arranged and presented from web page, therefore, accessibility of website and its’ contents is essential. Accessibility provides an equal access and equal opportunity to the people with disabilities such as communication disorder, hearing impairment, visual impairment and learning disabilities. The United Nation Convention on the Rights of Persons with Disabilities (2006) recognised that web accessibility was a basic human right. It was stated that:

Article 9 - Accessibility

“1. To enable persons with disabilities to live independently and to participate fully in all aspects of life, States Parties shall take appropriate measures to ensure that persons with disabilities gain access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility shall apply to, inter alia:

a. Buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces;

b. *Information, communications and other services including electronic services and emergency services.*101 (emphasis added).

A website is accessible when it follows the principles of accessible design.102 The following are just some examples of the principles of accessible design: website should provide alternative text in which it allows people who are blind to rely on a screen reader; website can be browsed by someone who may not be able to use a keyboard or mouse; website should have a clear, easy, understandable layout design and contents with the appropriate header, make screen reader easy to navigate and external links from the website should be relevant to its contents.103

The advantage of having an accessible web design is that its audience will be expanded to other users including those users with some form of impairments. Accessible website is able to accommodate a wider range of customers or audiences and hence increasing the number of people who can effectively use the website.104 This is important because if the website is not accessible or can only be accessed by a small number of people, it defeats the purpose of creating an internet and the World Wide Web in the first place which is the freedom of accessing and sharing information and knowledge.

### 2.3.3 Non-Rival.

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Digital resources are not only shareable but non-rival as well, which is one very important characteristic. A resource or a good is described as rival on the basis that it can only be consumed by only one person or one person at a time. Economists refer to such resource or good rival because consumption of such is competitive. For instance, a car can only be driven and be utilised by one person at a time.

A resource or good is non-rival in consumption if more than one person can consume the same unit of resource or good at the same time. This equally applies to digital resources. The use of non-rival resources or goods of one consumer will not decrease the potential consumption utility of other consumers. Digital resources are non-rival for reason that the use of digital resources such as browsing a web page it does not decrease the potential consumption utility of other internet users. Furthermore, copies of digital resources can be downloaded or made easily without any loss of quality or information in the resource in question. Since it can be replicated, identical copies can be made and it can be easily distributed when consent is secured. As digital resources can be stored on other medium such as hard drive of a computer or other storage devices, many parties can utilised such resources online as well as offline.

Non-rival and infinite expansibility are often used interchangeably. An economic object is described as infinite expansible when its use by someone does not physically

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111 Danny Quah, The Invisible Hand and the Weightless Economy, Centre for Economic Performance Occasional Paper No. 12 April 1996 - This paper was produced as part of the Centre’s Programme on National Economic Performance
detract from its usefulness to someone else.\textsuperscript{112} Infinite expansibility is very crucial in modern economy because it explain how an advanced economy can continue to grow. Thomas Jefferson has already recognised the importance of the infinite expansibility idea as early as 1813. In his letter to I. McPherson dated on the 13 Aug 1813, he wrote:

“If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of everyone, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density at any point, and like the air in which we breathe, move, and have our physical being ...”\textsuperscript{113}

Jefferson basically described infinite expansibility as “no one possesses the less, because every other possesses the whole”.\textsuperscript{114} Ideas by nature are “expansible over all space, without lessening their density at any point”. This appropriately describes some of the natures of digital resources on the basis that many ideas are actually embedded in

\textsuperscript{112} ibid
digital resources. Furthermore, digital resources can be used and shared repeatedly with indefinite number of users, quality and density of the digital resources will not be lessened or altered.\(^\text{115}\)

\subsection*{2.3.4 Utility.}

Another nature of resource is utility. Utility here means usefulness. Utility may mean the usefulness of a particular resource and the way of describing satisfaction for fulfilling specific want or need.\(^\text{116}\) Economists and Philosophers studied the rational of decision-making and described rational decision-making by means of an abstract concept called utility.\(^\text{117}\) Utility theory analyses the laws of values and choices of an individual. This is based on some ranking, on some specified scale of subjective welfare or any change in subjective welfare that an agent derives from an object (resource) or an event.\(^\text{118}\) Theorists who follow Samuelson stated that an ‘action’ is any utility-maximising selection from a set of possible alternatives, and a ‘utility function’ is what an economic agent maximises.\(^\text{119}\)

However, it is not easy to quantify utility or usefulness of a resource because it maybe subjected to many interpretations or different expectations. Hence, utility has often been discussed under the term ‘utility analysis’ which describes, predicts and/or explains

\(^{115}\) Claire Warwick, Melissa Terras, Isabel Galina, Paul Huntington and Nikoleta Pappa, *Library and Information Resources and Users of Digital Resources in the Humanities*, http://discovery.ucl.ac.uk/13807/1/13807.pdf Date of accessed: 24/06/2015 - Although in this paper, discussions were on Internet Resources use in the Arts and Humanities study, this paper argued that internet or digital resources are and shared repeatedly with indefinite number of users.


what determined the usefulness or desirability of decision options and to examine how that information affects decisions. In the context of human resources management, utility analysis is a quantitative method that estimates the dollar value of benefits generated by an intervention based on the improvement it is capable to produce in workers’ productivity.

Utility can also be measured in relation to diminishing return. Diminishing returns from the economics perspective means ‘smaller’ rises in output resulting from an increased application of a variable input, such as labour, capital or land. The increase in the average cost of production at certain point may not result in the increase of the overall scale of production. Diminishing return is a huge problem in the production industry as the output (product) decreases despite the increase of input. However, intangible digital resources do not have such diminishing returns because the creations of intangible or digital resources are not dependent on the variable input which affects the cost of production. Intangible or digital resources depend only on labour and efforts; intellectual creations and ideas. The multiple uses of the intangible over the internet would maximise profits or other earnings in an unprecedented manner. This is something that tangible resource, goods or asset can never achieve due to its physical status and nature.

One of the greatest benefits of information technology is to allow websites accessibility and able to accommodate a wider range of users or audiences hence increasing the number of people who can effectively use digital resources from websites.\textsuperscript{126} This is important because if a website is not accessible or only can be accessed by a small number of people, it would defeat the purpose of creating the internet and the World Wide Web in the first place which was the freedom of accessing and sharing information and knowledge.\textsuperscript{127} The degree of accessibility of traditional resource is constrained by such factors such as location, operation hours, rules and regulations and number of hard copies available. Resource of this type is not easily and conveniently available to those who need to utilise it.\textsuperscript{128}

2.3.5 Transferability

The significance of the information technology and the digital world has created a new file transfer system. This computerised or digitalised file transfer system improves data storage and file management. It saves a lot of paper work, makes transfer of and access to information and data in the files are done remotely. This is significant in the commercial world as well as other sectors because transfer and storage of digital resource has become increasingly important. The proper storage system helps to retrieve and access digital resource at any time of need.\textsuperscript{129} The system further facilitates advance development in various sectors and industries. When digital resources are being transferred and stored in the central server, those resources can be accessed and shared

\textsuperscript{127} ibid
\textsuperscript{128} ibid
\textsuperscript{129} For example, Google Cloud Storage Nearline is a low-cost, highly durable storage service for data archiving, online backup, and disaster recovery
among the users at the same time simultaneously. As digital resources are easily transferable, it contributes to the greater shareability and accessibility.¹³⁰

Not only data, information or files are transfer instantly, developments in online and mobile banking provides internet users with low-cost interfaces to manage electronic money transfers.¹³¹ It has become very popular and common in modern commercial transactions. Online banking, mobile money is a network infrastructure for storing and moving money that facilitates the exchange of cash and electronic value between various parties including clients, businesses, the government, and financial service providers.¹³² This network bringing together financial services providers; clients and providing them core functionality which they can use to transact and exchange different financial products.¹³³ Online transfer system and mobile money are able to give banks and other financial services providers a cheap way to outsource cash handling and deposit and withdrawal transactions.¹³⁴ Online transfer system and mobile money can also allow providers to serve clients at lower cost per transaction and with a reduced investment in physical infrastructure.¹³⁵

The growing popularity of online transfer system and online bill payment system is paving the way for a paperless world in which checks, stamps, envelopes, and paper bills are obsolete.¹³⁶ The benefits of online transfer system and online bill payment system reduce transportation or travelling costs, increased efficiency and simplified

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¹³¹ Jake Kendall, Philip Machoka, Clara Veniard and Bill Maurer, Legal Studies Research Paper Series No. 2011-14 An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem

¹³² ibid

¹³³ ibid

¹³⁴ http://www.moneysavingexpert.com/banking/foreign-currency-exchange

¹³⁵ http://www.moneysavingexpert.com/banking/foreign-currency-exchange

bookkeeping.\textsuperscript{137} Well-supervised online transfer system can be safer than alternatives, including cash. Stealing occurs in online transfer system is more easily proved and traced because each electronic transaction is recorded while stealing of cash may be harder to proof at times.\textsuperscript{138}

2.3.6 Replicable.

In fact the terms ‘replication’ or ‘reproduction’ should be used to describe the true nature of digital resources in the present context.\textsuperscript{139} When the term ‘transferable’ is used, it connotes that the resource is only capable of being transferred from one place to another. The resource has in fact been moved to different place. By using the words ‘transfer’ or ‘moved’, logically it can be concluded the original owner or holder of such resource no longer retain the resource. For instance when the physical books have been transferred from library A to library B, library A is no longer retain the physical possession of those books.\textsuperscript{140}

However, after the digital resources are ‘transferred’, the original holder of the digital resource is still in retention of the original copy of that digital resource. In fact, the digital resource ‘transferred’ is actually a replicated copy being transferred to the users’ computer or device and such replication allows many users to use and share the digital

\begin{footnotes}
\item[137] ibid
\item[138] Jake Kendall, Philip Machoka, Clara Veniard and Bill Maurer, Legal Studies Research Paper Series No. 2011-14 \textit{An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem} 
\item[139] Danny Quah, \textit{Digital Goods and the New Economy}, Centre for Economic Performance, London School of Economics & Political Science, March 2003
\item[140] ibid
\end{footnotes}
resource at the same time without depriving any of its use.\textsuperscript{141} The notion of transferability should means replication as identical copies can be made for specific purpose. That gives a new meaning to trading for it is no longer based on the physical exchange of goods which could be described as zero sum game but ‘reproduction’ and sharing requires the exchange instead.\textsuperscript{142}

2.3.7 Exclusivity.

Exclusivity is one of the crucial elements in the physical and corporeal property. The ability to exclude others from the property is one of the privileges enjoyed by the owner of the property.\textsuperscript{143} If the property in question is land; house or other tangible property such as personal chattels, the exclusive possession of such is to prevent others from entering or possessing the property concerned.

The notion of exclusivity is applied to some of the intangible resources. For instance, a Company’s confidential information is a form of intangible property that the owner of such would ensure that the company’s confidential information is exclusive. Exclusivity in intangible property is not only associated with possession but also its use or disposal. The exclusivity position or status of the intangibles affects its value. If an intangible’s value is very much depends on its scarcity, then the exclusivity of such make them more valuable. For example, from the share market perspective, the value of a company’s

\textsuperscript{141} ibid
confidential information that significantly affects that company's share price is dependent on its scarcity. This information about certain aspects of a company would have an impact on the company's share price if divulged. When it is yet to be released to the public, the person who exclusively holds the information may take undue advantage and make use of such information. Once such information which affects the stocks is made public, the information is rendered valueless.

The same exclusive principle as explained above may not be totally applicable to digital resources. Many digital resources such as website or contents of webpage are non-exclusive because these resources are meant to be shared with the public or internet users. However, to a certain extent, the creator or producer of the digital resources may retain the ability to exclude such designated user or consumer from the accessing the digital resources by incorporating its password or log in the system to enable accessing the digital resources. The availability of digital resources is exclusive to those who have the special code or login. The issue of exclusion in digital resources will be discussed in greater details with the common property institution in Chapter 4 of this thesis.

However, digital resources can be replicated and identical copies can be made, anyone who gain access to the digital resource or obtain the contents will be able to retain a copy of such and could potentially become the new supplier of the copied digital resource. When it occurs, the owner of the original digital resource would not be able to control any further replication and reproduction of the copied digital resource. As more and more people get hold of the digital resource from the others who own a copy of it, the original owner or producer is less able to exclude anyone from using the resource or

It is difficult to control all the subsequent replicated copy owner or holder. Hence there will be a sharp decrease in the degree of excludability. When it occurs, only the first unit of such is excludable. The expansible and non-rival nature of resources in cyberspace significantly contributes to the non-exclusive nature of digital resources and goods. As such, digital resources are generally regarded as non-excludable. This proposition was supported by Danny Quah. In his article, he described digital goods as follows:

"Excludability [...] can arise from the law or from technology or from both, but it is not itself intrinsic to digital goods."

From the above passage, it suggested that digital goods or in the present context apply to digital resources, digital resources by nature are non-exclusive. It is from the law, man-made rules or the technology that makes them ‘exclusive’ in order to fulfill the desire of its owner or creator in protecting and safeguarding the digital resource in question. Resources are meant to be shared such as natural resources are accessible to all. Likewise, it is submitted that many digital resources are meant to be shared and used by internet users. However, the issue arises when digital resources are infinitely reproduced and instantaneously distributed all over the internet without cost then the question would arise as to how would the creators of such digital resources secure the appropriate incentives to create further or more advanced digital resources and to protect them appropriately? Therefore, it is important to ensure that the creators or

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146 For example, in the law of copyright, there is this doctrine called the First Sale Doctrine. This doctrine limits certain right of the copyright owner. This doctrine enables the distribution chain of copyrighted products, library, video rentals and secondary markets for copyrighted works. Once the copyright work is lawfully sold or transferred gratuitously, the copyright owner's interest in the material object in which the copyrighted work is embodied is exhausted. This doctrine creates an exception to the copyright holder's distribution right.

holders of digital resources do possess effective control of their respective creations. (That is one of the paramount reason of propertisation of digital resources and application of Common Property Institution as to why they are being proposed in this thesis so as to provide the necessary control for the creators of digital resources). In the absence of such control, there is no incentive for digital resources creators to create or contribute any or enhance existing digital resources. Therefore in designing; considering; proposing and enacting rules to protect and to control digital resources, one must necessarily bear in mind the non-exclusive nature of digital resources and most importantly the objectives for the creation of the internet in the first place.

One may further elaborate on the above issue through the Online Creation Communities (OCC). OCC are defined as a “collective action performed by individuals that co-operate, communicate and interact, mainly via a platform of participation in the Internet, with the goal of knowledge-making and whilst the resulting “outcome” remains freely accessible as a public good and collectively owned.” 148 The purpose of having such an online creation community is for the sharing of knowledge and that such knowledge should be freely shared and accessible to the public. 149 However, it is submitted that when creative work in OCC are infinitely reproduced and instantaneously distributed all over the internet without cost, there is no incentives for creators to create or to discover more knowledge as they will not be renumerated for their work invested. Likewise, it is essential to establish a system that is able to secure or facilitate creators or contributors and to secure incentives for them when users are

provided with the usage of their digital resources yet maintaining the greatest purpose and objective of having a sharing online community.

2.4 Problems Associate with Common Characteristics leading to Unregulated Digital Resources.

Some of the common characteristics of digital resource have made digital resources vulnerable to many different kinds and levels of misuses and abuses. The followings are some of the examples and observations in relation to the problematic common characteristics leading to unregulated digital resources.

2.4.1 Accessibility.

Stealing of personal information is primarily for the purpose of facilitating the commission of other crimes or wrongful financial gains or to secure an advantage. An example of this is identity theft. Identity theft is not a new crime for it has existed long before the internet era. However, with the creation of the internet and the increased use of the databases for storing consumers’ information it has facilitated perpetrators in gaining speedier access and to greater amount of individuals’ information at one time. Internet has made it easier for the criminals to manipulate personal information at anytime and potentially hundreds or thousands of personal information that are available over the internet are at risk.

2.4.1.1 Personal Information, Identification Data and Location Data.

150 Thieves used low-tech methods to obtain and misuse people’s credit and identification information such as simple pick-pocketing or stealing pre-approved credit card applications from mail boxes.
Phishing and spoofing are the main categories of techniques often engaged to “steal” information. These perpetrators set up fraudulent or fake emails / websites to facilitate their thieving activities. They often resort to scare tactics to capture the recipients’ immediate attention. Recipient will then be requested to key in their personal information. The recipient will then be provided with a hyperlink that supposedly takes them to the company’s website. But instead the hyperlink directs the recipient to a bogus website that appears on screen identical to the legitimate company website. Once the perpetrators have obtained the targeted personal information they would be able to gain access to the user’s account to pursue their illegal activities including the transfer of funds from the user’s bank accounts. Personal information such as usernames and passwords, credit card details or other personal information are now made available for sale or trade by those phishers to those who are interested in them.

Such was the case of CD Universe which illustrated the commission of the theft of a portion of its customers’ data from the Company’s database. On the 10th January, 2000, CD Universe’s customers’ credit card database containing some 300,000 of its customers’ credit card numbers were hacked into by Maxim. The hacker later posted approximately some 25,000 credit cards’ information on a Web site after failing to extort at least US$ 100,000.00 from the music retailer. Similarly, in the case of Travelocity, a famous online travel agent had experienced a security breach which exposed the personal information of thousands of their customers in its data bank. Up to 51,000 names, addresses, telephone numbers and email addresses of Travelocity’s customers who participated in a sales’ promotion drive on its site were exposed. Although the company stated that the hacker did not gain access to any of its customers’

151 For instance, messages that contain warnings that any failure to response to the emails or to update personal information as stipulated may result in the closure of email recipient’s bank account
152 Criminal Threats to E-Commerce 57, INTERPOL, Jan. 2001
credit card numbers from its database, the damage was already inflicted for it has exposed many of the credit card holders to the potential risk.

The victims of both the phishing attacks and identity thefts would likely lead to real financial losses. However, apart from real financial losses, these crimes would also result in the victims’ loss of valuable time and money spent trying to rebuild from scratch to restore the victims’ credibility and good name.

Such acts of obtaining by fraudulent processes or illegally obtaining of such personal information and data have been criminalised. The act of phishing and spoofing are punishable under the various jurisdictions’ respective laws.\textsuperscript{154} However, the concern is in cases of phishing and spoofing in that there is no provision under their respective laws in protecting personal and financial information that has been illegally obtained.

The Malaysian Personal Data Protection Act, 2010 has been enforced since 2013. The Malaysian 2010 Act applies only to collection of data in commercial transactions by data users. There are many data capable of being collected not via commercial transactions but also in relation or in furtherance of employment; educational; professional or welfare purposes. In those instances, the Malaysian 2010 Act is not applicable. There is no such limitation in the other countries such as The United Kingdom.

\textsuperscript{154} For instance, in United Kingdom, The Computer Misuse Act 1990 in which it introduced the three new offences namely, unauthorised access to computer material (hacking); unauthorised access to computer material with the intent to commit or facilitate the commission of further crime and unauthorised modification of computer material. In Malaysia, the Computer Crime Act 1997, Section 3, 4 and 5 deals with unauthorised access to computer material, unauthorised access with intent to commit further offence and unauthorised modification of the contents of any computer. As for spoofing, it is punishable under the Malaysian Penal Code, Section 420 deals with cheating and dishonestly inducing the delivery of property.
Furthermore, in cases of identity theft, it is difficult to establish identity ownership.\textsuperscript{155} The issue often arises as to who own the personal information such as identity card number, credit card number and login identification. Not only that, it is also an uphill task to ascertain and apprehend the person who actually used the identity in the course of commission of crime as this type of crime can be committed remotely from any part of the world.\textsuperscript{156}

Another problem of accessibility of digital resources is associated with location data. Location data is another type of resource that can be easily found and accessible through the use of electronic devices or in cyberspace.\textsuperscript{157} Location data is stored in a file that is unencrypted and unprotected in mobile devices. Because of that, the location data can be easily accessed by the others.\textsuperscript{158} Anyone who gains access to these unencrypted and unprotected file knows where the mobile device user has been over a certain period of time. By tracking the location data of mobile phone users, the data would reveal the movement and proximity of mobile user.\textsuperscript{159}

However, most of the mobile users have little knowledge about the location data. Location data, similar to other types of information and data have drawn little attention for legal protection as they are considered as merely raw data. Many users do not even know that their location data is being recorded and stored in their mobile devices. People think that location data (or mobility data) are simply anonymous data that do not contain names, home addresses, phone numbers or other obvious identification. Such

\textsuperscript{156} ibid
\textsuperscript{159} https://www.aclu.org/cases/cell-phone-location-tracking-public-records-request Date Accessed: 25.06.2015
data do not significantly implicate who the data relate to. But yet individual pattern and life styles are unique enough and the data can be used together with other personal data to link back to an individual. The location data reflect the mobile users’ personal life; daily routine; health condition and shopping habits. Furthermore, tracking and unauthorised collection of location data allow the perpetrators to track the victims’ routines. Potential danger may ensue if it has been tracked and collected by the wrong hands. Location data may facilitate the commission of serious crimes such as blackmailing or kidnapping because the offender would know exactly the whereabouts and the daily routines of the targeted victim.

Tracking location data of mobile phone users has now become a serious concern. The authority and the public are concern over the collection of such location data as demonstrated in the case where the South Korean’s Regulator fined Apple over the iPhone location datas. The Korean Telecommunication Regulator imposed a hefty fine of Three Million Won [3,000,000.00 Won] on Apple Inc. for collecting location data without permission from iPhone users which infringed the privacy law of the country. The Korean Communication Commission said that it was illegal to store hand phone users’ locations without data encryption. This case has set a precedent for other jurisdictions in cases concerning location data.

The European Union also expressed similar concern over the storage of location data and stated that these records of location data raises the privacy issues in that data that

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160 Yves-Alexandre de Montjoye, César A. Hidalgo, Michel Verleysen & Vincent D. Blondel, Unique in the Crowd: The Privacy bounds of Human Mobility, Scientific Report 3:1376 DOI: 10.1038/srep01376
161 Yves-Alexandre de Montjoye, César A. Hidalgo, Michel Verleysen & Vincent D. Blondel, Unique in the Crowd: The Privacy bounds of human mobility, Scientific Report 3:1376 DOI: 10.1038/srep01376
identify mobile phone users' locations should be classified as personal data and should receive a high level of protection.\textsuperscript{164}

It is to be noted that data protection laws have been enacted in many countries. The law requires the data user; data controller or related parties to process; use and store personal information in a fair; proportionate; secure and justified way. However, there is no uniformity among the Nations in the existing data protection laws. Some countries may have a more comprehensive laws relating to data protection than other countries. It will become a problem in cases of transfer of data occurring across international borders. Jurisdictional issues may arise as each country has a different level of protection. Parties to the litigation may opt for forum shopping in order to seek for a country that has either a higher level or lower level protection to their advantages.

\textbf{2.4.1.2 Hyperlink.}

One of the greatest functions of the World Wide Web that was created was for the purpose of enabling hypertext capabilities by facilitating sites to hyperlink (link) to others to enhance greater accessibility.\textsuperscript{165} Through hyper-linking frames they enable the users to simultaneously view different website locations within a framed area displayed on a single computer screen.\textsuperscript{166} When a link instructs the visiting browser to retrieve images from the other websites, the images retrieved are grouped together to form a new webpage. Although images are not stored in the new webpage but the issue of whether this new webpage has created a derivative work that is based on pre-existing

\textsuperscript{164} The European Union's data protection watchdogs to the European Commission - http://www.theregister.co.uk/2011/05/17/phone_users_location_should_be_protected_data_say_watchdogs/

\textsuperscript{165} http://www.linfo.org/hyperlink.html Date Accessed: 25.06.2015

\textsuperscript{166} http://www.linfo.org/hyperlink.html Date Accessed: 25.06.2015
images which may amount to copyright infringement. The use of such frame may mislead the viewer as to the creator of its content. In Shetland Times v Willis, it was believed to be the first case challenging the validity of hypertext links. The issue in this case was whether "deeplinking" to internal or embedded pages of the Shetland Times' ("Times") web site by the Shetland News ("News") through the use of the plaintiff’s web site's news headlines was an act of copyright infringement under the United Kingdom's Copyright Designs and Patents Act of 1988. It was held that the use of third party trademarks to link to other sites could constitute a breach of the trademark protection.

Apart from copyright infringement, the issue of violation of trademark law also arises when the link may appear in such a way that would to create an impression that the website involved endorsed the linking website as part of it. O’Rourke in his article ‘Property rights and Competition on the Internet’ stated that “the fairness argument indicates that the issue is not whether linking requires permission; indeed, it does not. Rather, the issue to be addressed is how to define what a reasonable amount of linking to be expected from a single source is. The legal rule defining property rights on the Internet could safeguard the defining feature of the web while also protecting site owners from burdens on their servers that exceed reasonable expectations.”

The implication of this argument for this thesis is that defined property rights are able to assist, define and safeguard features of a web. As trademark law is designed to prevent confusion in the market place and to ensure people do have the control over

167 https://www.chillingeffects.org/topics/18?print=yes Date Accessed: 25.06.2015
168 1997 SC 316
169 Maureen A. O'Rourke, Legal Issues on the Internet, Hyperlinking and Framing, D-Lib Magazine April 1998. ISSN 1082-9873, Maureen A. O'Rourke, Fencing Cyberspace: Drawing Borders in a Virtual World, 82 Minn. L. Rev. 609 (1998), also refer to O'Rourke, M., 'Property rights and Competition on the Internet’ 16 Berkeley Tech L.J 561, stated that “the fairness argument indicates that the issue is not whether linking requires permission; indeed, it does not. Rather, the issue to be addressed is how to define what a reasonable amount of linking to be expected from a single source is. The legal rule defining property rights on the Internet could safeguard the defining feature of the web while also protecting site owners from burdens on their servers that exceed reasonable expectations.” at p617
170 See Chapter 5 of this thesis for the use of this argument
their own businesses and businesses’ identities.\textsuperscript{171} Linking could become a serious problem in the absence of clear guidelines for linking and an even field for fair play of using contents in providing such links within the modern internet business practices.\textsuperscript{172} Although linking is initially created for the purpose of enabling hypertext capabilities to link to with other websites, it has, however surfaced that the implication of endorsement and association for the function of linking has gone beyond technical capability and convenience. Unauthorised linking has affected the commercial image and raised the issue of royalties.\textsuperscript{173}

Other legal issues in relation to linking was illustrated in the case of Ticketmaster Corp. v. Tickets.com Inc.\textsuperscript{174} In that case, the Ticketmaster Online-CitySearch Inc. and its majority shareholder Ticketmaster Corp. operated a web site offering event tickets that Ticketmaster had an exclusive right to sell. The website's home page also featured advertisements and directories of interior event pages containing basic information such as the concert's venue, schedules and artistes’ details. They also included information about how to purchase online tickets through the website or by other means. A suit was filed against their rival company, Tickets.com, who featured in its website “Thousands” of links that transported (re-directed) consumers to selected event pages deep within Ticketmaster's own site, bypassing Ticketmaster’s home page and other pages.

\textsuperscript{171} Refer to Ida Madeha Bt. Abdul Ghani Azmi, Trade Marks Law in Malaysia, Sweet & Maxwell, 2004
\textsuperscript{173} Blogging journalists in Denmark protected over the renewed effort by Danish newspaper publishers to stop websites like Google news from linking to individual articles rather than a newspaper's homepage. Regardless of what is considered normal practice around the world, the Danish Association of Newspaper Publishers insist they only want links of a homepage (rather than the contents of homepage) in order to have better control. http://globalvoicesonline.org/2008/11/22/denmark-deep-linking-under-fire-by-newspaper-publishers/
\textsuperscript{174} 2000 U.S. Dist. Lexis 4553 (C.D. Ca., March 27, 2000)
The suit alleged that through the use of automatic software “spiders”, Tickets.com systematically copied and extracted protected editorial material from Ticketmaster online's event pages and had it placed in a new form on Tickets.com’s pages. The suit also alleged Tickets.com of publishing false and misleading information about Ticketmaster's ticket availability. Ticketmaster contended that Ticket.com’s deep linking was wrongful and harmful because it interfered with its economic relationship between its advertisers who had paid Ticketmaster a retainer for advertising on Ticketmaster’s home page. Ticketmaster further contended that Tickets.com was guilty of ‘passing off’ and ‘reverse passing off’ which amounted to unfair competition because consumers might confusingly conclude that Ticketmaster and Tickets.com were connected in ways which is detrimental to Ticketmaster.

The Court in this case held that ‘hyper-linking’ (without framing) does not in itself contravene the provisions of the Copyright Act and since no copying was involved in that the customer (internet user) was automatically transferred to the particular genuine web page of the original author. There was no deception and nor would it amount to misappropriation, trespass, unfair business practice or unjust enrichment claims under the state law particularly on the basis that each Ticketmaster’s event page was clearly identified as belonging to Ticketmaster. Furthermore, the link on the Ticket.com site to the Ticketmaster event page contained the following notice: ‘Buy this ticket from another online ticketing company’. With this notice, it is difficult to argue that it amounted to a violation under 17 U.S.C. § 106(5) accordingly.

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175 Passing off refers to deceptive marketing in which one party attempts to “pass off” its goods or services as those of another
176 Subject to section 107 through 122, the owner of the copyright under this title has the exclusive rights to do and to authorise any of the following:
   “in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly”
The Defendant in the above case was held not liable on the basis that in their respective links, they have clearly indicated the Plaintiff’s event page with the appropriate notice to its users. The decision of this case has established a precedent that the act of deep-linking or hyper-linking in itself does not violate copyright law and other areas of law such as misappropriation, trespass and unfair business practice. However, it is doubtful whether such precedent can be applied across the board especially in the circumstance in which the linking website has the necessary intention to create confusion on the online customers or has misdirected the online customers to other websites.

The above precedent should be adopted and followed in Malaysia. The principle of law remains the same is that in general the act of deep-linking or hyper-linking in itself does not violate copyright law and other areas of law such as misappropriation; trespass and unfair business practice. However when the court is able to establish the intention to create confusion to online customers or to take advantage of hyperlink for wrongful purposes, it is submitted that this type of linking should not be encouraged and ought to be regulated by the law.

Currently there is no substantive law to regulate hyperlink or deep linking in Malaysia. The Service Provider of the website may set its terms and conditions for linking under the terms of use of the respective website. An example of this was illustrated in the Malaysian Bar Council’s website in which the terms of usage are stated in the following conditions in relation to linking of their website:

“LINKS TO MBAR WEBSITE

While you may place a link to our main page and not to any other web pages on your website provided your site does not promote profanity, pornography or
unlawful purposes and is not involved in any illegality, we do not, however, permit any deep-link to our web pages. (emphasis added)

THIRD PARTY’S LINKS AND ADVERTISEMENTS ON MBAR WEBSITE

If you wish us to have a link to your website on the Mbar (The Malaysian Bar) Website, you must first seek our prior express consent subject to our rights to charge, if necessary, a fee for such purpose. (emphasis added)

The MBAR Website may contain links to third parties’ websites or advertisements from third parties to which the MBC (The Malaysian Bar Council) and the MBAR Website have no control or interest. However, this is not to be construed in any wise whatsoever as MBC endorsing such websites or advertisements or any of their contents. Neither does it indicate a relationship between MBC and that third party or any products or services which that third party is advertising on the MBAR Website or that party's website. (emphasis added)

In addition, it is hereby declared that the appearance of any third party's links or advertisements on the MBAR Website does not indicate or imply whatsoever that the MBC and the MBAR Website represent or warrant that that third party's website and the products and services it is advertising on the MBAR Website have complied with the relevant laws governing its business or the contents of its website.
The MBC hereby repeats all the above disclaimers *mutatis mutandis* to your using such links to access or visit such third parties’ websites.  

It is submitted that the conditions to link should be regulate and manage under the proper law rather than leaving linkages unregulated as shown in the website of the Malaysian Bar Council regulating the usage and access of its website which would contain the terms of use in a website as part of a contractual obligation.

When linking involves issues of copyright infringement or trademark violation, copyright law and trademark law applies. The **tort of passing off** applies in circumstance when there is a claim relating to unfair business practice over the internet as the result of unauthorised linking. The tort of passing off may be applied to prevent one party from using the goodwill associated with another party for their own benefit. The tort law principle requires the Plaintiff to prove:

1. the existence of goodwill;
2. it would involved *two similar products* or services in which the misrepresentation by the Defendant to the public has the effect to induce the public to believe or likely to believe that the products or services offered by the Defendant are those of the Plaintiff and
3. that the Plaintiff has suffered or likely to suffer damage as the result of such misrepresentation.

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177 http://www.malaysianbar.org.my/terms_of_use.html Date Accessed: 25.06.2015  
179 Ed Heerey and Peter Creighton-Selvay, *Trade Marks and Passing Off – Has the Old Tort Passed On?*  
The basis for the tort of passing off for an unfair competition created by hyperlink is that it would make unfair use of the controller’s trade reputation by leading viewers of the web page containing the link to believe:

(1) That the linked-to-resources are the work product of the proprietor of the referring page or
(2) That the controller of the linked-to-resources has some business connection with the proprietor of the referring page.180

Furthermore, the concern in linking is whether securing the required consent and permission to link should be required by the law and not to be regarded as merely part of the netiquette. Currently, there is no substantive law to regulate the obtaining of consent and permission to link in online environment. Neither is there any law prescribing the procedures and requirements in seeking such consent and permission to link in cyberspace. There is also no specific remedy in cases of wrongful association or implicit endorsement resulting in serious damage in commercial image or reputation of a company as the result of wrongful association or unauthorised linking.

However, in cases of wrongful association or implicit endorsement through linking in cyberspace, it is not necessary that there are two similar products or services and the defendant need not convince the public that the products or services are of the plaintiff. Therefore, it is submitted that the tort of passing off for unfair competition ought not to be applied to every case in linking when linking only result in wrongful association or implicit endorsement which do not involves two similar products or services.

180 ibid
2.4.2 Transferability.

The greatest benefit of transferability over the internet is its ability to facilitate the transfer with ease and speed and to share information and data instantly among different parties without geographical limitation as long as there is connectivity to the internet services. However, transferability itself also brings with it an undesired negative impact when the facility is used for the wrong purpose. This can be explained in the context of company information. Company information is protected under different laws. When company information is regarded as confidential information, the common law on confidentiality applies. The common law on confidentiality provides remedy for the unauthorised disclosure or use of information which is confidential that has been entrusted to a person in circumstances which either expressly or implicitly imposes an obligation of confidence.\footnote{Brearley and Bloch: Employment Covenants and Confidential Information, 3rd Edition, Online book http://uk.practicallaw.com/books/9781845920418 Date Accessed: 17.07.2016}

In Malaysia, the principles dealing with employee’s duty in relation to confidential information are as follow:

(1) Where the parties are, or have been linked by their contract of employment, the obligations of the employees are to be determined by the terms and conditions as contained in the contract itself between him and his employer;

(2) In the absence of any express terms, the obligation of the employee in respect of the use and disclosure of information is the subject to implied terms inter alia a duty of good faith or fidelity;
(3) Whilst the employee remains in the employment of the employer the obligations are included in the implied terms which imposes a duty of good faith or fidelity on the employee;

(4) The implied term which imposes an obligation on the employee with regards to his conduct after the determination of the employment is more restricted in its scope than the general duty of good faith imposed on an employee who is still in the employment of an employer. It is clear that such obligation would extend to secret processes of manufacturing and chemical formulae, designs or special methods of construction and other information which is of a sufficiently high degree of confidentiality as to amount to a trade secret. However it does not cover all information acquired and in particular it may not cover information which is only confidential in nature only, and in respect of which an unauthorised disclosure would only breach the duty of good faith, whilst the employment subsisted (probably not after the employment contract has been terminated) and

(5) In order to determine whether any information falls within the implied term so as to forbid its use or disclosure after employment has ceased, it is necessary to consider all the circumstances of the case for example:

(a) the nature of the employment, thus if the employee habitually handles confidential information, this would impose a higher obligation of confidentiality on that employee;

(b) the nature of information itself in that it must be a trade secret; or

(c) whether the employer has impressed upon the employee the confidentiality nature of the information;
(d) whether the relevant information can be easily isolated from other information which the employee is free to use or disclose.\textsuperscript{182}

Despite the company information is protected under the employment law and duty of good faith, a company would find it very difficult to maintain a claim against its employee or others if the company has no standing operation procedure or system or protocol to allow or restrict access of company information or to have ‘information classification policy’ to define what amount to company’s sensitive material.

One of the challenges in dealing with such type of cases is to decide what kind of information is accessible. In order to do that, it is important to define exactly what information and data within the company that would be legitimately considered as ‘confidential’ and which type of information should be considered as general or public information. These information should be clearly described, stated and to include clauses pertaining to confidentiality and proprietary of information and to make references to the applicable law when defining the scope of the terms and conditions of employment. The extent of information and data a company would make available for access by new employees in order to prevent blatant exploitation in the future.

To keep confidential information or trade secret well protected during the course of employment, employer must ensure that the employee signs a non-disclosure agreement. If the employee discloses trade secret or confidential information of a company to any third party or makes use of such restricted information then that action

\textsuperscript{182} Halsbury’s Laws of Malaysia, Volume 7, 2007
would amount to a breach of confidence and breach of contractual term under the non-disclosure agreement and the employer may take civil action against them.\textsuperscript{183}

Furthermore, when will information be classified a trade secret in trade secret law, the problem is that the trade secret’s owner cannot stop anyone from inventing the same trade secret independently. If another person patents the trade secret “invented subsequently”, it will even prevent the first trade secret owner from using it until the registered patent expires.\textsuperscript{184} In order to protect the trade secret, the trade secret owner must provide the necessary and suitable documentation to prove that he has been using the trade secret in commerce for more than a year prior to the others who has patented it. Otherwise, there is no other way to stop subsequent trade secret owner or owner of the patent from using the trade secret or patent.\textsuperscript{185}

The issue of trade secret or confidential information may complicate even further when the trade secret or confidential information is obtained and stored in digital form. As this form of digital resource is easily transferred over the internet, employee could offer the company’s trade secret on the web for sale. The assumption in this thesis is that digital resources need protection as a form of property against other private sector based interests and choices. However, it is acknowledged that the most publicised threats to private digital resources in recent times have been state threats. For example, the case of Edward Snowden, who revealed highly sensitive United States techniques for gathering foreign intelligence was a great threat to national security.\textsuperscript{186}

\textsuperscript{183} The trade secret owner may seek a court order (injunction) against someone who ‘steals’ the company’s confidential information in order to prevent further using same; transferring or disclosing it to another.


\textsuperscript{185} ibid

The impact of public interest and how they would relate to propertised interests is not addressed in this thesis because such information is considered state intelligence and not property that can be owned by individuals.

Once the trade secret hit the web, not only the trade secret is no longer a secret, the owner of the trade secret would be left with meaningless remedy. This is because when an employee posts the company’s trade secret on the web, he/she may be liable for breach of confidence or misappropriation.\textsuperscript{187} However, the party who merely download the trade secret or confidential information cannot be liable as there is no misconduct involved.\textsuperscript{188} The common law on confidentiality does not apply to the web user because there is no relationship or obligation arising under such circumstance. There is also no non-disclosure agreement between the employer (owner of the trade secret) and the web user who downloaded the trade secret from the web.

It is clear from the above analysis that the law of confidentiality, employment non-disclosure agreement, duty of good faith may make employee or ex-employee responsible for the unauthorised disclosure of company information. However, the laws as mentioned above cannot prevent a third party who has obtained the company information as confidential information or trade secret via online and uses such confidential information or trade secret as explained above. With the convenience of the internet, confidential information and trade secret can be disseminated or transferred in

\textsuperscript{187} For instance, under the Uniform Trade Secret Act (Drafted by the National Conference of Commissioners on Uniform State Laws, as amended 1985 ) Section 1 (2) ‘Misappropriation’ means:
(i) acquisition of a trade secret of another by a person who knows or has reason to know that the trade secret was acquired by improper means; or
(ii) disclosure or use of a trade secret of another without express or implied consent by a person who (A) used improper means to acquire knowledge of the trade secret, or (B) at the time of disclosure or use knew or had reason to know that his knowledge of the trade secret was (I) derived from or through a person who has utilised improper means to acquire it, (II) acquired under circumstances giving rise to a duty to maintain its secrecy or limit its use, or (III) derived from or through a person who owed a duty to the person seeking relief to maintain its secrecy or limit its use, or (C) before a material change of his position, knew or had reason to know that it was a trade secret ad that knowledge of it had been acquired by accident or mistake.

http://www.nsi.org/Library/Espionage/usta.htm

a split of a second globally.\textsuperscript{189} The victim of such theft of trade secret or confidential information faces the same dilemma as the victim of theft of personal information in that the relevant laws does not provide any provision to allow the victim to prevent future use the information in question. There is no provision to prevent a non-related or even bona fide third party who is in possession of the confidential information or trade secret from using such information.

2.4.3 Non-exclusive.

Non-exclusive is one of the peculiar natures of digital resources. However, when one digital resource is exclusive and the other is not, protection is always given to the exclusive one rather than the non-exclusive one. Example of this situation arises between trademarked words used in domain name. In Mueller’s book, the theoretical framework of institutional economics is used to analyze the global policy and governance problems created by the assignment of Internet domain names and addresses.\textsuperscript{190} When there is competing interest between a trademark owner and a domain name owner, in most cases, trademark owner would prevail as the law and trademark system have already been established for such protection. The domain name’s owner is in a less advantage position because there are no specific laws regulating the use of domain names together as compared with other system of law such as trademark system.

\textsuperscript{189} On a comparative note, transferability and instant dissemination of digital resources play a central role in facilitating the commission of transnational organised crime (TOC) which is far more serious than breaches of confidentiality or misuse of trade secret. Transnational organised crime has increasingly become a growing threat to national and international security. The transferable nature of digital resources facilitates the expansion of criminal networks nationally and at international level. Money laundering over the internet is one of the examples. Illegal funds can be transferred from one account to another via the internet instantly without physically going to the bank or the transfer of physical cash or equivalent. It also facilitates diversification of criminal activities and would allow those activities to be carried out in a new medium.\textsuperscript{190} For example, money laundering can be committed via internet from someone who works from home. This would post a real challenge to enforcement agencies because internet transaction is not easily traceable especially at international level.

\textsuperscript{190} Mueller, M., Ruling the Root: Internet Governance and Taming of Cyberspace (MIT 2004) in which the book uses theoretical framework of institutional economics to analyze the global policy and governance problems created by the assignment of Internet domain names and addresses.
2.4.3.1 Domain Name

Domain name or domain name system is the most recognised system for assigning addresses to Internet web servers. The domain name system assists greatly to give every Internet server a memorable and easy-to-spell address. Every company or organisation wants to own and register a domain name as their on-line identity or a name that their clients will use to access on-line services such as organisation's website or email system. The domain name should be the same or very similar to the name of the company or organisation. For instant, the Malaysia Airline System’s website domain name is www.malaysiaairlines.com. Domain name system and trademark system are two separate systems. Most of the cases always concerned trademark name that has been used by the others as a domain name without prior authorisation.

In cyberspace, a violation of trademark occurs when others used the registered trademark as their domain name or its registered trademark contents on their web page. If the trademark violation occurs as contents on the web page, it is similar to a trademark violation established in the physical world. The issue that frequently arises is whether attempts to register domain names that contained a protected trademark are considered as violations. There are also a great deal of litigations in the area of

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191 https://support.microsoft.com/en-us/kb/237675 Date Accessed: 27.06.2015
193 Trademark is a sign which serves to distinguish the goods or services of an industrial or a commercial enterprise to that of another and if a company has legally acquired a particular trademark for its business, the trademark will be used to represent the company, its goods or services, whether offline or online, refer to Ida Madieha Bt. Abdul Ghani Azmi, Trade Marks Law In Malaysia, Sweet & Maxwell 2004 for general reading
trademark violations where there were alleged to have occurred not only within the
domain name but also within the Uniform Resource Locator (URL) as well.

In many cases, domain name owners who have usurped trademarked names have been
forced to surrender their registered names. The use of domain name under its URL
shared registration system has been established. However, such shared system does
not operate outside the URL system. The domain name is not exclusive if it is outside
the URL system. This is one of the disadvantages of being non-exclusive. Contrast this
with trademark system in which it prevents any party, whether online or offline to use
the trademark or name without the consent of its owner. This proposition implicates
that trademark law and its registration system take precedents over the domain name
registration. Domain name system has never been intended to cope with the trademarks
system. Its main purpose is to provide an easy device of recalling of certain websites.
Nevertheless, with the frequent and widespread use of domain names by the
commercial and business world, domain names are also being frequently used for
marketing and promoting purpose and as a result this have made the domain name
system of the internet a real potential threat to trademark owners. The issue is will the
use of URL containing registered trademark of another amounts to trademark violation?

195 The URL basically consists of two main parts namely, a short protocol identifier such as ‘http’ for viewing a web page, ‘ftp’ for
transferring files over the Internet and ‘mailto’ for transmitting emails and a resource name which specifies the actual file address,
including the domain name or the IP address where it is located and the exact pathname to that file. The portion of the URL other
than the domain name is referred to the sub-directory.

196 For instance, Internet Corporation for Assigned Names and Numbers (ICANN) is a newly-formed; private and non-profit
corporation oversees the transition of competition under the shared registration system. Some of the ICANN’s responsibilities
included establishing and implementing a procedure for the Registrar’s accreditation that would ensure a transition to a
competitive domain name registration system providing continued Internet stability and domain-name durability.

197 Trade Marks Act, 1976 (Act 175) Laws of Malaysia

198 Raghuvanshi Raghvendra Singh, Domain Name Policy – A Threat to Trade Marks, IDEA: The Intellectual Property Law Review,
Forthcoming, Available at SSRN: http://ssrn.com/abstract=935097; also refer to Bygrave, L. and Bing L. Internet Governance,
Infrastructure and Institutions (OUP, 2009)
This is illustrated in the case of Patmont Motor Werks, Inc. v Gateway Marine, Inc., et al. Patmont manufactured small, motorised scooters under the federally registered trademark ‘Go-Ped’. Gateway Marine, Inc., a Missouri corporation, marketed power boats to customers in the St. Louis area. In January of 1996, Patmont learned of a World Wide Web site offering ‘Go-Peds’ for sale. Patmont alleged that the website and its associated URL as well as certain e-mail addresses had infringed on Patmont's Go-Ped’s trademark. Ronald DeBartolo, the founder and principal of Gateway Marine Inc responded to the allegation and said that he has no knowledge of the website in question. It was his son, who has been purchasing and reselling Go-Ped without the necessary authorisation.

The parties subsequently entered into negotiations regarding on the use of ‘Go-Peds’ which resulted in the conclusion of a non-exclusive licensing agreement containing a term that prohibited the licensee from using the Go-Peds mark ‘in any of its e-mail addresses, or any key word designation on any internet server.’ As the parties professional relationship deteriorated, Patmont finally filed suit against both Anthony DeBartolo (the son of Ronald DeBartolo) and Gateway, asserting numerous federal and state trademark claims, as well as claims for breach of contract and libel. The Federal Judge in California has ruled that such internet usage is entitled to less protection than the domain name because it is merely descriptive and does not entail the likelihood of confusion in comparison to the domain name usage. The court decided based on the understanding that URL, as well as certain e-mail addresses was being used technically to recall a particular web page or content of a website and it does not entail the likelihood of confusion. This is one of the older cases in which the court has

200 Complaint, Exh. D, Para. 3(c)
undermined the importance and effect of domain name and it’s URL in the modern commercial world.

With the increase of commercialisation over the internet, many businesses seek to establish their presence in cyberspace by registering domain names that incorporate their identities. It has created serious problems because the registration of domain names and the register for trademarks are of two distinct systems. Trademark owner may not be able to incorporate its identities in their domain names because their particular ‘names’ has been taken. Legal action may be initiated in alleging the infringement of the trademark but the application of trademark law has not been extended to cover the allocation of domain names in the internet world. As such there exists serious conflict between the trademark and the domain name registration.

The problems between trademark name and domain name often arise. For example, in the case of British Telecommunication v One in a Million 201, the court held that there was a threat of trademark infringement (the ‘use’ in relation to the services provided by the registrant who traded in domain names) and the domain names were used as an instrument of fraud. Likewise in the case of Phones4u v Phone4u.co.uk 202 the issue of instrument of fraud was also considered.

There are several layers of regulations especially through the Internet Corporation For Assigned Names and Numbers (ICANN) which has existed since 1998 and is not ‘newly formed’. 203 This Corporation is a unified system developed to co-ordinate the registration of trademarks and domain names with the objectives of co-ordinating the

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201 [1999] 1 WLR 903
202 [2006] EWCA Civ 244
203 Komaitis, K., The Current State of Domain Name Regulation: Domain name as Second Class Citizens in a Mark-Dominated World, Routledge, 2015
Internet Assigned Numbers Authority (IANA) functions, though there are still some setbacks in this system.\textsuperscript{204}

ICANN together with the Trademark Clearing House\textsuperscript{205} as one of the most relevant measures to provide trademark owners with the opportunity to reclaim and defend their rights from infringing domain name.\textsuperscript{206} Trademark Clearing House requires the mark to be either registered, validated through court system or protected by statute or treaty. Mark owner register the trademark under the newly delegated Generic Top-Level Domains (gTLDs) thereby precluding third parties from registering the identical domain name under that gTLDs which is called as ‘defensive registration’.\textsuperscript{207} With this registration system, when a potential applicant wishes to register a domain name that matches trademark in the Trademark Clearing House, the House would alert the potential applicant of the existence of trademark and its rights and the potential applicant need to acknowledge those rights before completing registration.\textsuperscript{208}

However, the problems with this registration system are that first, the whole process can be quite costly. The cost estimates from US$500,000.00 to One million in which it will prohibit many potential applicants to seek applications.\textsuperscript{209} Secondly, in order to register for the domain name, potential applicant must first prove that he has registered a
trademark legally.\textsuperscript{210} This implicates that the protection of domain name still largely dependent on the trademark system. Thirdly, many mark owners may file defensive registration but often have little or no use of the domain name in the future. And with launches of hundreds of new gTLDs which are not utilised, it could create a negative impact to the online world.\textsuperscript{211}

By taking cognisance of the above registration system and its problems, consideration should be given to a system that is based on the property law. The bundle of rights theory and the common property institution allow rights in domain name and trademark to be observed and fragmented, in order to create a unified system that’s protect domain name independently from any trademark laws or trademark registration.

\textbf{2.4.3.2 Meta-tag and Keyword.}

Similar issue also arises in the use of keywords or meta-tags. In this competitive online marketing platform, eighty percent [80\%] of the internet traffic were generated by search engines. Search engines have become one of the most powerful and yet inexpensive marketing platform for many businesses.\textsuperscript{212} Keyword or meta-tag is being used to get top listing in the search engines. Its purpose is to divert internet traffic and to

\begin{flushright}
\textsuperscript{210} That is registered, validated through court system or protected by statute or treaty and trademark that are merely the subject of pending trademark application or are within any opposition period are not eligible
\textsuperscript{211} Jacquline D. Lipton, Celebrity in Cyberspace: A Personality Right Paradigm for Personal Domain Name Dispute, 65 Wash. & Lee L. Rev. 1445, 1512 n. 300, 2008
\textsuperscript{212} https://www.clicksubmit.co.uk/seo Date Accessed: 27.06.2015
\end{flushright}
secure potential clients away from its competitors. However, there are many problems associated with the use of keyword and meta-tag in optimisation techniques. The issue that often arises relate to unauthorised usage of registered trademark name in keyword and meta-tag.

Besides registered trademark and domain name dispute as stated above, similar issue often arise as to whether the meta-tag used by one website owner has infringed the registered trademark of another company or its website. Modern advertising requires the setting up of a company’s website and online advertising are common practices nowadays and it is highly possible that an online business or company may have used a keyword or meta-tag in the search engine that is similar to a registered trademark belonging to another company in the search engine. The issue is whether such use of keyword or meta-tag containing a registered trademark of another amounted to a trademark infringement.

In the case of Standard Process, Inc., v Banks, the case illustrated the legal position of keyword and meta-tags in search engines. The facts of the case are that the Plaintiff (Standard Process) manufactured dietary supplements. Through its distribution agreements, it tightly controls its channels to limit retailing to its healthcare providers. All authorised distributors are prohibited from making Internet sales of the Plaintiff’s dietary supplements. The Defendant, Dr. Banks was once an authorised distributor but was terminated because he sold the products over the Internet. Subsequently, the Defendant bought supplies from other authorised distributors and continued offering the products via his website. The Plaintiff manufacturer sued the Defendant for selling

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213 https://www.clicksubmit.co.uk/seo Date Accessed: 27.06.2015
214 Erlend Bakken, Unauthorised Use of Another’s Trademark on the Internet, this article was written while the author was a LLM student at UC Davis, King Hall School of Law, 2001-2002, this article discussed issues in relation to the use of meta-tags in search engine, linking and framing with trademark law
215 2008 WL 1805374 (E.D. Wis. April 18, 2008)
these legitimate goods and for using Standard Process’s trademark in his meta-tag. The main issue in this case was whether consumers will be confused about a sponsorship relationship between the manufacturer and the website.

Standard Process alleged that Defendant Dr. Banks is liable for trademark infringement because of the ‘initial interest confusion’. ‘Initial interest confusion’ occurs when a customer is lured to a product by the similarity of the mark, even if the customer realises the true source of the goods before the sale is consummated. In this case, Dr. Banks used Standard Process trademarks in the meta-tag of his website. The use of the Standard Process’s trademark in Standard Process’s meta-tags diverted customers to the Defendant, Dr. Banks’s website and likely to cause confusion to customers. However, the Court ruled that the meta-tag and keyword tag are ‘immaterial’ in the present case because the Defendant in fact was selling Standard Process products, not a product of his own.

The consumers may be confused by the Defendant’s emails touting the product and the position of the Defendant as a legitimate or authorised distributor of the product. On that basis, the Defendant accepted this finding and the court ordered an injunction against any further promotion of the product without the disclaimer on the part of the Defendant.

The judgment in this case stated that keyword and meta-tags did not influence the search results and that having trademarked the terms in them were immaterial. It is submitted that the decision of this case should be confined to its own peculiar facts. The writer of this thesis argue that the trademark infringement did not succeed in this case by reason that the Defendant, Dr. Banks, who has been terminated from the
distributorship was still selling legitimate (Standard Process) goods that leaked out from the others distributors’ authorised channel. Had Dr. Bank been selling other products, other than the legitimate (Standard Process) goods, the claim by Standard Process would have succeeded on the basis that the Defendant, Dr. Bank made use of the keyword or meta-tag to divert customers to his own website not for the purpose of selling legitimate (Standard Process) goods. This case in fact is more concerned with the ‘first sale doctrine’216 rather than trademark dispute. Keywords and meta-tags may constitute trademark infringement and there are cases to support this position of law.217

The implication of this case in Malaysia is that this type of dispute can occur in Malaysia and there is currently no law in Malaysia to regulate ‘sole’ and ‘exclusive’ distributorships of products and services.218 Furthermore, one may examine the effect of using keyword or meta-tag, as well as linking over the internet in establishing connection, endorsement or association with a sole / exclusive distributor.

It is submitted that the main issue in cases of keyword or meta-tag is focussed always on the protection of registered trademark and not on the keyword or meta-tag. Keyword or meta-tag owner who duly purchased the right to use the keyword or meta-tag in a particular search engine often lose out to trademark owner even though the trademark registration are carried out later in time. The problem is that keyword or meta-tag are often viewed as merely words, words use commonly in the search engine for easy reference only. They lack the necessary intellectual quality when compared with

216 The ‘first sale doctrine’ concerns with the right of a producer to control the initial distribution of its tradmarked product and does not extend beyond the first sale of the product
217 One of such case is that of National American Medical v Axiom, No. 07-11574 (11th Cir., April 7, 2008) The court concluded that the competitor’s use of the trademark in meta-tag will result in what is known as initial interest confusion
trademark, which has a distinctive quality. The use of the keyword or meta-tag are mostly governed under the terms and conditions of the contract between the parties.

Stealing of keyword or meta-tag also leads to page-jacking. Page jacking is a technique used to steal the contents of a website by copying some of its pages, putting all its pages on another website that appears to be the legitimate website and then luring and inviting people to the illegal website by having the contents indexed by major search engines whose results in turn link users to the illegal website.\(^{219}\) Users of these illegitimate websites may find themselves redirected to a pornographic or other unwanted website. In 1999, The New York Times which carried a webpage about an Australian company who page-jacked a number of corporate websites, adding pornographic links or ads and mousetrapping its users.\(^{220}\) In this case, the Australian officials were reported to be considering civil or criminal charges against the page-jacker. United States’s Federal Judge in Virginia, where the original Internet website registration company is located, ordered the websites to lose their web registrations.

However, in the modern days, keywords and meta-tags provide an important link between the end internet user and a particular website. It is an important and valuable onsite optimisation tool for internet users as it generates intensive internet traffic for website owner for advertising, marketing and to solicit business around the globe. Keywords and meta-tags are not merely words and their functional value in the internet needs to be recognised and protected accordingly.\(^{221}\)

\(^{219}\) http://whatis.techtarget.com/definition/0,,sid9_gci213799,00.html
\(^{220}\) http://whatis.techtarget.com/definition/0,,sid9_gci213799,00.html
\(^{221}\) https://swiftype.com/documentation/meta_tags Date Accessed: 27.06.2015
It is submitted that there is no specific law in protecting the use of keywords or meta-tags in search engines other than by contract law or the terms and conditions provided by the search engine companies. In many search engine optimisation agreements, the company often put their client in an uncertain and vulnerable position by including term or exclusion clause in the contract. The following clauses are examples of the terms found in the search engine optimisation agreement in relation to keyword and search engine optimisation listing.

Clause 6 reads:

“Client acknowledges the following with respect to services:

- ‘Company’ has *no control* over the policies of search engines with respect to the type of sites and/or content that they accept now or in the future. *Client’s site may be excluded from any directory at any time at the sole discretion of the search engine or directory.* ‘Company’ will resubmit those pages that have been dropped from the index. (emphasis added)

- Due to the competitiveness of some keywords/phrases, ongoing changes in search engine ranking algorithms and other competitive factors, ‘Company’ *does not guarantee #1 positions or consistent top 10 positions for any particular keyword, phrase or search term*. However, if ‘Company’ fails to achieve 3 top 30 positions in the major search engines, ‘Company’ will start over “SEO” [search engine optimisation] services with no cost to Client.” (emphasis added)
Based on the above two clauses in a standard search engine optimisation agreement, although the agreement is entered for the purpose of obtaining search engine optimisation, the company has no control and the ability to ensure that the client will have the exclusive or preferential use of keyword, phrase or search term which may affects the position or top listing of the client’s company in search engines. The non-exclusive use of keyword or meta-tag in search engine put the client in vulnerable position. In the event that the client’s company listing in the search engine has been affected due to competitiveness of some keywords/phrase, ongoing changes in search engine ranking algorithms and other competitive factors, the company will only start over the search engine optimisation with no additional cost.

It is submitted that there is no way the company or even the term of the agreement will be able to protect the interest of their client in using or maintaining the keyword/meta-tag in top listing in search engines. The agreement is essentially a contract for service of getting the search engine optimisation. It provides no protection on the use of keyword or meta-tag. This will become a serious problem in the modern online competitive marketing and advertising environment because nobody can ensure that the purchaser secures the legal right to any of the terms they purchased.

The problems with this standard search engine optimisation agreement are that, first, any term in the agreement may be subjected to the exclusion or exemption clause of the agreement. The impact of exclusion or exemption clause is to limit or to exclude a party’s liability for breach of contract. Secondly, the contracting party has to submit to the terms stipulated in the search engine optimisation agreement. Thirdly, as the

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223 One of the terms stated in the agreement:
agreement is merely for contract for service, it does not give rise to a legally enforceable right to use the keyword or meta-tag.

A right under contract is considered as a privately granted right. Privately granted right may occasionally appear similar to ‘exclusive’ right. However, this type of ‘exclusive’ right under the contract is only enforceable between the grantor and grante and not the world at large. Contract law or the terms and conditions in the search engine optimisation agreements are currently clearly inadequate to protect the functional values and exclusive rights of the use of keyword and meta-tag. It is submitted that there is a need to search for an appropriate system of law to safeguard the interest of those who purchased or contracted for the use of keyword or meta-tag.

Furthermore, there are several cyber related services offering keywords or meta-tag ownership with a fee and each one of them may be selling the same keyword or meta-tag to different companies or even to rival companies at the same time, there is no single system regulating the usage of keyword or meta-tag across the board. Furthermore, some keyword or meta-tag will only work with the particular issuing companies’ proprietary address bar plug-in,\(^2\) complication arises as there are many services offering search tools over the internet and there is no system to synchronise them across the board.

2.4.4 Shareable digital resources

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2. Product Ordered. You agree that the product you are ordering from us is Search Engine Submission and/or Search Engine Optimisation (SEO) Services. You also agree that we cannot guarantee placement within any search engine(s), only that we will attempt to submit your website to them to the best of our abilities and knowledge in order to gain the highest possible listing within the search engines submitted to.” http://www.pureenergymultimedia.com/pages/search_engine_submission.pdf. Date Accessed: 27.06.2015

\(^2\) Example of address bar plug-in is Instant Fox Quick Search to speed up web search and search via address bar. It allows users to get search result instantly and customize own search shortcuts
2.4.4.1 Email and social networking account

Email and email account is also one of the area that require indepth attention. Email and email account, being a form of intangibles are not automatically considered as a form of property. Neither are they considered as a form of intellectual property. There is no clear and defined legal principle in deciding and regulating the ownership of email and email account. There is also no conclusive law governing the status, ownership and the rights of an individual email user. The terms and conditions that are contained in the email service provider agreement dictate the rights between the email account holder and the email service provider. Different email service providers offer different terms and there is no uniformity among the email service providers to provide standard termed contract in this aspect.\textsuperscript{225}

Furthermore, there is a misconception in that emailing is part of the global network infrastructure that everyone has agreed to share. Due to it shareable nature, it is hard to make a claim that email and email account is an individual's private property.\textsuperscript{226}

Without due recognition from the law, it is difficult to ascertain its legal status. The issue of ownership of email and email account and address has raised the public concerns recently as there is little protection and principle in this area.

Accessing privately owned resources such as personal information and data without the owner’s permission through social networking websites and email accounts are illegal.

\textsuperscript{225} Mike Bedford “What happens to your Facebook account when you die? | What happens to your Twitter account when you die? | What happens to your Google account when you die? - How to access Facebook, Google and Twitter accounts of dead friends and relatives” stated that “… how a digital service-provider deals with an asset following the death of the user becomes a matter for the provider’s terms of use. No uniformity exists so, in reality, each separate digital service provider sits in final judgment when it comes to deciding the fate of the digital assets.” (although this article is concerned with the dealing with the email account after the account user has been passed away), http://www.pcadvisor.co.uk/how-to/internet/what-happens-your-facebook-twitter-google-apple-account-when-you-die-3468962/ Date Accessed: 27.06.2015

\textsuperscript{226} Mark Philip, \textit{Perspective: Who owns your email address?} 19\textsuperscript{th} May 2004 http://news.cnet.com/2100-1036_3-5214467.html
and is covered under the computer crime legislations (unauthorised access) in most nations and is also regulated under the data protection provisions as explained in the earlier part of this chapter. However, the computer crime legislations as well as the data protection provisions do not protect personal, sensitive personal and financial information specifically and the social networking members or email account users have no way in preventing perpetrators or the others making use of their personal, sensitive personal and financial information in the future from these provisions.

The same issues apply to online social networking account. Online social networking accounts are basically websites commonly used. Online social networking websites function like an online community of internet users who shares their common interests in hobbies, religions, politics or opinions on certain things, etc. Once the user is granted access to a social networking website, the user can socialise with other users within the social networking website.

Through online social networking websites, members reveal their personal information, photos, behaviours, lifestyle and intimate thoughts. Government agencies as well as marketing companies are collecting information and data from such social networking websites. Social networking sites also create a central repository of personal information. In many cases, personal information revealed online have facilitated the commission of crime such as cyber-stalking, fraud, burglary or even attract sexual predators.  

Fact Sheet 35: Social Networking Privacy: How to be Safe, Secure and Social – it is stated that besides friends and acquaintances interested in the information people post on social networks; identity thieves, scam artists, debt collectors, stalkers, and corporations looking for a market advantage are also using social networks to gather information about consumers. https://www.privacyrights.org/social-networking-privacy  

Date Accessed: 27.06.2015
Personal information such as email addresses, telephone numbers, residential addresses, hobbies and personal preferences, conversations with peers, lifestyles, social status and so forth are revealed in the commonly shared public forum. The underlying dangers in social networking websites are that first, users of social networking websites are not aware that their privacy has already been jeopardised because most of these users basically trust the people they interact within the social networking. They are mostly teenagers who are carefree and tend to disclose their personal information via social networking. Secondly, they fail to apprehend the danger of revealing personal information in these commonly shared forums in public and thirdly, they do not realise that information such as hobbies, personal preferences, conversations with peers, lifestyles, social status and so forth are important information about their personal lives that should be protected at all time accordingly.

The problem with social networking websites and emails is that the current responses to privacy in social networks and emails do not tend to deal with the potential misuse of personal information. There is no comprehensive law standardising and regulating the operation and disclosure of personal information in social networking websites and emails except the terms and conditions or the specific setting in the particular social networking website or email provider. For instance, Google has its own privacy policy. It adopts self regulatory frameworks - Safe Harbor certification and others.

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229 Susan B. Barnes, A Privacy Paradox: Social Networking in United States, Peer-reviewed Journal On the Internet, First Monday, Volume 11, Number 9 — 4 September 2006
230 Self Regulatory Frameworks: As described in our Safe Harbor certification, we comply with the US-EU Safe Harbor Framework and the US-Swiss Safe Harbor Framework as set forth by the US Department of Commerce regarding the collection, use and retention of personal information from European Union member countries and Switzerland. Google has certified that it adheres to the Safe Harbor Privacy Principles of notice, choice, onward transfer, security, data integrity, access and enforcement. To learn more about the Safe Harbor program, and to view Google’s certification, please visit the Safe Harbor website. Google is a member of the Network Advertising Initiative (NAI), a cooperative of companies committed to building responsible advertising policies across the Internet. Using a tool created by the NAI, you can learn more about other ad-serving companies and opt out from their use of cookies at the NAI website.
such as UK Internet Advertising Bureau Good Practice Principles for Online Behavioral Advertising. However, other websites do adopt entirely different approach or rules in privacy issues. There is no consistencies and uniformities in protecting privacy in social networking websites or email providers and users of those social networking websites or email account often have to submit to whatever terms dictated by the account providers.

Awareness is also a key in protecting personal information. The members and users of these social networking websites must apprehend the potential danger of disclosing personal information via online and have a clear understanding that their personal information is something that should be treated as utmost importance, similar to their personal belongings and property.\(^{231}\)

Personal information being revealed through social networking websites and email account may lead to potential misuse while the other issue arises as to the management of social networking account and email account when a user of such has passed away. In dealing with this issue, the question arises as to who actually owns the deceased’s social networking account or the email account. In the other words, who actually has the

Google also adheres to the UK Internet Advertising Bureau Good Practice Principles for Online Behavioural Advertising, the Australian Best Practice Guideline for Online Behavioural Advertising and IAB Europe’s European Framework for Online Behavioural Advertising.

Contrast this with the Yahoo’s privacy policy:

**Information Collection and Use**

Yahoo! collects personal information when you register with Yahoo!, when you use Yahoo! products or services, when you visit Yahoo! pages or the pages of certain Yahoo! partners, and when you enter promotions or sweepstakes. Yahoo! may combine information about you that we have with information we obtain from business partners or other companies.

When you register we ask for information such as your name, email address, birth date, gender, ZIP code, occupation, industry, and personal interests. For some financial products and services we might also ask for your address, Social Security number, and information about your assets. When you register with Yahoo! and sign in to our services, you are not anonymous to us.

Yahoo! collects information about your transactions with us and with some of our business partners, including information about your use of financial products and services that we offer.

Yahoo! automatically receives and records information from your computer and browser, including your IP address, Yahoo! cookie information, software and hardware attributes, and the page you request.

Yahoo! uses information for the following general purposes: to customise the advertising and content you see, fulfill your requests for products and services, improve our services, contact you, conduct research, and provide anonymous reporting for internal and external clients.

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Fact Sheet 35: Social Networking Privacy: How to be Safe, Secure and Social – it is stated that besides friends and acquaintances are interested in the information people post on social networks, identity thieves, scam artists, debt collectors, stalkers, and corporations looking for a market advantage are also using social networks to gather information about consumers.

https://www.privacyrights.org/social-networking-privacy Date Accessed: 27.06.2015
right to manage and control the social networking or email account: the networking website or email provider or its member? Certainly, this is not a straight forward question to be answered. Different companies have different ways to handle the deceased social networking account. According to Facebook:

‘When a user passes away, we memorialize their account to protect their privacy. Memorializing an account sets the account privacy so that only confirmed friends can see the profile (timeline) or locate it in search. Friends and family can leave posts in remembrance. Memorializing an account also prevents anyone from logging into the account.’

Twitter also requires family members or ‘persons authorised to act on the behalf of the deceased’ to deactivate the account. For the removal of the account totally, Twitter requires a copy of the death certificate, the executor’s driver’s license, as well as a notarised statements featuring a copy of the obituary.

From the above elaboration by Twitter, it seems to suggest that the right to control and manage the account after the user of such has passed away lies with the user’s persons authorised to act on behalf of the deceased, which have a similar position as that of a personal representative. But on the other hand, Yahoo has a different way of managing the account after the user has passed away. In its terms of service states ‘Upon receipt of a copy of a death certificate, your account may be terminated and all contents therein permanently deleted’.

232 http://www.webpronews.com/nebraska-facebook-accounts-deceased-2012-02
233 http://www.webpronews.com/nebraska-facebook-accounts-deceased-2012-02
In the United States of America, State Senator John Wightman in the State of Nebraska recently introduced a Bill that gave the deceased’s representative power over their internet life. State Senator John Wightman stated that:

‘The intent of LB783 is to provide a new and needed express authority in state law for a personal representative. A personal representative of a deceased individual must have the authority to control or terminate any accounts or message services that are considered *digital assets*. This power can be limited in the person's will or by court order. Such things as Web sites, e-mail, Facebook, and Twitter accounts did not exist until recently and, as a matter of fact, they don’t exist in my home yet, but we hope some of you are more technologically up-to-date. This bill is to address how these *digital assets* or accounts can be closed or otherwise changed upon the death of the creator of those digital accounts. Personal representatives have broad powers under current law but not express or specific authority to close or control *digital assets*, and that's apparently created a problem in some estates.’²³⁴ (Emphasis added)

This bill (LB783) was introduced in the State of Nebraska, however from the explanation given by State Senator John Wightman it suggested that things such as websites, e-mails, Facebook and Twitter accounts are considered as digital assets. The creators of these digital assets or the personal representatives have the power to close, control and manage those digital assets. The law has now recognised that things such as websites, e-mails, Facebook, Twitter accounts and the others of similar nature are considered as assets that the control and disposal of such is ought to be regulated by the law, similar to other form of property recognised under the estate law.

²³⁴ Transcript prepared by the Clerk of the Legislature, Judiciary Committee, January 18, 2012 (for the purpose of conducting a public hearing on the [LB734 LB783 LB790 LB865 LB908])
State Senator further stated that:

“After a person dies, there ought to be some way to terminate these accounts and perhaps get them off the airwaves ... *It's a personal property right*. That's the whole idea of the estate: to collect the assets of the estate or deal with the assets so that something doesn't go on in memorial. It's a very simple purpose.”235 (Emphasis added)

There are many issues yet to be dealt with under this Bill, such as privacy issues but this type of law has only been passed in the State of Oklahoma. Others opined that the Bill is not necessary and there are other ways in which these social networking accounts could be managed.236

Despite the critics and the concerns raised under this Bill, this Bill is a good starting point in dealing with the management of these types of digital assets. However, the general perception is that many people do not recognise or acknowledge the status of these digital assets and to consider the right to control these social networking accounts as ‘personal property right’ as State Senator John Wightman in the State of Nebraska. It is contended that the law must keep up with the technology.237 Although the initial purpose of social networking is to provide a social network among users for leisure purpose, social networking it is increasingly becoming an important part of many

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236 Kirsten Humlicek, a Junior Dietetics major at the University of Nebraska-Lincoln, said the government need not intervene and whoever knows the password should be able to handle it.
237 State Senator John Wightman
people’s lives and much of the personal information, things and events associated with its creator are being stored in these accounts.

Similar laws should also be adopted in Malaysia. At least some form of guidelines should be adopted and established in order to guide the various email or social networking service providers the proper procedures and legal implication of managing and assigning these digital assets to the rightful parties.

The general perception towards email, email account and social networking account must be changed. The recognition on the status of these online accounts as form of intangible property must be given due consideration in view of the modern online environment. Contract law and agreements are clearly inadequate to regulate the use and the right to control email and social networking account. Substantive laws and regulations are needed in order to give due legal recognition and safeguard the interest of the deceased users and their family members by providing standard procedure and regulation in managing deceased online account.

2.4.4.2 Cloud Computing

There are two main concerns associated with Cloud Computing namely the loss of control over data and the dependence on the cloud service provider. With regards to the issue of loss of data, most of the customers or users of Cloud Computing are aware of the risk and danger of allowing their data’s control out of their hands and storing the data with an outside Cloud Computing Provider. Data stored in the Cloud could be

http://www.cepis.org/index.jsp?p=641&n=825&a=4758 Date Accessed: 27.06.2015
compromised by the Cloud Computing Provider or by other competitive enterprises who are customers with the same Cloud Computing Provider.239

Furthermore, many Cloud Computing Providers are technically capable to perform data mining techniques to analyse user data.240 This is a very sensitive function as users are often storing and processing sensitive data when using Cloud Computing services.241 In Malaysia, data protection and privacy legislation is not yet fully developed. There is a lack of transparency to let customers know how, when, why and where their data are processed and this is the opposite of the data protection in which it require that customers do know what happens with their data.242

2.4.4.3 Open Educational Resources (OER) and Online Creative Communities (OCC) or Creative Commons

This sub-section considers the trend towards open access to academic and educational products. It is directly related to digital resources and is a process whereby through contractual and administrative means, the digital property (in so far as it exists) is stripped from its creators and processed into common resources. In this context, three resources are considered namely, the work of the Organisation For Economic Co-operation and Development, *Giving Knowledge for free – The Emergence of Open Educational Resources* (2007), Finch J. et al, *Accessibility, Sustainability, Excellence: how to expand access to research publication: A Report of the Working Group on Expanding Access to Published Research Findings* (Association of Commonwealth Universities 2012) and Burgess, R., *Review of the Implementation of the RCUK Policy on Open Access* (RCUK, 2015).

239 http://www.cepis.org/index.jsp;p=641&n=825&a=4758 Date Accessed: 27.06.2015
241 http://www.cepis.org/index.jsp;p=641&n=825&a=4758 Date Accessed: 27.06.2015
242 http://www.cepis.org/index.jsp;p=641&n=825&a=4758 Date Accessed: 27.06.2015
In the Organisation For Economic Co-operation and Development’s work and Finch et al’s Report of the Working Group on Expanding Access to Published Research Findings, it states that more and more institutions and individuals are sharing learning resources over the internet openly for free under Open Educational Resources (OER). OER explores new ways of creating, distributing and sharing educational materials.\(^{243}\) It is based on open licences in which it is a space in the Internet world, a creative commons, where people can share and reuse copyright material without fear of being sued for educational purpose.\(^{244}\) However, this requires copyright owners to agree or to give permission for their material to be shared through generic licence that gives permission in advance which could be problematic. Although open educational resource does not undermine copyright law and its principles, licensing will become an important consideration in the copyright management, distribution and utilisation of educational resources.\(^{245}\) Burgess’s Review of the Implementation of the RCUK Policy on Open Access examined the implementation of the policy and its impact for higher educational institutions, independent research organisations, learned societies and publishers to ensure that the policy is effective and provides clear guidance to the research community.

Likewise, the greatest issue that arose in OCC or Creative Commons was that copyright law has raised problems in the field of creative activities. The potential confusion largely lies in the grey legal areas such as remix and reuse when sharing and technological advances have made content reuse an easy task even for an ordinary


\(^{244}\) Giving Knowledge for Free, The Emergence of Open Educational Resources, Organisation For Economic Co-operation And Development, 2007, p77

\(^{245}\) Giving Knowledge for Free, The Emergence of Open Educational Resources, Organisation For Economic Co-operation And Development, 2007, p77; www.fsf.org/blogs/rms/entry-20050920.html; and http://yro.slashdot.org/article.pl?sid=06/02/07/1733220
Internet user. For example, remix videos created with software now come with every computer. The question is whether internet users are permitted to use part of a song in a remix video as the law does allow for some uses of copyrighted content. Dispute arises in these OCC communities which reveal a number of strongly entrenched social norms related to copyright: such as norms about plagiarism, attribution, what constitutes commercialisation and so on. Remix writers represent a group struggling to understand and to locate the law within these cultural norms. Furthermore, internet users make decisions on what is permissible or not based on negotiate multiple sources of rules, including the letter of the law, website policies, community norms and ethical standards. However, norms can be complex in these communities because interpretations of relevant laws can vary substantially for it depends on the circumstances which can be frustrating for designers and researchers. Hence, the lack of clarity is the main issue and it should be considered more carefully in the design of user-generated content platforms for OCC.

2.5 Conclusion

This chapter has provided the background and development of the World Wide Web. This chapter has also examined the common characteristics of digital resources and highlighted those common characteristics and inadequate laws which were problematic

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246 Casey Fiesler, Jessica L. Feuston, Amy S. Bruckman, Understanding Copyright Law in Online Creative Communities https://cfiesler.files.wordpress.com/2014/10/fiesler_cscw2015.pdf Date Accessed: 27.06.2015
249 Ibid; also refer to Roth, J. and Flegel, M. ‘I’m not a lawyer but...’: Fan disclaimers and claims against copyright law. Journal of Fandom Studies 1, 2 (2013), 201–218
leading to the body of unregulated digital resources. Digital resources are meant to be shared. Digital resources are to be accessible, transferable and non-exclusive. As the greatest purpose of the creation of internet is for the sharing of knowledge and those knowledge should be freely made available and accessible to the public at large, these characteristics are in fact in line with that greatest purpose.

However, there exists many issues and problems associated with accessibility, transferability and non-exclusive nature of digital resources. The present chapter has merely highlighted some of the most common issues and problems associated with the body of unregulated digital resources. Notwithstanding the enactment of the various cyber-specific laws in Malaysia as well as the application of the existing laws such as contract law, law of confidentiality, trademark laws or patent laws in cyber cases in relation to these digital resources, the laws seem to be unable to provide adequate protection to these digital resources in many aspects. There is a need to ascertain the legal status of these digital resources and to find a solution to fill up the gaps and loopholes both in the existing laws and cyber-specified laws to protect these digital resources accordingly. Furthermore, other possible solutions recommended by other writers such as management of digital ownership, balancing other legitimate interests and jurisdictional rules will be discussed in greater details in Chapter 6 of this thesis.

With an in-depth understanding and appreciation on the broad meaning and characteristics that contribute to the body of unregulated digital resource, this thesis now would proceed to examine the Concept of Property. The extension and application of traditional property concept will be able to give due recognition and legal status to digital resources in cyberspace. The Common Property Institution and the Bundle of Rights Theory which is right-based ought to be used to form the underlying basis to
develop the laws for the management of digital resources in cyberspace will be discussed in detail in the following chapter.

CHAPTER 3: EXTENSION AND APPLICATION OF TRADITIONAL PROPERTY CONCEPT TO DIGITAL RESOURCES

3.0 Introduction

To propose the idea of granting property status to digital resources the starting point is to have a fundamental understanding of what is meant by ‘property’ and its concept. The objective of the present chapter is to first, provide an in-depth analysis of the concept of property and how it has evolved over the years in tandem with social and economic changes. In the process of doing so, this chapter will also identify the causes or factors which exerted influences in the train of transition over the years. Secondly, the existing concept of property is unlikely to be able to accommodate the unique nature
of digital resources. There is a need for a new concept of property that is able to accommodate digital resources. Support for this idea is also found in the work of Carrier and Lastowka, where they argue on the limits and danger of cyber-property that is based on the concept of property as none of the philosophical rationales for traditional property support the existence of cyber-property. A new concept of property should not only describe ‘property’ as things but rather as ‘rights’. The concept needs to be revolutionised and to move away from a content-based concept to a rights-based concept. Both the content-based concept and the rights-based concepts of property are addressed in this chapter. Thirdly, this chapter also analyses the implications of the evolutionary / transitory rights in tangible property to the body of unregulated digital resources and evaluates the significance and the merits of granting digital resources a property status. This would form the fundamental basis in justifying propertisation of digital resources in cyberspace.

This Chapter examines the following topics:

1. The Concept of Property and how it has evolved;
2. The New concept of property that is rights-based which is capable of accommodating digital resources;
3. The implications of the evolutionary rights in tangible property with regard to the body of unregulated digital resources;
4. The significance and the merits of according digital resources the property status.
5. The Contents of the Exclusive Right of Use Determination.

252 Refer to Quilter, L., The Continuing Expansion of Cyberspace Trespass to Chattels (2002) 16 Berkeley Tech LJ 421. Trespass to chattels, a doctrine developed to protect physical property was first applied in cyberspace cases to combat spam, and unwanted commercial bulk email. This supports the present thesis’s argument that one can rely on the traditional sources of law to create a new concept of property for the regulation and protection of the body of unregulated digital resources.

253 Carrier, M. A. and Lastowka, G., Against Cyberproperty, 2007, Berkeley Tech LJ 1483 in which this article discussed the limits and danger of cyberproperty as it is based on the concept of property. This article also argue that none of the philosophical rationales for traditional property support the existence of cyberproperty, p1484
3.1 The Concept of Property.

The traditional perception of property is that property is a ‘thing’. The common understanding is that property as a ‘thing’ wherein the owner of such property has the exclusive right of free use, enjoyment and disposal of it. This definition of property is based on the ‘physicalist’ sense of things. In the physicalist theory, property can either be classified as ‘real property’ such as land and things that are attached to the land or ‘personal property’ such as furniture, horses, money or things that are moveable and different rules are applicable to different type of property in question.

One of the most prominent writers who adopted the physicalist view was William Blackstone of the eighteenth century. He defined property as a ‘sole and despotic’ relationship between a person and a thing. In this definition, the function of a private property was that it secured freedom and autonomy for individuals who acquire its ownership and the only obligation attached to this was that no harm shall befall onto others in the exercise of one’s rights in property. The notion of absolute dominion, the exclusive right of possession, enjoying and disposing suit the situations in the eighteenth century for property that existed at that period of time was relatively simple and property then was being classified either as real or personal only.

Such constricted concept of property which refers to property as only ‘things’ has been severely criticised. The Blackstonian’s view of property post nearly limitless rights and

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254 Leif Wenar, Essay: The Concept of Property and the Taking Clause, 97 Colum. L. Rev. 1923, p.3
all these rights were consolidated in a single owner, who can exclude all others. However, it did not reconcile with the basic rule that a proper concept of property inevitably involve the balancing of the individual and collective rights in property. The thing-based concept of property masks the political function of property as power. The political function of property as explained by Proudhon’s political philosophy stated that property was the creation and a conservative principle of civil society and necessarily conceived as existing connection with equality. Property was essential to the building of a strong democracy.

Professor Wesley Newcomb Hohfeld published an article in 1913 entitled ‘Some Fundamental Legal Conceptions as Applied in Judicial Reasoning’ and argued that the notion of property did not only consist of things but rather a fundamental legal relationship between people in dealing with a property dispute. His theory conveyed the idea that one who has ‘right’ in property is opposed by another who has ‘no-right’ in property and these opposite rights are a set of legal relation the law has to regulate in any category of property.

One of the Hohfeld’s jural relationships is ‘Right’. When one has a right, legal claim-right it means that he is legally protected from interference by another. Conversely, another person who has been restrained to interfere, he is under a correlative duty to do so. That means the owner who has the right must be able to pinpoint another person with a correlative duty. For example, the law provides a normative protection against trespass on one’s property, the other is therefore under a duty to abstain from entering into other’s property without authorisation.

259 P.J. Proudhon, *What is Property? An Inquiry into the Principle of Right and of Government*
260 P.J. Proudhon, *What is Property? An Inquiry into the Principle of Right and of Government*
As society advances, what property meant in the old days differs significantly from what property means in our modern days. Property is an evolving concept in which it evolves alongside with changes in society and the perception of the people. Therefore, in order to search for the concept of property that is able to accommodate the unique nature of digital resources, one need to trace how the concept of property has evolved through the passage of time and the causes and factors that led to those changes and transitions.262

3.1.1 Before and During the Agrarian Period

The development of the concept of property can be traced back to early human history. The earliest concepts of property were closely associated with the procurement of subsistence. Man made use of the natural resources available for survival. Resources during that time were common pool resources and also called common resources in which they were available for all to use.263

Common resource or ‘commons’264 has two defining characteristics: (1) when one person uses a commons, it diminishes the amount of commons available for the others. This was referred to as the exhaustibility of resource. As far as exhaustibility was concerned, a distinction had to be drawn between renewable and non-renewable resource. Renewable resources refer to resources that either increase in quantity or otherwise renews itself over a period of time.265 For instance, fishery in which reproduction and breeding of fishes required a period of time. Non-renewable resources

262 Hartmut Zückert, The Commons – A Historical Concept of Property Rights http://wealthofthecommons.org/essay/commons-%CF%80%93-historical-concept-property-rights. Date Accessed: 29.06.2015
263 https://dlc.dlib.indiana.edu/dlc/contentguidelines. Date Accessed: 29.06.2015
264 The term ‘Commons’ is used by Hardin is referred to both natural and manufactured resource
265 Natural Resources: Definition, Trade Pattern & Globalisation, World Trade Report 2010
means resources that do not grow or renew itself over time. Every unit consumed would reduce the amount available for future consumption. Hence, the supply of such resources would be limited or exhaustible. Therefore, the management; exploitation and preservation of such would require great attention and planning. This defining characteristic of commons is also the most threatening characteristic because it would affect the continued supply and existence of commons.  

Exhaustibility may further be complicated by the second defining characteristic of the commons: (2) difficulty in excluding potential users of the commons. When there are numerous potential users, the real challenge was that it was difficult to manage those users and to secure mutual consensus amongst them as to how best the resource should be managed. It is difficult to convince users to cut back on their use and consumption of commons (community owned resources) because they face the constant temptation of having a free-ride and shirk. Even small number of users acting and reducing their own use and consumption of community owned resources would not make a significant difference in its availability as there were still large numbers of users consuming the community owned resources. The reason for discussing the two defining characteristics of common resource is that a comparison can be drawn on the characteristics between tangible non-renewable resources and intangible digital resources as these two represent the two extreme characteristics of resources. The tangible non-renewable resource on one hand is exhaustive whereas the intangible digital resource on the other hand is non-exhaustive and is replicable. Digital resource can be replicated into many copies.

267 Brigham Daniel, Emerging the Commons & Tragic Institutions, Environment Law, Vol. 37. 515, p524
269 Please refer to Chapter 2 on The Non-exhaustive and Replicable Nature of Digital Resources
When humans have consumed the resources and conveniences on one piece of land, they moved to relocate and search for new land and resources for the continuing supply of necessities. As population grew, it was more difficult to hunt successfully as well as to locate new lands with the necessary resources to inhabit without encroaching upon the former or existing occupants. It was necessary to discover some ways which were able to provide a consistent supply of necessities – it was to be in Agriculture. Cultivation was able to provide consistent supply of foods for survival and it was cultivation that introduced and established the first idea of a more permanent concept of property in land as well as the things attached to land. Although lands were owned in common by the tribe, an individual or group possessory right to cultivate land was recognised.

A farmer who owned his own labour, land and other input factors was said to have a direct relationship between investments and the level of benefit achieved over the land in the long term. However, if his invested effort was not rewarded and if everyone were to get a free ride on the work of the others, productivity would be low. This also initiated the origin of property in that the efforts of individual proprietors to occupy land gave the landed proprietor a special position. By the law of nature and reason, a person who began to occupy land and used thing or resources acquired therein established a kind of transient ‘property’ that lasted so long as he continued using it, and

no longer.276 The right of possession of land and things continued for the same time as the act of possession lasted.277 Property was conceived to end and begin with possession.278 However, Amos Witztum argued that it was possible for people to have claims on animals that were not in their possession. Amos Witztum contended that the real explanation of the right was that the expectation was formed because of the skill and effort of the hunter invested in capturing animals.279 Nevertheless, the idea of transient ‘property’ has been developed and an act of possession instigated the concept of property and ownership at that early stage of human history. The fundamental concept of ownership originated from land and things attached to it and the various situations in which a property may be the subject of ownership to a citizen.280 The Justinian’s concept of land ownership and title by possession were very primitive in nature but nevertheless it began the formation of the basic concept of modern ownership of property and it was an important piece of ancient legal code in that its existence and contents ought to be given due cognisance.281

The debate over the acquisition of ownership in land was well debated among writers and academics. Grotius and Pufendorf argued that the right of occupying land was founded upon a tacit and implied assent of all mankind in that the first occupant should become the owner of the land.282 But the more preferred and acceptable argument was to have ‘property’ in land, an individual was not merely to allege some casual physical affinity with a particular piece of land and it required some sort of claim to the

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276 Barbeyt, Puf. 1.4.C.4
278 Also refer to Carol M. Rose, Possession as the Origin of Property, 52 U. CHI. L. REV. 73, 75 (1985) - the doctrine of first possession and that first possession is the root of title
281 Justinian I (Emperor of the East), Justinian's Institutes, Cornell University Press, 1987
282 De Jure Belli, II.II.II.3.
legitimacy of one's personal space in this land. To assert that the land was ‘proper’ to one; that one had some significant self-constituting, self-realising, self-identifying connection with the land and that the land was, in some degree, an embodiment of one’s personality and autonomy. This was supported by Barbeyrac, Titus and Locke who argued that the act of occupancy alone was insufficient in itself to gain a title and there must be a degree of labour invested therein which was required. Cultivation or farming came in to establish the embodiment of one’s personality and autonomy in land. To claim ‘property’ in land was to have at least a limited form of control over the land and to allege that one had some emotion- or investment-backed security in it.

Distinction is needed to be made here between the titles over the land with regards for the land held for the King / Country and the Farmer’s title to the agricultural land. The process of inclosures of common land in England through the Inclosure Acts were issued in profusion in the early nineteenth century. In the acquisition of title of foreign land by way of conquest, land would not become a lawful possession and absolute conquest from the moment they are invaded. Although the army may embark on an immediate and violent possession of the country which it has invaded, it would be considered as a temporary possession until such right has been ratified and secured by some durable means, by cession, or treaty. As opposed to acquisition of land by one’s labour and effort which required some form of contribution which is not through force or laws.

288 Hugo Grotius (1583–1645), *The Rights of War and Peace*, 1901
289 Hugo Grotius (1583–1645), *The Rights of War and Peace*, 1901
From the above elaborations the concept of property was then established both in land and moveables acquired by the first taker. The effort and labour a man invested to acquire the property and the ‘taking’ amounted to a declaration that a man intended to appropriate the thing for his own use. Cultivation had made the human relationship to the land more concentrated. Tilling the land, making permanent settlements were all direct investments in land. It would remained in him by the principle of universal law until he did some act to abandon it. The formation of the conception of exclusive and permanent dominion over property allowed man to maintain a kind of permanent property in land and cattle for his family and young. Thus the concept of property originated from land.

As time went by, land took on a new meaning for those ruling elites. It became an abstraction, a source of power and wealth. The system of feudalism developed. In a feudal system, a peasant or worker known as a vassal would receive a piece of land in return for serving a lord or king, especially during times of war. Vassals were expected to perform various duties in exchange for their own fiefs or areas of land. By then only very few personal property did exist and were of minimal value. Under the feudal system, the absolute ownership was vested in one person, a lord or ‘landlord’ while the use was in another which was known as the ‘tenant’. The idea of private land ownership developed partly in reaction to the power of the sovereign and also in response to the opportunities of a larger-than-village economy.

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291 General explanation on the feudalism https://web.cn.edu/kwheeler/feudalism.html Date Accessed: 01.07.2015
293 Bisson, Thomas N., “The ‘Feudal Revolution’,” *Past and Present* 142 (Feb. 1994), pp. 6-42
Resources found pre- and during agrarian period were common resources in which they were available for all. Common resources diminished when utilised by others and it was difficult to exclude potential users. Because of that, men needed to find a way for the continued supply of resources and foods for subsistence. Cultivation provided the solution and the labour and effort one invested in land introduced and established the idea of a more permanent concept of property in land. Hence, property meant the thing in itself. When a person finds a piece of land or thing, that person occupies the land and takes possession of the thing and control. The notion of dominion, the exclusive right of possession, enjoying and disposing were the basic notions and concept of property.²⁹⁴

There is no real relationship between cultivation and digital resources and the notion of dominance; the exclusive right of possession, right of enjoyment and disposal do not apply to digital resources in cyberspace. However observations that have been made in cultivation which introduced and established the idea of a more permanent concept of property could be applied to digital resources as a basis of propertisation. It is contended that in order for a resource to attain property status and ownership, one must be able to establish some form of connection between the owner and the resource in question. Labour and effort is one of the most fundamental connection one may establish in the process of cultivation. It is the labour and effort that one contributed for the subsistence of supply of foods for survival that make the individual owner have control over the foods or resources he or she so cultivated. The same fundamental connection should be applied to digital resource on the basis that the creator of the digital resource ought to be given the ownership status and control over the use of the digital resource because it was the creator who contributed labour and effort to create the digital resource in question.

²⁹⁴ J William Blackstone, Commentaries *138
3.1.2 Industrialisation and Commercialisation.

In the mid eighteenth century, industrialisation led to social and economic change that transformed human group from an agrarian society into an industrial one. It involved extensive re-organisation of economies for the purpose of manufacturing. A system of production had arisen. The system was based on the division of labour and the use of mechanical, chemical, organisational and intellectual resources to enhance production. The new machinery increased production capacity and speed for the manufacture of goods and equipped the people with the ability to trade and transport raw materials.

As a result of this period of industrialisation, more resources were needed to be consumed for production. Land, raw materials, and other material factors of production were to be converted to new uses and passed on from supplier to manufacturer and onto consumer. The idea of common resources which were available and free for all was no longer sustainable as compared to the pre

industrialisation period.\textsuperscript{299} A system was needed to be established to manage the common resources and to transform them into property.\textsuperscript{300} In order to facilitate the transition in this era, property or its rights must be capable of being assigned and transferred. In doing so, it was then highly debated as to which system was better, namely common property regime and private property regime to manage the resources.\textsuperscript{301} Nevertheless, it was of certainty that a concept of property was needed to be developed further from the simple conception of property as things in order to meet the challenges of industrialisation.

When resources uses in production are tradeable, people would invest more in trade activities for reason that the whole world would become the market for their efforts.\textsuperscript{302} Changing market conditions also exerted pressure for the need of adjustments in the then existing property structure through the refinement of rights and privileges in resources in response to the new economy.\textsuperscript{303}

Such development as evidenced in the industrialisation period is a lesson to be learnt which is closely relevant to digital resources in cyberspace in that when digital resources are free for all without adequate and efficient control, this has resulted in the body of unregulated digital resources. The consequence of this is that digital resources will no longer be sustainable in cyberspace. Similar to the period of industrialisation, a cohesive and efficient system is needed for the management of digital resources and to

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\item[301] Alan Macfarlane, The Mystery of Property: Inheritance and Industrialisation in England and Japan, alanmacfarlane.cn/TEXTS/property_japan.pdf Date Accessed: 01.07.2015
\end{itemize}
\end{footnotesize}
transform them into property so that digital resources are capable of being assigned and transferred adhering to proper rules and principles adopted and implemented.

In the eye of economists, common-property regimes were presumed to be inefficient on the basis that no one had any incentive to work hard in order to increase their private returns. The misconception over the common property regime and its discussions were often associated with the idea of the “Tragedy of the Commons.” Carlos and Lewis argue that this situation of the tragedy of the commons has made the private property regime well accepted in the legal literature of the early nineteenth century. As a result of that, a commonly recommended solution to problems associated with the governance and management of resources was towards ‘privatisation’.

Many believed that private services and operations would in principle enhance efficiency and quality when taken private because private owners cared more for cost reduction and profitability. It was firmly believed that markets and private property were essential institutions for economic prosperity. The significant factor during this period was the process of change from the early system of common resources for agriculture into industrial production; trade and private property.

Industrial and agricultural commodities clearly fit into the definition of private goods or properties. Individual rights to exclude and to transfer control over these goods generated incentives that led to higher levels of productivity than other forms of

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305 Ann M. Carlos and Frank D. Lewis, Property Rights, Standards of Living, and Economic Growth: Western Canadian Cree, Queen’s Economics Department Working Paper No. 1232
property arrangements. The institutional changes in the late eighteenth century together with the Industrial Revolution resulted into a cauldron of ‘a combination of better-specified and enforced property rights and increasingly efficient and expanding markets.’

Property rights defined what actions individuals could take in relation to the ‘thing’ against other individuals. If one individual had a right, someone else had the commensurated duty to observe that right. Schlager and Ostrom have identified five property rights that were most relevant for the use of common-pool resources including access, withdrawal, management, exclusion and alienation.

(1) **Access**: The right to enter upon a defined physical area and enjoy non subtractive benefits;

(2) **Withdrawal**: The right to obtain resource units or products of a resource system;

(3) **Management**: The right to regulate internal use patterns and transform the resource by making improvements. The right of management is a collective-choice right authorising its holders to devise operational-level withdrawal rights governing the use of resources.

(4) **Exclusion**: The right to determine who will have access rights and withdrawal rights, and how those rights may be transferred;

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(5) **Alienation**: The right to sell or lease. The right of alienation is also a collective-choice right in which it permits its holders to transfer part or all of the collective-choice rights to another individual or group.  

Instead of looking at each of the right from the above separately, Schlager and Ostrom argue that it is useful to classify five types of property-rights’ holders as follows: (1) Owner; (2) Proprietor; (3) Claimant; (4) Authorised User and (5) Authorised Entrant and to note the number of rights each so possesses in these five types of property-right holders. This is to show that property gave rise to property rights in which it allowed the various property-right holders to have different dealings with the property in question. Schlager and Ostrom further argue that this bundle of right model is very useful in demonstrating how property could be utilised in many ways by different parties which were quite contrary to the traditional concept of property that emphasised on the notion of absolute dominion and the exclusive right of possession.  

A more detailed elaboration of the bundle of rights model will be discussed in the later part of this chapter.

Based on the above periods, property meant tangible and physical things such as land and things attached to land. It was through occupation and possession that man acquired and retained some form of control and transient ownership over property. Property was largely for the purpose of maintaining human subsistence, survival and security. However, during the period of industrialisation, people realised that property meant more than merely a tangible, physical thing that could maintained human subsistence,

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survival and security. People perceived property as a subject of trade and business transaction. People also realised that there were various rights in property.

3.1.3 E-commerce and Knowledge Economy.

The early societies did not emphasise, probably due to the lack of knowledge on the notion, that people could own property in ideas or innovations. Intellectual property and its rights began to be increasingly respected during the industrial revolution. The Industrial Revolution made technological improvements in the field of production. Businesses’ goodwill, trademarks and trade secrets were created and developed. These were valuable assets in the era of industrialisation. Furthermore, the integration of industrialisation, creation and development of information technology and with the invention of internet it has changed the mode of production, adjusting the industrial structure, changing the modes of resource allocation and facilitated economic growth. It was necessary to have a proper institution to encourage such technological progress. Intellectual property is now recognised as one of the most important corporate assets of many companies in the world and it is the foundation to maintain market dominance and continuing profitability in modern society.

318 Kelvin King, The Value of Intellectual Property, Intangible Assets and Goodwill
Inventions needed incentives and intellectual property rights provide the much needed incentives for successful inventors. This differs from those that support the growth of markets by protecting physical property rights.\textsuperscript{319} To regard property as ‘thing’ would only make non-physical property such as intellectual property unexplained because intellectual property does not really have the physical existence. When property is conceived as things, it conforms to the idea that there will be only one owner who holds the ownership over the property.\textsuperscript{320} The problem with this conception is that this does not fit into the modern dispersion of the incidents of ownership among several parties and its inability of handling divided legal control over objects.\textsuperscript{321} Thing-based concept of property is inadequate to describe the legal realities of property system.\textsuperscript{322}

The recognition of intangibles such as intellectual property is a significant advancement in the property regime. The overarching goal of private intellectual property is to provide incentives to investors and to encourage new technologies, artistic expressions and inventions while promoting economic growth.\textsuperscript{323}

In the historical development of copyright law, the question of whether copyright is a property right or statutory privilege was first raised in the early 18\textsuperscript{th} century.\textsuperscript{324} Tómas Gómez-Arostegui questioned whether:

\begin{quote}
``in the 18\textsuperscript{th} century, copyright was a natural customary property right, protected at common law, or a privilege created solely by statute. This view point
\end{quote}

\begin{flushright}
\textsuperscript{320} Leif Wenar, \textit{Essay: The Concept of Property and the Taking Clause}, 97 Colum. L. Rev. 1923, p4
\textsuperscript{321} Bruce A. Ackerman, \textit{Private Property and the Constitution} 10 (1977), at p26-27
\textsuperscript{322} Wenar, \textit{Essay: The Concept of Property and the Taking Clause}, 97 Colum. L. Rev. 1923, p4; Also refer to Gregory S. Alexander, Pluralism and Property, 80 FORDMAM. REV. 1017 (2011), p1023-24 stated that “property system should seek to nurture social relationship of equal respect and dignity, relationship of fairness and nondominion’’.
\textsuperscript{323} Nancy Gallini, University of Toronto Suzanne Scotchmer, University of California, Berkeley, \textit{Intellectual Property: When Is It the Best Incentive System?} http://ist-socrates.berkeley.edu/~scotch/G_and_S.pdf Date Accessed: 01.07.2015
\end{flushright}
competes to set the default basis of the right. The former suggests the principal purpose was to protect authors; the latter indicates it was principally to benefit the public.”

Perpetual copyright at common law existed long ago in history. Perpetual copyright at common law gives the author of his work a natural right to a property in his creation. This was justified based on the result of labour an author has contributed. However, many have argued that perpetual copyright at common law has been superseded by the Statute of Anne – Copyright Act 1710 based on policy consideration. Perpetual copyright at common law was rejected in the case of Donaldson v Beckett, where it was held that copyright was a deliberate creation of the Statute of Anne and thereafter treated as statutory property. Thus, the effect of the statute was to extinguish the common law copyright in published work, while leaving the common law copyright in unpublished works unaffected.

A similar decision has been reached in the aspect of common law copyright in the case of Wheaton v Peters. Craig Joyce in commenting on the decision of Wheaton v Peters stated that:

“an author, at common law, has a property in his manuscripts, and may obtain redress against anyone who deprives him of it, or by improperly obtaining a copy endeavours to realise a profit by its publication, cannot be doubted, but this is a very different right from that which asserts a perpetual and exclusive

325 Tómas Gómez-Arostegui, ‘Copyright at Common Law in 1774’, 47 Conn L. Rev. 4, 2014
326 Deazley. R., “Commentaries on Donaldson v Beckett (1774)”, in Primary Sources on Copyright (1450-1900), eds L. Bently & M. Kretschmer, www.copyrighthistory.org
327 (1774) 98 Eng. Rep. 257
329 33 U.S. 591 (1834)
property in the future publication of the work after the author shall have
published it to the world.*330

Based on the above elaborations, it can be concluded that the perpetual copyright at
common law is considered as ‘property’. However, the enactment of the Statute of
Anne and the above cases raised the rejection of the perpetual copyright at common law
so as to strike a more appropriate balance between the interests of the author and wider
social good as the author’s perpetual copyright would hamper the free circulation of
literature, knowledge and ideas.331 The implication of this to the present thesis is that
first, copyright was considered as ‘property’ which captures the same idea of the
“institution of property” as used in this thesis. Secondly, the property status of perpetual
copyright at common law has been taken away on the basis that such status has affected
the appropriate balance between the author’s right and social good at large. This
delicate balance between the creator of digital resources and public interests is still a
current issue. This is based on the assumption that the property referred to is ‘private
property’ in which the owner of private property has the right to exclude anyone from
using or accessing his property. This is where the present thesis comes in to propose
that one need not to curtail the property status of a piece of work or resource in order to
strike an appropriate balance between the author/creator’s private interest and the social
good/public interest at large. The three fold approach as proposed in this thesis, the
exclusive right of use determination within the bundle of rights theory, the rights-based
concept of property and the common property institution are able to maintain an
appropriate balance between the private interest and public interest within the realm of
property laws.

*330 Craig Joyce, A Curious Chapter in the History of Judicature, Wheaton v Peters and the Rest of the Story (of Copyright in the
New Republic), University of Houston, Public Law & Legal Theory Series 2005-A-10
331 Deazly, R. On the Origin of Right to Copy: Charting the movement of Copyright Law in Eighteenth Century Britain, 1655-
Physical property such as land, dwellings and household items which have been recognised as property is that man has control over these properties through occupation and possession for the purpose of maintaining human subsistence, survival and security. The question to be considered is how would intangible recognised as a form of property as the act of occupation and notion of possession do not apply to intangibles. The following are some justifications provided by various writers.

3.1.3.1 John Locke

Many philosophers and writers have advanced their justifications and reasons as to the existence of proprietary rights in intangibles such as intellectual property. John Locke explained the existence of proprietary rights in material object using the labour factor. According to Locke, the existence of a moral right to property depended critically on the idea that a person could acquire a property right in an object to which no one else has a prior moral claim or entitlement. The important emphasis on the Lockean approach was that one may appropriate property through one’s own labour.

According to Locke:

“Though the earth and all inferior creatures be common to all men, yet every man has a property in his own person; this nobody has any right to but himself.

The labor 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

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332 It seems that a thing is un-owned by anyone is a pre-requisite for a claim of property rights under the Locke’s theory as it is reconciled with the concept that all things were common and undivided as if there were but one estate for all (Justin L. 43. e. 1); to also refer John Locke, An Essay Concerning the True Original, External and End of Civil Government (1690).
it in, he hath mixed his labor with, and joined to it something that is his own and thereby makes it his property. It being by him removed from the common state nature placed it in, it hath by this labor something annexed to it that excludes the common right of other men.”

Locke through his theory advocated that by working on a particular object, we literally conjoin our labour (our ‘property’) into that object. Since the property was inextricably mixed and assimilated into an object, we attained a moral right to them based on the moral right to the labour so invested. The alternative interpretation of this passage was that one acquired the proprietary right in an antecedently un-owned object that has been improved by the labour so imputed because the labour have then created or added value that did not exist before in the world. No matter which interpretation one decides to choose to adopt, Locke’s theory was that labour led to the thing’s ownership but it cannot be applied universally in all situations. For instance, if a man put in his effort to keep a public park clean, his invested labour would not lead him to own the park because the public park is a public space in which same ought to be enjoyed by the general public.

Despite the limitation on Locke’s theory, it is nevertheless possible to provide justifications in protecting intellectual property from the Lockean approach. Generally, intellectual property is defined as creations of the human mind - creative works or ideas embodied in a form that can be shared by the others.

333 John Locke 1690, Chapter V
335 John Locke 1690, Chapter V
In Lockean’s terms, intellectual property therefore can be described as a mixture of a creative work or ideas of a person with some pre-existing ‘physical’ objects. Of course in the context of intangible and intellectual property, it is difficult to explain how such creative work or idea of man is to be combined with some pre-existing ‘physical’ objects.

A distinction needs to be drawn between a material object that is considered as common property and that of a material object that has been improved by the creator of the intellectual property in that his interest outweighs vis-à-vis all other competing interests in the world. The Lockean’s expenditure of labour alone do not justify the acquisition of ownership in the property but nevertheless the investing of one’s labour with the pre-existing material object do provide a basis that there is a moral significance in deciding whether the creator have any moral claim to the intellectual property therein.

In advocating that intellectual property ought to be accorded protection in that the creator of the intellectual property is able to acquire a strong prudential interest in his work because the creator did not anticipate that his time, energy and labour were to be unrewarded when he created the intellectual property. The prudential interest possessed by the creator of the intellectual property provides a basis that his invested work should also be protected morally.

It also conforms to the position that normative principles of justice suggested that the interest in controlling the disposition of one’s creation be accorded some moral protection but such kind of moral protection is not readily being appropriated at any

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336 An interest from the standpoint of objective or perceived as self-interest
338 ibid
time.\textsuperscript{339} An intellectual property should not be protected unless the effort and the labour of the creator which injected the ‘value’ into the property was previously not there. Without such value that has been injected by one’s effort and labour in a material object, it is difficult to justify the moral protection given and to distinguish the creation of the subject matter from general knowledge and common information.\textsuperscript{340}

\textbf{3.1.3.2 Personality Theory.}

An alternative to the Lockean model of property is the personality theory.\textsuperscript{341} The Personality theory is advocated by Professor Margaret Radin in which it justified the establishment of intellectual property on the basis that intellectual property is an extension of individual personality.\textsuperscript{342} Personality theorists such as Hegel advocated that individuals have moral claims to their own talents, feelings, character traits and experiences. An idea belongs to its creator because it is a manifestation of the creator’s personality.\textsuperscript{343}

Having control over physical and intellectual objects are essential for self-actualisation by expanding our own minds and mixing it with tangible and intangible items and the external actualisation of the human will requires property.\textsuperscript{344} Property provides a unique and suitable mechanism for self-actualisation in term of personal expression, dignity

\begin{itemize}
  \item \textsuperscript{341} Justin Hughes, \textit{The Philosophy of Intellectual Property}, 77 Georgetown L.J. 287, 330-350 (1988)
  \item \textsuperscript{343} Justin Hughes, \textit{The Philosophy of Intellectual Property}, 77 Georgetown L.J. 287, 330-350 (1988)
  \item \textsuperscript{344} Justin Hughes, \textit{The Philosophy of Intellectual Property}, 77 Georgetown L.J. 287, 330-350 (1988)
\end{itemize}
and recognition as an individual person. Professor Margaret Radin described this as the “personhood perspective”.

With some security over property, people can pursue their freedom in non-property areas or they may continue to develop themselves by using property to progress themselves toward the person whom they so wish to become. Hegelian interaction between property and personal development was that:

“Imaginative conceptions of our future selves are indistinguishable from fantasy or day-dreams unless they are supported by acquisition, investment, or planned savings . . . Anyone who wishes to conduct an inventory of his desires may profitably begin by walking round his own dwelling or looking into his wardrobe.”

Hegel explained intellectual property as follows:

“Mental aptitudes, erudition, artistic skill, even things ecclesiastical (like sermons, masses, prayers, consecration of votive objects), inventions and so forth, become subjects of a contract, brought on to a parity, through being bought and sold, with things recognized as things. It may be asked whether the artist, scholar, &c., is from the legal point of view in possession of his art, erudition, ability to preach a sermon, sing a mass, &c., that is, whether such attainments are “things”. We may hesitate to call such abilities, attainments, aptitudes, &c., “things”, for while possession of these may be the subject of business dealings and contracts, as if they were things, there is also something
inward and mental about it, and for this reason the understanding may be in perplexity about how to describe such possession in legal terms.\textsuperscript{349}

3.1.3.3 Utilitarian Theory.

Utilitarian theorists generally endorsed the creation of intellectual property rights as an appropriate means to foster innovation, subject to the caveat that such rights are limited in duration so as to balance the social welfare loss of monopoly exploitation.\textsuperscript{350}

Jeremy Bentham went beyond this justification for intellectual property rights, providing a clear explication of the differential fixed costs borne by innovators and imitators:

“[T]hat which one man has invented, all the world can imitate. Without the assistance of the laws, the inventor would almost always be driven out of the market by his rival, who finding himself, without any expense, in possession of a discovery which has cost the inventor much time and expense, would be able to deprive him of all his deserved advantages, by selling at a lower price.”\textsuperscript{351}

\textsuperscript{349} Hegel’s Philosophy of Right, Property
\textsuperscript{351} Bentham, Jeremy, 1789 [PML], An Introduction to the Principles of Morals and Legislation., Oxford: Clarendon Press, 1907
Control is granted to authors and inventors of intellectual property because such control provides incentives to them and those incentives are necessary for social progress.\textsuperscript{352} The reasons advocated for protecting intellectual property are that they facilitate and promote trade in the modern market for new ideas.\textsuperscript{353} As the law develops to protect intellectual property, it expedites the production of future intellectual property through the allowance of incentive, diffusion of use and establishment of fair transaction and at the end it benefits the society at large.

### 3.2 Common Property Institution.

In James Wilson’s words, the essential element in commons was that people had symmetrical freedoms and not that those freedoms are total.\textsuperscript{354} Hence, a system of law was needed to be established in order to manage the commons effectively. The problem lies in the common resources was that no one owned the resources and because of that no one would have the initiative to protect the resources. To resolve this, a common property regime was introduced which resulted in the resources being owned by number of individuals.\textsuperscript{355} Common property allowed the distribution of property rights in resources in which a number of owners were co-equal in their rights to use the resources. It changed the users’ perception with regards to the use and access of resource collectively. Ciriacy-Wantrup and Bishop explained common property as follows:

\begin{itemize}
  \item Ciriacy-Wantrup, S.V. and Bishop, R.C, 1975, Common Property as a Concept in Natural Resource Policy, Natural Resources Journal 15: 713-727; also refer to C.B Macpherson, 'Capitalism and the Changing Concept of Property', in Eugene Kamenka and R.S Neale (eds), Feudalism, Capitalism and Beyond (London: Edward Arnold, 1975) 105, 106
\end{itemize}
'Common property is not “everybody’s property”. The concept implies that potential resource users who are not members of a group of co-equal owners are excluded. The concept ‘property’ has no meaning at all without this feature of exclusion of all who are not either owners themselves or have some arrangement with the owners to use the resource in question.356

The term ‘common property’ refers to a distribution of property rights in resources in which a number of owners who are co-equal in their rights to use the resource.357 The concept of common property means resources subject to the rights of common use and not to a specific use right held by several owners.358 In the legal literature, distinction can be drawn from ‘common lands’ on one side and ‘tenancy in common’ on the other.359 The term ‘common lands’ or ‘commons’ are under conditions where there are no institutional arrangements. On the other hand, the tenancy in common refers to concurrent ownership of property in which two or more people possess the property simultaneously through the operation of law.360

The concept of “property” has no meaning without this feature of exclusion of all who are not either owners themselves or have some arrangement with owners to use the resource in question.361 The common property concept gave incentives to the co-equal owners by empowering them with the authority to decide on access, use and exclusion of resources. Others who were not members of the group of co-equal owners would be excluded from using the resources. Common property owners shared benefits and

356 Ciriacy-Wantrup, S.V. and Bishop, R.C, 1975, Common Property as a Concept in Natural Resource Policy, Natural Resources Journal 15: 713-727; also refer to C B Macpherson, 'Capitalism and the Changing Concept of Property', in Eugene Kamenka and R S Neale (eds), Feudalism, Capitalism and Beyond (London: Edward Arnold, 1975) 105, 106
357 Ciriacy-Wantrup, S.V. and Bishop, R.C, 1975, Common property as a Concept in Natural Resource Policy, Natural Resources Journal 15: 713-727, p715
358 ibid
360 https://www.gov.uk/joint-property-ownership/overview Date Accessed 02.07.2015
361 Ciriacy-Wantrup, S.V. and Bishop, R.C, 1975, Common Property as a Concept in Natural Resource Policy, Natural Resources Journal 15: 713-727, p715
enforcement.\textsuperscript{362} However, when resources are commonly and concurrently owned, it may create conflicts among the co-owners of resource. Therefore, it is important to manage the relationship between the co-equal owners of common property resources through an ‘institution’.

‘Institution’ is referred to as a system or an organisation which consist of formal or informal rules that would shape and regulate human interaction in relation to the commons.\textsuperscript{363} Institutions may be conceptualised as decision systems consist of three level hierarchy decision systems.\textsuperscript{364}

Level 1: Operating Level - Decision making relating to the determination of inputs, outputs, and the host of similar decisions made by the operating sectors of the economy, individuals, firms, industries, and public operating agencies such as water projects and irrigation districts.\textsuperscript{365}

Level 2: Institutional Level - It comprises of the institutional regulation of decision-making at the first level.\textsuperscript{366}

Level 3: Policy Level - changes in institutions on the second level are the subject of decision making.\textsuperscript{367}

Therefore, in order to manage this complex set of legal relations, an institution was needed to be established. Over exploitation and lack of preservation had affected the supply and existence of resources. Because of that, a proper institution had to be


\textsuperscript{363} Ciriacy-Wantrup, Natural Resources in Economic Growth, 51 Am J. Ag Econ. 1319 (1969)


\textsuperscript{365} Ciriacy-Wantrup, S.V. and Bishop, R.C, 1975, Common Property as a Concept in Natural Resource Policy, Natural Resources Journal 15: 713-727, p716

\textsuperscript{366} ibid

\textsuperscript{367} ibid
established to manage the resources. An institution based on common property has been formulated to manage the natural resources as well as communal grazing lands. A common property institution would set out the rules in relation to bounds of resources, \(^{368}\) user–group membership; monitoring and enforcement. \(^{369}\) Under the common property institution, the use rights of individuals could be delimited and regulated so that over exploitation of the resource would not result. \(^{370}\) The common property institution provides an ideal structure to regulate the use and allocation of resources.

It is useful to draw a comparison between common property and public goods as many may have come across the terms ‘public goods’ from the economic theory. Public goods theory defined public goods as both non-excludable and non-rivalrous in that individuals cannot be effectively excluded from use and where use by one individual does not reduce its availability to others. \(^{371}\) One may distinguish public good from common property based on the degree of rivalry of use and excludability. Public good has low degree of rivalry of use and low degree of excludability. Common property has low degree of excludability too but a relatively higher degree of rivalry of use than public good.

One of the examples of public goods is Bill Gates microcomputer software in the mid 1990s. Once the software program is written, additional users can copy the program, making it available to other users at no cost to the existing users. It can be too costly to

\(^{368}\) Bounds of the resources include definition and knowledge of the biological and physical parameters of resources being managed. Bounds also describe the limits on access to resource and actor’s participation in making or enforcing rules for resource use - Kathryn A. Kohm, Jerry F. Franklin, *Creating a Forestry for the 21st Century: The Science of Ecosystem Management*, Island Press, 1997, p425


prevent such copying hence it is also non-excludable. Yet Bill Gates became one of the richest men in the world selling a public good. This real world example illustrate that public goods that are non-rivalrous and non-excludable not necessarily produce less profit compare to private goods. In fact, many digital resources found in cyberspace shares similar characteristics with public goods that are non-rivalrous and non-excludable. For example, works created by the online creative communities. However, disputes often arise in these online creative communities which related to copyright issues in the areas of remix and reuse works. Perhaps one should consider applying the public goods theory or Common Property Institution and that should be able to resolve a lot of outstanding issues created by the application of copyright laws in these communities.

3.3 Bundle of Rights Theory.

As mentioned earlier in this chapter, intangible and intellectual property is undoubtedly the future of property, however intellectual property law regime is ineffective and is not suitable for application to the body of unregulated digital resources. A new concept of property needs to be based on right-based and to allow property to be owned and shared by different parties. The bundle of rights theory is a rights-based theory and its inherent flexibility makes it the most appropriate theory to be applied to the body of unregulated resources.\(^{372}\)

The use of the “bundle of rights” theory in this thesis differs from the use of the bundle of rights in copyright and constitutional laws’ context. It is acknowledged that “the bundle of rights” has been applied in intellectual property laws such as in copyright law.

\(^{372}\) Lee Ann Fennell, The problem of Resources Access, 126 HARVARD L. REV. 1471 (2013) support the application of bundle of rights metaphor and theory.
For example, the bundle of rights under the copyright law consists of the exclusive right of the copyright owners namely, (1) the reproduction in any material form (including the making of photocopies; recording and others), (2) the communication to the public, (3) the performance showing or playing to the public, (4) the distribution of copies to the public by sale or other transfer of ownership and (5) the commercial renting to the public. Rights in bundle of rights for copyright are ‘exclusive’ in nature. Whereas the bundle of rights relied upon in this thesis emphasises on the sharing or jointly owned and therefore rights in the bundle is not necessary exclusive in nature. For example, right to use digital resources can be assigned to several parties simultaneously and holders of such right have no power to exclude others from using the very same right.

The bundle of rights is also applied in the context of constitutional law. The acquisition of property by the State shall be met with adequate compensation payable to the owner.\textsuperscript{373} The right to exclude is considered as one of the most fundamental property rights in the bundle of rights in which the Government cannot take the right to exclude away from its owner without fair compensation.\textsuperscript{374} In the constitutional law context, property rights in the bundle are exclusive and are used as rules that resolves the conflict between competing private interests and public interest.\textsuperscript{375} The bundle of rights used in this present thesis is non-exclusive and is used to co-ordinate inter-relationship between private individuals who have interests in property.

3.3.1 Property Rights.

\textsuperscript{373} Kaiser Aetna v United States of America 444 U. S. 164, 176 (1979)
\textsuperscript{374} Leif Wenar, Essay: The Concept of Property and the Takings Clause, October 1997, 97 Colum. L. Rev. 1923
\textsuperscript{375} Examples: refer to the US cases of Lucas v South Carolina Coastal Council, 505 U.S. 1003 (1992) and Kelo v City of New London 545 U.S. 469 (2005)
As the present thesis contends that a rights-based theory should be adopted for the body of unregulated digital resources, it is of fundamental importance to understand what is meant by ‘property right’ under this theory. A right can be generally defined as an entitlement or a claim. Rights can be enforced by coercion or sanction or by the payment of compensation. In many cases, there is no need for any type of punishment as enforcement on the basis that many rights are generally accepted moral ideals. Dworkin expressed that the right exist because it was morally right that humans were equal. Dworkin distinguished the right from rules. Rights are more fundamental than rules in a legal system because rules express rights and rights exist before their expression in the form of rules.

Dworkin’s right’s thesis asserted that a right legal answer would be one that assert and protect rights which are explicit or implicit in the fundamental values of the legal system. To get the correct answer, judges must possess and appreciate the wisdom from the history of decisions and the understanding of the political value of a system.

In the context of property law, property right is defined as rights that govern the use and ownership of a thing or resource. When one is concerned with the usage and control of a thing or resource in question, it basically refers to the right of that individual in that thing or resource. The right ‘in rem’ in property originally meant a right “in a thing”.

This original concept helped give property its ‘in rem’ character, that is, a right that is proprietary in nature which is enforceable against the world at large.

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The Libertarians favoured property rights and agree that property rights include rights in tangible resources as well as movables resources.\textsuperscript{383} However, the Physicalist theory\textsuperscript{384} advocated that property must have its physical existence. Property rights only exist and is attached to such physical and corporeal property only.

According to Richard Epstein, property meant an individual’s right to unfettered possession, disposition and the use of corporeal and incorporeal objects.\textsuperscript{385} He further elaborated the scientific concept of property in that property was rights not things, that each property right was property and the independence of incidents for takings.\textsuperscript{386} Furthermore, he contended that no one could enjoy complete freedom to its usage, possession and disposal of his/her property without conflict the freedom of others. Hohfeld also expressed the following terms:

“Ownership [i]s a complex set of legal relations in which individuals [a]re interdependent. Because ownership is relational, no person can enjoy complete freedom to use, possess, enjoy, or transfer” their assets, conflicts and interferences with rights are unavoidable. The real question in every case is how courts make the value choices about which interferences with rights should be prohibited or permitted.”\textsuperscript{387}

This would basically involve the balancing between an individual and collective rights because these rights were correlated with one another. Hence the function of the

\begin{itemize}
  \item [384] Physicalism claimed that what is physical is metaphysically fundamental. It is not enough that the only substance is physical – the fundamental nature of the universe is physical, and this covers events and properties as well. So Physicalism should say:
    \begin{enumerate}
      \item the properties identified by physics form the fundamental nature of the universe;
      \item physical laws govern all objects and events in space-time;
      \item every physical event has a physical cause that brings it about in accordance with the laws of physics. (This is known as the ‘completeness of physics’ or ‘causal closure’.)
    \end{enumerate}
  \item [385] Laura S. Underkuffler, Essay: On Property: An Essay, October 1990, 100 Yale L.J. 127
  \item [386] Leif Wenar, Essay: The Concept of Property and the Takings Clause, October 1997, 97 Colum. L. Rev. 1923
\end{itemize}
concept of property in essence dealt with different problems which existed in relation to ‘property’ and how such problem should be resolved amongst members of the society.\textsuperscript{388}

As mentioned earlier, Professor Wesley Newcomb Hohfeld started the conceptual analysis of rights in terms of jural relations which led to the development of the notion that property consisted of not things, but legal relationships.\textsuperscript{389} It led to the view that those relationships were not relationships between persons and things, but relationships amongst individuals in relation to things.\textsuperscript{390}

Similarly, Felix Cohen described the ‘confusion’ of the idea of property “as a dyadic . . . relationship between a person and a thing”.\textsuperscript{391} He emphasised that in many cases there may be no thing in a property relationship and property essentially involved relationships between people.\textsuperscript{392}

Professor Wesley Newcomb Hohfeld in his legal theory conveyed the idea that one who had a right is opposed by another who had ‘no-right’ and these opposites were a set of legal relations that could describe any kind of property.\textsuperscript{393}

Hohfeld - Expositions of jural relationships were as follows:

(1) Right

\textsuperscript{389} Wesley Newcomb Hohfeld, \textit{Some Fundamental Legal Conceptions as Applied in Judicial Reasoning}, 23 Yale L.J. 16 (1913); Wesley Newcomb Hohfeld, \textit{Some Fundamental Legal Conceptions as Applied in Judicial Reasoning}, 26 Yale L.J. 710 (1917)
When one has a right, legal claim-right it meant that he was legally protected from interference by another. Conversely, another person who had been restrained to interfere, he was under a correlative duty to do so.\(^{394}\) That meant the owner who had the right must be able to pinpoint another person with a correlative duty. For example, the law provided a normative protection against trespass on one’s property, the others are therefore under a duty to abstain from entering into other’s property without authorisation.\(^{395}\)

(2) **Liberty**

Liberty meant the freedom to do anything in the absence of any restrain. The correlative jural relationship showed that the person against whom the liberty was held had a no-right concerning the activity to which the liberty relates.\(^{396}\) For example, X was irritated by Y who used aerosol to paint on the wall in public place. When X asked Y to stop, Y said that he has the right to beautify the wall. In this case Y did not have a right but merely a liberty to do so in the absence of any legal prohibition. Although Y has no-right concerning X’s activity, Y has the liberty to raise his voice or to criticise X’s activity.\(^{397}\)

(3) **Power**

Power is one’s ability to alter legal relations and the correlative jural relationship is liability.\(^{398}\) However, the practical term of ‘power’ is often

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confused with the right to do so. For example if N steals a car, does N have the right to sell it to M? The answer is no. Although M may be a bona fide purchaser for value and hence N has effective power to cause the title to pass onto M, N has no right to sell the car and therefore liability should be attached to any such misuse of power.\textsuperscript{399}

\textbf{(4) Immunity}

If P has immunity against Q, it meant that Q has no power to change P’s legal position with respect to any entitlements covered under the immunity.\textsuperscript{400} If the State has no power to acquire a property from S for development purpose, S has an immunity in that respect and the State has a disability which is the correlative jural relationship of immunity.\textsuperscript{401}

As illustrated from the above exposition of jural relationships, no one can enjoy complete unfettered freedom to use, possess and disposal of his/her property without conflicts and interference of the freedom of the others. This jural relationship has set the basis for the concept and institution of property - involving balancing of an individual and collective rights as these rights are correlated with one another.

One of the most notable critics of Hohfeld’s jural relation was MacCormick whose view was that legal right is not (or does not) have to be correlative to a duty placed upon another individual.\textsuperscript{402} He states that:


\textsuperscript{400} N.E. Simmonds, Introduction in W.N. Hohfeld (2001), p.xv


“[t]o rest an account of claim rights solely on the notion that they exist whenever a legal duty is imposed by a law intended to benefit assignable individuals ... is to treat rights as being simply the “reflex” of logically prior duties.”

MacCormick regarded right as a standard intention to confer some form of benefit and when the benefit is conferred, the law would provide a normative protection to that individual. This normative protection may include any or all of the various modes identified by Hohfeld and others such as duties, disabilities. Hence, MacCormick viewed legal rights as ‘grounds’ of duties or reasons rather than simply being a correlative of the duty. However, MacCormick failed to appreciate Hohfeld's conception of jural relations properly. Nikolai Lazarev points out that Hohfeld never intended to be concerned with anything else but the relationships of mutual entailment.

Henry T. Terry also explained the co-relative relationship between rights and duties. A legal duty was the legal condition of an individual whom the law commanded or forbid to do any act. The law did not create duty; the law merely recognised its actual or possible existence. Henry’s contention was similar to Hohfeld’s jural relation in terms of right and duties on the basis that one did not really need to go into complex argument to justify the existence of a right or its duty and vice versa.

Property right takes precedence over other rights and claims. This proposition was explained by Sir William Blackstone. According to Sir William Blackstone, he differentiated between ‘absolute rights’ of an individual (natural rights which exist prior

to the State) and social rights (contractual rights which only evolved later). Property right was one of the natural rights. The absolute or natural right exists prior to the State and hence takes priority over any social or contractual rights when it comes to enforcement.

Social or contractual rights on the other hand are rights derived from the absolute or natural right. The formation of States and societies primarily is to maintain and regulate the absolute or natural right. The social and contractual rights are the relative results from the formation of States and societies. They are secondary to the absolute or natural right.

Property rights and duties are good against the world. The owner of digital resources can invoke the power of the state to enforce his property rights in digital resources. Furthermore, the owner does not need to have a pre-existing relationship with another person before the owner can bring that person to account for the violation of property right. Contractual right on the other hand is an obligation which is applied narrowly against a specific individual. There must be a valid contractual relationship in existence before any claim can be initiated for a breach of contract complained of.

Many digital resources property ownerships acquired are the fruits of effort and creative labour of the creator which is very valuable and important. It is that such noble work which is worthy of due recognition and rewarding. The reward is that society dignifies such effort and creative labour by giving the power to restrict the freedom of others in

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409 William Blackstone, Commentaries of Laws of England (1753), Chapter 1 – Of the Absolute Rights of an Individual
which the flip side of it is the token of respect the creator earns. Because of that, property right is a right good against the whole world. The same reason that justifies such recognition and reward is not found in any other areas of law that give rise to such right such as the law of contract. Because of that, it is advantageous for all to secure property right status for digital resources rather than other rights arising from contract law or other branches of laws.

In summary, it may be said that rights’ theories and the notion of rights provide the fundamentals and philosophical background for an in-depth understanding in property, without which it is difficult to appreciate the concept of property that is rights-based, and the Bundle of Rights theory that is capable of being developed into a comprehensive system of law that would accommodate and manage digital resources effectively.

3.3.2 Contents of the Bundle of Rights Theory.

In the traditional concept of property, property rights were created by law that was attached to a physical property. The general perception was that people always placed more importance to the actual physical property. The property right on the other hand was just like a legal fiction to describe and to explain how property was utilised and controlled by its owner. However, in the bundle of rights theory, property rights were not just a legal fiction but were the basis and foundation of this legal theory.

John R. Commons wrote:

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“Property is, therefore, not a single absolute right, but a bundle of rights. The different rights which compose it may be distributed among individuals and society—some are public and some private, some definite and there is one that is indefinite. The terms which will best indicate this distinction are partial and full rights of property. Partial rights are definite. Full rights are the indefinite residuum. … The first definite right to be deducted from the total right of property is the public right of eminent domain. This is the definite right which belongs to the State in its organised capacity of purchasing any property whatsoever at its market value, whenever public safety, interest, or expediency requires. It is merely a definite restriction upon the unlimited control which belongs to the individual.”

John Maurice Clark, Social Control of Business (1939, 94) said:

“Most people think of property as a tangible thing which somebody owns. But the important question is what is this thing we call ownership? Ownership consists of a large and varied bundle of rights and liberties.”

Prior to 1880, property was understood as a thing owned and ownership means the owner’s dominion over the thing. Ownership entailed the corresponding duty on others to respect the owner’s dominion and not to mess with or interfere with the property. The bundle of rights theory only gained more attention in the age of expanding

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democracy and collectivism. In the culture of collectivism, property was characterised as a “bundle of rights” rather than just a thing. The “bundle of rights” formulation would make government intervention being regarded as not violating the rights in property, but rather as rearranging or redefining of the bundle.

In the bundle of rights, also known as the bundle of sticks theory, no physical property existed. The property right or the stick in itself was property. Bundle of rights was characterising property as a set of rights. Each of the rights in the bundle was independent from each other. Because of that, the bundle of rights theory was able to subdivide rights and decompose privilege of use to various parties. This implicated that there were more than one individual that could hold or has been given a right in the property. The theory emphasised on concurrent and multiple ownerships as opposed to thing-based property concept that emphasised on a sole ownership in property.

The bundle of rights theory did not emphasise on sole possession and the right to exclude the others from the property. The right to exclude was considered as one of the most fundamental aspect of ownership in the traditional concept. The right to exclude or the notion of exclusion accounted for the dynamic efficiency of property in the traditional thing-based property concept. The right to exclude was merely one of the

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416 Collectivism is any philosophic, political, religious, economic, or social outlook that emphasizes the interdependence of every human being. Collectivism is a basic cultural element that exists as the reverse of individualism in human nature (in the same way high context culture exists as the reverse of low context culture), and in some cases stresses the priority of group goals over individual goals and the importance of cohesion within social groups.


419 Denise R. Johnson, Reflections on the Bundle of Rights, Vermont Law Review Vol. 32:247

420 Thomas W. Merrill and Henry E. Smith, Making Coasean Property More Coasean, March 9, 2010
rights in the bundle. The bundle of right theory stressed on the allocational efficiency that came from the free exchange of rights.421

The essence of the bundle of rights theory was that rights in property could be divided into many smaller segments of right or interest.422 The basis of such theory was that the metaphor – bundle of rights in the concept of property was used to describe property as a collection of rights in property. In the bundle of right theory, property meant ‘property rights’.423 Each property right (or stick) would become a property on its own. This made the bundle of rights theory unique.

When each stick in the bundle of rights is a property, removal of a stick from the bundle did not affect the remaining sticks in the bundle and therefore the removing of a property right was an independent act for alienation. This principle explained the situation that a person was considered as the owner of a property despite the fact that he had assigned certain interests in property to others.424 For instance, in intangible property for instance, under the copyright law, copyright owner is accorded or given certain rights such as the right to reproduce and the right to distribute. Even though the copyright owner has assigned those rights to another, he or she is still the legal owner of the copyright. Likewise, a person was still an owner of the land despite the fact that he had given away some of the property interest to somebody else such as an easement or a right of way. The transfer or assignment of proprietary right or other right was regarded as a separate act insofar as it did not affect the general nature of proprietary ownership. However, one must be cautious that the application of such principle may not be suitable in all situations especially when dealing with the assignment of proprietary right of physical property on the basis that in physical property, many property rights

421 Thomas W. Merrill and Henry E. Smith, Making Coasean Property More Coasean, March 9, 2010
423 Leif Wenar, Essay: The Concept of Property and the Taking Clause, 97 Colum. L. Rev. 1923, p5
are inter-related to one another such as right of possession is inter-related to right to use. Without physically possessing the property, the owner would not be able to use the property.\textsuperscript{425}

There are various rights in the bundle. One of the important issues arising in the bundle of rights theory is what constitute or make up the full bundle of rights? Is there a full bundle of rights in the first place? What are the various categories of rights to be included in the bundle? There are no conclusive answers to all these questions in relation to the bundle of rights theory itself. However, reference can be made to A. M. Honoré’s article that was written in the early 1960s on ownership in which he attempted to list the standard incidents of ownership in relation to the bundle of rights theory.\textsuperscript{426}

He claimed that his list of standard incidents that constituted full ownership was “common to all ‘mature’ legal systems.”\textsuperscript{427} A. M. Honoré sought to identify the standard incidents of ownership that were present when an individual was the ‘full owner’ in a mature, liberal system of law.\textsuperscript{428} He concluded there are eleven incidents as follows:

\begin{enumerate}
\item **Right to Possess:**

It was the foundation of the whole superstructure of ownership. It referred to the right of ‘exclusive physical control of the thing owned’. This was the right in *rem* and in the case of land, the owner was entitled to exclude anyone from entering into his or her property subject to exception.\textsuperscript{429}
\end{enumerate}

\textsuperscript{425} Hegel’s *Philosophy of Right*, https://www.marxists.org/reference/archive/hegel/works/pr/property.htm. Date Accessed: 03.07.2015
\textsuperscript{429} Government Officials do possess the legal right of enter into private property for public purpose
(2) **Right to Use;**

Right to use was one of the fundamental features of ownership. It referred to the right ‘to personal enjoyment and the use of thing’. The owner possess the right to use it for his or her personal purpose and to enjoy its feature.  

(3) **Right to Manage;**

It was a right ‘to decide how and by whom a thing shall be used.’ This right depended on a cluster of powers. The cluster of powers directed as to how such resources were to be used and exploited in the economic or political sense. This was basically a managerial power the owner enjoyed. The issue was what did the ‘legal owner’ really owned? The legal owner could direct others as to the use of the property in accordance with his or her wishes. For example, an author of a copyrighted work could delegate the right to manage to his or her publisher. The publisher had the economic right such as the right to reproduce. However, the publisher does not own the ‘moral right’ which was essentially the right belonging to the author.

(4) **Right to Income;**

Income meant a benefit derived from forgoing personal use of a thing and allowing the others to use it in exchange for a reward. For instance, owner of a house lets his or her house to others in exchange for an agreed rent. It is the simplest way of deriving an income from the property.

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430 The use can also be limited in the sense that certain restrictive laws do apply like building laws, use of land restrictions. Such is also the situation with regards to obscene materials or photographs written or taken when the publication or selling of such are prohibited by laws or against public policy.


(5) **Right to Alienate;**

The right to alienate included the right to sell it or give it away, to consume, waste, modify or even destroy it. That was a fundamental basis of ownership. The owner has the power to do whatever he or she so wish to do with his or her personal property.\(^{433}\)

(6) **Right to Security;**

It referred to an owner’s right to remain as the owner indefinitely if he or she so chooses and remain solvent. This was immunity from expropriation which provided that the transfer of ownership was consensual subject to bankruptcy and execution for debt. Even the acquisition of property by the State shall be met with adequate compensation payable to the owner.\(^{434}\)

(7) **The Incident of Transmissibility;**

It is referred to as ‘the power to devise or bequeath the thing.’\(^{435}\)

(8) **The Incident of Absence of Term;**

It refers to the indeterminate length of one’s ownership rights.\(^{436}\)

(9) **The Duty to Prevent Harm;**

It referred to a person’s duty to refrain ‘from using the thing in certain ways that may cause harm to the others.’ What amounts to harm to others is


debatable. A distinction had to be drawn between harm to others and minor inconvenience to neighbours.⁴³⁷

(10) **Liability to Execution;**

An owner’s interest in property could be taken away when he or she was subjected to a liability such as debt, either by way of execution of a judgment or insolvency.⁴³⁸

(11) **The Incident of Residuary**

It was argued that the term absolute ‘ownership’ did not exist under the English law because in a property dispute, one need only prove that he or she had a better title than the others. It implicates that under the English law, property was not lodge with one person only.⁴³⁹ Besides that, the owner of a private property such as land may be subject to the State’s power to fetter his or her right in land. Therefore, when one is referred to the absolute owner of property, it means:

(a) His or her title to property is indisputable and

(b) that he or she has all the rights of ownership allowed by the legal system in question.⁴⁴⁰

According to A. M. Honoré, it is not necessary to hold all the eleven incidents in order to be the owner of the property. However, he did not specify the minimum number of rights required before the ownership of a thing was conferred. He also did not indicate

⁴³⁷ ibid  
⁴³⁸ ibid  
⁴⁴⁰ ibid
any preference on any of the eleven standard incidents or identify the more important ones compared to the others.\textsuperscript{441}

The combination of various incidents could add up to ownership rights.\textsuperscript{442} It depended on the context and the type of property in question. It is not necessary that all the incidents must be present. Ownership can be shared in a variety of ways.\textsuperscript{443} Thus, the bundle of separate sticks, together with various owners holding different sticks, meant that property ownership is a very flexible concept, largely unconcerned with the object itself. However, this may not be applied to all property. For example, under the right to income in which it referred to the benefit derived from foregoing personal use of a thing and allowing the others to use it in exchange for a reward. This idea of foregoing personal use of a thing seems to suggest that only one person can enjoy the personal use of a thing at a time i.e. only one person can drive a car at any one time. This implicates that the property in question is physical in nature. The right to use is co-related to the right to possess as no one can actually use the property without possessing it. This bundle of rights principle (the removal of a stick from the bundle would not affect the remaining sticks standing in the bundle) which is an independent act for alienation is not always applicable especially in the context of physical property.\textsuperscript{444}

Therefore, a well-designed and developed system must be formulated to be able to accommodate different types of properties, its interest and rights in an appropriate manner. The bundle of rights theory is able to provide great flexibility on the basis that it emphasised on the rights rather than the property itself and those rights are able to be fragmentised to various parties. Each right (stick) is capable of being assigned;

\textsuperscript{441} Denise R. Johnson, \textit{Reflections on the Bundle of Rights}, Vermont Law Review Vol. 32:247
transferred; used; accessed or sold independently without affecting the other rights in the bundle.\textsuperscript{445} The significance of multiple and concurrent ownership allowed a thing/resource to be utilised at an optimal level and yet the owner of such can maintain the control in the thing/resource without compromising his/her exclusive owner’s position. As explained in the earlier part of this chapter that society has transformed and evolved from an agrarian-based culture to an industrial-based economy and then onward to an information-based, a modern concept of property need to take into account that certain resources are intangibles. Such a concept needs to accommodate the disaggregation of ownership into a variety of interests held by many stakeholders in order to promote value, trade, and security in capital investments in all kinds of business enterprises.\textsuperscript{446}

Property law could no longer remain concerned only with physicalist, land-centered theory that has become irrelevant and inadequately accounted for with new forms of properties found in cyberspace. It is submitted that the bundle of rights theory is the most preferred theory and is able to achieve that and is considered as the most promising and ideal theory to be applied to digital resources in cyberspace.

\subsection*{3.3.3 Critics of the Bundle of Rights Theory.}

As the bundle of rights theory could be the most preferred legal theory to be applied to digital resources, it is necessary to take cognisance of what the critics have said and to observe the limitations of the bundle of rights theory. First, it was contended by some writers that the bundle of rights theory cannot facilitate claims over the

\textsuperscript{445} jane b. baron, rescuing the bundle-of-rights metaphor in property law, 82 u. cin. l. rev. (2014) available at: http://scholarship.law.uc.edu/uclr/vol82/iss1/2. date accessed: 03.07.2015
\textsuperscript{446} denise r. johnson, reflections on the bundle of rights, vermont law review vol. 32:247, p255
misappropriation of property because the ‘bundle’ theory was merely a formal analytical vocabulary which consisted a series of rights and specific incidents of ownership. These vocabularies itself cannot justify its existence.\textsuperscript{447}

The bundle of rights theory did not provide a comprehensive philosophical explanation as to the reasons why those rights existed in property. Harris and Penner argued that the bundle merely explained what property rights were contained in a specific example of property.\textsuperscript{448} The bundle of rights theory did not offer any explanation as to how the owner of property derived his or her right accordingly and how an obligation or responsibility imposed on a stranger in the factual situation.\textsuperscript{449} For example, every house owner expects a stranger to refrain from trespassing into his or her house. It is a right an owner enjoys exclusively. A stranger is under an obligation to restrain or to stay away from the house without authorisation. In contrast to Hohfeld’s expositions of jural relationships theory which provided a clear explanation on the co-relationship between a right and a duty, the bundle of rights theory does not offer an explanation on this co-relationship.

However, R. Claeys contended that the metaphor bundle was not being used in the nominalist sense. In nominalism, it sees property as a purely conventional concept with no fixed meaning. It is an empty vessel which can be filled by each legal system in accordance with its values and beliefs but as a tool to coordinate and a robust set of property rights.\textsuperscript{450} From this perspective, the theory of bundle of rights explained why all the various rights were included in the bundle and therefore rebut Harris and

\textsuperscript{448} J. E. Penner, \textit{The “Bundle of Rights” Picture of Property}, 43 UCLA L. REV. 711, 712 (1966)
\textsuperscript{450} Eric R. Claeys, \textit{Property 101: Is Property a Thing or a Bundle?}, Seattle University Law Review, forthcoming, George Mason University Law and Economics Research Paper Series, 09-09
Penner’s contentions that it was less effective to explain as to how the owners and strangers both used ‘property’ to derive their particular rights and responsibilities without keeping or referring the tedious list.  

The bundle of rights theory did not explain why any single bundle was peculiarly a bundle of property rights which would make up the notion of ‘ownership’. The bundle of rights theory also did not clearly define the meaning of ‘ownership’. Lack of such definition would create great confusion within the theory because the concept of ownership is traditionally understood as a full ownership in a thing/resource. Either an individual is an owner or is not an owner. It is difficult to apprehend the concept of partial ownership in property or ownership in a particular right in property without a clear and theoretical explanation to support such contention.

Another criticism on the bundle of rights theory was that the fragmentation of rights may lead to the risks of tragedies of the commons and anti-commons. Michael Heller’s ‘Anti-commons’ theory, states that anti-commons property could best be understood as the mirror image of commons property. A resource was prone to overuse in a tragedy of the commons when there were too many owners and each had the privilege to use a given resource and no one had a right to exclude another. However, Richard Esptein has criticised this theory as being without a substantial ground. In fact,

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451 ibid
453 Hardin 1968
the fragmentation of rights can be value-enhancing.\footnote{Epstein, Richard A., The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary, Standard Law Review 62(2): 455-523, 2010; Norbert Schulz, Francesco Parisi, and Ben Depoorter, Fragmentation in Property: Towards a General Model, 158 J. Institutional & Theoretical Econ. 594 (2002)} For example, the value of an apartment is dependent on the owner’s power to enter into leases and this generates gains from the trade for both the landlord and the tenant.\footnote{Robert C. Ellickson, Two Cheers for the Bundle-of-Stick Metaphor, Three Cheers for Merrill & Smith, Econ Journal Watch 8(3) September 2011: 215-222} When rights in property are vested in different parties, this will open up new vistas for more trade and opportunity. The implication of this is that first, it increases total value between the parties. Secondly, fragmentation designates who will be entitled to transact with the rest of the world in relation to the property in question. For example, A is an owner of a shop. A by assigning a lease to B who will use the shop to operate a business enhances the value of the shop. In this example, there is no indication that fragmentation of property rights as disintegration of property right.\footnote{Richard A. Epstein, Bundle-of-Rights Theory as a Bulwark Against Statist Conceptions of Private Property, Econ Journal Watch 8(3), September 2011: 223-235, p233} Voluntary transaction that creates divided interests moves \textit{along multiple margins}. The multiple margins here meant the difference between product’s (or service’s) selling price and the cost of production.\footnote{http://www.investopedia.com/terms/m/margin.asp Date Accessed: 06.07.2015} There is no risk so long as the trade or business produces gain for the parties (A and B) and there is no increase or decrease of rights against third persons.\footnote{Richard A. Epstein, Bundle-of-Rights Theory as a Bulwark Against Statist Conceptions of Private Property, Econ Journal Watch 8(3), September 2011: 223-235, p233} As long as one is aware of how the rights were separated and how could be reassembled, the parties would have the freedom to decide how they choose to interact among themselves and with the outside world.\footnote{Epstein, Richard A., The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary, Standard Law Review 62(2): 455-523, 2010}

Fragmentation of rights is value-enhancing to digital resources in cyberspace. For example, digital technologies have increased the value of information significantly. Digital technologies have successfully ‘break through the functional rigidities of print
media by providing users with extraction tools that enable them to sort and arrange data in ways meaningful to them.\textsuperscript{462} Hence, modern technology can turn incoherent data into meaningful and valuable information and therefore it is value enhancing.\textsuperscript{463}

Another criticism raised by Denise R. Johnson is that the bundle of rights theory emphasised on rights.\textsuperscript{464} However, it did not provide a clear understanding of property as a whole. It is contended that the various ‘stakeholders’ or ‘rights-holders’ should be recognised not merely as enjoying certain entitlements in property but also as being subjected to various duties and co-relative responsibilities.\textsuperscript{465}

In summary, the bundle of rights theory was able to provide a list of property rights. However, it did not provide any guideline as to the composition of the bundle for any particular type of property in question. It does not consist a philosophical theory in which it differentiated various types of property or ownership and to determine which property rights were attached to it respectively. For instance, what are the basic rights that exist in personal property? The bundle of rights metaphor merely serves as a model in which it consist a list of property rights that exist in property. Furthermore, the principle that each property right (stick) is considered as ‘property’ on its own lacks proper and clear justification.

In the context of digital resources, it is submitted that despite the criticisms and limitations of the bundle of rights theory as discussed above, the bundle of rights theory is considered as being able to provide a basic structure to arrange and prioritise the various rights in property. The bundle of rights theory has its utility in flexibility and

adaptability. It is not a set of social values but a system that facilitates the promotion of values in society.\textsuperscript{466} This is just what is needed for digital resources. The Common Property Institution will provide the conceptual framework for digital resources as a form of common property as there will be multiple and concurrent ownerships in digital resources. The bundle of right theory will further enhance the Common Property Institution by providing a system that fragmentise rights and interests in order to achieve ‘allocational efficiency’ in the private market.\textsuperscript{467} The complexity of contemporary property issues in particular with the growing importance of information technology and digital resources in cyberspace in fact makes the bundle conceptualisation more suitable to be applied in modern legal system.\textsuperscript{468}

3.4 Justification for granting Property Status, using the Common Property Institution and the Bundle of Rights Theory to manage the Body of Unregulated Digital Resources.

Digital resources are non-exhaustive in nature and once it is born, it is potentially available, without limits to everyone. As it is largely based on the idea of commons\textsuperscript{469} and the notion of intellectual commons, the concept of common property which emphasised on common ownership would be consistent with the unique nature of digital resources. Based on the contention that common property institution would provide an ideal and stable institution to manage resources, the issue to be discussed is whether this

\textsuperscript{466} Denise R. Johnson, \textit{Reflections on the Bundle of Rights}, Vermont Law Review Vol, 32:247, p269


\textsuperscript{469} The idea of Commons in General in Benkler’s words: [Commons] is the opposite of ‘property' in the following sense: With property, law determines one particular person who has the authority to decide how the resource will be used…The salient characteristic of commons, as opposed to property, is that no single person has the exclusive control over the use and disposition of any particular resource in the commons. Instead, resources governed by commons may be used or disposed of by anyone among some (more or less well-defined) number of persons, under the rules that may range from ‘anything goes’ to quite crisply articulated formal rules that are effectively enforced.
common property institution would be suitable to be adopted to manage digital resources in cyberspace. Furthermore, the bundle of rights theory is identified as the most ideal and appropriate concept of property with other legal theories in establishing a system of law to regulate and to protect digital resources. It is important to highlight the merits of attaching property status to digital resources such as ownership, well-established systems of law, legal entitlements, eliminating unfair contractual restrains, exclusivity and commodification.

3.4.1 Ownership

One of the most significant reasons to grant digital resources the property status is that digital resources and its rights are capable of being owned in common. Once digital resources or its rights have attained the status of property, it allows its owners to have the exclusive position to control digital resources.\(^{470}\) Hardin has demonstrated the tragedy of the commons in which public resources were overused and destroyed because there was no ‘private property’ limiting their usage.\(^{471}\) When digital resources attain the property status and are consequently owned, the owners of digital resources will have the exclusive position and discretion to allow others to make use of and access the digital resources beneficially.\(^{472}\) The owners of digital resources can also set and impose condition(s) on the usage and access of their digital resources. However, if digital resources are not considered as property, it will be regarded as something similar

\(^{470}\) Jane B. Baron, Property as Control: The Case of Information, 18 MICH. TELECOM, TECH. L.REV. 367, 2012


\(^{472}\) An example is to allow access of personal information to people who conduct market research for educational purposes
to that of common resources\textsuperscript{473} in which it will be a free for all situations. Everyone would want to have a free ride on digital resources available over the internet and hence misuse and over-exploitation will occur. When this happens, there will be no incentives for the creators of digital resources to further invent because the creators of digital resources would not have any control over the digital resources he or she has created.

\textbf{3.4.2 Well-established System of Law}

Once a digital resource acquires the property status, it would be subjected to a system that is backed by a well-established legal framework of laws and principles in safeguarding the rights and interests of the respective parties. Property laws and its principles have been established since early civilisation. \textsuperscript{474} The concept of property and the law of property have gone through historical development and progression. Property law and its principles have been recognised and invoked as a regulatory tool and instrument in property. \textsuperscript{475}

The significance of this is that with a proper system of law, it would encourage people to create more and increase the utilisation of digital resources. This is because when a proper system is in place the creators of digital resources are assured of their proprietary rights in digital resources and are well protected and they will have no fear of losing

\textsuperscript{473} Please refer to Appendix
\textsuperscript{474} https://www.law.berkeley.edu/library/robbins/CommonLawCivilLawTraditions.html. Date Accessed: 07.07.2015
their rights while sharing of their knowledge in digital resources. Hence this will
generate an increase in the exchange of knowledge; commercial traffic and reciprocal
transfer of resources for sale, grant or conveyance. Property laws protect emerging
interests in digital resources so that the emergent digital resources interest may be
productively used.476 It facilitates future advancement of digital resources and
information technologies.

Furthermore, ‘property’ is an engine that brings the general system of protection of the
resource into action.477 According to Lessig, property rules would permit each individual
to decide on what information to disclose and to protect. It equally applies to those who
value their privacy more and for those who value it less.478 When personal information
or data becomes property, it allows the individual (data subject) to control the
information by deciding what personal information or data is to be disclosed and to
protect. When an individual has property rights in his personal information or data, it
would require the others who are interested to obtain the personal information or data to
negotiate with that individual on the terms and conditions of disclosing or releasing
personal information or data.479

3.4.3 The Regulatory and Management Functions of the Common Property
Institution.

Common Property Institution is the ideal framework to be adopted in regulating and
managing digital resources. The success of common property institution depends on

476 Harold Demsetz, Ownership, Control, and the Firm: The Organisation of Economic Activity 177 (Blackwell 1988); Garrett
Hardin, The tragedy of the Commons, 162 Science 1243, 1243-1250 (1968)
479 Purtova, Nadezda, “Property in Personal Data: a European Perspective on the Instrumentalist Theory of Propertisation”,
how the institution is designed. In this regard, Elinor Ostrom has identified key design principles of a stable institution that would help users to withstand the tragedy of the commons.\textsuperscript{480} One of the important principles of a stable institution is that the user’s right to the resource needs to be clearly defined and identified. Without defining the rights and the interests of the various groups of users of the digital resources, it will be hard to build an institution in which all the parties’ rights, interests and co-respective duties are to be observed and recognised. When rights, interests and conditions of use are clearly stated it will reduce the possible risk of conflicts and dispute, and the benefit of the resources would be maximised accordingly.

In order to have a stable institution, Elinor Ostrom has stated the key principles of a stable institution whereby the user’s rights to the resource are clearly defined and identified. For digital resources, each right, interests and contingencies of uses must be clearly defined and prioritised. Property has evolved from its early tangible nature to its intangible variety now culminating in intangible and even commonly shareable digital resources. It is submitted that the earlier transitory theories of property while helpful in providing the underlying basis for digital resources to be considered as property, the theory of the bundle of rights will facilitate the regulatory and management aspects of the unregulated digital resources. In order to clearly define and identify the various rights in digital resources, the bundle of rights property theory demonstrates an inherent flexibility of the property concept and it opens up possibilities for varied and adaptable forms of property to be applied to the digital resources considered here.\textsuperscript{481} The bundle of rights theory\textsuperscript{482} is a rights-based theory that is able to fragmentise, alienate property rights independently, and emphasise on the importance of private market to achieve

\textsuperscript{480} There are eight principles related to design of stable institution


\textsuperscript{482} Brigham Daniel, Emerging the Commons & Tragic Institutions, Environment Law, Vol. 37. 515, p534; also refer to Professor Grey’s arguments cited in Freyfogle, Land use & the Study of Early American History, 94 Yale L.J. 717, (1985) at p736

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‘allocational efficiency.’ Allocaotional efficiency means social efficiency which would transgressed into such efficiency which meant that scarce resources are used in a way that meets the needs of people in a Pareto-optimal way. The common property institution is able to allow digital resources to have an optimal use.

3.4.4 Optimal Use

As digital resources are meant to be shared and accessible, its shareability and accessibility may conflict with the fundamental idea of making digital resources into property – so that it could be owned and to exclude the others from it. Hence in establishing an institution for digital resources, it is important to observe whether such institution is able to accommodate the shareable nature and the various incidents of ownership and the allocation of rights amongst different persons in a proper and flexible manner.

3.4.5 Incentivise Creators

As many digital resources are found as part of the massive internet infrastructures and systems which are accessible by all users, it is difficult to manage those users and to secure consensus amongst them as to how digital resources should be used and accessed collectively. When there are too many users involved and none of them owned the digital resources, exploitation is likely to occur. In order prevent any abuse and over-exploitation, access and use of digital resources, digital resources must be given the status of a property, that is propertised, and owned. The nature of property here means

that they are intangible, shareable, accessible, non-rival, transferable, replicable, and non-exclusive and their status is that they can be owned in common and not privately.

When a digital resource is propertised and owned, it incentivises creators of the digital resource because they are able to preserve their interests in digital resources by gaining control over the digital resource in question. The special position of being an owner is to have the right to determine how his/her digital resource should be utilised, shared in common and to dictate the terms of its usage. As copyright is generally protected under Malaysian Copyright Act of 1987, a similar justification and argument has been raised in Copyright law in which copyrights’ exclusive rights framework provides the creators with an economic incentive to create. The exclusive rights framework also entails large social costs and the creators therefore need to be given enough incentive to create in order to balance the system’s benefits against its costs.\(^{486}\) Therefore, by making digital resources as a form of property - common property (as the first step) it is able to incentivise creators of digital resources by allowing them to have the special right to control the access and use of digital resources.

### 3.4.6 Gaining Control

When a digital resource is propertised as common property, its rights would only be granted to such desired individuals (as opposed to the world at large) thus reducing the number of co-owners and authorised users significantly. This would enable regulating the various uses of digital resources and coordinating inter-personal relationships among the users are more controllable and manageable. Furthermore, the special position of being an owner is to have the right to determine how the digital resources

\(^{486}\) Shyamkrishna Balganesh, *Forseeability and Copyright Incentives*, 122 Harv. L. R. 1569 (2009)
should be utilised, shared in common and to stipulate the terms of use. Common property institution members of a clearly demarked group would have a legal right to exclude non-members of that group from using resource. This would allow the owners of digital resources to have control over their digital resources which is also considered as a form of an added incentive for its owners as stated earlier.

It is also important to discuss the general misconception in that ‘property’ is often regarded as something regarded as the private right of an individual. However, property need not be private and it also provides an important public function. Property is consciously designed to maintain a proper form of social order – manage inter-relation among parties who are interested in the property. The public function of property is crucial because collective community interests (such as coherence and harmony) are as important as private interests when it comes to defining property rights.

3.4.7 Commodification

Another significance of attaching property status to digital resources is to facilitate commodification. In fact, propertisation and commodification mutually enhance one and another. Commodification is essential for the extension of trade and commerce. Commodification is a transformation of things that may not normally be regarded as

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488 Please refer to above discussions in incentivise creators
491 Schiller, Herbert I. Who Knows: Information in the age of the Fortune 500, Ablex Publishing Corp, NJ, 1982
goods or services into a commodity. By transforming something into a commodity, its right/interest will be recognised as valuable and hence can be traded in the market. The market values of commodity hence reflect upon the preferences and demands of the society. With that, the holder of that commodity is at will to choose the manner of use for the highest-valued and the potential purchaser would pay the holder for that right in the commodity. Commodification and exchange of goods plays an important role in the capital market of modern society.  

Commodification emerge interests in digital resources so that it may be used productively. This new transformation process enriches useful things. These useful things become commodities by showing the twofold character of value in use and value in exchange. Things with great value in use often have low value in exchange and vice versa. Value in use is considered as a prerequisite for value in exchange.  

The real measure of the exchangeable value of all commodities is the labour put into their production. The reason one put in such effort to create a product to sell is to spare the other’s effort of creating the same thing. When we trade, what we are buying is the labour of others. Labour remains the real price: money prices are just nominal prices. We buy in from others things which would cost us more toil and trouble to do

493 Harold Demsetz, Ownership, Control and the Firm: The Organisation of Economic Activity 177, Blackwell 1988
495 Eamonn Butler, The Condensed Wealth of Nations and The Incredibly Condensed Theory of Moral Sentiments, 2011, Published in the UK by ASI (Research) Ltd., p14
ourselves.\textsuperscript{497} Hence, effort and labour are the key elements in quantifying exchangeable value in commodity.

Commodification occurs in cyberspace. For instance, digital resources such as information commons have been commoditised.\textsuperscript{498} More and more information are produced through a mechanism where users are invited to contribute individually to a large project that made up a very large number of separate contributions.\textsuperscript{499} An example of this is cloud sourcing. Although each individual’s contribution may carries very little value by itself, however the large-scale aggregation of all contributions can produce something that is of much greater than the sum of each individual parts.\textsuperscript{500}

When information becomes a commodity, private good, produced and sold according to profit criteria, according to Herbert Schiller, information becoming “something which, like toothpaste, breakfast cereals and automobiles, is increasingly being bought and sold.”\textsuperscript{501} If one takes on the meaning of commodification as that of a massification, then it is argued that mass-produced information has a lower quality than more selectively created information.\textsuperscript{502} But this may not be true because information does not decline in usefulness when there is more of it. An increase in the creation of information should be viewed as a positive trend unless the quality of information created has been compromised.\textsuperscript{503}

\begin{itemize}
\item Eamonn Butler, \textit{The Condensed Wealth of Nations and The Incredibly Condensed Theory of Moral Sentiments}, 2011, Published in the UK by ASI (Research) Ltd., p14
\item Schiller, Herbert I. \textit{Who Knows: Information in the age of the Fortune 500}, Ablex Publishing Corp, NJ, 1982
\item Eli Noam, \textit{Two Cheers for Commodification of Information}, June 27, 2001
\item Eli Noam, \textit{Two Cheers for Commodification of Information}, June 27, 2001
\end{itemize}
Another concern towards commodification of information is that it enters the stream of commerce without consider the intellectual content behind the information. This would be the same concern for intangibles such as digital resources too. The expansion of the market to information causes its unequal distribution. It is likely that commodification of intangibles requires institutional; legal and to such change to the conferment of property status. Such changes do not occur in an economic vacuum. A political pressure to `propertise' intangibles as commodities emerges when new profit opportunities arise. Successful appropriation of profit leads to strengthened calls for property protections on commoditised intangibles.

Not only information, knowledge has followed an uneven trend toward ever-greater commodification through the increase attribute to property right claims. Propertisation of knowledge has been preceded by an objective economic or technical change. It is argued that the increasing attribute of property right claims to intangibles is the defining aspect of the commodification process. The degree of intangibles' commodification is determined by the degree of propertisation. Commodification causes the creation of ownership and control relations in the information environment. The same principle applies to digital resources in cyberspace. Commodification of information or digital resources will enhance the commodity by making it ‘inexpensive’ and ‘highly competitive’. From a consumer and public perspective, low price of the commodity is an advantage. For example, paperbacks and cheap paper made books are widely

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505 Anthony Bonen and Jose Coronado, Delineating the Process of Fictive Commodification in Advanced Capitalism, American Economic Association, December 2014
506 Anthony Bonen and Jose Coronado, Delineating the Process of Fictive Commodification in Advanced Capitalism, American Economic Association, December 2014
507 Anthony Bonen and Jose Coronado, Delineating the Process of Fictive Commodification in Advanced Capitalism, American Economic Association, December 2014
508 Anthony Bonen and Jose Coronado, Delineating the Process of Fictive Commodification in Advanced Capitalism, American Economic Association, December 2014
affordable and hence make them more accessible.\textsuperscript{509} In time, information and digital resources should become cheaper and that makes long-term economic sense. However, commodification should not be assumed to be a social good or public good.\textsuperscript{510} More information or digital resources should be created and distributed, while enhance the ability of individuals and society to use and absorb it in view of the development of information and knowledge economy.

3.4.8 Exclusivity

The notion of exclusivity or the ‘right to exclude’ is considered as the most essential right in property. In differentiating between a ‘property’ and an ‘un-owned thing’, the right to exclude others is a necessary condition for identifying the existence of “private property”. The right to exclude plays an important role in defining a thing that is owned by someone.

According to Merrill and Smith that ‘thing-ownership’ can be reduced to an owner’s right to exclude the others from his or her thing. Although such contention may be an over-simplification on the true nature and conception of property, nevertheless, it is settled property law that ‘dominion or indefinite right of user and disposition is when one may lawfully exercise over his or her rights over particular things or objects, and generally to the exclusion of all others’.\textsuperscript{511} The word ‘dominion’ connotes a practical discretion which endows upon the owner of the property with the freedom from within

\textsuperscript{509} Eli Noam, \textit{Two Cheers for Commodification of Information}, June 27, 2001 contrast this position with Sharman, Darcy. Intellectual Property: An Historical Perspective on the Commodification of Information. MLIS, 2000 in which it stated that when information becomes proprietary, making it unaffordable and under-supplied with respect to the poorer and weaker parts of the population.

\textsuperscript{510} Social good is defined as a good or service that benefits the largest number of people in the largest possible way. Some classic examples of social goods are clean air, clean water and literacy; in addition, many economic proponents include access to services such as healthcare in their definition of the social or "common good” www.investopedia.com/terms/s/social_good.asp; please also refer to 3.2 Common property institution of the present thesis, distinction between public good and common property.

\textsuperscript{511} The American and English Encyclopedia of Law 284, John Houston Merrill Edition 1892
to deploy the property to any of a wide range of uses. Other writers such as Adam Mossoff called the right to exclude as the ‘right to use’ in his article in explaining the exclusive use in patent law.

When digital resources acquire property status, the owner of the digital resources would enjoy the exclusivity of digital resources. The owner would have the prerogative to perform an act or acquire a benefit from digital resources. Furthermore, the owner can also permit or deny others the right to perform the same act or to acquire the same benefit from the digital resource in question. Exclusivity in digital resources essentially means the bundle of exclusive rights that could be exercised by the owners in relation to the use and access of digital resources. The notion of exclusivity will be discussed in greater details in the preceding chapter of this thesis.

3.4.9 Legal Entitlement

Another merit of attaching property status to digital resources is that any legal entitlement granted to the digital resources cannot be taken away without fair compensation. The legal entitlement given under the property law is not easily taken away. According to Guido Calabresi and Douglas Melamed, when an entitlement is given under the property law, it is protected by a property rule. When someone who wishes to remove the entitlement from its holder, such person can only do so by buying
it from him or her in a voluntary transaction in which the value of the entitlement is to be agreed upon by the seller.\textsuperscript{515}

Legal entitlement can be explained from land property ownership perspective. Ownership entailed the duty bearing on others to respect the owner’s dominion - not to mess with the property. Property law rules clarify and proscribe ‘messing’ with property belonging to another and this presumption against ‘messing’ even applies to governmental intervention.\textsuperscript{516} For instance, when specific land parcels are required by the Government in order to accommodate the route of a new road, the protection of certain areas from flooding or suitable for the construction of new government office.\textsuperscript{517} Governments have the power of compulsory acquisition of land. The government can compel owners to sell their land in order for it to be used for specific purposes provide the Government follow the proper procedure and equitable compensation be paid to the land owner.\textsuperscript{518} This is to demonstrate that even government with special and superior power cannot simply take away legal entitlement belonging to an individual without consent and fair compensation. The application of the ‘liability rule’ is also to ensure that the transfer of entitlement is compensated accordingly. It is usually in the form of fair monetary compensation using the objective standard of values.\textsuperscript{519}

In contrast, the legal entitlement under a breach of contract would require the injured party, to establish the following:

(i) the actual loss has been caused by the breach;

\textsuperscript{516} Daniel B. Klein and John Robinson, Property: A Bundle of Rights? Prologue to the Property Symposium, Econ Journal Watch 8(3) September 2011: 193-204, p195
\textsuperscript{517} FAO, Land Tenure Studies 10, Compulsory Acquisition of Land and Compensation, Food and Agriculture Organisation of The United Nations Rome 2008
\textsuperscript{518} FAO, Land Tenure Studies 10, Compulsory Acquisition of Land and Compensation, Food and Agriculture Organisation of The United Nations Rome 2008
(ii) that the type of loss is recognised as giving an entitlement to compensation; and
(iii) that the loss is not too remote. A breach of contract can be established even if there is no actual loss but in such a case, there will be an entitlement to only nominal damages.

To secure the legal entitlement to damages for breach of contract, the claimants must satisfy the above three requirements. When the claimant fails to prove any of the requirements as stated above, he or she will fail in his or her claim for compensation. It is to say the success of seeking legal entitlement from the breach of contract depends on the arguments and the available evidence induced by the claimant. The legal entitlement under the property law, compensation from acquisition of land from the Government is assured on the basis that the owner has the *right to property*.

### 3.5 Implications of the property theories for the body of Unregulated Digital Resources: A Suitable Concept of Property.

This chapter has discussed the transition of various periods in human history and the evolution of the concept of property which has developed therein. The purpose of drawing all these transitions in human history as well as the evolution of the concept of property is that we want to study how these transitions and evolutions has influence or exerted impact on the establishment of the property theories for the body of unregulated digital resources in cyberspace.

#### 3.5.1 Implications of the Agrarian Period
The Agrarian period was primitive and was way before the modern period of e-commerce and knowledge. However, the idea of cultivation which led to the development of a permanent concept of property during the agrarian period has exerted significant impact on the establishment of the property theories for the body of unregulated digital resources in cyberspace. Although during the period of agrarian, property at that time refer to physical tangible food items or resources for the subsistence and survival (which is quite different from the non-physical and intangible resources our society is focusing now), however, the main emphasis on the system of cultivation was that it was through the effort and labour one had contributed to justify the existence of property. This idea of effort and labour contribution is equally applied in modern days not only to tangible property but to intangible property as well because it is through the effort and labour that one contribute which makes one capable of becoming the owner of a resource on the basis that an individual who has put in his or her time, effort, work and skill to create the resource or to improve and added value to the resource which was not there before. In this thesis, it is contended that the same principle and logical reason should be applied to allow the creator of the body of unregulated resources to be the owner of such and to accord the owner property legal status.

3.5.2 Implications of the Industrialisation Period and Commercialisation

During the period of industrialisation and commercialisation, production of food items or resources was no longer for one’s consumption. The production mode has been improved, changed and developed for mass production. Because of that, more resources are needed for the process. When more and more resources are utilised in production,
there was a need to convert those resources into tradeable resources (as opposed to common resources) as people would invest more in trade activities for reason that the whole world would become the market for their efforts. ⁵²⁰ Thus the changing market conditions also exerted pressure for the need to have adjustments in the then existing property structure through the refinement of rights and privileges in resources in response to the new economy. ⁵²¹ This came into the view that the development and evolution of the concept of property is initiated and motivated by the changing market conditions in society. It is necessary that the property concept has to be established further in order to facilitate the commercial activities in the new economy during the period of industrialisation and commercialisation. The same should be applied to the present era of digitalisation in which the changing market conditions as well as the creation and the rapid advancement in the information and computer technologies would initiate and motivate further rapid development and evolution of the concept of property that make these unique nature of body of unregulated digital resources to be considered as property and to attain property status.

3.5.3 Implications of E-commerce and Knowledge Economy

During the period of e-commerce and knowledge economy, intellectual property laws have become increasingly important and necessary in protecting intellectual creations of an individual. Creators are protecting their intellectual creations through a well-drafted intellectual property law regime. Creators of intellectual creations want to protect every single right and use that could possibly arise from their creations. As the result of that, more and more intellectual property laws were drafted in order to cover every possible

loophole and gap in the existing laws. However, this has lead to a situation of over-propertisation. When every intellectual creation has been propertised as intellectual property and are subjected to the strict control of the intellectual property owner, it would create a negative impact. The negative impact of over-propertisation of resources in cyberspace is that no one would allow the use or access the resources without the owners’ approval and owners would only allow the access and use of ‘propertised’ resources on condition fees imposed are paid.

This will have a serious implication in the era of digitalisation and information technologies by reason that the modern society has progressed into the new level in which it emphases on the sharing of resources and knowledge which the existing intellectual property law regime and its ideology is unsuitable to be applied in this new era. The negative impact of over-propertisation in intellectual property regime has made the society to realise that there is a need to seek a balance between propertisation and the freedom to use and access of intellectual creations. Such delicate balance is required to ensure that those intellectual creations are being utilised in the most optimal and beneficial level. The same goes to digital resources in cyberspace. The body of unregulated digital resources needs to have such delicate balance between being propertised and control on one hand and freedom of use and access on the other hand.

3.5.4 Implications of John Locke’s Theory, Personality Theory and Utilitarian Theory

The implications of the above theories are that they are highly relevant to the body of unregulated digital resources for reason that in order for the body of unregulated digital resources to be propertised and regulated, it requires that some conditions or element
are needed to be fulfilled to justify the granting of property status. John Locke’s theory and personality theory provided the connection between the creators and the digital resources created hence provided the justification for digital resources to be propertised and for the creator to gain the exclusive position to enable the creator to set the agenda for the digital resource that has been propertised.

On the other hand, Utilitarian Theory endorsed the creation of intellectual property rights as an appropriate means to foster innovation. However this theory also state that those rights are subjected to the caveat that they are limited in duration so as to balance the social welfare loss of monopoly exploitation. The implication of applying utilitarian theory to the body of unregulated digital resources is that when the body of unregulated digital resource is propertised and hence regulated, the law need to maintain the appropriate balance between the welfare of the society at large and the owner of digital resource. As mentioned earlier, such delicate balance is of utmost importance in order to achieve the optimal and beneficial use of digital resources.

3.6 The Contents of the Exclusive Right of Use Determination.522

Through the various analyses in this chapter, it is submitted that the new concept of property to be adopted for digital resources should enable the creator and or owner of the relevant digital resources to possess the exclusive right of use determination in which it would consists of some twenty-seven [27] rights. Contrast this with the bundle for traditional physical property in which there are three main rights for the owner of property namely (1) the right to use, (2) the right to enjoy and (3) the right to dispose.523

522 It refers to the owner’s exclusive right to determine the use and agenda of property. This will be discussed in details in Chapter 4 of this thesis.
523 Based on the Code Napoléon, Article 544
The list of rights that made up the exclusive right of use determination for digital resources are summarised as follows:

(1) Allows multiple and current ownership of digital resources;
(2) Fragmentises the rights and interests of digital resources;
(3) Possesses a non-exclusive nature to allow for the public use of digital resources;
(4) Is publicly available as it is without limits to everyone;
(5) Is based on the Idea of Commons;
(6) Enables the regulation and management of digital resources;
(7) Establishes a system of laws
(8) Allows for rights to digital resources that are capable of being owned;
(9) Provides for the adequate control of digital resources;
(10) Makes use of and access to digital resources beneficially;
(11) Sets up and imposes condition(s) on the use and access of digital resources;
(12) Increases the utilisation of digital resources;
(13) Protects emerging interests in digital resources;
(14) Facilitates the future advancement of digital resources;
(15) Enables the co-relative duties to be observed and recognised;
(16) Reduces the possible risk of conflicts;
(17) Enables each right, interest and contingency of uses to be clearly defined and prioritised;
(18) Accommodates the shareable nature of digital resources;
(19) Is Accessible;
(20) Can be commonly owned;
(21) Incentivises creators of digital resources;

(22) Grants rights according to the needs of individual users;

(23) Enables coordination of inter-personal relationships;

(24) Grants the legal right to exclude non-members of that group from using digital resources;

(25) Possesses the private right with a public function;

(26) Facilitates commodification and

(27) Provides a legal entitlement to fair compensation.

The impact of the list of rights that make up the exclusive right of use determination and how these rights are peculiar to digital resources in cyberspace are considered here:

(1) Allows multiple and current ownership of digital resources

The term “ownership” in traditional property law refers to tangible property where a person owns a piece of property. In the context of digital resources, ownership is not only confined to joint ownership or full ownership as in physical property but multiple and current ownership in which it allows many parties to be an owner of the digital resources jointly as well as simultaneously.

(2) Fragmentises the rights and interests of digital resources

The term “fragmentise” refers to separating various property rights in digital resources. The implication on the fragmentisation of the various rights and interests is that various rights and interests of the digital resources could be divided and shared among various parties. For example, in the context of online journals, the right to access could be granted to many parties who may be
interested in reading the journals. In addition, the right to copy could be granted to readers who may want to copy part of the journals in their research work. When various rights and interests are divided and compartmentalised it would allow the parties to utilize those rights appropriately without interference with others’ rights and interests. This may be contrasted with the traditional hard copy journals in which a limited right to copy inevitably comes together with the right to access (one cannot copy without having access to the journal). Although the right to read and the right to copy are two separate rights, they are inter-dependent on each other in the case of traditional hard copy journals. The inter-dependent relationship is not found in the case of online journals.

(3) Possesses a non-exclusive nature to allow for the public use of digital resources

The phrase “non-exclusive nature” refers to the general availability of the resources. Many digital resources are meant to be shared due to their non-exclusive nature. However, many traditional, physical resources such as precious metals are rare and exclusive in nature because one needs to control the use and access of it in order to maintain the continued subsistence and availability of the resource.

(4) Publicly available as it is without limits to everyone

Digital resources are publicly available. Their non-exclusive and non-excludable nature, that is, the sharing nature of a digital resource, allows it to be shared and no limits are set to its availability to everyone whereas the same cannot be achieved of traditional physical resources.

(5) Based on the idea of Commons
The term “Commons” refers to resources that can be commonly shared among users. Many traditional physical resources are limited and they are potentially subject to depletion: the idea of a ‘commons’ is unable to sustain its constant supply. However, digital resources are not subject to depletion and therefore, it can be based on the idea of a ‘commons’ in which it allows digital resources to be commonly available to everyone.

(6) Regulation and Management of digital resources
The non-physical and intangible nature of digital resources need to be regulated and managed with clearly defined set of rights and interests through the bundle of rights theory.

(7) Establishment of a System of Laws
The exclusive right of use determination is able to establish a proper system of laws that can regulate and manage the use of digital resources by identifying the various contingencies of use and interests.

(8) Allows for rights to digital resources that are capable of being owned
When digital resources and their rights are capable of being owned, it would lead to attaining a property status. The implication of this is that when a digital resource or its rights is considered as property, any dealing in relation to that digital resource or its rights would be subjected to the relevant legal rules and principles of property law.

(9) Provision for the adequate control of digital resources
One of the legal lacunae facing the above-mentioned body of unregulated digital resources is that there is no clearly defined right and interest in these resources. With clearly defined rights and interests such as right to use and right to access, it would facilitate control over digital resources adequately and effectively.

(10) Make use of and Access to digital resources beneficially

The term “beneficially” used here refers to resources that benefits society as a whole. Various rights and interests in digital resources could be fragmentised and be granted in order to take into consideration other legitimate competing interests. For example, an individual may grant a specific right from his personal information to another for the purpose of furtherance of scientific research.

(11) Sets and imposes condition(s) on the use and access of digital resources

Conditions here refer to the specific conditions on the use and contingency of use. With advanced computer and information technology, an owner of a digital resource is able to set specific conditions on the use and access of the digital resource. For example, a user cannot copy more than 20% of the digital work or the user may access the work for only a one week duration. However, it may require more afford to monitor the access or usage of physical resources.

(12) Increases the utilisation of digital resources

Utilization means to put digital resource to use. Well-defined rights and interests in digital resources allow an owner of digital resources to transfer or to deal with its rights and interests confidently and hence increase the utilisation of digital resources.
(13) Protects emerging interests in digital resources

The exclusive right of use determination does not set limits as to the number of
copyrights and interests in digital resources and hence it is able to include and protect
newly created rights or interests in the future.

(14) Facilitates future advancement of digital resources

When legal rules and laws governing digital resources are in place and well-
developed, it will further facilitate advancement of digital resources on the basis
that creators of digital resources will know that their creations will be properly
protected by the laws.

(15) Enables co-relative duties to be observed and recognised

Co-relation refers to mutual and corresponding duties. When one has a right in a
digital resource, the legal-claim right means the owner is legally protected from
any interference by others. At the same time, the others who have been
restrained to interfere is under a correlative duty to do so.

(16) Reduces the possible risk of conflicts

Conflicts here mean disagreement among users of digital resources as to how the
digital resources are to be used or accessed. When all the rights and interests of
digital resources are clearly laid down and defined, it reduces the possible risk of
conflicts among parties who are interested in the digital resource.

(17) Enables each right, interest and contingency of uses to be clearly defined and
priortised
Apart from clearly defining each right and interest, it is also important to prioritise each of the rights and interests accordingly, as some of the rights or interests take priority over other rights or interests. For example, when there are competing rights over digital resources, namely, a proprietary right and a contractual right, then the proprietary right takes precedence over the contractual right because the proprietary right is enforceable against the rest of the world whereas a contractual right is merely enforceable among the parties to the contract.

(18) To accommodate the sharing nature of digital resources

Sharable Sharing nature of digital resources points out that these resources can be shared by many parties at the same time. When digital resources are available over the internet with proper control and regulations, it serves to accommodate the sharable sharing nature of digital resources.

(19) Accessibility

The non-exclusive, transferable and replicable nature of digital resource makes it easily accessible. Accessibility refers to the digital resources being easily reachable.

(20) Common Ownership

When a digital resource is commonly owned, it means that the digital resource is being owned by a number of individuals as co-equal owners who have the right to use the digital resource. Common ownership also empowers them with the authority to decide access, use and exclusion of the resource. This is as opposed to privately owned digital resources where the owner may be an individual who
seeks exclusion by limiting the use and access of the digital resources in order to maintain their value.

(21) Incentivises the creators of digital resources

When digital resources are capable of being owned and propertised, the creators of the digital resources are incentivised to create more digital resources in the future as they know their creations will be duly protected by the laws.

(22) Grants rights according to the needs of individual users

The exclusive right of use determination is able to fragmentise various rights specifically such as the right to use or the right to copy and those rights can be granted for the specific needs of the users.

(23) Enables coordination of inter-personal relationships

Inter-personal relationships refer to relationships among individuals. When rights, interests and priorities are clearly defined, each party who has an interest in the digital resource is fully informed and aware of their legal position and hence, they are able to coordinate inter-personal relationships among parties who are interested in those digital resources.

(24) To have the legal right vested in the owners of digital resources to exclude a non-member of that group from using digital resources

When digital resources are common property, such common property is owned by a group of individuals who have the right to exclude non-members of that
group from using the digital resources in order to incentivize co-owners by giving them the shared benefits and enforcement.

(25) Possesses the private right with a public function
The exclusive right of use determination is the most appropriate way to regulate digital resources on the basis that it allows creators of digital resources to possess private right (control) in digital resources and yet maintain the public function of digital resources by providing a system to facilitate sharing of digital resources.

(26) Facilitates commodification
Before transforming a digital resource into a commodity, its rights and interests must be recognized as valuable. Propertisation is able to achieve that by attaching property status to a digital resource.

(27) Provides for legal entitlement and fair compensation
Owners of the body of unregulated digital resources who have suffered a misuse of their resources have no proper legal entitlement for fair compensation.
When digital resources are propertised, any interference with the rights or legal entitlements cannot be taken away without fair compensation. This scenario may be compared with a claim for legal entitlement under a contract which depends on many preliminary issues such as formation of contract, the breach of contract and the extent of loss suffered by the other party.

3.7 Conclusion
It is evident from history that the concept of property has gone through changes and evolution over the years as society progressed. History has indicated that the concept of property has focused on the content-based conception. However, as information technology and cyberspace develops, the content-based concept of property is no longer suitable to be applied in the era of digitalisation. The historical development of the concept of property has significant implications as to how the traditional concept of property should be evolved. This chapter contends that the concept of property must evolve further in view of the proliferation of information technologies and the unique nature of digital resources. In the era of digitalisation, it urgently requires a concept that is right-based and to describe ‘property’ not as a thing or as a content but rather as an abstract ‘institution’ to coordinate relationship among individuals who has right or interest in property. This chapter has so far identified twenty-seven [27] such rights in which it made up the contents of the exclusive right of use determination. The right-based concept would form the underlying basis to establish proper laws to manage and to protect the body of unregulated digital resources in cyberspace. This abstract institution together with the 27 rights which made up the contents of the exclusive right of use determination ought to be incorporated in the digital management system (DMS) to manage the various rights as well as balancing other legitimate interests in digital resources.  

With this understanding on the new concept of property, this thesis will proceed to examine the element for propertisation of the body of unregulated digital resources in cyberspace.

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[524 This will be discussed in Chapter 6 of this thesis]
CHAPTER 4: PROPERTISATION OF THE BODY OF UNREGULATED DIGITAL RESOURCES IN CYBERSPACE

4.0 Introduction

In the previous chapter we discussed that the peculiarity of digital resources required a new concept of property to be formulated together with a new system of law to regulate the use and protection of digital resources for reasons stated therein. This new concept of property refers to property as something more than just a thing in its physical thing. Property would mean property rights. For reasons discussed various property rights do exist, they require an overarching framework to manage those rights and the inter-relationship among those rights’ owners or holders. In drawing the conclusion after discussing the various legal aspects in the previous chapter the Common Property Institution and the bundle of rights theories would assist and enable digital resources to be owned by its creator and the creator will have the right to decide, here referred to as
the exclusive right of use determination, how the digital resources to be utilised by multiple parties. This is the most appropriate institution to be set up and applied in cyberspace realm. Furthermore, the creator of the digital resources can, using the bundle of rights theory clearly define and fragmentising the various technical rights in digital resources which is of great importance in the establishment and building of a stable institution for the management of digital resources.

The term ‘propertisation’ used in this thesis is to describe the way in which digital resources acquire their property status. However, not every digital resource will attain property status as such for reason that the law cannot simply turn something into property without first complying with certain prescribed standard or pre-condition. Hence in deciding whether a particular digital resource ought to be propertised, it is essential to ascertain the necessary element of propertisation from the digital resource in question. Digital resource that has the necessary element would only be propertised accordingly and accorded property status.

Part one of this chapter will examine the necessary elements that are required in order to propertise digital resources. In searching for the element for propertisation, this chapter will examine how the creator will acquire exclusiveness in Digital Resources through Labour and Efforts, Personhood Theory, Privacy and Contract. Thereafter this chapter will examine the notion of exclusivity, drawing upon the conceptual differences between the right of exclusion under the traditional tangible property and how such conceptual distinction plays a significant role in intangible digital resources. Furthermore, this chapter will propose that the contents (various rights) of the bundle for the body of unregulated digital resources such as personal information, domain
name, hyper-linking and works in creative commons and online creative communities to be propertised.

4.1 Acquiring Exclusiveness in Digital Resources.

Just like another other form of property legally recognised by the law, ownership is an important notion in property. Propertisation and ownership are inseparable with one another. As discussed in the earlier chapter of this thesis, by the law of nature and reason, a person who began to occupy land and use the thing or resources acquired therein establishes a kind of transient ‘property’ that lasted so long as he continue of using it and no longer. 525 During the early period of agrarian era, a farmer who contributed his own labour to the land had created a relationship between himself and the land. This kind of relationship was transformed into ownership in land and things used before the modern system of property law has been developed comprehensively. Richard Epstein came up with the possession-based theory in which he argued that ‘first possession’ formed the basis for legal title in things. 526 As ownership arisen from these factors such as occupation, possession, usage and input of labour in the early days, it is necessary to observe the factor(s) that would facilitate the acquisition of ownership in digital resources.

4.1.1 Labour and Effort

Labour and effort invested by a person (creator of a thing or resource) would attain that person the exclusiveness in digital resources so created. This element of labour and

525 Barbeyt, Par. 1.4.C.4
effort invested by the creator also has been used to justify the protection of intellectual property.

The Justinian’s Code provided us with the principles governing the position of a person who expended his labour and work in the material object. When one man has created something with materials belonging to another, it is often asked according to natural reasoning as to whom ought to be considered the rightful proprietor, whether he who gave the form or he who owned the original materials.

According to the interpretations of Sabinians and Proculians, if the thing created can be restored back to its former crude materials then the owner of the original materials was considered the owner of the thing made. But, if the thing so created cannot be so re-transformed into its original state and form then he who created it is the proprietor of the thing so created. However, if a man has created something, partly with his own materials and partly with the materials belonging to another, then in such cases, he who made the thing is undoubtedly the proprietor; since he not only invested his labour, but also furnished a part of the materials.  

One of the most influential theories that attributed to the notion of ownership of property is Lockean ‘labor theory’. John Locke labour theory of property stated that:

“Though the earth and all inferior creatures be common to all men, yet every man has a property in his own person; this nobody has any right to but himself. The labor 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 labor with, and joined to it something that is his own and thereby makes it his property. It being by him removed from the common state nature placed it in, it hath by this labor something annexed to it that excludes the common right of other men.”

Locke through his theory advocated that by working on a particular object, the person literally mixed his labour (his ‘property’) into the object. Since his property was inextricably mixed and assimilated into such object, he had attained a moral right to the object based on his moral right to his labour. The alternative interpretation of this passage is that a person does not acquire proprietary right of an antecedently un-owned object. It was through the improvement by his labour and effort that he had created or added value to the material object. The created or added value must not have existed before in the world.

No matter which interpretation one choose to adopt, in essence, Locke’s theory is much preferred in that the invested labour would lead to the thing’s ownership. However, such theory cannot be applied universally in all situations. As illustrated before, if a man put in his effort to keep a public park clean, his invested labour would not lead him to own the park concerned because the public park is a public space in which same ought to be enjoyed by the general public. Hence, one has to consider the type of material object in question: un-owned thing versus public or common property.

Material object that ought to be protected if it has been intermixed with a degree of expenditure of labour from the creator in which he has created a new value to the

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528 Locke 1690, Chapter V
material object that did not exist before. The Lockean’s expenditure of labour theory alone do not justify all the acquisition of ownership in the property but nevertheless the mixture of one’s labour with the pre-existing material object do provide a basis that there is a moral significance in deciding whether the creator have any moral claim to the material object contained therein.\(^{530}\)

From the intellectual perspective, the creator of the intellectual content ought to be able to acquire a strong prudential interest\(^{531}\) in his work because he did not anticipate that his time, energy and labour to be wasted when he has created an intellectual content. The prudential interest possessed by the creator of the intellectual contents provide a basis that his invested work should be protected morally. It also conforms to the position that normative principles of justice suggests that the interest in controlling the disposition of one’s creation be accorded some moral protection.\(^{532}\) But that kind of moral protection is not readily being appropriated at any time. An intellectual content should not be protected unless it is invented by the creator – it implies that the efforts and the labour of the creator which introduced the ‘value’ into the world that was previously not available.

The value introduced by the creator can be explained under the Marx’s theory. Under capitalism, the value of commodities is determined by the ‘socially necessary’ amount of labour required to produce them plus the current necessary cost of the capital used up in production.\(^{533}\) Labour is generally paid less than the value it adds on the commodities


\(^{531}\) An interest from the standpoint of objective or perceived as self-interest


or goods and therefore is the sole source of profit.\textsuperscript{534} Marx considered that all ‘economising’ can be reduced into the economical use of human labour-time. To economise, it means saving on human energy and effort of the others. When labour becomes a commercial object traded in the marketplace, Marx argues the exchange process at the same time relates, values and commensurate the quantities of human labour expended to produce those products.\textsuperscript{535}

It is the effort and the labour of the creator so invested in the material that justifiably be accorded the protection of intellectual content. Without such distinction applied to the material object or digital resources capable of being accorded moral protection, it is difficult to seek the balance between the freedom of use of contents or resources (that could simply consists of knowledge and common information) and the moral protection on intellectual contents or even intellectual property.

\subsection*{4.1.2 Personhood Theory}

An alternative to Lockean theory is personhood theory. Hegel’s theory of personhood in property was focused on the relationship between property and personality. According to Hegel, the concept of property was an extension of personality in which property rights were necessary conditions and also a connection to human rights such as liberty; identity or privacy.\textsuperscript{536} The ‘Personhood’ concept of property was that ‘things’ in the physical world was and still is important for the ‘development of human identity and security of human freedom’. In this theory, certain forms of property were integral to

\textsuperscript{536} Kanu Priya, Intellectual Property and Hegelian Justification, 1 NUJS L. Rev. (2008)
human individualisation that they were tied together to the development of a sense of self that separate from the other people. 537

Reference can be made to Professor Margret Jane Radin ‘intuitive view’ of property for personhood. This intuitive view started with the human experience of possessing object that feels like a part of us.

“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.” 538

According to Professor Margret Jane Radin, the personality theory consists of: (1) accounts of personhood and (2) accounts of ‘object relation’. Object relation refers as to how people interacted and their attachment to their property to create meaningful forms of self-identification. To measure the strength of attachment between people and his things, one has to look into “the kind of pain that would be occasioned by its loss”. 539

For instance, the loss of an old family photo would make a person so disturbed as compared to the loss of an ordinary scenery photo. It is the memory and the intrinsic value of the photo that make up the emotional attachment between the lost photo and the person. The personhood theory justify that private property as an essential part leading to the full development of the individual because private property are closely connected to a person’s emotional and psychological well-being that it virtually has become a part of the person.

In establishing exclusiveness in digital resources through personhood theory as a pre-condition of propertisation, one must ascertain the relation, connection and attachment between the person and the digital resource in question. The more the digital resource is closely connected to a person’s emotional and psychological well-being, the better likelihood a person establishes exclusiveness in a thing or resource and propertises it.

The personhood theory is particularly helpful in justifying protection of personal items or resources as a form of property on the basis that personal items or resources (such as email account or social networking account of a deceased person) is the record and memories of a deceased person’s, life events, thoughts, wishes and opinions recorded while he or she was alive and that is of significant sentimental value to his or her surviving family members and relatives.

The theory of personhood can also be used to justify protection of intellectual property that is a work of art in which it is created by the person’s mental labour and thus embody more of an individual essence of being than works that are created through routine physical labour.\(^\text{540}\) The creator of the work imbued the creation with his personality, will and imagination making the creation an intensely unique individualistic process.\(^\text{541}\)

### 4.1.3 Privacy

Apart from the labour theory and personhood theory, privacy is another factor that contributed to the acquisition of ownership. Privacy is a desire or a claim of an individual or group to seclude themselves or the information about themselves from the

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others. The concept of privacy is said to include a variety of rights held by an individual against both the state and private actors. Daniel J. Solove listed six recurrent themes in the privacy discourse:\footnote{542}{Daniel J. Solove, Conceptualising Privacy, 90 Cal. L. Rev. 1087, p1092 - 126}

(1) The right to be left alone – Samuel Warren and Louis Brandeis’s famous formulation for the right to privacy;

(2) Limited access to the self – the ability to shield oneself from unwanted access by others;

(3) Secrecy – the concealment of certain matters from others;

(4) Control over personal information – the ability to exercise control over the information about oneself;

(5) Personhood – the protection of one’s personality, individuality and dignity; and

(6) Intimacy – control over or limited access to one’s intimate relationships or aspect of life.

Laws protecting privacy differs from one country to another. For instance in The United States of America, the Bill of Rights\footnote{543}{and the 14th Amendment} contained several provisions in relation to the right of privacy such as privacy of beliefs,\footnote{544}{Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.} privacy of home\footnote{545}{No Soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law.} and privacy of the person and possession.\footnote{546}{The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.} In the United Kingdom, there is no one privacy law and the
protection of such is provided through the Acts of Parliament, procedural rules or case law. The level of protection also varies from one country to another. The modern information technology and the technical infrastructure of cyberspace has made it easy and affordable to collect substantial amount of information identifiable to particular individual. This massive collection of personal information has raised serious concerns associated with the intrusion of privacy and one of the aspects of privacy is the very control over personal information. Individuals, groups or even institutions has the right to determine as to when, how and to when extent their information is to be communicated or disclosed to others.

An individual has a strong moral claim to his or her personal information. It is because such personal information is ‘factual’ as characterised by Parent. Personal information are facts that most people do not wish to reveal to the world at large about themselves such as facts about their well beings; mental health; weight; sexual orientation and so on. Through the review of personal information and preferences a person’s privacy has been infringed.

Privacy is important because it has intrinsic value and it is also fundamental for one’s development as an individual with moral and social personality and the ability to form intimate relationship involving respect, love, friendship and trust. A breach of privacy

547 Thompson v Stanhope (1774) 777, in this case, an injunction was granted preventing the publication of letters sent from Lord Chesterfield to his son, by the latter’s widow; Prince Albert v Strange [1849] EWHC Ch J20 concerning etchings of the royal family
548 For instance in the United States and in Australia, the laws provide a relatively high level of protection on privacy compare to country such as India.
550 Also refer to Carey P., Data Protection: A Practical Guide to UK and EU Law (OUP, 2015)
is a threat to the integrity of the affected person. It is a distinctive right one ought to have. It also allows an individual to conceal certain facts from being revealed to different parties. By doing that, it assists an individual to develop and control diverse interpersonal relationship with others in society.

The notion of privacy allows an individual to attain exclusiveness in digital resources on the basis that digital resources, such as personal information associated with one’s private affairs or containing personal private details which could reveal secret or personal sensitive issues. Privacy is an important element to maintain intimacy in interpersonal relationship with the others. Intimacy, secrecy and integrity in the notion of privacy would justify the protection of digital resources in that it is private in nature and hence should be protected such as personal letters, diaries, contents of an email account or postings on social networking account of an individual.

There are similarities between the personhood theory and the notion of privacy. Both explains and justifies the protection of digital resources in that they are closely associated with a private individual and his/her affairs. However, the personhood theory focuses on the personality and individuality of a person whereas the notion of privacy emphasise on the intimacy, secrecy and integrity of a person.

There is a close relationship between privacy and property. Modern developments in English law and human rights law have sought to distinguish between privacy and property and to allow for privacy to be protected more on the basis of personhood and without demanding any concept of private property or contractual relationship to be
established. This dynamism has been captured by Moreham and Warby. Fundamental issues regarding what might be considered ‘private’ – are all or any digital resources which are really private in nature or that all digital resources be assumed to be ‘personal’ data were considered in European Union Law: Scarlet v SABAM and Breyer v Federal Republic of Germany and Art 29 of the Data Protection Working Party, Opinion 4/2007 on the concept of personal data.

The right to privacy has its origins in private property. John Locke argued through his theory of private property that every person has a property in his own person, and that we all have inalienable, fundamental human rights. A right to privacy can be derived from the right to personal property. Based on John Locke’s argument, a digital resource should be protected because a digital resource is private in nature and this is derived from the right to privacy and the concept of private property. However, on the other hand, not all digital resources are private in nature. In fact many digital resources are meant to be shared. This view has been reflected in the case of Scarlet v SABAM.

This case considered issues whether a national court may order the Internet Service Providers (ISPs) to install a filtering and blocking system for all its customers for an unlimited period, in abstracto and as preventive measure under EU law and whether such preventive measures were consistent with the Charter of Fundamental Rights. The Court of Justice of the European Union held that such a measure was contrary to European legislation and that it violated fundamental rights in particular the right to privacy, freedom of communication and freedom of information.

555 (C-582/14) (pending)
556 01248/07/EN WP 136
558 Case C-70/10, 24 November 2011
559 Also refer to Breyer v Federal Republic of Germany (C-582/14) (pending); Article 29 of Data Protection Working Party, Opinion 4/2007 on the concept of personal data 01248/07/EN WP 136
4.1.4 Contract

Another way which enable an individual to acquire ownership in digital resources is by way of contract. This is different from the other modes such as labour and effort, the theory of personhood and privacy as explained earlier on the basis that there is no actual physical, mental contribution or relation from the person who wants to claim exclusiveness in digital resources. Contract is created through the operation of law. It creates a relationship that legally binds the parties that are privy to the contract. Therefore the intentions of the parties and the interpretation of the terms of the contract are very crucial in ascertaining the exclusive nature of the contract.

Before analysing as to how a contract can accord a person with exclusiveness in digital resources, it is necessary to have a basic understanding on some of the general principles of contract law. A contract is defined as an agreement with specific terms between two or more parties to perform a task(s) in return for a consideration. The law has specified that certain conditions a contract needs to fulfil before it becomes legally enforceable. Generally, in the event of breach the injured party is entitled to claim for damages for the loss he or she has suffered had the contract been fulfilled.

One of the important principles under the contract law is the privity of contract. Privity of contract states that a contract could only confer rights on its contracting parties. Contract or its right cannot be conferred upon third parties. The doctrine of privity of

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560 Such as an agreement (oral or written); offer; acceptance; intention to create legal relations and consideration
561 This doctrine has been explained in the English case of Price v Easton (1833) 4B. & Ad. 433 It was held that the Plaintiff could not recover because he was not a party to the contract.
contract is restated in the English case of Dunlop Pneumatic Tyre Co., Ltd v Selfridge & Co., Ltd.\textsuperscript{562} Lord Haldane stated that:

“In the law of England certain principles are fundamental. One is that only a person who is party to a contract can sue on it. Our law knows nothing of a \textit{jus quaesitum tertio} arising by way of contract. Such a right may be conferred by way of property, as, for example, under a trust, but it cannot be conferred on a stranger to a contract as a right to enforce the contract in personam.”\textsuperscript{563}

It is clear and well-settled in the English law that contractual right is a personal right and only the parties to the contract have the right to enforce it which is equivalent to a right in personam. For example, all easements are rights in personam because in the event if there is any dispute in relation to the easement, only the grantor (who granted the easement) and the grantee (who is the benefactor of the easement) are the rightful parties to resolve the dispute and no one else.

How then will the principles of privity of contract be applied in the context of exclusive contracts? An exclusive agency agreement is a good example of an exclusive contract. An exclusive agency agreement is a restrictive agreement which binds the principal and agent and neither of them are allowed to make similar association with the other’s competitor. Hence, the principle of privity of contract enhances the relationship of the contracting parties so as to attain exclusiveness in their relationship on the basis that by excluding all others from their ‘exclusive’ principal-agent relationship, rights and obligations arising from such a relationship and that its related business can be safeguarded accordingly.

\footnotesize{\textsuperscript{562} [1915] A.C. 847
\textsuperscript{563} [1915] A.C. 847 at p853}
Although the term ‘exclusive’ has been used to describe the nature of the contract (the granting of exclusive right to one party), the right arising from an exclusive contract is nevertheless a right in personam. For instance, from the above example, in the event the Principal of the exclusive agency agreement grants another contract to a third party, the Agent of the subsequent exclusive agency agreement has no right under the contract to claim such right from the third party or to the world at large. The Agent can only enforce his or her exclusive right under the agreement against the contracting Principal.

In a principal-agent agreement, the exclusiveness lies only within the relationship and its related business. The scope of exclusiveness is prescribed by the agreement and the relationship arises from the contract. This type of exclusiveness is created by the contract and therefore the right to claim the exclusive relationship is considered as a right in personam only as oppose to the position of an owner of property in which he or she possesses the exclusive right to deal with the property and such right is a right in rem, a right against the world at large.

However on the other hand, in some contracts, such as the Sale and Purchase Agreement in relation to landed property, the right arising therefrom is classified as a right in rem because through the agreement, property or the title of such has been transferred from the seller to the purchaser. The subject matter of the contract is real property and proprietary in nature and therefore, in most cases, the right conferred under this type of contract is a right in rem.

A contract is capable of conferring to a contracting party the exclusiveness in the digital resource concerned. However, one must be cautious in enforcing the exclusive right under a contract. Exclusive right created under a contract may not necessary be
proprietary in nature. The exclusive right may only be confined to the contractual relationship of the parties concerned only for such right is not a right against the world at large.

At this point, one may conclude that for a digital resource to become property that is duly recognised by the law, such digital resource must possess the necessary element for propertisation. When references were made to the traditional physical, tangible property and its principles, the right to exclude is regarded as the most important feature in the property. The ‘exclusionary’ element is essential in defining ownership.

However, from the early analysis of this chapter, it was concluded that the right to exclude merely represent only one of the aspect of the owners’ rights in property. In fact, the most essential and prestigious right an owner enjoys in property is been in the exclusive position to decide in what ways the property should be used or disposed of – the exclusive right of use determination.

The notion of exclusion is clearly incompatible with the intangible digital resources which is the shareable nature in digital resources. Hence, exclusivity or the exclusive right of use determination should therefore be regarded as the necessary criteria for propertisation. A digital resource that possesses an element of exclusiveness would allow its creator or holder to have the exclusive position to decide on how the digital resource should be utilised or disposed of. In the other words, labour and effort; personhood theory, privacy and contract would give rise to exclusiveness in digital resources. By establishing exclusiveness in digital resources, the criteria of propertisation – exclusivity is fulfilled and hence, digital resources in question could attain such property status.
Labour and effort, personhood theory, privacy and contract as explained in the present chapter are just some of the ways that can give rise to exclusiveness in order to facilitate the acquisition of ownership in digital resources. As information technology and cyberspace continue to be developed in an unprecedented pace, there will be more ways that would give rise to exclusiveness in digital resources in the future.

A distinction needs to be drawn between an owner and the holder of a property right. An individual acquires ownership in digital resources through exclusiveness; this individual is to be described as the owner of the digital resource or its right. When an individual have a right without the proof of the element of exclusiveness, that individual only is to be described as a holder and not to be regarded as an owner of that digital resource or its right. As a holder of a right of digital resource, he or she possesses no authority to decide how the right should be used. A holder has no exclusive right of use determination on the right he or she holds.

4.2 The Element for Propertisation.

4.2.1 The Intellectual Traditions.

In order to determine the element for propertisation of digital resources, an analysis would begin with the discussion on the different intellectual traditions in understanding of property. According to Thomas W. Merrill, there are two competing understanding of property, there are essentialism and nominalism. Essentialism refers to:

564 Thomas W. Merrill, Essay: Property and the Right to Exclude, 77 Neb. L. Rev. 730, p734
“existence of the critical element or elements that make up the irreducible core of property in all its manifestations.”\textsuperscript{565}

Essentialism view property as a \textit{single defining right} that is synonymous with property. This is called single-variable essentialism which states the single defining right - right to exclude is both necessary and sufficient condition of property.\textsuperscript{566} Many scholars such as Jeremy Bentham and Felix Cohen agreed and endorsed this tradition.

On the other hand, multiple-variable essentialism states that the essence of property lies not just in the right to exclude the others but in a larger set of attributes or incidents. Property in itself consists of the rights to its free use, enjoyment and disposal without any control or diminution, save only by the laws of the land.\textsuperscript{567} The right to exclude is necessary but by itself is not a sufficient condition of property. This can be illustrated by Honoré’s standard incidents of ownership in which he stated that there are eleven incidents of ownership.

Multiple-variable essentialism is favour from the economic perspective. A stable core of property comes from not one but several key ingredients. From the economic point of view, the role of property law is to move resources to their most highly valued and efficient use. Hence, property rights must be exclusive and alienable.\textsuperscript{568} Likewise, Mossoff in his interpreted theory asserts that the ability to acquire, use and dispose of something form the conceptual unity that gives a full account of what property is.\textsuperscript{569}

\begin{itemize}
  \item \textsuperscript{565} Thomas W. Merrill, \textit{Essay: Property and the Right to Exclude}, 77 Neb. L. Rev. 730
  \item \textsuperscript{566} Thomas W. Merrill, \textit{Essay: Property and the Right to Exclude}, 77 Neb. L. Rev. 730, p734
  \item \textsuperscript{568} R. Posner, \textit{Economic Analysis of Law}, 7th edn (New York, Aspen Publishers, 2007), 33
\end{itemize}
In the tradition of nominalism, it sees property as a purely conventional concept with no fixed meaning. It is an empty vessel which can be filled by each legal system in accordance with its values and beliefs. The term ‘property’ is treated as a linguistic term that can be applied to wide range of different rights. Under nominalism, the right that make up property in a particular context have been bundled together for ease of reference. Hence, that leads to the understanding of property is known as the bundle of rights model. Scholars in support of this tradition are Hohfeld and Walter Hamilton.

Jeremy Waldron who defines the general concept of private property as:

“In the case of each object, the individual person whose name is attached to that object is to determine how the object shall be used by whom. His decision is to be held by the society as final.”

Waldron’s account on the concept of private property can be seen as a combination of single-variable essentialism and normalism on the basis that he suggested that each property would have an individual attached his or her name to it (one condition that is necessary and sufficient to be satisfied) and would decide on the various uses of that property (bundle of rights). The advantage of adopting the two intellectual traditions is that the essentialism tradition alone may be too rigid in setting the right or several rights as the condition(s) for property. On the other hand, the nominalist’s tradition of bundle of rights survives in the ever-changing nature of legal environment as it can be filled by each legal system in accordance with its values and beliefs. However, such tradition

should be applied with caution on the basis that despite changes that occurs in values and beliefs over time, the development on the notion of property and its laws should adhere to the fundamental concept and principle that has been established.

The present thesis acknowledges Waldron’s view and contends that one should adopt both intellectual traditions in order to fully appreciate the concept of property. A clear understanding on intellectual traditions is able to assist and provide an in-depth analysis in search for the element of propertisation for digital resources.

According to single-variable essentialism, the right to exclude is the unique right that is necessary and sufficient to give property in a thing. However, as digital resources are meant to be shared and accessible to multiple parties, the notion of exclusion is incompatible with such sharing nature of digital resources. The unique characteristics and the nature of digital resources require a flexible notion that allows digital resources to be expanded and shared among different individuals, as opposed to the exclusion of users and prevention of users in general.

4.2.2 The Exclusive Right of Use Determination as an Element for Propertisation of Body of Unregulated Digital Resources

An owner of a property is said to possess the “dominion or indefinite right of user and also disposition which one may lawfully exercise over particular things or objects...” The main feature of ownership is ‘dominion’ and ‘the indefinite right of user and disposition’. The word ‘dominion’ connotes a practical discretion endowed upon the

574 Thomas W. Merrill, Essay: Property and the Right to Exclude, 77 Neb. L. Rev. 730
575 The distinction between the right to exclude and exclusivity will be explained in the later part of this chapter
owner of the property with the freedom within which he may deploy the property to any of a wide range of uses. The words ‘wide range of uses’ implicates that property can be used in the various way and that there will be various rights existing in the property enjoyed by its owner. The right to exclude is merely just one of the many rights an owner possesses in property.

The characteristic of property ownership lies not in the right to exclude or notion of exclusion but rather a ‘dominion or indefinite right of user and disposition which one may lawfully exercise over particular things or objects.’ It meant that the owner possess the special authority to set the agenda for the property in question. This special authority to set the agenda for the property elaboration is in the defining of ownership is based on the agenda-setting approach. In this approach, the emphasis is on the setting of the agenda – which is what can be done with the property.

This approach can be explained in the situation of adverse possession under the Land law. Adverse possession is a legal doctrine in which it allows a person (trespasser) to acquire the title of the land that belongs to another by actual, open, hostile and continuous possession of the land in question and to the exclusion of it from the true owner of the land in question through the period of time as stipulated by the law. Adverse possession which ousts the owner from his or her land is just one of the aspects. But more importantly, the most basic threat of the owner’s position is that it challenges the owner’s gate keeping function as well as his or her agenda setting function by using

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579 Different country has different requirements or conditions for adverse possession. In United Kingdom, there are two elements in which the claimant needs to establish adverse possession: (1) uninterrupted ‘factual possession’ of the land by the claimant for a period of time (10 yrs) and (2) Intention on the part of claimant to possess the land during that period. Adverse possession can be registered under the United Kingdom under the Land Registration Act, 2002 if the conditions stipulated are satisfied.
the land for other purpose which is inconsistent with the owner’s intention. An attack upon the owner’s right to exclude is not on its own sufficient enough to challenge the owner’s position. To be an owner of a property, it requires one to hold the exclusive position as the supreme agenda setter.

The owner’s agenda setting position is explained in the case of Pye (Oxford) Ltd. v Graham in which it was held that the trespasser was not only in possession of the land in question without the owner’s consent but also had the use of the land in question which is inconsistent with the owner’s agenda or plans. A similar issue also arose in the case of Leigh v Jack in which the court had to decide whether the acts of the squatter were inconsistent with the intentions of the paper owner of the land in question. In deciding the issue, Bramwell B. in his judgement stated that:

“I do not think that there was any dispossession of the Plaintiff by the acts of the Defendant: acts of user are not enough to take the soil out of the Plaintiff and her predecessors in title and to vest it in the Defendant; in order to defeat a title by dispossessing the former owner, acts must be done which are inconsistent with his enjoyment of the soil for the purposes for which he intended to use it.”

(emphasis added)

Base on the rulings of the above cases, the special authority to set the agenda for the property implicated ownership. It is a special right that an owner is at will to decide how the property should be utilised which makes essence in property ownership.

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581 Larissa Katz, Exclusion and Exclusivity in Property Law, (2008), 58 University of Toronto Journal, p292
582 [2003] 1 AC 419 [H.L.]
583 (1879) 5 Ex D 264
584 (1879) 5 Ex D 264 at p273
The special authority to set the agenda for the property is crucial in the context of digital resources. As information technology advances, internet users are able to circumvent most of the technological measures and hence, restricting the usage of digital resource through technological means may not be the most effective way in preventing the misuse and abuse of digital resources. However, when creators of digital resources are given the special authority to set the agenda for the digital resources, creators can prevent others from any misuse and abuse of the digital resources by setting the appropriate agenda for the access and usage of the digital resources and clearly to define the rights and usage for these digital resources. The creators of the digital resources should also consider and provide the possible option of usage for others who has legitimate competing rights in digital resources. By clear communication and notification of the agenda and the possible usage of the digital resources to its potential users, it would minimise any potential misuse and abuse of the digital resources on the basis that potential users are well informed and are fully aware of the agenda and usage terms of the digital resources.

The inaccessibility of digital resources would only negatively compromise its shareable and transferable nature of digital resources resulting in such negative effect that it will affect the digital resources adversely from further development and exploration. The right balance between owners’ control over his or her digital resources and the accessibility of such by the interested parties can only be achieved by, on one hand granting the owner the exclusive position to decide on the agenda of the digital resources and on the other hand to make sure that the digital resources creators do take into account of the other users or creators who may has legitimate competing rights in digital resources.
Many writers have explored in depth the special authority to set the agenda for property. Larissa Katz used the term to describe an owner in an exclusive position as ‘the agenda setter’. Eric R. Claeys called this special authority as the ‘exclusive right of use determination’. Alchain and Allen proposed that ownership right should be defined as ‘the expectations a person has that his decision about the use of certain resources will be effective’.  

Although this is a non-legal and non-philosophical definition of ownership right in property, nevertheless, this emphasised the fact that it is an expectation one has after putting in the effort made to protect or enforce his or her rightful claims. Despite the variations in terms and explanations and the lack of content in the right of use determination, it is submitted that the above rights all have the same meaning because all the creators of intangible properties would expect they would have the ability to control the resources they created. To classify this special authority of an owner to set the agenda for property in the proper context for the purpose of this thesis, this special authority of an owner to set the agenda for property shall be termed in this thesis as ‘the exclusive right of use determination’. The exclusive right of use determination is based on the notion of ‘exclusivity’ rather than the notion of ‘exclusion’.

### 4.2.3 The Notion of Exclusivity

The word ‘exclusivity’ used in the present thesis refers to the creators or holders of digital resources’ exclusive position that grant him or her exclusive right of use determination. Exclusivity is used to describe the special and unique position of an owner as he or she is the only one in the position to decide and determine how his or her digital resource is to be utilised and shared. The exclusivity does not implicate digital resource to be exclusive or to limit its usage to a limited number of individuals. This is

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consistent with the common property regime and institution which form the underlying legal framework to regulate and to protect digital resources.

The crucial feature of ownership is the authoritative nature of the owners’ decisions.\textsuperscript{586} The significance of possessing the special right to decide as to the manner the property should be utilised is that such right is exclusive to the owner of the property and no one else. James Penner analyses the nature and structure of property rights in terms of interest in determining the use of things.\textsuperscript{587} The exclusion of others is the simplest way to protect the interests. Thus, it is important to have a clear understanding of the notion of exclusivity. Normatively, the core of property consists of the use of an external asset. Different individuals may assert different legitimate normative interests in engaging with external assets.\textsuperscript{588} For instance, individuals may appropriate land to provide shelter, to gather and store food, construct a dwelling to raise his or her family, operate a club or to engage in commerce. As different individuals may pursue different interests\textsuperscript{589} in different situations at different stages of his or her life, it is necessary to have common norms to protect individuals’ claims not only to use external assets but also to determine the assets’ uses in order to pursue their interests. As property relations are social it would necessitate that these domains of use determination in assets must be exclusive.\textsuperscript{590} Otherwise it will run into the dilemma of Tragedy of the Commons.\textsuperscript{591}

To the layman, both the words ‘exclusive’ and ‘exclude’ bear similar meanings which connotes restricting certain thing to a person or a group of persons. However, from the

\textsuperscript{586} Larissa Katz, \textit{The Regulative Function of Property Rights}, Econ Journal Watch 8(3) September 2011: 236-246
\textsuperscript{588} See Joel Feinberg, \textit{The Moral Limits of the Criminal Law: Harm to Others} 33-34 (1984)
\textsuperscript{590} Interest refers to individual goods that (psychologically) attract and (normatively) justify people to pursue them. See Joel Feinberg, \textit{The Moral Limits of the Criminal Law: Harm to Others} 33-34 (1984)
\textsuperscript{591} Refer to Chapter 3 of the present thesis, also Garrett Hardin, \textit{The Tragedy of the Commons}, 162 Sci 1243–48 (1968)
legal point of view especially in the context of property law, exclusivity and exclusion are two distinct notions and their legal implications and properties are not to be confused with.

In the thing-based concept of property, the **notion of exclusion** is important because in order for an owner to have the absolute right in property, all others must be excluded from the property. There are various writers\(^{592}\) as well as court decisions\(^{593}\) to support the notion that the “right to exclude” is considered as the most essential right in property and such right is the fundamental condition for a person to become an owner of property. In the Supreme Court case of Kaiser Aetna v United States of America\(^{594}\), the United State’s Government filed a suit in the Federal District Court against the Petitioners for a ruling as to whether the Petitioners were required to obtain the Corps of Engineers’ authorisation in accordance with § 10 of the Rivers and Harbors Appropriation Act of 1899 for future improvements in the marina. Furthermore, this case also decided as to whether the Petitioners could legally deny the public from accessing the pond on the basis of the improvements executed which had then made the pond navigable as a navigable waterway of the United States.

In examining the scope of the United States Congress’s regulatory authority under the Commerce Clause, the District Court held that the pond was a ‘navigable water of the United States’, which was subjected to be regulated by the Corps of Engineers. However, it was further held that the Government lacked the authority to open the navigable pond to the public without any payment of compensation to the owner. The Court of Appeal agreed that the pond fell within the scope of United States Congress’s

\(^{592}\) Such as Thomas W. Merrill and J. David Breemer

\(^{593}\) Such as the case of Kaiser Aetna v United States, Loretto v Teleprompter Manhattan CATV Corporation and Nollan v California Coastal Commission

\(^{594}\) 444 U. S. 164, 176 (1979)
regulatory authority, but reversed the District Court’s decision and further held that when the Petitioners converted the pond into a marina and thereafter connected it to the bay, it thus became subjected to the ‘navigational servitude’ of the Federal Government. In giving the public a right of access to what was once the Petitioners’ private pond when the pond was connected to the navigable water in a manner approved by the Corps of Engineers, the owner had lost one of the most essential sticks in the bundle of rights that were commonly characterised as property — the right to exclude others. It was further stated in this case that the ‘right to exclude’, is held to be a fundamental element of the property right, which fell within this category of interests in that the Government cannot take without compensation. The Court considered the ‘right to exclude’ as one of the most essential stick in the bundle of rights that would commonly characterise the subject-matter as property.

Flowing from the above case, it is submitted that in differentiating between a ‘property’ and an ‘un-owned thing’, the right to exclude others is a necessary condition of identifying the existence of ‘private property’. The right to exclude plays an important role in defining the thing that is owned by someone.

However, the difference in values and beliefs of different societies would lead to conflicts among those who have competitive interests in property. It is possible that such conflicts may lead to a tragedy. This is illustrated in the case of Chai Vang. In November 2004, Chai Vang an immigrant from Laos, went deer-hunting in Wisconsin. He got lost and wandered onto a 400-acre piece of private property. The owner of the property together with a group of hunters confronted Chai Vang. The confrontation went hostile and as a result, Chai Vang opened fire killing six of the hunters and wounding another. It was a tragedy which could serve as a wakeup call to appreciate
and respect different cultures with regards to the rights in property. In Laos where Chai Vang came from, the community owns the forests and much other land. Every member has the right to hunt and it is considered as a basic human right there. On the other hand in Wisconsin, over 80 per cent of land is private and on which an almost absolute right to exclude is fiercely protected. It is difficult for someone like Chai Vang to comprehend a system of absolute protection by taking into account his personal background and understanding of hunting rights in his home country. However, there are winners and losers in different concepts of property as shown in the above case. For example, free speech about famous people or powerful corporations should also be considered here. However, this situation may not be the same in every country.

What we are concerned with this case is to analyse the nature of the right to exclude. Right to exclude is basically accorded to the protection of the private owner’s right and as such the right includes the power to exclude the public from accessing the property and the use of resources. However, such protection or norm can in some jurisdiction go as far as justifying the taking of lives in some countries whilst enforcing such right. For instance the right to defend is given under the common law. The principle on the right to use force to defend one’s self or one’s property is to be in proportionality: the defensive act may be more harmful than necessary to ward off the attack. Although there are no standard rules, courts would weigh up the interests protected by the defensive act against the interests infringed by the unlawful attack. This right to self-protection can provide a defence of justification to a charge of assault or even in some cases, murder.


However, the notion of exclusivity defers significantly from the right to exclude. Under the notion of exclusivity, in every property, there will be multiple users who have property interest in the property that belongs to others. The purpose of property law is not to exclude other users but to harmonise the interests of the others with the owner’s special position of agenda-setting authority so that other users’ interests are subservient to the owner right in property.\textsuperscript{597} This is the basis of the notion of exclusivity which is to harmonise the activities of others with the owner’s agenda. In essence, exclusivity rules regulates relationships of multiple users who have property interests in the property owned by others. The rules are for the purpose of rendering those interests consistent with the owner’s position.\textsuperscript{598} Exclusivity rules also protect ownership in property not through the exclusion of the others but through the principles of harmonising the interests of the others together with the owner’s supreme position of agenda-setting authority.\textsuperscript{599}

Harmonising the activities of others with the owner’s agenda was illustrated in the case of Allemansrättern. The Allemansrättern’s case developed the principle of the right of public access. Interestingly, ‘Allemansrättern’ case has not been referred to or found in the law books, but it has been adopted and developed through the Swedish custom. It is on its own unique and the most important basis for recreation in Sweden whilst providing the possibility for each and everyone to visit somebody else’s land whether to take a bath in the lake; to travel by boat on somebody else’s waters or to pick the wild flowers; mushrooms or berries.\textsuperscript{600} The principle of this case state that anyone could use a rural land for recreational purposes as long as the uses were not inconsistent with the

\textsuperscript{597} Hanoch Dagan & Michel Heller, The Liberal Commons, 110 Yale L.J. 549, 2001; Henry E. Smith, Semicommons Property Rights and Scattering in the Open Field, 29 J.Legal Stud. 131 at p167
\textsuperscript{598} Larissa Katz, Exclusion and Exclusivity in Property Law, (2008), 58 University of Toronto Journal, p296
\textsuperscript{599} Larissa Katz, Exclusion and Exclusivity in Property Law, (2008), 58 University of Toronto Journal, p298
\textsuperscript{600} http://www.sverigeturism.se/smorgasbord/smorgasbord/natrecspo/nature/every.html
uses of the owner of the land. The right emerged as an ethical obligation on the part of both the landowner to allow access and that the visitor will not disturb the landowner’s privacy or to damage his land. With that, it was able to maintain the balance between owner’s agenda and the reasonably anticipated intrusion (the right of public access).

Furthermore, there are even cases to show that owner’s actual agenda matters to the Court in determining what amounted to trespass as seen in the case of New Jersey v Shack. The owner of a farm brought an action against two Social Workers in trespass on the basis that the two social workers had visited migrant labourers staying on his land. The Court held that there was no trespass because the Social Workers’ visit to the migrant labourers on the land were not inconsistent with the owner’s agenda of farming on his land.

Sovereignty metaphor was also used to describe the exclusive position of an owner in property. The sovereignty has coercive power over his or her subjects. The notion of exclusivity, the exclusive position of an owner is similar to sovereignty which is supreme but such supremacy is only among other private individuals in relation to agenda-setting in property. However, the owner of a property is only empowered to set the agenda for a resource or a property. The owner is not in the position to govern the conducts of the others by imposing obligations on them as real sovereignty does.

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602 Such as not to cause damage to, and/or pollute the land; to ride on a motor vehicle on private property, so that damage may be caused or on a private road, when the owner has forbidden such a state; Restricted areas are also gardens, cultivated sites or constructions made by the owner; to breach branches and twigs, to take the birch, bark, leaves, bass, acorns, nuts or resin from growing trees and bushes; to pick wild flowers protected by law; to park a caravan or trailer in such a place where the land could be damaged; to make fire so that the environment could be damaged or endangered; to let dogs run freely on private hunting-grounds. http://www.sverigeturism.se/smorgasbord/smorgasbord/natrecspo/nature/every.html.
603 277 A.2d.369 (1971)
604 Morris Cohen, Property and Sovereignty, 13 Cornell L. Q. 8 (1927)
605 Larissa Katz, Exclusion and Exclusivity in Property Law, (2008), 58 University of Toronto Journal, p293
Although the sovereignty analogy is not a perfect analogy to fully explain the owners’ exclusive position in property but nevertheless it is able to explain ownership in relation to the notion of hierarchy. In the notion of hierarchy, others need not be excluded from the property, as long as their position is subordinate to the owner and his or her agenda. The sovereignty is not the sole decision maker within the territory. Sovereignty can be delegated to his subordinate such as the Municipality. The owner with similar position as sovereignty, being supreme in his or her position may delegate his or her power to the others to decide on the use and access of his or her resource or property as long as the use and access are consistent with the owner’s agenda in the property.

The issue would arise as to how does the law would maintain the exclusive position of an owner who does not possess ‘the notion of exclusion’ for the right to exclude and the notion of exclusion is considered as the most essential in identifying ownership. According to Blackstone, ownership in property was described as a sole and despotic dominion in total exclusion of the rights of the others. Likewise, Merrill and Smith contended that in thing-ownership concept of property, it could be reduced into an owner’s right to exclude the others from his or her thing. The right to exclude others is a necessary and sufficient condition of identifying the existence of property. Although such contention may be an over-simplification of the true nature of the concept of property, nevertheless, it has been commonly accepted amongst the scholars that the right to exclude is an essential feature in ascertaining property and ownership.

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607 Larissa Katz, Exclusion and Exclusivity in Property Law, (2008), 58 University of Toronto Journal, p294
608 See Thomas W. Merrill, Essay: Property and the Right to Exclude, 77 Neb. L. Rev. 730, p731
To maintain the exclusive position of an owner, one has to show that the owner have the authority over the property. From the outset, the right to exclude seems to indicate the authority of an owner – the power to exclude non-owner from his or her property. However, the right to exclude is merely just one of the powers the owner possesses in relation to the property. In fact, the owner has more power in relation to property that he or she owned. Whereas the special and exclusive right to decide on the use and access of property enable the maintaining of the exclusive position of an owner. This exclusive right encourages the owner to deploy his or her property to productive uses yet maintain his or her dominance over the property.

The biggest threat to the owner’s exclusive position is not the use of property by the others but is the use that is inconsistent with the owner’s plan. Therefore, in order to preserve the owner’s plan, it is not by ordering the other to stay out of the property but rather ensure the use and access of property is consistent with the owner’s own plan and agenda. With that, it maintains the owner’s supreme and exclusive position without excluding the others from using and accessing the property. Furthermore it requires the law to protect the supreme and exclusive position of an owner by craving out all the possible rights and interests in property. The law protects the owner from potential usurpers of his or her agenda-setting authority.

The other issue that arises is whether by allowing and encouraging the others to use and access the property concerned for productive purposes - would that in any way affect the owners’ absolute freedom in property. Traditionally the right to exclude the others is

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often seen as a form of freedom and such freedom is the key to justify ownership.\textsuperscript{613} However, the word ‘freedom’ does not simply mean the freedom to choose anything from among all the adequate range of valuable options – personal autonomy. Freedom in the true sense connotes freedom from manipulation, freedom to determine one’s own values and interests and to sort through and prioritise these values and interests in deciding how to act – moral autonomy.\textsuperscript{614}

Once there is a freedom to determine one’s own values and interests, a person can pursue further and seek what he or she so desires. In doing so, property or ownership in property would ensure substantive moral autonomy by allowing a person to determine how he or she wants to deal with his or her property in the most beneficial and advantageous way. By deploying his or her property to productive uses it will not affect the owner’s freedom in property. On the contrary, such productive uses further enhance the means to pursue one’s desire or goal by the exchange of the property and benevolent compromise. As such, one’s property is not limited to a set of options but may expand this very set of option even further. Therefore, based on the above analysis, by encouraging owners to deploy his or her property to productive uses it will not affect the owners’ absolute freedom in property. In fact, it even expands owner’s freedom in property to a greater degree.

Larissa Katz in her article offered another approach to explain ownership and exclusivity. Ownership is the way that the law confers authority to owner(s) to make decisions about things on behalf of everyone. The political foundations of ownership imply a limit on the kind of question that owners are authorised to resolve on behalf of everyone else. Owners’ decisions have a public quality only when they answer

\textsuperscript{613} Larissa Katz, \textit{Exclusion and Exclusivity in Property Law}, (2008), 58 University of Toronto Journal, p3111
\textsuperscript{614} Larissa Katz, \textit{Exclusion and Exclusivity in Property Law}, (2008), 58 University of Toronto Journal, p3111
owner(s)’ questions who are in control with deciding on behalf of others, that is, answers to the Basic Question.\textsuperscript{615} From this approach, owner(s) are free to ignore the opinions and even the interests of others so long as the owners do not act unjustly to hurt the interests of others.\textsuperscript{616} The law legitimately allows owner(s) to act as a clearinghouse of ideas by considering the opinions of others as to what constitutes a worthwhile use of a resource or property for their own genuinely view.\textsuperscript{617} Although this approach demonstrated the social responsibility aspect of property ownership which may be a little far fetch from the present discussion. Nevertheless, this is to show that the owner is seated in a special and exclusive position to decide how the property is to be accessed and utilised.

Another aspect of the ownership in term of the agenda setting which has been often overlooked in the exclusion-based approach is the property owner’s important role in mediating relationship between non-owners.\textsuperscript{618} Under the exclusion rules, non-owners are excluded from the property in question regardless of what the owner’s agenda is. However, in some circumstances, some access from non-owners will not affect or is inconsistent with the private agenda. For example, the English Party Wall etc. Act of 1996 wherein Section 8 gave rise to the right to repair in which it gave the property’s neighbours the right to carry out repairs or to alter party walls wherein the right to enter and remain on the other party’s land during the ‘usual working hours’ was in order to carry out the repairs or alterations.

Property confers upon an owner the right to exclude, however its exclusivity is configured in relation to a more fundamental interest in deciding how to use the

\textsuperscript{615} Larissa Katz, The Regulative Function of Property Rights, Econ Journal Watch 8(3) September 2011: 236-246, p241
\textsuperscript{616} See Waldron on moral exhaustion that would result if we constantly had to consider the interests and opinions of others 1995, p295
\textsuperscript{617} Larissa Katz, The Regulative Function of Property Rights, Econ Journal Watch 8(3) September 2011: 236-246, p242
\textsuperscript{618} Larissa Katz, Exclusion and Exclusivity in Property Law, (2008), 58 University of Toronto Journal, p299
property. The normative domain of use determination leaves each owner of property with the greatest discretion to use the property.

4.3 The Contents of the Bundle for the Body of Unregulated Digital Resources.

The exclusive right of use determination being the greatest discretion for the use of the property, this chapter now proceed to examine as to what are the rights that could be found in this ‘exclusive right of use determination’ context. In the other words, what are the contents that would make up the bundle of property rights for the body of unregulated digital resource.

Rights inhering in ownership from property are not exact and their numbers are not finite. There is also no definite number of rights (or sticks) to make up the bundle of rights. A number of writers have explored into the number of rights and the composition of the rights in the property bundle. Henry Sidgwick stated that the three components of ownership were: the right of exclusive use, the right to destroy and the right to alienate. Others for example are donation, exchange or barter. Notably, Henry Sidgwick argued that the right to bequeath should not be included among the rights that define the notions of property. Frank Snare has proposed a list of six components. They were the right of use, right of exclusion, right of transfer, punishment rules, damage rules and liability rules. Peter Karlen on the other hand has put forward a short list containing only three components, namely use, disposition and enjoyment.

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621 Sidgwick H., The Elements of Politics, London 1891
622 Snare F., The Concept of Property, Am Philos Q 19729200–206.206
proposed the state right to exclude and destroy, right to use and to destroy and right to transfer and to destroy.  

A. M. Honoré sought to identify the standard incidents of ownership that were present when an individual was the ‘full owner’ in a mature, liberal system of law as follows:

1. the right to possess
2. the right to use
3. the right to manage
4. the right to the income of the thing
5. the right to the capital
6. the right to security
7. the right of transmissibility
8. the right of absence of term
9. the duty to prevent harm
10. liability to execution and
11. the incident of residuarity

Lawrence C Becker extended Honoré’s list into one with thirteen (13) instead of eleven (11) components as follows:

1. Right to possess
2. Right to use
3. Right to manage
4. Right to income

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624 Goodin R. Property Rights and Preservationist Duties. Inquiry 199133401–432.432
5. Right to consume or destroy
6. Right to modify
7. Right to alienate
8. Right to transmit
9. Right to security
10. Absence of term
11. Prohibition of harmful use
12. Liability to execution
13. Residuary rules

The rights that make up the bundle may vary depending on the nature of the object in question, this led to one of the criticisms of the bundle of rights theory as stated in Chapter 3 of this thesis in that the theory did not explain why any one single bundle was peculiarly considered a bundle of property rights which would in itself make up the notion of ‘ownership’. This theory has created some confusion on the concept of ownership as it is traditionally understood as a ‘full ownership’ in property. However, under the bundle of rights theory, there is no necessity to have ‘full ownership’ in property, particularly in the context of intangible digital resources because each right in digital resources are independent of the other right therein. The exercise of each right can be executed on its own.

The main issue here is to decide what constitute the contents of the bundle for the body of unregulated digital resources as each bundle may vary depending on the nature of the unregulated digital resources. Although the above mentioned bundle of rights may not

http://ssrn.com/abstract_id=1338372 , p15
fit exactly into the bundle for the body of unregulated digital resources, however reference can be made to the above mentioned bundles and standard incidents of ownership in formulating of the bundle contents for the body of unregulated digital resources.

Based on the analysis carried out in Chapter 3 of this thesis, the contents of exclusive right of use determination for digital resources as proposed in this thesis are as follows:

(1) Allows multiple and current ownership of digital resources;
(2) Fragmentises the rights and interests of digital resources;
(3) Possesses a non-exclusive nature to allow for the public use of digital resources;
(4) Is publicly available as it is without limits to everyone;
(5) Is based on the Idea of Commons;
(6) Enables the regulation and management of digital resources;
(7) Establishes a system of laws
(8) Allows for rights to digital resources that are capable of being owned;
(9) Provides for the adequate control of digital resources;
(10) Makes use of and access to digital resources beneficially;
(11) Sets up and imposes condition(s) on the use and access of digital resources;
(12) Increases the utilisation of digital resources;
(13) Protects emerging interests in digital resources;
(14) Facilitates the future advancement of digital resources;
(15) Enables the co-relative duties to be observed and recognised;
(16) Reduces the possible risk of conflicts;
(17) Enables each right, interest and contingency of uses to be clearly defined and prioritised;

(18) Accommodates the shareable nature of digital resources;

(19) Is Accessible;

(20) Can be commonly owned;

(21) Incentivises creators of digital resources;

(22) Grants rights according to the needs of individual users;

(23) Enables coordination of inter-personal relationships;

(24) Grants the legal right to exclude non-members of that group from using digital resources;

(25) Possesses the private right with a public function;

(26) Facilitates commodification and

(27) Provides a legal entitlement to fair compensation.

One may now decide what constitute the contents of the bundle for the unregulated digital resources based on the 27 rights which make up the exclusive right of use determination as mentioned above. Although the bundle of rights for the unregulated digital resources may not necessarily possess all the 27 rights as mentioned above, however the 27 rights in the exclusive right of use determination could be used as the basis in formulating the various bundle and its contents for the unregulated digital resources.

4.3.1 The Contents of the Bundle of Rights for Personal Information:
As mentioned in Chapter 2 of this thesis, personal information are now made easily available over the internet. The lack of property laws has exposed personal information to various misuses and abuses in cyberspace. Although the Personal Data Protection Act of 2010 has been enacted in Malaysia, this 2010 Act only provided certain limited rights to the data subjects such as the right to access personal data, the right to correct personal data, the right to withdraw consent to process personal data, the right to prevent processing likely to cause damage and distress and the right to prevent processing for direct marketing. The contents of the bundle for the body of unregulated digital resources such as personal information should include all these rights. In addition to those rights, the bundle should further include the right to be informed with regards to personal data that has been collected and the purpose of its usage and the right for compensation in as a result or consequence of wrongful use.

The owner of personal information should have the right to be duly and timely informed that his or her personal data has been collected and the purpose of its intended usage. This right is similar to the right to manage under the A. M. Honoré’s incidents of ownership as this right is to decide how and by whom the property shall be used. This is a managerial power the rightful owner enjoys. The owner could direct other users as to the use of the property in accordance with his or her wishes.

The right to be informed that his or her personal data has been collected and the purpose of its use is also coherent with the special agenda-setting authority of an owner. The special agenda-setting authority grants an owner the exclusive right of use determination in which it would enable the owner to be in the exclusive position to decide how his or her property to be utilised and thus, the right to be informed that his
or her personal data has been collected and the purpose of its usage would fall within the exclusive right of use determination.

Furthermore, the right for compensation as a consequence of wrongful use is a very important right for the owner of personal information. The right for compensation originated from land. However, one needs to examine the conditions and circumstances in which compensation is being paid. In the case of Wildtree Hotels Limited and Others v London Borough of Harrow, the issue was whether the long periods of totally and partially obstructed or closure of the roads and pavements leading to the Hotel and the works that caused continual noise, dust and vibration complained of entitle the Hotel to a cause of action to maintain an action for public and private nuisance as their land was “injuriously affected by the execution of the works” so as to entitle them to compensation under section 10 of the Compulsory Purchase Act of 1965 which provided that:

“(1) If any person claims compensation in respect of any land, or any interest in land, which has been taken for or injuriously affected by the execution of the works, and for which the acquiring authority have not made satisfaction under the provisions of this Act, or of the special Act, any dispute arising in relation to the compensation shall be referred to and determined by the Lands Tribunal.

(2) This section shall be construed as affording in all cases a right to compensation for injurious affection to land which is the same as the right which section 68 of the Lands Clauses Consolidation Act of 1845 has been
construed as affording in cases where the amount claimed exceeds fifty pounds.”

The Court held that the no compensation was recoverable for the noise, dust or vibrations as such matters did not constitute “direct physical interference” with land or an interest in land. Furthermore, no compensation was recoverable for temporary interference which was no longer reflected in depreciation in capital value at the valuation date. Compensation was payable only for damage which, in the absence of statutory powers, would have been actionable at common law.

Hence by applying the above established principles in the context of personal information, the right for compensation should be one of the rights to be included in the contents of the bundle on the basis that cyber-specified legislation such as the Malaysian Personal Data Protection Act of 2010 contained no provision with regards to compensation for victims when their personal information has been misused. However, in claiming for compensation, reference has to be made to the above-mentioned case of Wildtree Hotels Limited and Others v London Borough of Harrow and other cases because compensation would only be granted when the prescribed condition(s) have been satisfied. For example, the act must be of direct physical interference to the property in question.

4.3.2 The Contents of the Bundle of Rights for Domain Name:

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629 (Peter Gibson and Pill L.J; with Ward L.J. dissenting) [1999] Q.B. 634
The most essential right for domain name is the right to use the name. However, the domain name registration operates on a first-come, first-served basis in which it has created a lot of conflicts and disputes between various parties that include trademark owners as they may want to use their trademarks in cyberspace as well. However, others such as cyber squatters who have purchased and are holding thousands of popular domain names in advance until legitimate corporations or celebrities wanting to use the purchased domain names are willing to pay the extortionate prices for the use of the purchased domain name or names. All these conflicts are due to the fact that registration of domain names does not require any independent investigation establishing the registrant's ‘legitimate interest’ in a requested domain name.\footnote{Refer to the cases of Register.Com, Inc. v. Verio, Inc., 356 F.3d 393, 415-16 (2d Cir. 2004); Storey v. Cello Holdings, L.L.C., 347 F.3d 370, 372-73 (2d Cir. 2003); Watts v. Network Solutions, Inc., 202 F.3d 276 (7th Cir. 1999)}

Hence, the right to use the name does not literally refer to its use such as the right to use the chair or the right to use the book as in a physical and tangible property. It is submitted that the right to use for domain name includes and implicates having the ‘legitimate interest’ in the requested domain name. In claiming the legitimate interest in the requested domain name, the alleged party must put forward sufficient evidence to prove that they are genuine users and that they have the legitimate connection between themselves and the requested domain name or names in which such connection would justify that the registration of the requested domain name or names and as such the name or names ought to be given to that particular party or parties (corporation, business or person) and not to anyone else who does not have any legitimate connection to the name or names applied for. Upon establishing the connection, the party would also able to establish the exclusive right of use determination in the domain name secured. By having the exclusive right of use determination, the party would then become the owner of the domain name concerned and rightfully possess the right to
decide how he or she would utilise the domain name in question. The owner of the domain name may even decide to assign such right to another upon such prescribed terms and conditions decided by the owner.

4.3.3 The Contents of the Bundle of Rights for Hyper-Linking:

As stated in Chapter 2 of this thesis, the problem with hyper-linking is the lack of laws or guidelines for linking and in consequence it has resulted in misuses of hyper-linkage which led to wrongful endorsement of products and services; create bad commercial images and business reputations. It is by way no easy task to draft a set of laws regulating hyper-linking as there are numerous forms and types of linkage uses and also due to the fact that law makers do lack the understanding of the Internet and the linking operations.

To resolve that, it has been suggested that technology may pose a solution to this by requiring the web site owner to implement the use of passwords and registration to stop rampant and uncontrolled access to any particular web page they choose.632 Although this technological measure may work – by limiting the access of the particular web page in order to prevent unauthorised linkage, however, such approach does not resolve the legal issues behind hyper-linking and to establish proper legal principles pertaining to hyper-linking.

Another potential solution to the problem of hyper-linking is to construct a web-linking agreement. These are called Cross-Link Agreements that licensed agreements between

two web parties to permit the contracting parties to hyperlink to the other’s web site. Such cross-link agreements are recommended in the case of hyper-linking and framing especially when hyperlink has a site that incorporates trademarks from the other party. Cross-link agreement may be an ideal solution to prevent potential conflicts arises from the web parties as the agreement establishes the rights and obligations of the contracting parties. However, when linking involves more than two parties, the agreement does not have effect against third parties.

A better alternative is to turn the linkage into a legal right - right to link and the right to associate and to include the rights in the bundle. By incorporating these rights in the bundle, the owner would then have the discretion to decide as to who shall have the right to link and the right to associate with. Any violation of those rights may amount to interference of right and therefore proper legal action may initiate accordingly.

4.3.4 The Contents of the Bundle of Rights for Works in Online Creative Communities and Creative Commons:

The potential confusion in the Creative Commons and Online Creative Communities lies largely in the legal gray areas such as remix and reuse of works from these communities. Copyright law is unable to resolve the issues pertaining to such remix and reuse of creative works. Therefore, in order to resolve the issue of ownership and control of the creative works in these creative communities, this thesis proposed that the creative works should be propertised and to be managed under the Common Property Institution in which this institution would facilitate and allow works to be commonly

635 R.K. Herrmann, "Why You Need Cross-Link Agreements", in The internet newsletter - Legal and business aspects, at web.archive.org/web/199802120124 consulted on February 16, 2004
owned. Furthermore, the bundle of rights theory identifies and fragmentises the various rights in the creative work so as to allow the co-owners of the creative work to hold and to assign the rights legitimately for the purpose of sharing knowledge and achieving greater good for society.

The bundle for creative works in the Creative Commons and Online Creative Communities should include the right to access, the right to reuse, the right to remix, the right to distribute, the right to copy, the right to adopt, the right to transform, the right of attribution, the right to modify and the right to develop further. These rights should be clearly defined and ascertained. For examples, the owner or co-owners of the creative work may define the right to access is only limited to temporary access. The right to distribute is only for certain purposes as prescribed by its owners or co-owners and permission must be obtained if such work is to be distributed for any other purposes than that has been agreed upon. Furthermore, the conditions for the right to adopt and the right to transform have to be clearly listed down. In an international copyright treaty, the Berne Convention required that Member States protect other Members’ authors’ ‘right to claim authorship’. For example, in Article L.121-1 of France’s Intellectual Property Code (Law No. 92-597 1992), which recognises an author’s ‘right to respect for his name [and] his status as an author’ and is intended to enable the author to be identified as the author of the work on copies or whenever communicated to the public.\textsuperscript{636} The right of attribution to be adopted in the present context should be similar to the one in France’s Intellectual Property Code. Such right should be observed seriously especially when creative work has been adopted, transformed, remixed and reused by the others.

\textsuperscript{636} France’s Intellectual Property Code (Law No. 92-597 1992); also refer to Rebecca Tushnet, Naming Rights: Attribution and Law, 2007 Utah L. Rev. 781-814
There are many different types of use licenses found in the Creative Commons.\textsuperscript{637} For example, under the Attribution – NonCommercial - ShareAlike licence, this license lets others remix, tweak, and build upon the work non-commercially, as long as they credit the creator and license their new creations under the identical terms. The Attribution – NonCommercial – ‘NoDerivs’ license, this license is the most restrictive of the six main licenses in which it only allow others to download the works and share them with others as long as they acknowledge and give due credit to the creator, but the user cannot change the works in any way or use the works commercially. Some licenses do allow the right to modify, transform or to develop further but some do not. It depends on the type of work and the type of license the creator chooses to grant to licensee. However, if the rights, namely the right to modify, transform or to develop further become a right in the bundle, it is contended that the rights that can be granted is not only restricted to the six types of licenses as stipulated by the creative commons. The creator can choose and combine any of the rights and assign those rights as he or she thinks fit for the creative work.

4.4 Conclusion

This chapter has examined in what ways the creator is able to acquire exclusiveness in digital resources through his or her Labour and Efforts, Personhood Theory, Privacy and Contract. In deciding whether a particular digital resource ought to be propertised, it is essential to ascertain the necessary element of propertisation – the element of exclusiveness which is derived from the notion of exclusivity and must be distinguished from the notion of exclusion. The right to exclude (exclusion) under the traditional property theory would prevent others from using the property implicates one of the

\textsuperscript{637} http://creativecommons.org/examples Date Accessed: 22.07.2015
most powerful position of an owner. However, such powerful position is not suitable to be applied cyberspace as the unique nature of digital resources requires a new concept of property that is right-based and emphases on sharing of resources.

Thus the special authority of agenda-setting of property would allow its owner to have the exclusive right to decide how the digital resources concerned are to be used. It is through harmonisation of the various uses of digital resources consistent with owner’s agenda that implicates the exclusive position of an owner in digital resources.

This chapter has proposed the contents of the exclusive right of use determination within the bundle of rights and based on the exclusive right of use determination to formulate specific bundles for the body of unregulated digital resources such as personal information, domain names, hyper-linking and works in creative commons and online creative communities.
CHAPTER 5: APPLICATION OF TRADITIONAL SOURCES OF LAW TO UNREGULATED DIGITAL RESOURCES AS A RESULT OF PROPERTISATION

5.0 Introduction

The previous chapter has explained how creators of digital resources acquire ‘exclusiveness’ in digital resources and the proposed propertisation of the body of unregulated digital resources. The previous chapter also explained as to how Propertisation, the Common Property Institution and the Bundle of Rights Theory would jointly work together to establish a proper set of laws to regulate and to protect the body of unregulated digital resources in cyberspace.

This chapter now examines the application of traditional sources of law to the body of unregulated digital resources as a result of propertisation. The objective of this present chapter is to propose the application of the traditional sources of law to unregulated digital resources as a result of propertisation. This chapter will further evaluate the
effectiveness of such proposed application in resolving the issues and concerns that have been discussed in Chapter 2 of the present thesis. The evaluations in this chapter will be discussed under the following headings:

(1) Attaining Ownership and the Exclusive Right of Use Determination;
(2) Property Law and its Principles Applicability;
(3) Fragmentising Various Rights in Digital Resources and
(4) The Common Property Institution.

5.1 Attaining Ownership and the Exclusive Right of Use Determination

Once the body of digital resources has been propertised, they would attain their property status. The creator of digital resource as such would become the legal owner of and as a consequence would enjoy the rights and privileges associated with his or her exclusive right of use determination. It is essential to evaluate the legal effectiveness in granting the creator of digital resource such ownership and exclusive right of use determination when resolving the issues as discussed earlier in this thesis.

5.1.1 Personal Information / Location Data

When digital resources such as personal information / location data is propertised it becomes a property. The advantages of being an owner of personal information are that first, the owner enjoys the exclusive right to determine the use and disclosure of his or her personal information. Secondly, the owner’s right in personal information is legally recognised and is protected by the relevant laws. The right arising from personal information is inherent from the notion of property and is not based on the conferment
from any specific laws or statutory provisions in the first place. The significance of having such a right derived from the notion of property as oppose to an enactment is that any interference or removal of such right needs to be supported by moral, legal reasoning and principles. As the laws concerning property originated from common law any extension or deviation from the common law principles would require the establishment of a new legal doctrine, legal principles, judicial precedents or enacted legislations.\textsuperscript{638} Although one may argue that rights in property are not absolute, nevertheless, in many countries, rights to property or right to protection of property is regarded as one of the most fundamental human right.\textsuperscript{639}

For example, Article 17 of The Universal Declaration of Human Rights (UDHR) enshrined the right to property provide as follows:

“(1) Everyone has the right to own property alone as well as in association with others.

(2) No one shall be arbitrarily deprived of his property”\textsuperscript{640}

Another example is the right to protection of property as contained in Article 1 of Protocol I to the European Convention on Human Rights (ECHR) as the “right to peaceful enjoyment of possessions” where the right to protection of property is defined as:

“(1) Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law.

\textsuperscript{638} Jane Ball, \textit{The Boundaries of Property Rights in English Law}, Report to the XVIIth International Congress of Comparative Law, July 2006, Electronic Journal of Comparative Law, Vol. 10.3
\textsuperscript{639} Jane Ball, \textit{The Boundaries of Property Rights in English Law}, Report to the XVIIth International Congress of Comparative Law, July 2006, Electronic Journal of Comparative Law, Vol. 10.3
\textsuperscript{640} The Universal Declaration of Human Rights (UDHR)
(2) The preceding provisions shall not, however, in any way impair the right
of a State to enforce such laws as it deems necessary to control the use of
property in accordance with the general interest or to secure the payment
of taxes or other contributions or penalties.”

From the ECHR, it states that any restraint on private property rights could only be
justified on the basis of public interest, secure payment of taxes or other contribution or
penalties. Those are the situations having preference over the rights derived from the
notion of property because such right is closely guarded in any society and any
restriction of such requires strong political authorities in power to approve and enact as
legislation. 641 This provision has produced a substantial case catalogue on both
‘property’ and its ‘deprivation’ 643

In most Countries’ constitutional system, the Constitution is the supreme law of that
country and thus the enacted constitution takes precedence over all other statutes. 644
Any statute which is found to be inconsistent or attempting to deprive basic human right
(such as right to property) that has been enshrined in that country’s constitution then
that statute would be rendered as null and void. 645 For example in Malaysia, Article 13
of the Malaysian Federal Constitution provides that no person may be deprived of
property save in accordance with law and no law may provide for the compulsory

641 The Universal Declaration of Human Rights (UDHR), also refer to Coban, A., Protection of Property Rights Within the European Convention on Human Right. Aldershot: Ashgate, 2004 for the issues of What is property? Is property a human rights and what are the permissible limitations on property rights?
642 For example, in the case of Marckx v. Belgium, judgment of 13 June 1979, Series A no. 31, European Court of Human Rights (“the Court”) considered for the first time Article 1 of Protocol No. 1 in the context of illegitimacy legislation in Belgium and explained: “By recognising that everyone has the right to the peaceful enjoyment of his possessions, Article 1 is in substance guaranteeing the right of property. This is the clear impression left by the words “possessions” and “use of property” (in French: “biens”, “propriété”, “usage des biens”); the “travaux préparatoires”, for their part, confirm this unequivocally: the drafters continually spoke of “right of property” or “right to property” to describe the subject-matter of the successive drafts which were the forerunners of the present Article 1. Indeed, the right to dispose of one’s property constitutes a traditional and fundamental aspect of the right of property.”
644 For example in The United States of America, Article VI of its Constitution states that the Constitution is the supreme law
645 The United States of America’s Constitution, Article VI
acquisition or use of property without adequate compensation.\textsuperscript{646} For measure of compensation, it is based on the market value. The English case of Rickets v Metropolitan Rail Co\textsuperscript{647} which has been applied by the Malaysian courts, stated that “compensation is the amount required to put the dispossessed landowner in the same position as if his property had not been acquired”.\textsuperscript{648}

Furthermore, statute only confer specific rights. As discussed in Chapter 2, the Personal Data Protection Act of 2010 has been enacted in Malaysia for the purpose of protecting personal information but it provides limited protection for personal data. The 2010 Act conferred specific rights to data objects such as the right of access to personal data, right to correct personal data, right to withdraw consent, right to prevent processing and right to prevent processing for the purpose of usage in direct marketing. These are rights for specific purpose only. Other problems associated with the misuse of personal information such as phishing attacks and identify thefts in which the victims suffer real financial loss are not addressed by the 2010 Act and it provides no provision or remedy in those instances. The 2010 Act merely provides minimal protection to consumers with regards to their personal information divulged in the course of business transactions, which is far from providing a comprehensive set of laws to regulate and protect the use and dissemination of personal information over the internet.

However, if the protection of personal information is derived from property law, the property law would provide a far more comprehensive and holistic system of law to protect personal information on the basis that the data subject (whom the personal information implicates) would be the owner of his or her personal information and

\textsuperscript{646} Article 13(1) & (2)
\textsuperscript{647} L.R. 2 H.L. 175
\textsuperscript{648} The Malaysian case of Calamas Sdn Bhd v Pentadbir Tanah Batang Padang, [2011] 5 CLJ 125 concern with the issues of compensation from land acquisition.
acquires the exclusive right of use determination of the personal information in question. With the exclusive right of use determination, the owner of personal information has the right to decide on any dealing associated with his or her personal information. When identity theft occurs, any misuse of personal information is considered a violation or misappropriation of property (under property rights) and therefore the relevant property laws would be applied to protect such property. More elaboration on the application of property laws and its principles would be carried out in Section 5.2.

5.1.2 Company Information / Confidential Information

As discussed earlier in Chapter 2 of this thesis, despite company information / confidential information being protected under the relevant employment law and duty of good faith, a company would find extremely difficult to maintain a claim against its employee or others if the company do not have or have not implemented any standing operation procedure or system or protocol to provide guidelines and procedure in allowing or restricting access of company information or to have such ‘information classification policy’ to define what information would amount to company’s sensitive material.

The issue of confidential information or trade secret may also complicate further when the trade secret or confidential information is obtained and stored in digital form. When trade secret or confidential information is made available online, the party who has downloaded the trade secret or confidential information cannot be held liable as there is no misconduct involved. When company trade secret or confidential information is

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649 Please refer to Chapter 4 for the contents of the bundle of rights for personal information
stored in the cloud, then such stored information is potentially accessible to anyone with the appropriate internet access, at any time and from anywhere in the world.\textsuperscript{651} Although reasonable steps may be taken to ensure that only a cloud service provider will have access to company information stored in the cloud as and when necessary in an attempt of limiting who has the clearance to access to the trade secrets, and also requiring the third parties with access to trade secrets to sign such confidentiality agreements or even encrypted trade-secret files stored in the cloud.\textsuperscript{652} However there is still the real potential risk such as a rogue cloud employee due to curiosity to snoop around the company’s files which contains trade secret and confidential information.\textsuperscript{653} When such rogue cloud employee publicly discloses the information, the company’s information is no longer within its sole control.\textsuperscript{654}

However, when a company or an individual has acquired exclusiveness in the company’s confidential information / trade secret through propertisation, the confidential information / trade secret would attain property status. The owner of such confidential information / trade secret would have the exclusive right of use determination. The owner of the now propertised confidential information / trade secret need not rely on the contractual agreement or trade secret law. The course of action potentially available to the owner of the confidential information / trade secret is not only limited to breach of contractual obligation between the employer and the employee or other parties such as user and cloud service provider. The property law and its


principles are able to provide much more remedial options for the victim company. More elaboration on the application of property laws and its principles would be carried out in Section 5.2.

5.1.3 Keyword and meta-tag

The common problem in keyword or meta-tag is that an individual who has duly purchased the right to use the keywords or meta-tags in a particular search engine often lose out to trademark owners even though the trademark registration were registered later in time. When keyword or meta-tag attain proper property status, it will resolve the problem on the basis that domain name registration and trademark name are two completing interests but with unequal status. Trademark is an intellectual property with property status whereas domain name merely consider as a contractual right acquired as a result of a contract that cannot be enforced against the rest of the world. By reason of that, the domain name would always loose out to the trademark owner or potential trademark owner as elaborated earlier in Chapter 2 of this thesis. One possible solution to resolve this is to grant proper legal status to domain name and its owner. When the owner of domain name concerned receives proper legal ownership, he or she would have the exclusive right of use determination of the domain name and his or her control over the domain name and would not be subdued by trademark owner or potential trademark owner as both are accorded equal property status. When both are given equal property status or rights in property, then following property legal principles in land, the
right that is first registered in time prevails.\textsuperscript{655} It is provided under Section 27 to 30 of the United Kingdom Land Registration Act, 2002 that an interest in land is registered will take priority to all other interests that come later or are not entered on the register. The first registered interest in time prevails.

This principle – first in time prevail was also confirmed in the case of Halifax Plc v Curry Popeck\textsuperscript{656} in which it was held that where the equities are equal, the first in time prevails. This rule is preserved by Section 28 of the Land Registration Act, 2002, which provides that except as provided by Section 29 and 30, the priority of an interest affecting a registered estate or charge is not affected by a disposition of the estate or charge. Section 29 provides that if a registrable disposition of a registered estate is made for valuable consideration, completion of the disposition by registration has the effect of postponing the interest under the disposition any interest affecting the estate immediately before the disposition whose priority is not protected at the time of registration.

The above principle applies to the registration of interest in land. The same principle can be applied effectively in the realm of disputes that involves trademark and domain name matters. Although there is no unified registration system for domain name and trademark in existence, nevertheless, as long as the party is able to produce clear evidence to prove that the name (domain name or trademark) has been duly registered in a recognised system of registration for that purpose, the first in time principle should be applied. Once this principle is applied it would then decide whose interest prevails, the prevailing party would have the exclusive right of use determination on the name in question. Apart from having the right to use the name, the prevailing party having the

\textsuperscript{655} The English Land Registration Act, 2002
\textsuperscript{656} [2008] EWHC (Ch) 1692 (Ch)
exclusive right of use determination may also choose to resolve the dispute with the other competing party by allowing the other competing party to use the name in accordance to the prevailing party’s prescribed manner and condition. This win-win situation can be achieved as the exclusive right of use determination does not emphases on the right of exclusion but rather harmonising various interests in property as long as the use of the name is consistent with the owner’s agenda and it would not create any confusion in relation to the name, brand and business in question.

Furthermore the problem with keywords or meta-tags is that they are merely commonly used words and are used as keyword or meta-tag in search engines. Words that are commonly used would fall within the category of public domain. Nobody is capable of owning something from the public domain.\(^{657}\) Let us use an example to explore this issue in relation to keyword and meta-tag in search engines. For example, the word ‘hamburger’ is a keyword used in a search engine. The word ‘hamburger’ is just an ordinary and commonly used English word and no one is able to own the word ‘hamburger’.

However, the purpose here is to protect the **exclusive right to use of the keyword** ‘hamburger’ in that search engine. The solution is not to propertise the actual keyword ‘hamburger’.\(^{658}\) Rather, it is the **right**, the exclusive contractual right arising from the search engine optimisation agreement that needs to be propertised – that is the exclusive right to use the word ‘hamburger’ within that particular search engine.


\(^{658}\) Contrast the keyword with a trademark such as McDonald in which it is a distinct and unique mark or name
The fundamental issue arises as to whether an obligation in a contract or a chose in action is capable of being institutionalised as property or to acquire a property status. Under the traditional law of property, only property such as real property and personal chattels were accorded the property rights. Intangibles especially contractual obligations to be performed by one individual for another’s benefit would not be classified as property because it is un-assignable to others.659

Not everyone agrees with the idea of attaching property status to rights/interests in contract on the basis that contractual right are mostly personal in nature. It is clear and well-settled under the English law that contractual right is a personal right and only the parties to the contract have right to enforce it, equivalent to a right in personam. To make a personal right a property, it would fundamentally go against the well-established property laws. Furthermore, it needs a strong reason to justify such modification in laws. One possible situation in which support for the above proposition is when a contract is associated with the acquisition of exclusiveness in a thing or service. For example, a Sale and Purchase Agreement in relation to landed property. The right which arises from the Sale and Purchase Agreement (contract) is classified as a right in rem because through the agreement, property or the title of such has been transferred from the seller to the purchaser. The subject matter of the contract is real property and proprietary in nature and therefore, in most cases, the right conferred under this type of contract is a right in rem. Therefore, it is possible to propertise such right / interest arising from a contract but one needs to fulfil certain conditions before it could be done.

By allowing intangibles such as an obligation to acquire property status or proprietary interest, such proposition would create problems. The fusion of these two classes of

rights would create confusion on the basis that the law has clearly defined their rights so that remedy or restitution could be awarded accordingly. However, modern commercial practices and the increasing importance of contract in the commercial world suggests that contractual rights are not merely personal right as it seems. Many rights similar to proprietary right may be granted under the contract. For instance, Sale and Purchase agreement is a contract but proprietary right of real property is assigned or transferred by the seller to the buyer. Therefore, the traditional distinction between real property (which possess proprietary right) and intangibles (which possesses personal right) is no longer sustainable as there are many rights that do not neatly fall within these two categories.  

Hence, the law of property needs to be evolved and kept in line with the changes taking place in our modern society.

The law of equity has provided some supporting ground for considering ‘obligation’ as a property by allowing the obligation to be assignable and its right to be fragmentised - the characteristics of property. The law of equity has made two very significant steps pursuant to this position. First, the law of equity allows assignment of an obligation. For example, a debt can be assigned by way of equitable assignment. Equitable assignment occurs when there is an oral agreement, by way of a charge or an assignment which is just part of the chose in action and so on. Equitable assignment allows the transfer of an interest and benefit from one person to another. From this perspective, contractual (personal) interest and benefit is capable of being transferred to a third party. Therefore, it is not very accurate to allege that contractual obligation is an obligation owed from one individual to another only and thus is not a property or it is un-assignable to the 

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660 For instance, in the modern Sale and Purchase Agreement, the obligation to transfer property in question under the agreement can be described as contractual. However, in reality, it is also proprietary in nature as the transfer of property or its title affects ownership.

Furthermore, in the United Kingdom, the Law of Property Act of 1925 creates the ability to legally assign debt or any other chose in action where the debtor, trustee or other relevant parties are duly notified in writing. Section 136 states:

**Legal Assignments of Things in Action**

“(1) Any absolute assignment by writing under the hand of the assignor (not purporting to be by way of charge only) of any debt or other legal thing in action, of which express notice in writing has been given to the debtor, trustee or other person from whom the assignor would have been entitled to claim such debt or thing in action, is effectual in law (subject to equities having priority over the right of the assignee) to pass and transfer from the date of such notice—

(a) the legal right to such debt or thing in action;

(b) all legal and other remedies for the same; and

(c) the power to give a good discharge for the same without the concurrence of the assignor:

Provided that, if the debtor, trustee or other person liable in respect of such debt or thing in action has notice—

(a) that the assignment is disputed by the assignor or any person claiming under him; or

(b) of any other opposing or conflicting claims to such debt or thing in action; he may, if he thinks fit, either call upon the persons making claim thereto

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to interplead concerning the same, or pay the debt or other thing in action into court under the provisions of the Trustee Act, 1925.

(2) This section does not affect the provisions of the Policies of Assurance Act, 1867.

(3) The county court has jurisdiction (including power to receive payment of money or securities into court) under the proviso to subsection (1) of this section where the amount or value of the debt or thing in action does not exceed £30,000.”

The law of trust do however provide some protection for the assignee. If there is any dispute in relation to the assignment, the assignee cannot sue by reason that he or she is not privy to the contract. Therefore, any action has to be brought in the name of the assignor. However, in most cases, the assignor would not be interested to sue on the basis that he or she has already assigned his or her legal rights in the debts. In this scenario, the law of equity would compel the assignor to lend his name to the assignee to commence the action against the debtor in the name of the assignor’s name. 663

Although the action is in the name of the assignor, the equity indirectly allows the assignee to sue to recover the debt arising from the assignment from the debtor even though the assignee is not a party to the original contract (the assignment). This scenario has illustrated that the right to sue in a contract can be extended and not merely a personal right within the contracting parties.

Secondly, the law of equity treats obligation as a divided property right. This is evidenced in the creation of equitable leases, covenants, hire and purchase agreements, contractual liens, retention of title sales, bailment and so on. All these indicate that different types of obligation or right can be parcelled out or fragmented to different parties at the same time which is similar to the famous metaphor which described property as a bundle of rights. On this basis, it is possible to argue that obligation shares similar characteristic as property.

In Malaysia, The Civil Law Act of 1956 enables the legal assignment of debt. Section 4 (3) of the Civil Law Act, 1956 allows an assignee of a valid legal assignment to sue the debtor in his own name. Section 4 (3) states:

“Any absolute assignment, by writing, under the hand of the assignor, not purporting to be by way of charge only, of any debt or other legal chose in action, of which express notice in writing has been given to the debtor, trustee or other person from whom the assignor would have been entitled to receive or claim the debt or chose in action, shall be, and be deemed to have been, effectual in law, subject to all equities which would have been entitled to priority over the right of the assignee under the law as it existed in the State before the date of the coming into force of this Act, to pass and transfer the legal right to the debt or chose in action, from the date of the notice, and all legal and other remedies for the same, and the power to give a good discharge for the same, without the concurrence of the assignor.”

There are four conditions must be satisfied under Section 4 (3) namely:

(1) the assignment is in respect of a debt or other legal chose in action;
(2) the assignment must be in writing under the hand of the assignor;
(3) express notice in writing of the assignment must be given to the debtor,
   trustee or other person from whom the assignor would have been entitled to
   claim the debt or chose in action; and
(4) the assignment must be absolute and not purporting to be by way of charge
   only.

When the assignment fails to meet the above conditions of Section 4 (3), the assignment
will be an equitable assignment in which case the assignee has to join the assignor as a
co-plaintiff or as a co-defendant, as the case may be, but the assignor is entitled to sue
direct.

Besides the law of equity and the Malaysian Civil Law Act of 1956, from the social and
economical perspective, such obligation should also be propertised on the basis that
most of the commercial transactions are secured by way of contract or agreement.
Obligation forms an important part of contract. Contracts are essential because they
allow individuals to pursue their own wills and actions. Contracts facilitate transactions
and enhance co-ordination. Contracts allow individuals to plan their activities and the
performance interest are as a security over the activity or transaction. Without such
security, it is hard for an individual to plan his or her future activity. This would result
in serious economic and social repercussions. Because of that, the law must ensure that
the performance interest is well observed and the rights of the parties are protected
accordingly.
The law of tort provides additional protection on the performance interest on top of contract law. When there is an interference with contract or business, the tort would apply to protect the business interest. Breach would result when third party intentionally interferes with plaintiff’s contractual right. Tort of inducing breach is clearly illustrated in the case of Lumley v Gye. In this case, Defendant lured away the opera singer by offering her higher fees. The singer was in breach of the exclusive service as an opera singer with the Plaintiff. The general rule of contract law is that the remedy and action are confined between the contracting parties which were the Plaintiff and the Opera Singer. However, the tort law has extended the rule of privity of contract by allowing the Plaintiff to sue the Third Party who had intentionally induced one contracting party to breach the contract.

The tort law has as such introduced a third party’s liability in the breach of contract instance. However, such liability is only confined to specific type of cases in which the following conditions are satisfied:

1. Defendant’s action was malicious;
2. There existed a valid and binding contract between the plaintiff and the person induced to breach it; and
3. The contract was one to render exclusive personal service for a specific period.

This tort indicates that contractual obligation as well as liability is not only confined to the contracting parties. In the circumstances where the stipulated conditions are satisfied, a third party, who is not a party to the contract can be made liable on the basis

665 [1853] EWHC QB J73
that the third party has maliciously induced the breach of contract. The implication of this is to prove that the contractual right or interest is not only a personal right (a right in personam) in which it is only enforceable against the contracting parties.666

The law of equity and the tort law as discussed above provided the fundamental support and explanations that certain types of obligation do carry proprietary characteristics and therefore ought to be propertised. Therefore, the contention is that right in rem is not only limited to real and tangible property. Intangibles such as chose in action and obligation may acquire proprietary status provided the conditions are satisfied.

Penner supported that obligations ought to be classified as property right.667 According to Penner, a debt reflects personality-poor relationship is considered as property right. While a contract to provide service represents a personality-rich relationship, it is not a property right. Penner argued that company shares, bank balances, and debts, as ‘a special kind of property that the owner is conceived of as holding a piece of the total wealth of a company, or money in the bank, or a certain sum of the debtor’s wealth’.668 Penner’s observed that in a debt, a creditor has no actual ownership interest or property right to the property rights of his or her debtor unless he or she enters into a separate security arrangement. However, Penner described this right to the property of the debtor as a ‘fiction’ and argued that the right exists as if it reaches the right through the debtor or the bank or the company to the property.669 Penner used the terms personality-poor and personality-rich to distinct the rights because based on the fiction, if the holder

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667 Likewise, it is supported by John Tarrant, Obligations as Property, UNSW Law Journal Volume 34(2), 677, 2011
of a debt has some form of indirect entitlement (personality-poor), then he or she would acquire property rights of the debtor’s property. 670

In the Australian case of Commissioner of Stamp Duties (NSW) v Yeend671, the issue was whether an exclusive contractual right to sell refreshments at a Racing Club for a period of three years was a proprietary right. It was held that the right to the benefit of a non-money obligation under a contract is a chose in action and the High Court held that chose in action was a property right.

A recent expression of the above idea was reflected in Sarah Worthington’s view that equity has effectively eliminated the division between property and obligation. 672 A significant difficulty arose with this approach (a clear distinction between right in rem and right in personam) in that it is irreconcilable with the case law which indicate a debt, which is a common personal right or right in personam, is a property right.673

The above arguments have provided some support to justify obligation or chose in action is capable of acquiring property right and property status. The significance of the present contention that obligation is capable of acquiring property rights and property status is that the exclusive right to use the keyword or meta-tag in search engine which arises from search engine optimisation agreement could be propertised. The implication of propertising the right to use the keyword or meta-tag is that the right is no longer mere contractual (right in personam). The exclusive right to use the keyword or meta-

671 [1929] HCA 39; 43 CLR 235
672 Sarah Worthington, ‘The Disappearing Divide between Property and Obligation: The Impact of Aligning Legal Analysis and Commercial Expectation’ in Simone Degeling and James Edelman (eds), Equity in Commercial Law (Thomson Reuters, 2005) 93
673 Loxton v Moir (1914) 18 CLR 360, 379 (where Rich J said that a ‘right to sue for a sum of money is a chose in action, and it is a proprietary right’); Yanner v Eaton (1999) 201 CLR 351, 388 (where Gummow J observed that a ‘common law debt, albeit not assignable, was nevertheless property’); Lipkin Gorman v Karpnale Ltd [1991] 2 AC 548, 574 (where Lord Goff observed that a debt owed by a bank ‘constitutes a chose in action, which is a species of property’)

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tag can be considered as a right in rem and hence any attempt to take away or affect the right would be sanctioned by the respective property laws. The owner of the exclusive right to use the keyword or meta-tag does not need to rely on the agreement for protection. Neither would the owner need to worry about the unfair contractual restrain or exclusionary clauses in the agreement.

This is one of the fundamental reason to state that property law is preferred than contract law in regulating and protecting the body of unregulated digital resources in that if legal protection comes from property law, then any unfair contract restrain and exclusionary clauses stipulated in a contract would be subjected to judicial review and will have little or no legal effect. It often occurs in cyberspace, when issues are not governed under any specific laws, one will rely on the agreed terms and conditions of a concluded contract as the guiding guideline to settle an unresolved issue at hand. For instance, the protection of privacy in social networking websites is part of the terms of services. For example:

“Privacy

Your privacy is very important to us. We designed our Data Policy to make important disclosures about how you can use Facebook to share with others and how we collect and can use your content and information. We encourage you to read the Data Policy, and to use it to help you make informed decisions.”

The users will have to refer to another web page for the relevant information on Data Policy as stipulated from the above clause. Within the Data policy, there are again several other links which lead the reader to further explanations on other issues such as

privacy, cookie policy and advertising preferences. When the various issues pertaining to the terms of service of a contract are not contained in a single document or source but are hyper-linked and divided in various locations, it is argued that the terms and conditions of the contract or service provide are not fully and effectively disclosed to the party to the contract.

The classical notion of contract is that it is based on consensual and bargained agreement between the respective contracting parties.675 The modern reality and the highly sophisticated online contracts are often machine-imposed contracts.676 Terms and conditions of the contract are often hidden as they only appear or display after the contracting party had entered into the contract by hitting the ‘Accept’ button.677 The contracting party is not able to read or is in any position to negotiate or bargain the terms with the other party beforehand. The lack of assent and the ‘take it or leave it’ nature of online contract clearly contradict the classical notion of contract and placed consumers at large in a vulnerable and disadvantaged position when negotiating such online contract.678 Hence, by attaching property status to digital resources, any machine-imposed contract and unreasonable contractual restraints on alienation would be eliminated by property law.

5.1.4 Linking

677 For instance, in the case of Pollstar v Gigmania Ltd 170 F Supp 2d 974, 981 (ED Cal 2000), the court found that there was no reasonable notice of the terms and conditions of a browse-wrap agreement when there was a hyperlink to the terms which appeared in a small grey print on a grey background screen. See also the case of Specht v Netscape Communication Corp 306 F 3d 17 (2d Cir 2002), where the court held that the “browse-wrap” licence is not enforceable when the internet user clicked the free download button without the presence of an “I Accept” button. A reasonably prudent internet user in such circumstances would not have known or learned of the existence of licence terms before responding to Netscape’s invitation to download the free software.
678 A term of a contract is as follows: We may from time to time and without notice or liability to you suspend any of the services (at our discretion disconnect the relevant SIM cards from the Network) in any of the following circumstances: (a) During technical failure; (b) Modification or maintenance of the network. Notwithstanding any suspension of the services under this clause you shall remain liable for all charges due hereunder throughout the period of suspension (including without limitation all monthly access fees and regardless of whether or not any SIM card has been disconnected from the network) unless we in our sole discretion determine otherwise.
As highlighted in Chapter 2 of this thesis, the real concern in linking is whether securing the required consent and permission to link should be required by the law or is it merely part of the netiquette. When consent or permission is merely as part of the netiquette, nobody can strictly enforce it. When consent or permission is required by the law, non-compliance of such would result in legal sanction. If one is seriously concerned with the need of securing the consent and permission to link in cyberspace, inevitably the requirement has to be imposed by the law. O’Rourke suggested that legal rules defining property rights on the Internet could safeguard the defining feature of the web.\(^{679}\) However, there is no law to regulate linking in this aspect in Malaysia.

There are two possible solutions to this. First, the legislature can enact new laws to regulate linking and to provide the necessary procedures for securing consent or permission to link. Secondly, linking implicit endorsement or association which may have serious implication on the reputation of an individual, an organisation or a company therefore law protecting reputation could potentially be applicable. The laws of defamation have been developed to protect reputation.\(^{680}\)

As the discussion of reputation raises similar arguments as those relating to privacy namely, what is the nature of this concept and is it fundamentally best viewed as a property right or a personhood right, this section discusses the fundamental concept of reputation. In English law the movement has been towards personhood and links to privacy rather than property.\(^{681}\) Within this field there are again major public goods to be taken into account in the shape of free speech. The law generally treats reputation as

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\(^{679}\) Refer to O’Rourke, M., “Property Rights And Competition On The Internet” (2001) 16 Berkeley Tech LJ 156 in Chapter 2

\(^{680}\) Joseph Blocher, Reputation as Property in the Virtual Economies, 118 Yale L.J. Pocket Part 120 (2009)

\(^{681}\) Gatley on Libel and Slander (11th ed, 2008) Chaps.1,22
property only to the extent that reputation has real-world economic value.\textsuperscript{682} Robert Post argued that:

\begin{quote}
``[t]he concept of reputation as property presupposes that individuals are connected to each other through the institution of the market.``\textsuperscript{683}
\end{quote}

In the commercial context, the common perception is that trademark also protects the reputation of a company. It is because in most cases, a company’s reputation is associated with its trademark. Reputation is considered as ‘property-like’ only when it has quantifiable value that is related to real-world economic value.\textsuperscript{684} Other than that, none of the scholars actually call for a comprehensive theory of regarding reputation as property on its own.

Reputation need not to be interacted with any of the real-world goods or services.\textsuperscript{685} Reputation can be treated as a commodity on its own. Reputation can be gained, lost and traded. For instance, some companies do invest substantial amounts and efforts in building up the company’s reputation. On the other hand, if there is any negative event or publicity related to the company, it would damage or detriment the company’s reputation which may result into serious consequences such as lost of trust, respect or status in a particular industry and business. Reputation can be traded in the sense that others are willing to take over a brand or a company that has a good reputation. The company has added value to the brand or company itself. Furthermore, the reputation of a company could enhance the reputation or image of another company if they are associated with each other. Reputation is significant and therefore needs to be protected.

\textsuperscript{682} Joseph Blocher, \textit{Reputation as Property in the Virtual Economies}, 118 Yale L.J. Pocket Part 120 (2009)
\textsuperscript{684} Joseph Blocher, \textit{Reputation as Property in the Virtual Economies}, 118 Yale L.J. Pocket Part 120 (2009)
\textsuperscript{685} Joseph Blocher, \textit{Reputation as Property in the Virtual Economies}, 118 Yale L.J. Pocket Part 120 (2009)
accordingly, just like any other form of property. Economists and legal theorists have argued that real-world economies cannot function effectively without well-defined property rights. As the modern commercial practices appreciates the importance of one’s reputation, reputation management has been established to monitor the reputation of an individual, a brand or a company addressing contents which can damage its reputation.

Reputation is capable of becoming property. Reputation possesses the element of exclusivity. An individual or a company has put in tremendous effort to build up a particular brand or company’s reputation. Labour and effort invested by the company (in establishing the reputation of a brand or a company) can result in the company attaining exclusiveness in such reputation it has established.

On the basis that reputation could be institutionalised as property, the owner of such company whom the reputation represents would have the exclusive right to determine how the reputation is to be used. In most of the cases to maintain or to enhance its established reputation the owner of such would only choose to associate or connect to a brand or a company that has a good image or reputation. For instance, a reputable bank would not want to associate itself with any company or organisation or even an individual in connection with a financial scam because such association would most likely damage the good reputation of the bank - as a trustworthy and secured financial institution.

687 Charles A. Reich, *The New Property*, 73 YALE L.J. 733 (1964)
The concept of reputation as property presupposes that individuals are associated to each other through the institution of the market.\textsuperscript{690} When anyone with the intention of using or associating with the reputation of another the former must seek the consent or permission from the owner of such reputation, just like any other property. Failure to seek the necessary consent or permission may result in tragedy of the commons.\textsuperscript{691} The law of property and its related principles are needed to safeguard the interests and the rights of an owner from any violations of his property.

When reputation is a form of property, any unauthorised linking which creates the impression that a company has endorsed or is associated with another company in which it directly or indirectly gain any opportunity or an advantage from such endorsement or association would be sanctioned by the law. It is because any such unauthorised linking has assumed the rights of an owner – exclusive right of use determination. The owner of the reputation has the exclusive right to decide and to determine how his reputation is to be used.

It is submitted that the law of property and its related principles do not directly regulate online linking. However, by regarding reputation as a form of property, any unauthorised act or even omission that affects the owner’s right – exclusive right of use determination would be considered as an interference or a violation of the owner’s right. The advantage of this approach is that regardless of whichever method is being used, when endorsement or association takes place through framing, deep framing, linking or by other methods as long as the act created the impression of endorsement or association, it would be regarded as interference with the right of an owner and hence it


\textsuperscript{691} Geoffrey C. Hazard, Jr. & Ted Schnyder, Regulatory Controls on Large Law Firms: A Comparative Perspective, 44 Ariz. L. Rev. 593, 605 (2002)
would be sanctioned by the law accordingly. In this approach, the legislature need not be concerned with the technicality of the legal language in the context of online environment. Neither do the legislature need to worry whether the law is rewritten fast enough to keep up with the rapid development and the latest creation of online activities.

5.2 The Applicability of Property Law and its Principles

The property law and its principles through propertisation will be able to safeguard the interest of the owner of personal information. For example, one of the loopholes in the Malaysian Personal Data Protection Act of 2010 is that it only applies to collection of data in commercial transactions by data users. In cases concerning misappropriation of personal information not via commercial transaction, the 2010 Act does not apply. In such circumstance, property law or its principles will not only be able to fill up the loopholes in the existing laws but also be able to provide more appropriate remedies to those whose property right have been violated. Any misuse and abuse of such property would allow the owner to act and protect his or her property through proper cause of action. Property laws also provide several options for the property owner. The type of action owner choose to initiate depends on the nature of property in question as well as the remedy the owner intends to obtain.

When personal information has been misused such as in the case of identity theft, the victim would be deeply concerned whether he or she will be able to recover the amount of funds or property that has been misappropriated from the wrongdoer or third party who made use of the stolen personal information. Furthermore, the victim would also be
concern whether he or she could possibly prevent the wrongdoer or the others to further make use of their personal financial information in the future.

As to the issue of recovery, there is no provision under the Malaysian Personal Data Protection Act of 2010 that is of assistance to the victim. However, the victim may recover damages as the result of misuse of personal information through the tort of conversion. Under conversion at common law, a wrong is committed by dealing with the goods of another person which deprived the rightful owner of the use or possession of them. There must be some deliberate act of depriving the claimant of his right. Conversion at common law could be applied to recover property that has been lost or misappropriated as the result of the misuse of personal information. Conversion at common law is not applicable to personal information itself even though personal information is classified as property on the basis that there is no deprivation of owner’s right in personal information. For example, if an individual wants to claim the money he had lost in his bank account as the result of misuse of personal account log-in information such as user name and password, he may do so through conversion under the common law.

Although conversion is generally applied to corporeal and moveable property, it was held in the case of Morrison v London County and Westminster Bank\textsuperscript{692} that the owner may sue in conversion for the face value of a cheque or other negotiable instruments even though they were evidence of non-corporeal rights. If the law recognise that negotiable instrument bears non-corporeal rights of a specific amount stated in the negotiable instrument could be converted, then monies in the bank account misappropriated should equally be subjected to conversion on same basis. Therefore,\textsuperscript{692} [1914] 3 K.B. 356
conversion at common law is also able to assist the victim to recover tangible or corporeal property in the possession of the others as well as negotiable instrument of its face value.

Besides conversion at common law, the mechanism of **constructive trust** could possibly be applicable. Constructive trust is a civil remedy to bring about a specific restitution of a particular fund or property held in the hands of the wrongdoer or a third party. When a constructive trust is imposed on the wrong doer or a third party, the wrong doer or the third party is obliged to hold the beneficial interest in trust for the victim. As equity says that in certain circumstances the *legal owner*\(^693\) of property must hold the property on trust for others.\(^694\)

In the case of Lonrho plc v Fayed (No.2)\(^695\), Justice Millet stated that equity’s intervention must be based on principles and there must be some kind of relationship between the relief granted and the circumstances which gave rise to it. As such when personal information attained the proper legal status, the misuse and abuse of such would provide a better reason and supportive ground to convince the court that equitable intervention is necessary and to establish a relationship between the relief granted and the circumstances which would give rise to a constructive trust.

Despite the various situations that would give rise to the creation of a constructive trust, one may raise the question as to whether principles of constructive trust could be actually applied to assist victim to recover what has been lost or misappropriated as the result of misuse or abuse of personal information. In many cases, it has been indicated

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\(^{693}\) In the present context, the legal owner means the wrongdoer or the third party who made use of the personal information illegally in order to obtain the ownership of property concerned.


\(^{695}\) [1992] 1 W.L.R. 1
that a wide extension of the operation of constructive trust has been introduced. This is called ‘a constructive trust of a new model’. This broad principle is that a constructive trust may be imposed regardless of established legal rules as long as the imposition of such is able to provide justice and conscience. It was stated in the case of Hussey v Palmer\textsuperscript{696} that “… It is a trust imposed by law wherever justice and good conscience require it. It is a liberal process, founded on large principles of equity… It is an equitable remedy by which the court can enable the aggrieved party to obtain restitution.” This ‘constructive trust of new model’ opened up the possibility of finding constructive trust in any situation to provide justice and good conscience that ought to be imposed.

The question often arise is whether a claimant of constructive trust need to be considered anything that is beyond the means of demanding the return of the property to which he or she is entitled in equity. The claimant may ask for specific recovery and to include any profit that has been made in the process or derived from the property.

Besides the imposition of a constructive trust, an injunction is another remedy offered by equity that may be able to assist the victim to prevent or refrain the wrongdoer or third party from making use of the personal information in the future for illegal purposes. An injunction is a court order to a party to do or refrain from doing a particular act.\textsuperscript{697} An injunction will only be granted to the person who has the locus standi. As stated in the case of Thorne v British Broadcasting Corporation\textsuperscript{698}:

\textsuperscript{696} [1972] 1 W.L.R. 1286 at p1289
\textsuperscript{698} [1957] 1 W.L.R. 1104 at 1109
“It is fundamental rule that the court will only grant an injunction at the suit of private individual to support a legal right.”

It was stated in the case of Paton v Trustees of British Pregnancy Advisory Service that a husband could not obtain an injunction to prevent his wife from having a legal abortion from a registered medical practitioner on the basis that the husband had no legal right enforceable at law or in equity.

Furthermore, in pursuing a claim on unjust enrichment on the party who misuse personal information, constructive trust can be imposed on the wrong doer and the wrong doer (defendant) is obliged to hold the beneficial interest in the specific property for the plaintiff. Such remedy is available even though in relation to property which has been mixed and such mixed property has increased in value.

5.3 Bundle of Rights – Fragmentising Various Rights in Digital Resources.

5.3.1 Personal Information

The advantages of applying the Bundle of Rights model in personal information are that each of the rights in personal information are treated as a separate and independent right and therefore they can be assigned and transferred independently without interfering with each other.

699 [1979] Q.B. 276
700 Malcolm Cope, Proprietary claims and Remedies, The Federation Press, p110
When these rights are independent from one another the transfer and assignment of any
right would be free from any restraint. The significance of this is that it facilitates
positive dealings in personal information. The bundle of rights model on one hand
allows the owner of personal information to have control over his or her personal
information – *the exclusive right of use determination*. On the other hand such control
would not compromise the greatest benefit of the internet and digital resources. The
owner of personal information could choose and determine the type of information and
the extent in which it should be disclosed for a particular purpose.

The fair use of personal information would benefit society. Personal information
formulates statistics, facilitates research and analysis in many areas. For example the
collection of personal information on individual’s medical history facilitates the
government or relevant body to analyse the common illnesses suffered amongst the
society. The then appropriate preventive measures and facilities for treatment can be
introduced or further improved accordingly. When property right is fragmentised, it
allows the owner of the property to assign his or her right in the property to be used
hence making use of his personal information in the most appropriate manner.

**5.3.2 Domain Name and Trademark Dispute**

As stated earlier in this thesis, domain name owners who have usurped trademarked
names have been forced to surrender their registered names. The trademark law and its
registration system take precedence over the domain name registration. As conflicts
between domain name owners and trademark owners continue, a solution is much
needed.
One approach that could be adopted is to advise future domain name owners to check trademark registers before registering any domain name for their website as that would greatly reduce the number of cases of having the same domain names with registered trademarks. However, the problem with this approach is that domain name usage in the internet is transnational whereas trademark registration is domestic. It is hard to expect future domain names’ owners to check the trademark registration in every country which is cumbersome and costly. A unified system consisting of all countries trademark registrations as well as domain names registration is ideal. Future trademark owner or domain name owner may look out for the names from such unified system for both registered trademark and domain names.

Alternatively, one could also explore the possibility of adopting the property law approach in resolving this issue. Under the property law many rights do exists. The priority of those rights is based on the nature of those rights. A proprietary right would take priority over personal right. If there are two rights of the similar nature, priority would be decided based on the equitable principle. The equitable maxim *qui prior est tempore potior est jure* (he who is earlier in time is stronger in law) applies. This means that the first in time prevails over the others.

If one is to apply this equitable maxim in the present context. Assuming there is a conflict of using the name ‘ABC’ between the alleged trademark owner and domain name owner. If both trademark and domain name are considered as property rights, then in resolving the conflict between the users of the name ABC, the equitable maxim would assist to determine who would have the priority over the name of ABC by looking who has created the right earlier. If the domain name owner has registered his
or her domain name earlier, the domain name owner should have the priority over the trademark owner and thus have the exclusive right of use determination.

When the domain name owner has the exclusive right of use determination on the use of the name, the domain name owner may allow the trademark owner to use the name in a specified way with certain conditions attached to it so that there is no confusion created affecting the consumers as to whom they represent. The domain name owner who has the exclusive right of use determination may choose to assign the right to use the name in another country so that the issue of confusion does not arise. It would create a win-win situation thus beneficial to both parties to the dispute. As opposed to the existing trademark law and domain name system, they are mutually exclusive.

One obstacle that needs to be overcome in this approach is that domain name usage is global over the internet while trademark uses is domestic at the national level and how then will these two systems work together? When bundle of rights model applies, there are always more than one right in every property and each right could co-exist without interfering with each other. When trademark and domain names are equally regarded as property rights, under the bundle of rights theory, they could co-exist together as long as the exact scope and the extent of each right has been specified and defined clearly. For instance, the domain name owner has the exclusive right of use determination to use the name ‘ABC’. The domain name owner may assign his right to use the name of ABC as trademark in England provided that the individual or company agrees to notify or put up a notice to his or her or their customers the distinction and differentiation between the two marks or names. It is submitted that the users of a single name could co-exist together as long as the parties could maintain a clear differentiation so that it does not

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701 Initial Interest Confusion is a legal doctrine under trademark law that infringement occurs when there is temporary confusion that is dispelled before the purchase is made.
create any confusion when marketed to the customers or internet users as they could be for different markets or commercial practices.

5.3.3 Email and Social Networking Account

The main problem concerning email and social networking account is that there is no comprehensive law and principle to regulate and determine the ownership of the account. Without ascertaining the rights of the account holder, management of or dealing with the accounts often are left to the email service providers or social networking service providers. As there are no standard guidelines or terms of the service, the terms offered by the email service providers or social networking service providers varies from each other. Successors of the deceased email or social networking account holders who want to manage or retrieve the contents of the accounts are often in a vulnerable position and subjected to the arbitrary terms of the service providers.

It is contended that email and social networking accounts possess the necessary element of exclusivity for propertisation on the basis that email and social networking accounts essentially contain contents and materials that are personal (Hegel has stated that individuals have moral claims to their own talents, feelings, character traits, and experiences. An idea belong to its creator because it was a manifestation of that creator's personality.)\(^{702}\) An institution of property would provide a unique and suitable mechanism for self-actualisation in terms of personal expression, dignity and recognition as an individual person,\(^{703}\) which Professor Margaret Radin described this as the 'personhood perspective'.\(^{704}\)

\(^{702}\) ante Chapter 3
\(^{704}\) Radin, Property and Personhood, 34 Stan. L. Rev. 957, 957 (1982)
On the other hand, the service providers are the designers and providers of the email account and social networking mechanism put into operation. As they have contributed significant labour and effort in setting up the email and social networking account and system, they have established exclusiveness in the email and social networking account and system hence become its owner.

Secondly, it is that the bundle of rights are applicable to the email account. The rights within the account are independent to each other and concurrent ownerships exist. The right to manage the system of the online account and the right to income belong to the service provider. The right to access and the right to control the use of contents or information within the account belongs to the account user or his or her successors. One should take cognisance that an online account consists of many components in which these components and its rights belongs to different parties and each party is able to control and exercise those rights without interfering with the other. The significance of this bundle metaphor used in the email and social networking account context is that it acknowledges that there is no full ownership in email and social networking account. It recognises email and social networking account which consisted of many rights and each of these rights is owned by different parties.

As the account user holds certain rights in the account (such as right to access; right to control access and the right to use), each of these rights (stick) is independent and is considered as property by itself and therefore in the event the account user dies, the respective rights should be passed on to his or her next-of-kin according to the law in relation to succession and survivorship. The account service provider in such
circumstances would be requested to provide the necessary assistance to the deceased account user’s next-of-kin to take over or to manage the account accordingly.

As for the right to inherit the account is one of the rights arising from the account, the laws of property and related laws would safeguard those rights adequately. Hence, any terms or conditions set by the account service provider to attempt to negate or deprive the right of the account holder or his or her next-of-kin would be considered as an interference of the right of an owner in property. Exemption or exclusionary clauses incorporated by the service providers in order to exempt themselves from liabilities would not prevail as these rights are property rights, not rights arising from contract. Property right is a powerful right in which it prevails over other claims upon property.

The bundle of rights theory would resolve the issues of ownership in email and social networking accounts and provides an explanation as to how different rights and concurrent ownership occurs within the email and social networking system. The property law and its principles will effectively safeguard the rights of the account user and his or her next-of-kin. It ensures the right of survivorship and the digital legacy do take place according to the well-established laws and principles.

Based on the above analysis, it is submitted that Property law would effectively improve the position of the digital resources’ owner. Property laws and its principles are capable of resolving the issues and concerns that have been raised in relation to the misuse and abuse of digital resources. Although the present thesis merely highlighted some of the issues and concerns encountered in digital resources, those are the issues and concerns that often occurred in cyberspace and they have exposed creators and holders of digital resources to a vulnerable position. As the existing cyber-specified
laws provide inadequate protection on digital resources, propertisation is able to grant
digital resources its proper legal status. With proper legal status, digital resources would
be protected by well-established property laws and its principles in order to fill up the
gaps and loopholes in the new cyber-specified laws.

5.4 The Common Property Institution

5.4.1 Email and Social Networking Account

The issue is that who actually own the email and social networking accounts. The
relevant service provider could be considered as the owner because it provided the
system operation and all the contents were stored or kept in the server or webpage of the
service provider. The service provider has the exclusive control over the operation and
management of the account. The service provider provided technical infrastructure,
maintenance, support and system upgrade whenever they were required. However,
when an account has been assigned to a user, with the personalised account name and
log-in password, it can be argued that the service provider cease to be the owner of the
account once the email or social networking account has been registered by its user
based on the right of privacy and personhood theory.705

There are two possibilities in relation to the ownership of the email or social networking
account. First, it is that one could possibly describe both the service providers
concerned and account users are co-owners of the accounts. Co-ownership do exists

705 Gatley on Libel and Slander, 11th Edition, Sweet & Maxwell (UK) Chapter 1, 22
when there are two or more persons concurrently entitled in possession to an interest or interests in the same property. According to the English law, there are two types of co-ownership namely, joint tenant and tenancy in common. Joint tenant allows each individual to be fully entitled to the whole of the estate. On the other hand, tenancy in common is also another type of co-ownership in property in which the shares can be divided to in unequal proportions (For instance, an individual may own only one quarter \( \frac{1}{4} \) share). The co-owners can freely transfer his or her share to the other owners either during his or her lifetime or by way of a will. Alternatively, the co-owner can choose to leave his or her interest to his or her beneficiary instead of the other co-owner(s). Contrast this with joint tenant, when one joint tenant dies, the surviving joint tenants would be entitled to the whole of estate. This would ensure that the entitlement of each joint tenant is extinguished upon his or her death. There would be no share devolved under the deceased’s will or on his or her intestacy because a joint tenant does not own a divided share in property.

In analysing whether the principles of co-ownership (joint tenant and tenancy in common) could be relevant to the situation of service providers and account users, it is submitted that these principles of co-ownership are not able to reflect the true nature of the relationship between the service providers and the account users. It is because when a person wants to acquire the right and control over an email or social networking account, it is the contents and the information contained in that account that a person is seeking to access and control. The contents and the information contained in the account is of sentimental value or other values to the person(s), namely, the deceased account user’s family, relatives, close friends or business associates. The contents and the information in that account are of no value to the service provider. Neither is the service provider interested to obtain the exclusive right and determine the use of such.
The service provider has the power to dictate the terms and conditions on the disposal and management of the deceased account based on the fact that the service provider provided the infrastructure and the operation of the online account. Therefore, for the operation and administrative practices and convenience, they are given the right to decide the terms and conditions and other regulations in relation to the operation of the account. Therefore, it is not quite logical to conclude that both the service provider and the account user owned the account in question as co-owners.

5.4.2 Open Educational Resources (OER) and Online Creative Communities [OCC] and Creative Commons

As mentioned in Chapter 2 of this thesis, one of the issues arising from the OER, OCC or Creative Commons is that copyright law is unable to resolve the legal gray areas when educational resources, creative works in the OCC have been reused and remixed to form another piece or pieces of creative work or works. According to the Report of Working Group on Expanding Access to Published Research Findings, one of the recommendations was:

“support for open access publication should be accompanied by policies to minimise restrictions on the rights of use and re-use, especially for non-commercial purposes, and on the ability to use the latest tools and services to organise and manipulate text and other content;”

One solution to this is to apply the Common Property Institution in which it allows the creative work or works to be commonly owned. The challenge for this creativity and the economy of digital content production is that the extent or level to which remix or

706 Refer to Zittrain, J., The Future of the Internet: And How to Stop It (Yale UP 2008) for general reading on how to develop new technologies and social structures that allow users to work creatively, collaboratively and participate in solutions.

mashups artists should be allowed to borrow the creative work of the others on the assumption that one can visualise or see the content and can reuse same technically should the current law and regulations prevent such usage.  

As copyright law is able to safeguard the exclusive right of the copyright owner, it is difficult to permit the copying or reproduction of copyrighted work without the consent of the rightful copyright owner. Stanford Law Professor Lawrence Lessig said “The way the [copyright] law is architected, it’s unavoidably and insanely complicated. There's no way to fix it. It has to be remade.”

Professor Lawrence Lessig believed that the key to mashups and remix is about education, not in the making of law and hence norms and reasonable behaviours should be properly established in these creative communities. Hence if one accepts Professor Lawrence Lessig’s belief and the search for the norms and reasonable ought to be established in these creative communities, perhaps one may consider to fall back on property law and its institution for reason that the basic fundamental for the establishment of property law was that property laws and its institution have been established to regulate human interactions.

In fact, property institutions not only regulate complex human interactions but also help shape the character of those interactions. Property is not only about the allocation of scarce resources, the management of complex information or the coordination of land use among competing users; it is also about our way of life. Property is not just about

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information or complexity; it is about promoting “Life, Liberty and the Pursuit of Happiness.”^713

Henry E. Smith makes a number of legitimate but unstated normative assumptions about the values that a property system should promote.^714 He assumed that:

1. that every person is entitled to become an owner,
2. that opportunities to acquire property are freely available,
3. that ownership is widely dispersed,
4. that owners are presumptively free to use their property as they wish and to determine the course of their own lives, and
5. that people are entitled to quiet enjoyment of their property.

These are widely shared norms that reflect widely shared values.^715 The property system that adhered to Smith’s unstated normative assumptions embodied the values of liberty, equality, and stability, among others.^716 It is contended that online creative communities in establishing norms and reasonable behaviours should refer to these shared norms, shared values and normative assumptions as stated by Henry E. Smith. It is not the idea of ‘Property’ (especially given the impression of private property) one should make reference to but rather it is the widely shared values under the property institution that ought to be observed. Hence by observing and adopting these unstated normative assumptions in online creative communities, it will be is able to achieve Professor Lawrence Lessig beliefs that the key to mashups and remix culture is about education and not making the law but to establish norms and reasonable behaviours. With proper

norms and reasonable behaviours, it would enable each member of these open educational resources and online creative communities to respect each others’ works and contributions, hence creating an equitable platform that genuinely allows the desired meeting of creative minds to share their works and knowledge towards attaining greater development and advancement of society in general.

5.5 Conclusion

This chapter has discussed and applied the traditional sources of law to unregulated digital resources as a result of propertisation. This chapter also examined the effectiveness of the traditional sources of law in resolving the problems of digital resources by revisiting and discussing the issues and concerns that have been addressed in the Chapter 2 of this thesis. Through the discussions and evaluations contained in this chapter, it is concluded that the traditional sources of law are able to resolve the many issues arising from the body of unregulated digital resources as mentioned in the present thesis.

This chapter has not only demonstrated that the traditional sources of law are able to resolve many issues arising from the body of unregulated digital resources as per discussed in the present thesis, this chapter also has provided strong grounds to support the contentions that when propertisation of digital resources occurs, the creator of unregulated digital resource draws upon the principal right, namely, ‘the exclusive right of use determination’ within ‘the bundle of rights’, and applied together with common property institution (this institution is only applicable in some digital resources) would prove its effectiveness so as to fill up the gaps and deficits in laws for prevention;
reduction; control of certain misuses and to regulate the use of digital resources in cyberspace. The traditional sources of law, property laws, its principles and other relevant laws are able to protect emerging interests in digital resources so that it may be productively used.
CHAPTER 6: EMPIRICAL CHALLENGES IN IMPLEMENTATION

6.0 Introduction

The previous chapter has explained how creators of digital resources acquire ‘exclusiveness’ in digital resources and how propertisation is accorded to the body of unregulated digital resources. The previous chapter also explained the manner of application of the traditional sources of law to digital resources as a result of propertisation. However, in order to further consider the extent of suitability in incorporating the traditional set of laws and the effectiveness of such, one need to examine the various issues relating to the implementation and the possible conceptual and other practical challenges that could be posed by this rights-based concept of property and the exclusive right of use determination being implemented into the existing laws and legal principles.

The conceptual and other empirical challenges posed by this right-based concept of property involves complex practical and theoretical issues surrounding the creation and the application of this new property rights and concept. The exploration of the practical and theoretical issues involved would provide an in-depth and holistic analysis on the receptiveness, adoption and limitation of the introduction of this right-based concept of property to facilitate the process of establishing a proper set of laws to regulate the use and to provide adequate protection for digital resources in cyberspace.
The present chapter focuses on some of the issues involved in its implementation and application. This chapter will also discuss the most appropriate approach to be adopted in implementing the exclusive right of use determination. The success of its implementation and adoption of the exclusive right of use determination largely depends on how the exclusive right of use determination is implemented and accepted into the existing system of laws as opposed to the enactment of specific new laws. It is equally important to evaluate the flexibility of the existing system of laws and the relevant legal doctrines when accommodating this new concept of property and the peculiar nature of digital resources in cyberspace and the possible implications of this adoption when introduced into the existing laws and principles.

This chapter will further examine some of the possible practical and theoretical issues that would be encountered by this right-based concept of property such as the issues concerning certainty of law and the issues relating to ownership as this proposed concept of property and Common Property Institution which advocates concurrent ownership in digital resources. What are the possible issues that could be encountered by reason of digital and concurrent ownership and to examine the technical and practical aspects of managing various ownerships and rights in the realm of digital resources? Digital rights management would provide a systematic reference in which various rights in digital resources are being created, defined and managed in an orderly manner. It may in the process of its implementation encounter the anticipation and in facing the challenges of balancing other legitimate competing interests and to enforce such legitimate competing interests against property right owners when there is in existence more than one owner in digital resources.
Last but not least, one of controversies in cyberspace is dealing with the issue of jurisdiction. The question arises as to what are the possible concerns when applying the existing civil jurisdictional rules in relation to digital resources that have been propertised and considered as property and how would the choice of law and forum to conduct proceedings relating to the dispute be determined accordingly.

6.1 Issues Relating to the Implementation of the Right-Based Concept of Property – The Exclusive Right of Use Determination

One of the challenges faced by the proposed proposition is to search and identify the most suitable approach in implementing the right-based concept of property which is the exclusive right of use determination within the bundle of rights into the existing laws. As stated in Chapter 3 of this thesis, the exclusive right of use determination consists of the followings:

(1) Allows multiple and current ownership of digital resources;
(2) Fragmentises the rights and interests of digital resources;
(3) Possesses a non-exclusive nature to allow for the public use of digital resources;
(4) Is publicly available as it is without limits to everyone;
(5) Is based on the Idea of Commons;
(6) Enables the regulation and management of the digital resources;
(7) Establishes a system of laws
(8) Allows for rights to digital resources that are capable of being owned;
(9) Provides for the adequate control of the digital resources;
(10) Makes use of and access to digital resources beneficially;
(11) Sets up and imposes condition(s) on the use and access of digital resources;
(12) Increases the utilisation of digital resources;
(13) Protects emerging interests in digital resources;
(14) Facilitates the future advancement of digital resources;
(15) Enables the co-relative duties to be observed and recognised;
(16) Reduces the possible risk of conflicts;
(17) Enables each right, interest and contingency of uses to be clearly defined and prioritised;
(18) Accommodates the shareable nature of digital resources;
(19) Is Accessible;
(20) Can be commonly owned;
(21) Incentivises creators of digital resources;
(22) Grants rights according to the needs of individual users;
(23) Enables coordination of inter-personal relationships;
(24) Grants the legal right to exclude non-members of that group from using digital resources;
(25) Possesses the private right with a public function;
(26) Facilitates commodification and
(27) Provides a legal entitlement to fair compensation.

6.1.1 The Enacting of New Cyber-Specified Law is Not the Answer

Perhaps the most direct and straightforward way to implement the exclusive right of use determination is to enact a whole new set of cyber-specified law on the basis that
the exclusive right of use determination focus on the owners’ discretion to allow others
to access and utilise the digital resources in question and to facilitate the holding of
concurrent ownership. However, there are several issues to be considered when one
choose to implement the exclusive right of use determination under the new cyber-
specified law.

The greatest concern in enacting the new cyber-specified law is whether such new law
is enacted at a pace ‘fast enough’ to catch up with on-going new creations and
improvements of digital resources in cyberspace as law-making is not an instant
process. When there is an occurrence of unacceptable behaviour in relation to the use
of digital resources, one has to decide whether such unacceptable behaviour ought to be
regulated and prohibited by the law. Not all unacceptable behaviors are prohibited by
the law. Each unacceptable behavior has to be conceived appropriately, observed and
to consider the possible effect it brings upon the society. The standard and general
values of society are important and are relevant considerations. Any behaviour that
threatens societal well-being at large or seriously affects the general values of society is
considered unacceptable and hence such behavior ought to be prohibited by the law.

Society’s perception and values change especially so when society is undergoing rapid
and profound social and cultural changes that are influenced by new technological

717 Brenner in her article – Toward a Criminal Law for Cyberspace: Distributed Security, Boston University Journal of Science &
Technology Law, 10(2) 2004b also expressed that incorporating new or revised basic assumption in law can be a slow process
718 For example, excessive drinking is an unacceptable behaviour but it is not prohibited by the law on the basis that everyone has a
right to do what they desire as long as their act does not interfere with the others. The law does not prohibit excessive drinking
but the law provides the drinking limits when it comes to driving on the road because drunk driving affects and endanger the
lives of other road users.
719 The general values of the society may include moral values and other values that concerns bodily integrity, physical and
emotional health, the liberty to pursue ends of one’s choice, the secure possession of things rightfully acquired and the life itself
as well as the resources needed to sustain it - Alan Brudner, The Wrong, the Bad, and the Wayward, Liberalism’s mala in se,
published in Source Rethinking Criminal Law Theory : New Canadian Perspectives in the Philosophy of Domestic,
Transnational, and International Criminal Law / ed. by François Tanguay-Renaud and James Stribopoulos Publisher Oxford
creations and advancements.\textsuperscript{720} The process of identifying unacceptable behaviours as ‘wrong’ involves complex social, legal, political as well as economic considerations. Members of the society would decide on what are and would amount to ‘outlawed behaviours’ and the punishments to be meted out which reflects the values, believes and the opinions of the society.

Once an unacceptable behaviour has been identified and acknowledged, law needs to be appropriately enacted, amended or extended in order to respond to the situation legitimately. The law making process in Malaysia will first after the drafting processes be the introduction of the law as a Bill that would originate in either of the Houses of Parliament [Dewan Ra’ayat (House of Representatives) or Dewan Negara [House of Senate)] with one exception in that the ‘Money Bill’ must originate in the House of Representatives and can only be introduced by a Minister.\textsuperscript{721} The House in which a Bill has originated shall send it to the other House once the Bill has been passed by the former. After the other House has passed the Bill, it must then be presented to the Yang di-Pertuan Agong [King] for his Royal Assent under the Article 66(3) of the Malaysian Federal Constitution.

A typical Bill has to go through several stages of ‘Reading’ in both the Houses of Parliament. At the Committees’ Stage it is normally the Committee of the whole House which would be tasked to discuss the proposed special technical details of the Bill.\textsuperscript{722} Finally, the Bill is then returned to the House for its Third Reading. Under the Article 66(4) of the Malaysian Federal Constitution, the Yang di-Pertuan Agong must endorse the Royal Assent to the Bill by causing the Official Public Seal to be affixed thereto.

\textsuperscript{720} Brenner, S.W., Toward a Criminal Law for Cyberspace: Distributed Security, Boston University Journal of Science & Technology Law, 10(2) 2004b
\textsuperscript{721} Article 67 of the Malaysian Federal Constitution
\textsuperscript{722} Shaikh Mohamed Noordin and Lim Pui Ken, An Overview of Malaysian Legal System and Research, http://www.nyulawglobal.org/globalex/Malaysia.htm, Date Accessed: 03.08.2015
This must be done within 30 days from the date a Bill is presented to the Yang di-Pertuan Agong.

Hence by following the above tedious and time consuming law-making processes, the enactment of any new or amendment of law can be a slow and tedious process.\textsuperscript{723} This would be especially so when the enactment or amendment involves new concepts and legal issues which are novel and complex. The enactment process requires tremendous amount of efforts, persuasions, discussions and legal reasoning to support and to justify its incorporation in enacting the proposed law. The whole process demonstrates the level of perplexity involved in the making new laws in a democratic society.

Usually new laws are only drafted and enacted subsequent to the occurrence of unacceptable behaviours in which it really meant that new laws are never fast enough to catch up with new inventions; creations and activities found in cyberspace. This point has been argued out as to whether law should be used in the first place to regulate activities in cyberspace. It was contended by Lawrence Lessig that law regulates ‘through the threat of ex-post sanction’ while a ‘code’ constructed in a social world would regulate itself immediately.\textsuperscript{724} Nevertheless, the law is needed to set the standard of acceptable behaviours. A proper legal system must be put into place in order to regulate and to sanction behaviours that falls short of the standard required.

To establish a proper system of law for legal issues that are novel, one need to refer and rely on well-settled legal concepts and principles that have been established. This is because law is a conservative practice in which it draws heavily on analogy and history.

\textsuperscript{723} Brenner, S.W., Toward a Criminal Law for Cyberspace: Distributed Security, Boston University Journal of Science & Technology Law, 10(2) 2004b

\textsuperscript{724} Lawrence Lessig, The Constitution of Code: Limitations on Choice-Based critiques of Cyberspace Regulation, 5 Comm Law Conspectus 181, 184
It is rare where law is made without going through the process of evolution and development from the basic principles of laws. This lead us to the argument that it is no matter whether one is making new law or extending the law for well-established law and its principles will always be the foundation for its future development.

New law could be enacted specifically for the sole purpose of protecting digital resources. However, the potential problem in applying such new law to digital resources is that its provisions may be too specific catered to protect those specific areas of digital resources and situations in relation to those digital resources contemplated at the time of its enactment. The laws would be outdated for new cyber technology which is ever developing with the creation of new digital resources. The Malaysian Personal Data Protection Act of 2010 could be used to illustrate the above point. The 2010 Act was enacted for the purpose to regulate the use of personal information and data over the internet. The Act specifically applies to collection of data in ‘commercial transactions’ by data users. Under Section 4, ‘Commercial transactions’ is defined under the 2010 Act as those transactions of a commercial nature, whether contractual or not and includes any matter relating to the supply or exchange of goods or services, agency, investments, financing, banking and insurance. However, there are a lot of personal data that are collected via non-commercial transactions such as those involved in the registration for social networking websites, free online newspapers or free trial period registration. As the 2010 Act only applies to the collection of personal data in commercial transactions, hence collection or dissemination of personal data collected in non-commercial transactions would not fall within the ambit of the 2010 Act. The consequence of this is that many personal data collected in non-commercial transactions would not be regulated.
In fact there are numerous ways and methods in which personal information are collected and stored. For instance, there are in existence many sophisticated softwares such as ‘beacon’ to capture what users of the internet type on a website page which would include data concerning the users’ personal comments on movies or their interests. Individual or Company that launches such sophisticated software will package the data into designated profiles about individuals, without determining a person's name and forthwith sells the profiles compiled to Companies seeking customers. This is just one of the ways in which personal data can be collected even before an actual commercial or non-commercial transaction take place. Therefore, the protection or regulation concerning the collection of personal information via ‘commercial transaction’ is clearly inadequate in the context of cyberspace.

Furthermore, the 2010 Act confers specific rights on data subjects such as the right to access personal data, the right to correct personal data, the right to withdraw consent to process personal data, the right to prevent processing likely to cause damage and distress and the right to prevent processing for purposes of direct marketing. The rights conferred under the Act are specific and exhaustive. Any conferment of a new right would either require an amendment of the 2010 Act or to enact new law.

It is argued that whenever new rights are created, a new Act or an amendment would have to be drafted, processed and passed. Having too many new laws that are specific would only create confusion and it would burden law enforcement agencies and the Courts to effectively apply and interpret the laws. To avoid this, the new law needs to be drafted in the most liberal, comprehensive and technological-neutral language.

http://www.wsj.com/articles/SB10001424052748703940904575395073512989404 Date Accessed: 03.08.2015
It also raises the issue as to whether the proposed new legislation should include an Omnibus supplementary provision to be vested in the Minister to draw up subsidiary legislation for all new technological or future digital resources creation or advancements as and when appropriately required. The advantage of having such subsidiary legislation is that it is flexibility. Subsidiary legislation can be made and introduced quickly as and when it is needed without having to go through the long and tedious legislative process as elaborated above. Subsidiary legislation can be revoked or rescinded when it become impractical or outdated.

It further leads to the consideration for the need to have broad provisions in an Act to allow judges to interpret according to the cases presented before their Courts for the Courts’ rulings. Judicial interpretation is bound by interpretation rules and stare decisis. Through the passage of time case law is developed gradually through the rulings of Appellate Courts and Judges. The evolution in judicial decision converges toward more efficient and predictable legal rules.

Since statutes do not share this evolutionary characteristic as case law, case law can be considered as a better system to be adopted. However, one also needs to take into account of the presiding Judges’ self-interest and personal biases in determining judicial decisions. Individual tastes and ideologies affect rulings in ordinary Appellate Courts.

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The evolutionary process allows the biases of successive Judges to offset each other. This is a process whereby ‘the bad will be rejected and cast off in the laboratory of the years’, in which it would lead to legal outcomes that are more uniform and of greater value than those individual judicial decisions there are decided in isolation.\(^{731}\) This alternative explanation of the benefits of legal evolution through case law has been introduced in the law and economics literature by Gennaioli and Shleifer.\(^{732}\)

The optimal legal system is never pure statute law especially in the presence of continuous changes in social conditions.\(^{733}\) Although, civil-law systems often rely and are usually dependant on legislation instead of judge-made law, nevertheless, judge-made law is equally important to fill in the gaps that may exist in the legislation. Instead of going on with the debate as to whether case law is better than statute and vice versa, both statute and case law should compliment each other and convergence between statute and case law should take place in order to provide better laws.\(^{734}\)

In most cases, it is unlikely to have legal issues posed by new information technologies which are completely novel. Therefore, the existing laws would be more appropriated to deal with the legal issues in cyberspace. In support of applying existing traditional laws, Susan W. Brenner in her article titled ‘Is there such a thing as ‘Virtual Crime?’” stated that “at some point, we can do away with cyber crime laws because most crimes will involve computers in some way, and all crime will be cyber crime …”\(^{735}\) If one is to rely on Susan’s contention that cybercrime should not be distinguished from traditional crime because eventually all crime will be cybercrime, then one can contend that laws

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\(^{735}\) 4 Cal Cr Law Rev 1
that are used currently to regulate crime should also be applicable to cybercrime. However, Susan W. Brenner stated that one should treat this contention with caution. This contention is only applicable to those crimes and ‘corresponding’ cybercrimes that occur in cyberspace.\footnote{Susan W. Brenner, “Is there such a thing as ‘Virtual Crime?’ ” 4 Cal Cr Law Rev 1}

If one is to apply Susan’s contention, the Malaysian Penal Code is equally applicable to cyber cases and crime committed on the basis that cyberspace is merely an alternative forum in which the corresponding crime is committed. For example: in fraud, which can be committed in the physical world, it could be committed in cyberspace. Likewise, other areas of law such as contract, tort or even property in which the corresponding wrong or breach which occur in cyberspace should be regulated by the same set of laws as in physical world. It is because the new cyber technology is unlikely to generate a whole new field of law instantly. It is difficult to identify a particular field of law that solely associates itself only with one technology. There is no technology which associates itself only with one body of law. Although cyber-specified laws connote a new body of law that are specifically enacted to resolve various disputes in cyberspace or cyber-related issues, however, cyber-specified law are not entirely a body of law on its own. It consists of many areas of law. For example, copyright in cyberspace is one of the areas in cyber-specified law. Copyright law existed long before the creation of internet and cyberspace. However, online inventions and activities in cyberspace have created new copyright issues. Due to the peculiar nature of cyberspace and cyber activities, the existing copyright laws and its principles were extended in order to allow it to be developed further to resolve new copyright issues in cyberspace. For example, in response to development of the internet industry, The Malaysian Copyright Act of 1987 was replaced by its successive legislation, the Copyright Act of 1997.\footnote{Came into force on the 1\textsuperscript{st} April, 1999} 

\footnote{Susan W. Brenner, “Is there such a thing as ‘Virtual Crime?’ ” 4 Cal Cr Law Rev 1} \footnote{Came into force on the 1\textsuperscript{st} April, 1999}
provision of the new 1997 Act made unauthorised transmission of copyright works over
the Internet an infringement of copyright. The meaning of literary work now includes
the table of compilations “whether or not expressed in words, figures of symbols and
whether or not in a visible form”.738 Despite such extension, there are still many other
digital resources that are not protected under the copyright laws.

6.1.2 Application and the Extension of the Existing Traditional Laws.

The existing traditional laws should be applied to cyberspace cases. This contention is
supported by various writers such as Susan W. Brenner. Based on Susan W. Brenner’s
proposition, one could draw the following analysis in that the wrongful conduct in the
physical world is essentially similar to that of the wrongful conduct that occur or is
perpetrated in cyberspace, and it gives justification to the argument that online-offline
consistency is needed.739 Hence, wrongful conduct involving the use of internet or
computer technologies should not be treated as a special form of misconduct outside the
existing traditional laws. Technology merely transforms classical and traditional forms
of wrongful behaviours in different venue.740 Therefore, in devising a strategy in
combating the misuse and abuse of digital resources, the preliminary step that needs to
be taken is first to revisit and consider the adequacy and feasibility of the existing
traditional laws.741 Strong substantive laws are needed for the law enforcement agencies
to protect the society and internet users from wrongful activities in cyberspace.742

738 Nagavare Krishnasamy, 12th Abu Copyright Committee Meeting and Seminar in Brunei on 15 – 17 May 2006, Country Paper on
Copyright Issues in Malaysia
739 The Electronic Frontier: The Challenge of Unlawful Conduct Involving the Use of the Internet, A Report of the President’s
Working Group on the Internet, March 2000
740 Judge Mohamed Chawki & Dr. Mohamed S. Abdel Wahab, Identity Theft in Cyberspace: Issues & Solutions, Lex Electronica,
Vol. 11 n°1 (Printemps/Spring 2006), p40
741 Judge Mohamed Chawki & Dr. Mohamed S. Abdel Wahab, Identity Theft in Cyberspace: Issues & Solutions, Lex Electronica,
Vol. 11 n°1 (Printemps/Spring 2006), p7
742 The Electronic Frontier: The Challenge of Unlawful Conduct involving the Use of the Internet, A Report of the President’s
Working Group on the Internet, March 2000
However, pursuant to this proposition, Stefan Fafinski\textsuperscript{743} has also made some observations in that, in certain areas, the traditional laws such as criminal principles are able to deal with some of the problems that resulted from computer misuse before the enactment of technology-specific legislations. For example, in the case of Cox v Riley\textsuperscript{744}, the Defendant deliberately erased all the computer programmes from the printed circuit card of a computerised saw and as a result it rendered the saw inoperable. At the first instance, the Defendant was convicted under Section 1(1) of the English Criminal Damage Act of 1971 since the printed circuit card was a tangible property within the meaning of Section 10 (1) of the 1971 Act. The Defendant appealed and argued that the program which was erased was not a tangible property and therefore it did not fall within the ambit of the 1971 Act. However the Divisional Court held that the act of erasing of a program from a printed circuit card constituted damage within the meaning of the 1971 Act and therefore the Defendant was found guilty. This case clearly illustrated that traditional principle is able to resolve the computer misuse even before the enactment of computer-specified legislations. However, Stefan cautioned that the existing laws are very much limited in its application and are unable to be extended to encompass all sorts of un-encountered mischievous behaviours resulting from ongoing technological advances. Hence, this thesis suggests that one should adopt a liberal and flexible concept and legal principles in view of ongoing technological advances.

If one is convinced that the existing traditional laws, legal principles and theories remain relevant then the main concern would be whether such existing traditional laws


\textsuperscript{744} (1986) QBD
and its principles are flexible enough to accommodate the exclusive right of use determination as proposed by this thesis. Thus, it is important to identify the possible challenges in adopting the exclusive right of use determination into the existing system of law. To identify the possible challenges in adopting the exclusive right of use determination, the Malaysian criminal provisions are good examples to be used to illustrate the technicality and complexity involved in adopting this concept into the existing system of law.

One of the main obstacles in implementing the exclusive right of use determination within the bundle of rights is to decide whether it is compatible with the existing definition of property under the laws. Marc D. Goodman in his article suggested that when dealing with crimes against property in the context of computer technology and in cyberspace, the traditional formulation of property was based on the notion that ‘property’ is real and tangible, imposes a significant restriction upon the application of criminal law on offences such as theft and misappropriation of property occurring in cyberspace. The point that Marc D. Goodman was trying to make was that the problem of applying traditional law in cyberspace does not lie within the characterisation of the prohibited act or result but with the conceptualisation of ‘property’. In the other words, there are many activities or even misconducts that occur in cyberspace which are substantially similar to those activities or misconducts in the physical world (such as fraud in the physical world and online fraud), however, the problem in applying the traditional law in cyberspace is that the concept of property in the physical world and in cyberspace differs significantly and are incompatible with one another. Because of this, in order to allow traditional law and principles to be applied in

745 Marc D. Goodman and Susan W. Brenner, The Emerging Consensus on Criminal Conduct in Cyberspace, UCLA J. L. Tech. 3 2002
746 Marc D. Goodman and Susan W. Brenner, The Emerging Consensus on Criminal Conduct in Cyberspace, UCLA J. L. Tech. 3 2002
cyberspace, reconceptisation of property is needed so as to create consistency and compatibility between physical world and cyberspace.

Under the Malaysian Penal Code, the term “property” has been classified as either ‘immoveable’ or ‘moveable’. When the exclusive right of use determination is incorporated into the Penal Code, its form or structure does not fit in well as a ‘moveable’ or ‘immoveable’ property. Upon the new adoption, property should be re-defined as ‘property rights’. Property under the Code can no longer be classified as ‘moveable’ or ‘immoveable’, ‘corporeal’ or ‘incorporeal’ but rather as a set of rights (the exclusive right of use determination) in which the classification lies in the nature of rights.

6.1.2.1 Adequacy of Section 383 of the Malaysian Penal Code to deal with Online Extortion

Section 383 of the Malaysian Penal Code provides for the offence of extortion. Extortion is committed when whoever intentionally puts any person in fear of any injury and dishonestly induces that person in fear to deliver to any person any property or valuable security, or anything signed or sealed which may be converted into a valuable security. The term ‘any property’ includes both moveable and immoveable property. Letters written by a hostage or kidnapped person requesting for a ransom to be paid has been held to be ‘property’. A document which enables a person or one which

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747 Section 22 which states the words “movable property” are intended to include corporeal property of every description, except land and things attached to the earth, or permanently fastened to anything which is attached to the earth.

748 Property rights can be classified as right in rem and right in personam.

749 Act 574 Section 383 ‘Whoever intentionally puts any person in fear of any injury to that person or to any other, and thereby dishonestly induces the person so put in fear to deliver to any person any property or valuable security, or anything signed or sealed which may be converted into a valuable security, commits “extortion”.’

750 Halsbury’s Laws of Malaysia, 190.404, p437
gives a person a reasonable hope or expectation of collecting a substantial amount of money is also ‘property’.\textsuperscript{751}

In the offence of extortion, one is required to prove that the victim was induced to deliver or part with the property by putting that victim in fear of injury. The phrase ‘deliver or part with the property’ seems to suggest that the property in question needs to be physical or corporeal in nature. The word ‘deliver’ connotes the transfer of possession of or to give up or hand over to another; convey to a destination and left there or send in.\textsuperscript{752}

However, upon in depth analysis of this provision, a promissory note or an affixed seal to a blank paper are merely a medium in which a chose in action that has been evidenced and recorded. It is the intention to transfer or part with the particular chose in action that is evidenced and recorded in the document or instrument that is important. The document or the instrument serves as the supporting evidence to support the right to sue for the recovery of chattels, money, or a debt. If such an interpretation is accepted, this would implicate that the right to sue or the recovery of chattels, money or a debt is a form of property for the purpose of this provision.

When property is re-defined as ‘property rights’, a chose in action could be regarded as a form of (property) property right in which the holder of such has the right to initiate legal proceedings (the right to sue) to recover the property in question. When ‘any property’ are expressed in a form of property right, the delivery of a subject matter within this provision is no longer restricted to those ‘properties’ as per described by the

\textsuperscript{751} Halsbury’s Laws of Malaysia, 190.404, p438
\textsuperscript{752} Halsbury’s Laws of Malaysia, 190.404, note 6
provision previously.\textsuperscript{753} The delivery of a subject matter under Section 383 may well be extended to include a wider range of subjects that are not traditionally regarded as property such as set of secured numbers to be used to get to a thing; property or an account.

Cases of extortion of threats occurs frequently in cyberspace in relation to information technologies that involve the risk of damage to information systems, threat to identify security flaws or publication of private information on online system.\textsuperscript{754} However, regardless of whether the offence of extortion is committed offline or online, the use of computer and information technology has not altered the nature of the extortion offence under the Penal Code. A computer or the online environment is merely used as a tool or as an alternative medium with which the act of extortion would be committed. Hence Section 383 should be applied without limitation to extortion cases which occur in cyberspace when the new concept of property would enable a greater scope of its application.

This new right-based concept of property would bring Section 383 into a much clearer perspective. The new right-based concept of property would empower Section 383 to be applied to cyber cases on the basis that many digital resources and its rights in cyberspace which are not traditionally regarded as ‘property’ can now be effectively

\textsuperscript{753} As explained in the illustrations (a) – (d) in the Malaysian Penal Code:

“Illustrations:
(a) A, threatens to publish a defamatory libel concerning Z., unless Z. gives him money. He thus induces Z. to give him money. A. has committed extortion.
(b) A, threatens Z. that he will keep Z.’s child in wrongful confinement, unless Z. will sign and deliver to A. a promissory note binding Z. to pay certain moneys to A. Z. signs and delivers the note. A. has committed extortion.
(c) A. threatens to send men to plough up Z.’s field, unless Z. will sign and deliver to B. a bond, binding Z. under a penalty to deliver certain produce to B., and thereby induces Z. to sign and deliver the bond. A. has committed extortion.
(d) A., by putting Z. in fear of previous hurt, dishonestly induces Z. to sign or affix his seal to a blank paper and deliver it to A. Z. signs and delivers the paper to A. Here, as the paper so signed may be converted into a valuable security, A. has committed extortion.”

\textsuperscript{754} Peter Grabosky, Russell G. Smith and Gillian Dempsey \textit{Electronic Theft: Unlawful Acquisition in Cyberspace}, Cambridge University Press, Victoria, 2001
covered under this provision such as *inter alia* online contractual right; web contents or rights to be top-listed in search engine.

The adoption of this new right-based concept of property brings a more favourable outcome to Section 383. However, it may not be the same for the other provisions under the Malaysian Penal Code. Section 378 of the Code is an example to illustrate in what way the new adoption may not be compatible with the existing laws and principles.

When the word “moveable property” has been replaced by the word “property right” as proposed, property will now be redefined as an abstract bundle which consists of proprietary, personal and residuary rights. However, the words ‘take’, ‘out of possession’ and ‘moves’ would still be closely associated with the physical, tangible and corporeal nature of thing or property. Hence, it is submitted that neural and general terms should be used in order to widen the scope of application of this provision. This is in stark contrast to the remedies in other jurisdictions, for example the UK, where the real harm is considered to be to the personhood and not property through the revealing of personal affairs out of malicious motives. Herein, lies the method of using property as the organising concept in online extortion. In UK, the Protection from Harassment Act 1997 (United Kingdom) was originally introduced to deal with the problem of stalking. However, the Act goes much wider and covers a range of conduct, including harassment motivated by race or religion, some types of anti-social behaviour and some forms of protest. In addition to the criminal offences, a civil court can also impose civil injunctions in harassment cases and award damages to the victim for the harassment.755

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6.1.2.2 Adequacy of Section 378 of the Malaysian Penal Code to deal with Online Information Theft, Identity Theft and Theft of Confidential Information

Theft is defined in Section 378 which states that “Whoever, intending to take dishonestly any moveable property out of the possession of any person without that person’s consent, moves that property in order to such taking, is said to commit theft.” Moveable property is defined under Section 22 of the Malaysian Penal Code which states:

“The words “movable property” are intended to include corporeal property of every description except land and things attached to the earth or permanently fastened to anything which is attached to the earth.

Illustration: Writings, relating to real or personal property or rights are moveable property.”

The issue to be discussed is whether Section 378 cover acts of information theft, identity theft and theft of confidential information. In many legal systems there is no specific offence of identity theft. Perpetrators of identity theft are often charged with more serious offences such as financial fraud or other offences. Furthermore, this has lead to the much debated issue as to whether it is correct to describe the use of information, identity or confidential information without authorisation as information theft, identity theft and theft of confidential information which in the first place from the proper legal perspective on the basis that information, identity and confidential information are considered as something that cannot be in any manner stolen. From the Malaysian Penal Law perspective, technically it is not an offence with regards to acts of

756 Cybercrime Convention Committee (T-CY), T-CY Guidance Note #4, Identity Theft and Phishing in relation to Fraud, Adopted by the 9th Plenary of the T-CY (4-5 June 2013)
757 Cybercrime Convention Committee (T-CY), T-CY Guidance Note #4, Identity Theft and Phishing in relation to Fraud, Adopted by the 9th Plenary of the T-CY (4-5 June 2013)
stealing of information, identity or confidential information because information, identity or confidential information is not something that is capable of being stolen for the purpose of the provisions under the Malaysian Penal Code. Therefore, in order to apply Section 378 to cases in relation to digital resources such as information, identity or confidential information, the Malaysian Penal Code need to re-define property under the Code and its provision.

However, despite the word ‘moveable property’ has been substituted by property rights (exclusive right of use determination) even with the proposed amendment in Section 378, it will not produce the desired result and would also cause inconsistency in the provision. The inconsistency lies in that the words ‘take’, ‘out of possession’ and ‘moves’ has been used and these words stipulate that ‘property’ that are subjected to this provision bears the physical, tangible and corporeal nature. For this reason, Section 378 is applicable to properties that are of physical and moveable nature only.

One may want to refer to the English law position in comparison with the Malaysian position. Under the English Theft Act, Section 4(1) states that ‘Property’ includes money and all other property, real or personal, including things in action and other intangible property.758 The English law has defined property in a much wider sense which included both tangible and intangible property. ‘Things in action’ is considered as property for the purpose of the English Theft Act of 1968. However, confidential information or identity is not considered as property for the purpose of the Theft Act of 1968 and therefore it cannot be a subject-matter of theft. Therefore, based on this, there is no information theft or even identity theft under the English law. The position as it stands is that the although English Theft Act of 1968 has laid down a wide and flexible

758 English Theft Act, 1968
principle in appropriation (misappropriation) in the offence of theft, (that assumption of any ‘right’ is sufficient); as well as it has recognised intangibles such as ‘things in action’ as a form of property, yet information, identity or confidential information are not recognised as a form of property under the English law.

However under the English law, the actus reus of ‘appropriation’ is required as a component that needs to be satisfied in the offence of theft. Section 3 of the Theft Act of 1968 defined appropriation as an interference with any of the rights of an owner and this includes, where he has come by the property (innocently or not) without stealing it, and any later assumption of a right to it by keeping or dealing with it as the owner.

The meaning and the scope of appropriation has been explained in several decided English cases. Interference with any of the rights of an owner was clearly explained in the case of R v Morris. In that case, the Defendant had switched the price labels on two articles in the supermarket, with the intention of buying the more expensive item with the lower price tag. The Defendant had assumed the right of the Owner on the basis that only the rightful owner of the goods has the right to label the goods. The offence of theft was committed as soon as the label was switched. From the outset, it may not seem to fit into the offence of theft because the Defendant did not physically remove any item from the supermarket premises without paying for it. The Defendant neither intended to deprive the owner of the less expensive item. However, the goods became stolen goods when the Defendant assumed the right of the owner by amending the Owner’s stipulated price of the goods in question.

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759 Contrast it with the Malaysian position. In the Malaysian Penal Code, Theft is distinguished from criminal misappropriation. Theft requires the initial taking is wrongful and in criminal misappropriation, the initial taking may be innocent, it is the subsequent change of intention and knowledge of the new facts make the person liable under criminal misappropriation.

760 Section 3(1) of the English Theft Act, 1968

761 1984, AC 320
Lord Roskill in that case said that it was not necessary for the accused to have assumed all the rights of the Owner. He stated that “it is enough for the prosecution if they have proved ... the assumption by the Defendants of any of the rights of the Owner of the goods.” For an appropriation to take place there is no requirement for the Defendant to actually deprive the Owner of his property (whether permanently or temporarily). Appropriation is not confined to ‘taking’ or ‘depriving’ the Owner from the property. It takes place regardless of whether there is ‘actual deprivation’ of the property from its Owner.

The notion of appropriation is a very liberal and flexible notion. There is no appropriation if one exercises his or her right in property. For example, if A. hires a car from B. for the period of one month, A. is entitled to use the car as stipulated in the concluded agreement. It is a contractual right in which A. is able to use the car for one month. It is A.’s right in the property and A. does not commit theft by driving the car anywhere A. so desires. A. is not assuming or appropriating any right belonging to the others. However, A. will be liable for theft the moment A. drives the car and offer it for sale because A. only has the right to use the car as stipulated in the contract. A. has no right to sell the car under the contract. If A. sells the car, A. has assumed the right of an owner.

Appropriation can take place without possession. In the English case of Dobson v General Accident Insurance plc, the Plaintiff claimed from his insurer the value of a watch and ring which a rogue induced the Plaintiff to sell for a worthless cheque. The

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765 [1990] 1 QB 274, CA, Civ Div
insurer argued that the ownership in the goods passed when a contract for sale was made over the telephone before actual delivery. In response to this, Parker LJ stated that:

“…the result would merely be that the making of the contract constituted the appropriation. It was by that act that the rogue assumed the rights of an owner and at that time the property did not belong to the Plaintiff.”

Therefore, where there is an unconditional contract to sell specific goods in a deliverable state, the ownership passes to the buyer when the contract is made and it is regardless whether the payment has been made or the delivery of the goods has been postponed to later time. Although it is always thought that ownership will only pass when goods and payment are being exchanged, however, in law, the ownership of goods passes the moment the contract is concluded and the buyer would have the right to resell the goods concerned to a third party regardless whether he or she is in possession of the goods at the time the contract to resell has been made. This example is to illustrate that appropriation of property can occur without actual possession.

Yet misappropriation of information, identity or confidential information are not covered under the offence of theft because they are not considered as a form of property. Likewise, trade secret is not capable of being stolen under the English Law. However, it is interesting to observe that in Hong Kong in which the English

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766 Section 18, rule 1 of the Sale of Goods Act 1979 (English Law)
767 Oxford v Moss [1979] Crim LR 119 in which this case held that information is not to be considered as property
768 LCCP 150, Misuse of Trade Secrets, 1997 Recommendations made by the Law Commission “Our provisional view is that our proposed new law should criminalise the use or disclosure of another’s trade secret where the “owner” does not consent to its use or disclosure. We propose that consent should be negatived if obtained by deception, as defined by section 15(4) of the Theft Act 1968.”; Also refer to Davies, C., ‘Protection of intellectual Property – a myth?’ (2004) 68 J Crim L 398
law of theft applies as illustrated in the case of Chan Man-sin v A-G of Hong Kong.\(^{769}\)

In that case, a company accountant who drew a forged cheque on the company’s account was held to have assumed the rights of an owner over the credit balance which was considered as an intention permanently deprive and therefore was found guilty of theft of a chose in action. A credit balance in the bank account and a contractual right to draw on the account is a thing in action. If one choose to adopt the decision in Chan Man-sin (which held that contractual right to draw on the bank account as a thing in action that could be stolen), that is to say that contractual right which bears proprietary nature is capable of being misappropriated or stolen would be subject to the offence of theft. If this principle applies to information, identity or confidential information in which the owner of these digital resources possesses the property rights (the exclusive right of use determination) in these digital resources concerned, hence, any assumption on the rights of the owner of these digital resources would amount to an act of theft.

This liberal and flexible notion of appropriation under the English law is able to accommodate the adoption of the new right-based concept of property. This principle – in that appropriation is an interference with any of the rights of an owner and any later assumption of such right to it by keeping or dealing with it as an owner is tantamount to appropriation and this may be applied to deal with cases concerning the stealing of information; identity or confidential information in cyberspace on the basis that the notion of appropriation, control and protection of digital resources are all essentially connected with rights. However one must take note that changes in the definition of ‘misappropriation’ will not assist the action where it does not relate to property. The

\(^{769}\) [1988] 1 All ER 1
UK Law Commission did consider the application of theft to trade secrets but the report was not implemented.\textsuperscript{770}

Therefore, to enable Section 378 of the Malaysian Penal Code to be applied to cases of online information theft, identity theft and theft of confidential information, it requires a flexible notion such as the notion of appropriation adopted under the English law since the latter is applicable to apply to \textit{all} property including things in action and other intangibles rights in which it has been misappropriated.

Hence, it is proposed that Section 378 should be further amended as follows:

\begin{quote}
“Whoever, misappropriate any property rights or intend to misappropriate dishonestly any property rights \textit{belonging} to another without the rightful property owner’s consent, is said to have committed theft.”
\end{quote}

With the new amended Section 378, it would widen its scope of application by virtue of the words ‘misappropriate’ use in this section. Furthermore, from the wordings of this provision, it is not a pre-requisite that property subjected to this provision needs to be physical; tangible or corporeal in nature. However, property subjected to this provision must be in the form of property rights belonging to another. Hence, proof of ownership may become one of the important ingredients under this proposed new provision.

The issue is whether the proposed new section 378 with the new right-based concept of property and disassociation with the notion of possession has contravened the fundamental offence of theft. The notion of ‘possession’ is currently fundamental to the

The offence of theft in Section 378 is very much based on the traditional notion of possession. Hume explained that people made association in their minds between themselves and the ‘things’ they possessed physically.\textsuperscript{771} The convention of respecting possession is based on the people’s mutual expectation of their rights to control their property.\textsuperscript{772} To violate such mutual expectation, the act would essentially consist of ‘taking’ and ‘carrying away’ the property of the victim with the intent of permanently depriving the victim of it.\textsuperscript{773} The phrase ‘permanently deprives the victim of it’ meant that the victim (owner) of the property was no longer able to possess and enjoy the property. Hence, the rule against ‘taking or carrying away’ of property was designed to prohibit and to punish those disturbing public order by interfering with the right to ‘own’ something or the right to possess and use it.\textsuperscript{774}

When society progresses alongside with advanced technology, stealing is no longer confined to tangible physical objects only. The law needs to progress in line with the society changes. In view of this progression, the United Kingdom Law Commission has stated that there is a need to create an offence targeted specifically at the misuse of trade secret as a form of intangibles – ‘quasi property.’\textsuperscript{775} The significance of this is that the authority began its study of the extent to which trade secret should be treated like ‘property’ particularly in relation to the possible misuse and misappropriation. This showed that community now has different perception as to what may be qualified or classified as property.

\textsuperscript{772} Thomas W. Merrill, Henry E. Smith, \textit{Law and Morality: Property Law: The Morality of Property}, April 2007, 48 Wm and Mary L. Rev. 1849
\textsuperscript{775} UK Law Commission Consultation Paper on Misuse of Trade Secret (1997)
The issue of identity cards has increasingly become more complex as compared to in the past for personal information and data are now easily accessible and obtainable over the internet. The enactment of the Identity Cards Act of 2006 in the United Kingdom was for the purpose of creating a convenient method for individuals to prove registrable facts about themselves to others who reasonably required proof of their identity.\(^{776}\) Although the passing of the Identity Cards Act 2006 (UK) was not solely for the purpose of preventing misuse of personal information or personal identity online, nevertheless it showed that ‘identity’ and in particularly misuse of identity had attracted much attention from the public. Furthermore, the anonymity in cyberspace allowed perpetrators to use another’s identity to reap financial benefits or to carry out criminal acts.\(^{777}\) The Law Commission Report and the 2006 Act as stated above have demonstrated the increase of public awareness of the importance of intangibles in our modern society and the change of perception in granting intangibles ‘property’ or ‘quasi-property’ status as urgent and necessary. With the repeal of the Identity Cards Act 2006 in 2010, what is left is the protection of documents rather than identities.

Increase of public and government awareness of the importance of personal information is on the rise in Malaysia. In Malaysia, MyKad is issued to all Malaysian citizens upon attaining the age of 12 and the MyKad is designed to store all the personal information. Hence, it is vital to ensure the security of the information is well observed. If any of the information is compromised, the breach may lead to serious consequences such as fraud; impersonations and thefts.\(^{778}\)

\(^{776}\) Section 1(3) of the Identity Cards Act 2006 (UK); also refer to Clare Sullivan, The United Kingdom Identity Cards Act, 2006 – Proving Identity?, MqJBL (2006) Vol3, 259


The point to be highlighted from the above analysis is that the right-based concept of property has to be liberalised and expanded which is essential to be covered under the offence of theft. The general perception of what is considered as property needs to be changed. Property should include non-physical resources and its rights in view of progression in information technologies and the creation of various forms of digital resources. This new perception and right-based concept of property needs to be reflected in the existing laws such as the criminal law. To keep up with the changes in society and legal development, definition of property under the penal code of Malaysia needs to be widened in order to cover all forms of intangibles in which their ‘rights’ could be misappropriate by the others.

6.1.2.3 The Overlap between Section 378 and Section 403 of the Malaysian Penal Code

With the adoption of the new right-based concept of property and the notion of appropriation, Section 378 will then be equipped to deal with cases in relation to misuse; abuse or even misappropriate of digital resources. However, when the notion of appropriation is incorporated into Section 378, it may possibly overlap with Section 403 of the Penal Code. Section 403 states:

“Whoever dishonestly misappropriates, or converts to his own use, or causes any other person to dispose of, any property, shall be punished with imprisonment for a term which shall not be less than six months and not more than five years and with whipping and shall also be liable to fine.”
Section 403 creates an offence of dishonest misappropriation of property when a person dishonestly misappropriates, or converts to his own use, or causes any other person to dispose of any property. ‘Misappropriation’ is not defined under the Malaysian Penal Code. However, reference can be made to the explanations provided under the Indian Penal Code, wherein the word ‘misappropriate’ means nothing more than improperly setting apart for one’s own use to the exclusion of the owner.\textsuperscript{779}

‘Misappropriate’ means to dishonestly set apart for, or assign to the wrong person or a wrong use.\textsuperscript{780} For example, as stated in illustration (e) provided under Section 403 in which A. finds a purse with money, not knowing who the owner is; A. later discovers the purse’s owner but A. appropriates it to A.’s own use, A. has committed an offence under Section 403. It basically connotes improperly \textit{setting apart for one’s own use to the exclusion of the owner} with the intention of causing wrongful gain to one person or wrongful loss to another.\textsuperscript{781} Although Section 403 applies to both moveable and immoveable property, the word ‘misappropriate’ seems to suggest that it is mostly related to physical property. Section 403 also includes the word ‘\textit{converts}’ in which it means dishonestly dealing with property in a manner \textit{inconsistent with the rights of the owner}. The accused not only must retain the property to the exclusion or possession of the owner but also divert it for accused’s own use.\textsuperscript{782}

The words ‘converts’ and ‘inconsistent with rights of the owner’ suggests that this provision recognises the rights in property. Not only that, it also recognises the supreme position of an owner in property. As stated in the previous chapter of this thesis, exclusivity rules regulates the relationships of multiple users who have property


\textsuperscript{780} Sohan Lal (1915) 16 Cr LJ 795

\textsuperscript{781} Patrick Dayey v Public Prosecutor, 4 Mallal’s Digest (4\textsuperscript{th} Edition, 2000 Reissue) para 1468

\textsuperscript{782} Durugappa (1956) Cr 630 (India)
interests in the property owned by others. The rules are for the purpose of rendering those interests consistent with the owner’s position. Therefore, misappropriation takes place when any dealing inconsistent with the rights of the owner occurs. The penal law recognises that there are various rights in property and the phrase ‘inconsistent with the rights of the owner’ provides a good reason to justify the adoption of right-based concept of property on the basis that the provision in defining wrongful behaviour in relation to property right.

The issue to be considered is whether information theft, identity theft or theft of confidential information should be regulated under Section 378 or Section 403 in the event the Malaysian Penal Code is applied. As analysed above when the new right-based concept of property is adopted in the Malaysian Penal Code, it would require a liberal and flexible notion just like the English notion of appropriation to be adopted alongside with the right-based concept of property. However, the Malaysian Penal Code has created two separate offences for theft and misappropriation whereas under the English Theft Act of 1968, appropriation is just an element in the offence of theft. Would the adoption of the English notion of appropriation change the position of the law in the Malaysian Penal Code?

The Distinction between Section 378 and 403 of the Malaysian Penal Code lies in the Mental Elements

To answer this question, it is essential to ascertain the reasons as to why there are two separate provisions for theft and misappropriation under the Malaysian Penal Code. Although the offence of theft (under Section 378) and dishonest misappropriation of

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property (under Section 403) provided under the Malaysian Penal Code are similar but the elements of crimes contained in these two provisions differs. The Malaysian Penal Code intended to create two separate offences of stealing because theft under Section 378 requires that the initial taking is wrongful. However, in Section 403, the initial taking may be innocent but with the subsequent change of intention and knowledge of the new facts it makes the person liable.\textsuperscript{784} Contrast this with the English Theft Act of 1968 in which no distinction has been drawn in this regard. Section 3(1) of the 1968 English Act states “… where he has come by the property \textit{(innocently or not)}…”(emphasis added). The Malaysian Penal Code whereas draws a distinction between the initial taking and subsequent change of intention. The English law has no such cumbersome distinction in their Act.

**Punishments under Section 378 and 403 of the Malaysian Penal Code**

Another major reason for creating the two stealing offences is to provide different severity of punishments and sentencing. Section 378 provides the punishment of imprisonment for a term which may extend to seven years or with fine or both. Whereas Section 403 provides a lesser punishment of imprisonment for a term which shall not be less than six months and not more than five years and with whipping and shall also be liable to fine. Section 378 provides a much heavier punishment in comparison with that in Section 403 for the reason that the accused under section 378 already has the intention to take dishonestly right from the beginning. However, under section 403, the accused may have innocently obtained the property and due to knowledge of some new facts that subsequently emerged which makes the continued possession of the property to be wrongful and unlawful. When one refers to the mens rea under these provisions,

\textsuperscript{784} Bhagiram v Ahar Dome, I.L.R. 15 Cal. 388 at p400
Section 378 requires a direct intention to steal which is of the highest degree in mens rea whereas under Section 403 it requires a lesser degree of mens rea. For example, A. finds a purse with money, not knowing to whom it belongs. A. later discovers the purse belongs to B. but A. appropriates it to A.’s own use. A. did not have the direct initial intent to steal but he took the risk or was careless of not returning the purse to B. after becoming aware of the fact that the purse belonged to B. and retained the purse for A.’s own use. As the mental element required in these two provisions differs, this provided the justification for creating two separate stealing offences under the Malaysian Penal Code.

In considering the adoption of the English notion of appropriation in the Malaysian Penal Code, the conceptual challenge is that one has to decide whether the Malaysian Penal Code should retain the two separate provisions (Section 378 and Section 403) for stealing or to combine them together.

If Section 378 adopts English notion of appropriation, it would be wide enough to cover situations arising in Section 403. The issue that remains unsettled is whether the distinction should remain between a direct intent to steal (as in section 378) and mens rea with a lesser degree that subsequent change of intention and knowledge of the new facts that makes the possession or exclusion of property from its owner unlawful and wrongful (as in section 403).

The purpose and significance of the above discussions is not to propose how the Malaysian Penal Code should be changed and amended accordingly. The above discussions are to demonstrate the complexity and conceptual challenges involved in

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785 Illustration (e) under Section 403 of the Malaysian Penal Code
adopting the new right-based concept of property into the existing system of laws. It involves not only the incorporation of the new concept of property but also the adjustment of existing principles and notions.

6.2 Certainty in law

When property is redefined and is no longer clearly and ‘narrowly’ defined under the law or is classified into specific categories of property, it will create flexibility and allow more future resources or assets to be recognised as property. The exclusive right of use determination allows digital resources which have no physical existence to be recognised as a form of property mark a significant progress in the evolution of the concept of property.

However, the problem with flexibility is that it also causes uncertainty. When digital resources in cyberspace have the necessary element of ‘exclusiveness’, the digital resources would attain property status and the creator or holder who contribute to such ‘exclusiveness’ would become the owner of such digital resources. As there is no predetermined list of digital resources capable of acquiring property status, digital resource which is capable of becoming property it would highly depend on its context, nature, function and most importantly the present of exclusiveness element in digital resources. Like traditional property, possession is one of the ways to prove ownership in physical property. The title or deed to a piece of property, whether it is land; vehicle or other tangible property proves ownership. However, currently there no such system that exist for the registration of the various rights of digital resources in cyberspace. It is contended that such registration should be established under the Digital Rights
Management System which will be elaborated in the later part of this chapter under Proof of Digital Ownership.

The implication of this is that digital resource is only recognised as property when it satisfies the exclusivity element. This would create some uncertainties because the legal status of digital resources could not be ascertained at the beginning. When there is a dispute concerning the misuse and abuse of digital resource, the alleged owner of the digital resource must first prove that the digital resource in question has acquired the status of property. The burden is on the alleged owner of the digital resource. The alleged owner must demonstrate that he or she has acquired the element of exclusivity either through his or her labour or effort, personhood theory, privacy or contract.\(^\text{786}\) This could be an uphill task for the alleged owner of digital resources because if he or she cannot prove the exclusive element, he or she cannot ascertain the property status of the digital resource and the action will fail right at the initial stage itself. When the status of property has been ascertained, then the laws relating to property could be applied.

With the unprecedented rapid development of information and computer technologies, the circumstances demand a flexible, unconventional and adoptive concept of property rather than a certain and rigid concept of property. It is impossible to compile a list of digital resources capable of acquiring property status especially when new digital resources are being created and invented every day. The law needs flexibility to keep up with the development and advancement of technologies. Flexibility and adaptability would certainly contribute to the greater benefit; relevancy and extension of the law and its legal principles in cyberspace.

\(^\text{786} \text{ Please refer to Chapter 4} \)
6.3  Digital Ownership and Concurrent Ownership

When an individual wants to raise a claim in relation to property, he or she must prove his or her ownership or interests in the property concerned.

The work towards an effective and sufficient legal protection of digital resources against misuse and illegal distribution has become a challenging task in our modern information society. The hypertext function over the World Wide Web allows files, digital contents or digital resources to be linked and shared instantly. These unique characteristics of the internet make ownership of files, digital contents or digital resources harder to trace and identify. Files, digital contents or digital resources can be duplicated into multiple copies of each resource and each copy may reside in different computers located in different locations. Each copy is as good as the original copy and that makes it difficult to identify as to which is the original copy and the original sources of digital resources that implicates or assist in the ascertaining of ownership.

6.3.1  Watermarking Techniques

One way to ascertain the ownership in digital work or content is to identify the information that is embedded into the original work by means of the use of a watermark. Watermark is information embedded in the work concerned that can be used later as evidence to identify the rightful owner of the digital work concerned or its source of illegal redistribution. A digital watermark is a kind of marker covertly embedded in a noise-tolerant signal such as an audio, video or image data. It is typically used to

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787 Hardy, I. Trotter, “Property (and Copyright) in Cyberspace” (1996), Faculty Publications, Paper 189 http://scholarship.law.wm.edu/facpubs/189, p244
identify ownership of the copyright of such signal. In general, watermarking techniques consist of two phases: Watermark Embedding and Watermark Verification. During watermark embedding phase, a private key K (known only to the owner) is used to embed the watermark W into the original work. The watermarked database is then made publicly available. In order to verify the ownership of a suspicious work, the verification process take place where the suspicious work is taken as input and by using the private key K (the same which is used during the embedding phase) the embedded watermark (if present) is extracted and compared with the original watermark information.

However, the conceptual problem of these schemes is that the showing of watermark discloses sensitive information which can be used to remove the watermark. The common problem of this application (as well as other applications) is that the presence of a watermark has to be verified by a fully trusted party.

Furthermore, an ownership problem may be encountered in one of the three forms: First, ownership deadlock in which the pirate is able to provide an ownership proof which is as conclusive as the actual owner’s proof. Hence, ownership cannot be established and a deadlock arises. Secondly, counterfeit ownership in which the pirate is able to provide an ownership proof that is more convincing than that of the actual owner. As the result of that, the pirate may proclaim counterfeit ownership over

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the object whose ownership is in question. Thirdly, theft of Ownership occurs when
the pirate obtains an embedded-object and embeds a new watermark in it (pretending it
is a cover-object). Hence, the pirate claims ownership on a variant of a cover-object
whose actual owner is unaware of what is happening.

The matter may complicate further when one wants to track a unit of content or digital
resource (such as information over the internet) as a separate entity and trace it to its
author or creator. The issue is whether it is possible to track alteration or elaboration to
a unit of content or digital resource after it has been edited or rewritten.

When the right-based concept of property in digital resources is adopted there will be
situations where there exists more than one right or owner in every property. The issue
arises as to whether the increasing number of ownership in property might impact on
the law. It is contended that this may have impact on the drafting and operation of the
statutory offences in relation to misappropriation of property on the basis that
misappropriation occurs when there is assumption of rights or any of the right in
property. Hence, the statutory provisions and language must be drafted in such a way
that is compatible with the right-based property and the concurrent ownership.

It may also create difficulties for the Courts when dealing with misappropriation of
right(s) in property for reason that misappropriation of money or an amount is no longer
represented by the actual physical currency or even negotiable instrument in many

794 Husrev T. Sencar and Nasir Memon, Watermarking and Ownership Problem: A Revisit, Proceedings of the 5th ACM workshop
on Digital Rights Management 2005, p93 -101
795 Husrev T. Sencar and Nasir Memon, Watermarking and Ownership Problem: A Revisit, Proceedings of the 5th ACM workshop
Research Institute
796 Hardy, I. Trotter, “Property (and Copyright) in Cyberspace” (1996), Faculty Publications, Paper 189
http://scholarship.law.wm.edu/facpubs/189, p244
797 Jacqueline Lipton, Property Offences into the 21st Century, 1999(1) The Journal of Information, Law & Technology
When a particular right has been assumed or misappropriated, it may not be easy to quantify the actual amount or the value worth. The consideration may be highly contextual and depend on the circumstances of the case and the other variables involved.

Furthermore, when there is more than one owner in the property; there will be increased tensions between rightful owners and rightful users of the property. In the context of cyberspace, pressure will be exerted to restrict the creation and the use of digital resources and its contents. It leads to possible issues of infringement, incorporation of more technical measures to prevent the abuse of digital resources and the creation of more restrictive licensing agreements in which they would have negative impact on the digital world.

A proper digital right management protocol is needed to manage the rights in digital environment with constraining access to content and linking digital rights to proprietary ideologies. Under the management of digital resource rights, a legal person called the ‘digital surrogate’ who is the creator has the responsibility to create a digital right system to manage the use of the DRs between and amongst the creator and the users. The term ‘digital surrogate’ means prior to the creation of digital objects, the creator has to identify any right issues, identify who owns the right, negotiate the appropriate rights for the creation and use of digital object and ensure the rights issues, terms and conditions in a 3rd party contract are resolved and complied with.

Once the digital right is created, it is important to find the most appropriate solution to manage the appropriate rights including documentation of rights, establishing a proper right management system and development of e-commerce applications to assist

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Jacqueline Lipton, Property Offences into the 21st Century, 1999(1) The Journal of Information, Law & Technology
transactions and licensing of digital rights. Furthermore, the owner has to decide as to who should be granted access to the digital object, formulation and implementation of the appropriation license and permission to support the delivery and the harvesting of contents and also the activation of technical measures to protect the contents from unauthorised access. The management system also needs to look into the re-use of digital contents as well as the context of use. It is important to decide now how the digital contents will be used and the kind of permission that is required from its users.\footnote{N S Harinarayana, C S Somu, M V Sunil, \textit{Digital Rights Management in Digital Libraries: An Introduction to Technology, Effects and the Available Open Source Tools}, 7th International CALIBER-2009, Pondicherry University, Puducherry, February 25-27, 2009}

Creators and managers of the digital management system who wish to implement policies concerning its access in which the policies would stipulate as to who can access the information or work must first ensure the awareness among users about the terms and conditions under which these implications posses.\footnote{N S Harinarayana, C S Somu, M V Sunil, \textit{Digital Rights Management in Digital Libraries: An Introduction to Technology, Effects and the Available Open Source Tools}, 7th International CALIBER-2009, Pondicherry University, Puducherry, February 25-27, 2009} The rights and the relevant procedures to seek permission from the creators or managers must be clearly stated and explained. Another important aspect in digital management system is the informational privacy. When the administrative process of digital management system demands the user personal information for authentication or registration, the administrative body of the digital management system must make sure that user’s personal information is secure.\footnote{N S Harinarayana, C S Somu, M V Sunil, \textit{Digital Rights Management in Digital Libraries: An Introduction to Technology, Effects and the Available Open Source Tools}, 7th International CALIBER-2009, Pondicherry University, Puducherry, February 25-27, 2009}

The main objective of the above mentioned management is to control effectively and efficiently the use and access of digital contents by clearly creating; defining the rights
and designing a system to manage the rights appropriately. Digital Rights Management technologies are systems attempting to control what users can and cannot do with the media and the hardware the users have purchased. Although it seems to have nothing to do with traditional property law and its principles because digital rights management is technology-based system in managing digital contents and hardware, however its management in the control and access of digital contents is related to property law principles and theories such as Common Property Institution and the bundle of rights model in which it allows the owner of digital contents to creates various rights, define the boundary of those rights and to provide a mechanism to assign those rights accordingly to the terms and conditions laid down by its owner. For example, in Profile/Role/Rights/Contextual Management (PRRC), this system allow the authourised manager to create a set of defined profiles of users and assign them different roles that allow them to appropriate rights to access various resources based on the specific context lay down in their profile.

When there are concurrent ownerships in digital resources, it is important to have a system like the Digital Rights Management to manage the rights in digital resources accordingly. The digital management system is based on the copyright model. Even in a recent work, a separate model for the protection of digital resources rights has not been made in the co-ordination of rights within the digital management system. Without a proper system to clearly define and manage rights, it would create a lot of conflicts among owners and users of the various rights as their rights are not defined and prioritised. For example, in contextual digital right management (CDRM), the aim of

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this system is to add additional level of security by assigning rights to owners of resources. CDRM provides access control technologies to limit usage of digital media or devices according to specific instructions and instances.\textsuperscript{805}

From the legal perspective, a proper legal framework is necessary for implementation of digital rights management system.\textsuperscript{806} If Malaysia is to implement proper legal framework for digital rights management system, it would involve enacting new legislations that support issues such as compliance, investigation and enforcement. The laws should also lay out compliance rules for hardware and software manufacturers, service providers, owners, distributors and consumers. When digital rights management system agreement has been violated, there should be a mechanism in which the regulatory body is able to track the violations and prove the culpability of the violators. The laws should also provide ways in which digital rights management system related laws are to be enforced and also to provide guidelines the penalties/compensations for digital rights management system agreement violations.\textsuperscript{807}

Reference can be made to Article 11 and 12 of the 1996 World Intellectual Property Organisation Copyright Treaty which requires Nations party to the treaty to enact laws against digital rights management circumvention and it has been implemented in most member states of the World Intellectual Property Organisation.\textsuperscript{808} The United States of America, European Union and Australia have already enacted laws to support the digital management system under the Australian Copyright Amendment (Digital

\textsuperscript{805} El Sofany, Hosam Farouk, Abdulelah Al Tayeb, Khalid Alyhatani and Samir A. El-Seoud, The Impact of Cloud Computing Technologies in E-Learning, iJET, no.s1(2013): 37-43


Agenda) Act 2000. However, the Act and its amendments are still very much based on the copyright principles. It is submitted that in the event Malaysia is to implement proper legal framework to regulate digital rights management system, apart from copyright law, the authority should also take into consideration of what has been proposed in this thesis that is to incorporate the exclusive right of use determination with the bundle of rights theory to describe the various rights and interests of the parties.

6.4 Balancing of Other Legitimate Competing Interests

There are some complex practical and theoretical questions surrounding the creation of the new proposed property and quasi-property rights. The idea of “quasi-property” is commonly associated with the Supreme Court’s decision in International News Service v. Associated Press. In that case, Justice Pitney recognised the right of an information gatherer to prevent a competitor from free riding on the original gatherer’s labour for a limited period of time. The Court distinguished the quasi-property rights from property that quasi-property right would only exist between the two parties in question and never in the abstract against the world at large. This category consists of situations where the law attempts to simulate the functioning of property’s exclusionary apparatus through a relational liability regime.

The creators of digital resources desire to propertise their digital resources so that they can enjoy the ‘private’ property rights in order to control the use and access of their

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811 248 U.S. 215 (1918)
813 Shyamkrishna Balganesh, Quasi-Property: Like, but Not Quite Property, University of Pennsylvania Law Review [Vol. 160: 1889]
digital resources. On the other hand, there are also other important competing interests that exist in digital resources. The issue is how do one balance between the property interests of its owner and the interests of other users who may have legitimate competing interests in digital resources. Take the example of an individual who desires to propertise his own personal information on the basis that he can control the use and access of his personal information. Where his personal information bears significant educational, scientific or technical applications or values, it is highly possible that others would be interested to use or access his personal information. The competing legitimate interest of the others lies in the fact that such personal information may have significant impact and contribution on the development of educational, scientific or technical research which would benefit the society as a whole. Hence, the new laws or the new property system to be created must be able to address these issues and various competing and legitimate interests that exist in property.

Well thought out and careful creation of new property rights will assist in finding and creating a right balance among the interests of creators, other users and society.814 The creation and recognition of intangible property rights is important to society. Balancing those property rights with other legitimate competing rights is equally important to society. Failure to maintain such balance can be risky and undesirable because it would allow one party to own and potentially monopolise the property in hand.

The position of those who hold legitimate competing interests is rather vulnerable because they are unable to enforce their interests against the property owner effectively. An owner with strong property rights is in a powerful position to control the use and access of the property. There is no proper mechanism or system to deal with these

legitimate competing claims in property which may result in the lack of appropriate checks and balances on the exercise of rights in property.\textsuperscript{815}

The new right-based concept of property which is based on the bundle of rights theory as proposed in the present thesis does not provide such a mechanism or solution to these legitimate competing claims.

Professor Wesley Newcomb Hohfeld in his theory contended that no one can enjoy complete freedom to use, possess and dispose of his or her property without conflict and interference with the freedom of others. This would explain rights are correlated with one another. They are correlated with one another because when one exercises his right in property, it would affect the right of the others in the property. One of the Hohfeld’s jural relationships is ‘Right’. When one has a right, legal claim-right it meant that he is legally protected from interference from another. Conversely, another person who has been restrained to interfere, he is under a correlative duty to do so. That means the owner who has the right must be able to impose upon another person with a correlative duty.\textsuperscript{816} This is so when one has a right, legal claim-right, it means that he or she is legally protected from interference by another. Conversely, another person who has been restrained to interfere is under a correlative duty to do so.\textsuperscript{817}

The above is just one way of explaining the relationship between right and duty. The correlation between right and duty may also provide a solution as to how we can seek a balance between owner of property interests and the interests of others who may have


legitimate competing interest. Historically, property rights had never been absolute.\textsuperscript{818} Limitations were often found in the form of legal duties owed to the others. For example, in traditional land law, the landlord who has the property rights in land or a building is under an obligation to maintain the land or premises in good repair for the benefit of tenants and others who may enter the land or premises.\textsuperscript{819} With regards to intangible property, joint owners of both patents and copyrights are free to exploit the property without the consent of their joint owner(s) in the absence of an agreement to the contrary. However, joint copyright owners are obligated to account to each other for any profits earned from licensing or use of the copyright.\textsuperscript{820}

This correlative right and duty is not only found in traditional land law principles, it is also found in copyright law. A comprehensive law of copyright should not just be concerned about the rights of copyright owners; it should also be concerned with their duties too.\textsuperscript{821} The copyright monopoly comes together with duties imposed on publishers.\textsuperscript{822} It is also part of their obligation to encourage learning. They have to provide free copies of the publication to Centres of Learning and University Libraries, failure of which a penalty would be imposed on the publisher.\textsuperscript{823} It was stated in the case that:

\textit{“not the creation of private fortunes for the owners of [copyrights], but … ‘to promote the progress of science and the useful arts’”}.\textsuperscript{824}

\textsuperscript{818} Wesley Newcomb Hohfeld, \textit{Fundamental Legal Conceptions as Applied in Judicial Reasoning and Other Legal Essay}, by New Haven, Yale U. Press, 1919
\textsuperscript{822} Khong, “\textit{The Historical Law and Economics of the First Copyright Act}” (2006) 2:1 Erasmus Law & Economics Rev. 35
\textsuperscript{823} Khong, “\textit{The Historical Law and Economics of the First Copyright Act}” (2006) 2:1 Erasmus Law & Economics Rev. 35
\textsuperscript{824} \textit{Motion Picture Patents Co. v. Universal Film Mfg. Co.} 243 U.S. 502, 511 (1917)
Traditional land law and copyright right law imposes correlative duties on the owners, the similar approach should be applied to creators and owners of digital resources when they enjoy ‘private’ property rights and are in the exclusive position to control the use and access of their digital resources. By imposing such legal correlative duty to ensure adequate protection for legitimate competing interests in digital resources on creators and owners of digital resources, others who have legitimate competing interests in digital resources would be protected. The burden is on the creators and owners of digital resources to safeguard the legitimate competing interests in digital resources. Creators and owners of digital resources are in a better position to observe and protect those legitimate competing interests. By doing that, appropriate checks and balance on the exercise of rights in digital resources could be achieved and legitimate competing interests in digital resources are then well protected.

6.5 Jurisdictional Issues

Another major challenge in the application of the property rules in cyberspace is in relation to jurisdictional rules. When there is a dispute involves more than one country, the jurisdictional rules apply. When digital resource attains property status, then under the English Conflict of Laws, a distinction has to be drawn between movable and immovable.\(^\text{825}\) The distinction is important under succession in which movables are governed by the law of the deceased’s domicile. For immovable is governed by the lex situs (the law of the country where the immovable is situated).\(^\text{826}\)

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Different systems of law may characterise movable and immovable differently. Some movables are closely connected with land and for legal purposes; they are classified as immovable such as title deeds to land and keys to a house.\textsuperscript{827} When there is a conflict between lex fori, (laws of the jurisdiction in which a legal action is brought) and the lex situs (laws of jurisdiction is based on the venue or location of the property) as to whether a particular thing is considered as movable or immovable, it is well settled that the lex situs determine the characterisation.\textsuperscript{828}

Furthermore, a more significant problem in applying the lex situs rule is when property in question is intangible. Intangible might include intangible property interests such as debts, contractual rights, stocks or security interests in tangible property. The problem with intangibles is that they lack physical situs and this offer no intuitively clear reference point as to where they are located.\textsuperscript{829} Or alternatively we should follow the nineteenth century precedent which relies on the rule that ‘property follows the owner’ maxim.\textsuperscript{830} Alternatively, the maxim mobilia personam sequuntur states that movable property follows the owner. An English Jurist of the 18th century stating the law governing personal property as follows:

“... it is a clear proposition, not only of the Law of England, but of every other country in the world where the law has the semblance of science, that personal property has no locality … but that it is subject to the law which governs the person of the owner.”\textsuperscript{831}

\textsuperscript{827} Under the English domestic law
\textsuperscript{828} \textit{Re Hysles} [1911] 1 Ch. 179
\textsuperscript{831} \textit{Sill v. Worswick} (1791) 1 H. Bl. 665, 690
The issue to be considered here is should the lex situs rule be applied to digital resources or the maxim. It was argued in the case of Raiffeisen Zentralbank Osterreich AG v Five Star General Trading LLC⁸³² that lex situs rule should equally be applied to intangible movables.⁸³³ The facts of the case were as follows: The Owners of a vessel executed a notice of assignment of an insurance policy on their vessel in favour of the claimant Bank and sent it to French insurers through an insurance broker instead of serving it through a French bailiff as required under the French law. The proceeds of sale of the vessel were insufficient to meet several claims. In an action against the Owners, insurers and cargo owners, the Bank sought a summary declaration that it was the lawful owner of the insurance policy in which had been validly assigned to them. The cargo owners contended that the assignment was invalid on the basis that under the Rome Convention stipulates that the notice of assignment involved a transfer of property and such claim was a proprietary claim which was governed by lex situs - French law. However, this argument was rejected on the basis that lex situs rule to intangible is quite artificial. Furthermore, this case raised the significance of drawing a distinction between voluntary and involuntary assignments. The voluntary assignments are now governed by Art 12 of the Rome Convention.⁸³⁴ In respect of contracts concluded after December 17, 2009, Art 14 of the Rome I Regulation applies.⁸³⁵

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⁸³² [2001] EWCA Civ 68
⁸³³ Intangible movables mean chose in actions
⁸³⁴ Article 12 Voluntary Assignment states:
1. The mutual obligations of assignor and assignee under a voluntary assignment of a right against another person (the debtor’) shall be governed by the law which under this Convention applies to the contract between the assignor and assignee.
2. The law governing the right to which the assignment relates shall determine its assignability, the relationship between the assignee and the debtor, the conditions under which the assignment can be invoked against the debtor and any question whether the debtor's obligations have been discharged.
⁸³⁵ Article 14 Voluntary assignment and contractual subrogation
1. The relationship between assignor and assignee under a voluntary assignment or contractual subrogation of a claim against another person (the debtor) shall be governed by the law that applies to the contract between the assignor and assignee under this Regulation.
2. The law governing the assigned or subrogated claim shall determine its assignability, the relationship between the assignee and the debtor, the conditions under which the assignment or subrogation can be invoked against the debtor and whether the debtor's obligations have been discharged.
Article 14 Voluntary assignment and contractual subrogation (continued)
3. The concept of assignment in this Article includes outright transfers of claims, transfers of claims by way of security and pledges or other security rights over claims.
Voluntary assignment of intangible can raise number of issues. When there is a simple contract debt created by a transaction between A. (the creditor) and B. (the debtor) and A. then later assigns the benefit of the debt to C. To decide the validity of the transaction between A. and C., it should be governed by the law applicable to that transaction. However, in order to decide whether the debt is assignable in the first place, it can only be answered by referring to the law which first governs the creation of the debt, the law applicable to the original transaction between A. and B.. 836

It was argued that intangible right should not subject to lex situs on the basis that intangible right such as a chose in action or contract obligation did not in fact occupy space. 837 However, since intangible right has its legal existence, the lex situs rule applies - the law which governs its creation, where they can be effectively transferred and assigned where their holder is. 838 The right possess by one individual and to have another individual perform an obligation. The way in which the property or right can ultimately be realised is by the performance of the obligation. 839

Nevertheless, the governing law for intangibles is still held to be the law of the situs. In determining the situs of a chose in action or contract obligation, it involves the legal relationship between two parties who may in fact be in different States, and therefore the courts are guided by the purpose for which control over these intangibles is sought. 840

837 William M. Simmons, Conflict of Laws and Constitutional Law in Respect to Intangibles, 26 Cal. L. Rev. 91 (1937), p93
839 William M. Simmons, Conflict of Laws and Constitutional Law in Respect to Intangibles, 26 Cal. L. Rev. 91 (1937), p93
840 William M. Simmons, Conflict of Laws and Constitutional Law in Respect to Intangibles, 26 Cal. L. Rev. 91 (1937), p94
6.6 Conclusion

The present chapter has discussed some of the issues involved in the proposed implementation and application of the exclusive right of use determination and propertisation of digital resources resulting in common ownership between the creator and the users. There are basically two ways to implement the laws, either through enacting new legislation or implement under the existing laws. Many people support the idea that new laws are needed to be enacted for digital resources and cyberspace because they are new and independent from the existing world and legal system. New laws should be drafted with new legal concepts and notion. However, the setback of enacting new laws is that the law making process can be time consuming and it may not be able to keep up with the rapid development of information technology and online activities. Furthermore, new laws are mostly drafted for specific purposes, such as the Malaysian Personal Data Protection Act of 2010 in which its application is limited to personal data protection in the course of business transaction.

That makes applying and extending the existing property laws more than favourable on the basis that the existing property laws are well-established and its legal principles are in place to cover various situations. Property laws have been developed from common law and its principles are supported by legal precedents and decided cases. However, the issue in applying the existing laws is that it may not be compatible with the existing legal principles. This chapter has used the Malaysian penal laws to illustrate the possible incompatibility of the new concept of law with the existing penal laws. It was concluded that the right-based concept of ‘property’ has a significant impact on the application of the penal law as some provisions under the penal law such as Section 378 confine its application to tangible, corporeal property. Although one may contend that
the amendment of the existing definition of property would solve the problem, it may not be so for some of the legal notions and doctrines within the penal laws also need to be amended or adjusted accordingly such as the notion of ‘misappropriation’ as explained in this chapter.

This chapter has also examined other possible practical and theoretical issues that would be encountered by the new right-based concept of property when adopted into the existing system of laws. The law pre-determines the standard and condition to fulfill in attaining the property status – the element of exclusivity as proposed by the present thesis. By setting the standard and condition, it allows future digital resources to be categorised as property as long as it fulfills the necessary element. Such flexibility is vital in view of rapid creation of new digital resources.

The issue of ownership is closely connected with the idea of property. The creation of the digital world and digital resources have created controversies in relation to ownership namely, proof of ownership in the digital resources; the management of concurrent ownerships and various rights derived from digital resources. In managing the various ownerships and rights in digital resources, one has to strike a balance for other legitimate competing interests in digital resources. This is of great importance because there is no present and proper mechanism or system to deal with legitimate competing claims in property and therefore owners with strong property rights are in a better position to offer reasonable protection for those legitimate competing interests. Digital Management System may be able to offer a solution to this.

Finally, it always has been a great controversy on the issue of jurisdiction in cyberspace. As cyberspace is borderless and digital resources lacks physicality it is hard to be
located at any location. The argument is in the absence of any new rule, the lex situs rule apply to digital resource when it has been classified and characterised as property even though digital resources lacks physical existence. It is submitted that although digital resources lacks physical existence, however, the lex situs rule could be applied based on its legal existence in considering the choice of law and forum for a dispute in digital resources.

The purpose of examining the possible practical and theoretical issues and obstacles that would be encountered by the right-based concept of property been adopted into the existing system of laws is not to bring an adverse contention on the proposed laws for the regulation and management of digital resources. The present chapter highlights what needs to be done and focuses on the empirical challenges in the event that the new right-based concept of property - the exclusive right of use determination be adopted and implemented into existing laws. By highlighting those possible issues and challenges, it provides a holistic evaluation as to the extent of suitability of incorporating this new concept of property into the present system of laws and the effectiveness of such adoption. Without resolving and overcoming these challenges, it is difficult to establish and to develop an appropriate system to regulate the use and to provide adequate protection to digital resources in cyberspace.
CHAPTER 7: SUMMARY AND CONCLUSION

The comprehensive nature of the inquiry in this thesis is based on a challenging concept of property law which has tremendous significance in the triangulation of humankind, internet technology and the law. When numerous aspects of life in this world is pulsating with the uses of the internet, cyberspace, new and consistent addition of technologies and applications and an ever-reverberating social media, this thesis has identified a current lacuna in the law in the recognition of rights and the regulation and protection of a whole new body of digital resources that have hitherto not been recognised as “property” as traditionally understood. What follows is not a mere identification of this body of unregulated digital resources but a recognition of rights and duties within a system of laws that had to be developed for their regulation and protection amongst the various stakeholders. This thesis examines a body of unregulated digital resources namely, personal information, identification data and location data, company information, meta-tags and keywords, emails, social networking accounts, domain names and hyperlinks, data in cloud computing services and creative works in Online Creative Communities. The thesis has implications both at the international and national levels. This thesis seeks to regulate and to prevent the misuse of unregulated digital resources in Malaysia by conferring upon them property status, to enable them to be legally governed through a three-fold approach.

The three-fold proposed legal strategy discussed for the adoption of regulation and protection of digital resources comprises, first, the exclusive right of use determination, secondly, a rights-based concept of property and finally, the Common Property Institution based on a theory of common ownership followed by the application of traditional sources of laws.
The application and extension of the concept of property to the body of unregulated digital resources as discussed is called ‘propertisation’. The exclusive right of use determination in turn comprises the 27 rights. The rights-based concept of property is a theory that allows property to be classified as rights. The concept of the Common Property Institution has been advanced for the protection, implementation and governance of the body of unregulated digital resources. All in all, the three fundamental basic recommendations including 27 new property rights and 10 overall legal solutions have been made for the proposed regulation and protection of this body of unregulated digital resources. The 10 overall legal solutions have been proposed to address the set of problems identified in the body of unregulated digital resources. The operationalisation of these approaches and their implications have also been considered.

7.0 THREE FUNDAMENTAL BASIC RECOMMENDATIONS FOR THE REGULATION AND PROTECTION OF THE BODY OF UNREGULATED DIGITAL RESOURCES: Summary of Legal Arguments Discussed.

This thesis attempts to propose the necessary adoption and implementation of a new legal concept in order to regulate and prevent the misuse of the body of unregulated digital resources, by conferring upon them the special property status, so as to enable them to be legally governed through a three-fold approach. This approach allows the body of unregulated digital resources to overcome the lack of property status and to address the issue of ownership in those digital resources through (1) the application of the right called ‘the exclusive right of use determination’ within the ‘bundle of rights’
theory under the profound property theory, (2) the rights-based theory and (3) the Common Property Institution followed by the application of traditional sources of laws. The ‘Bundle of Rights’ metaphor expresses property as a bundle of rights or bundle of sticks in which each right /stick is independent of each other. This is to allow property to be owned and shared by different parties. The bundle of rights theory is a rights-based theory and its inherent flexibility makes it the most appropriate theory to be applied to the body of unregulated digital resources. The ‘exclusive right of use determination’ means the special right and authority of an owner who possesses the right to set the agenda desired for the property elaboration: that is, in defining the ownership based on the agenda-setting approach. The theory of the common property or the Common Property Institution refers to a common property regime which allows resources to be owned by a number of individuals. The theory of common property allows the distribution of property rights in digital resources amongst a number of owners who are co-equals in their rights to use the digital resources. Traditional sources of law refers to existing laws such as property laws, contract law, tort law, law of equity and trust and criminal law. Together they serve to regulate and protect the body of unregulated digital resources.

This thesis contends that the creator of an intangible digital resource can draw upon the principal right, namely, ‘the exclusive right of use determination’ within ‘the bundle of rights’, and to apply this right together with the implementation of the Common Property Institution for the prevention, reduction and control of certain misuses of digital resources in cyberspace, which are currently facing regulatory deficits. The conferring of a property status upon these intangible digital resources, is referred to as the ‘propertisation’ in this thesis. However, the theory of the ‘Common Property Institution’ is only applicable in cases of digital resources whereby it would confer
common ownership between the creator of the digital property and the multiple users so that the resources can be commonly owned and shared. The digital resources selected for protection through the Common Property Institution are to be found within the body of unregulated digital resources. Others that have been excluded are digital resources that are classified as intellectual property such as copyright, trademark and patent. These are excluded for reason that these particular resources have already been accorded adequate legal protection from the intellectual property regime and they are also distinct from the body of unregulated digital resources.

The 10 problems faced by the body of unregulated digital resources are summarised as follows:

1. The current laws on personal information, identification and location data are ineffective, inappropriate and inadequate in protection as there are misuses and abuses.

2. Company information available over the internet or online systems are not adequately protected by the law of confidentiality, trade secret law, employment contract, patent and duty of good faith of fidelity.

3. Meta-tags and keywords are not protected under individual or company contracts that are drafted and designed by the search engine companies due to the use of the ‘standard’ unfair contractual terms dictated by the search engines companies.

4. For emails and social networking accounts there is no law which addresses the legal ownership of the relevant email or social networking account as the contractual terms and conditions provided by the service providers are unfair and lack uniformity.
5. Domain names of websites even though currently regulated by the ICANN are still dependent on trade mark protection.

6. Hyperlinks suffer from a total lack of legislation and legal guidelines in linking websites with one another. An abuse of a hyper-linkage results in the wrong endorsement of certain products and services on the internet and creates a bad commercial image which affects business reputation.

7. In cloud computing laws are unclear and inadequate as users may lose control of their data stored in the cloud provider.

8. For OER and OCC as copyright laws are not appropriate for application, there is a lack of legislation governing the re-use and re-mix of creative works by the others resulting in many creators deciding not to share their work due to unfair or inadequate protection and may be entangled with legal ownership complications.

9. The problem of applying enacted cyber-specific laws to regulate digital resources are that they are too specific in nature and are targeted at specific acts that are prohibited by such enacted law. What is needed is a set of well-structured and comprehensive laws to regulate any misconduct or unlawful act and at the same time provide sufficient legal protection for digital resources and effective remedies to those who have suffered harm as a result of the wrongful acts.

10. A future problem that could arise when the Bundle of Rights and Common Property Institution are applied, is that there will be multiple or concurrent ownerships in digital resources. Hence, the proof of digital ownership and property rights would inadvertently become an issue. To address this problem, there is a need to have a proper and well-thought out system to manage those rights efficiently and effectively.
7.1 Analyses of the legal arguments in this Thesis.

7.1.1 Unique Nature of Digital Resources and Inadequacies of the Existing Laws

New digital technologies like digital reproduction, electronic publishing, social media and mobile devices are advancing rapidly at an unprecedented pace. These digital technologies enable an otherwise insurmountable amount of information, data and other digital resources to be easily accessed, copied, forwarded and rapidly stored. They are capable of being transferred elsewhere at an instant. Numerous new and improved digital resources have been created as a result of the exponential growth of digital technologies. When society develops and advances as does the knowledge economy, its result would benefit the education, research and the commercial world for digital resources are now freely accessible and available over the internet. However, the negative impact of the freely accessible digital resources is that the internet users at large in general have unlimited free access to the work of inventors and creators. The creators of digital resources who have invested their time, knowledge and labour are not rewarded for their effort invested as a result of this free access. As a result, it would have a negative impact on their productivity in future innovations of new and improved digital resources resulting in the possible slowing down of the pace of inventions, upgrading and maintenance of new and existing digital technologies.

Some of the causes that have contributed to this ‘free rider situation” are that this body of unregulated digital resource is freely available and the general mass of internet users do not seriously appreciate the value in the usage of these digital resources. This body of unregulated digital resources include various materials: it not only refers to the
commonly known resources such as information / data or software but would also include the different types of online creations and appliances that are technically created and developed from the usage of the internet or information technology/ies in furtherance of achieving a purpose or a task in cyberspace.\textsuperscript{841}

As this body of unregulated digital resource is intangible, many would believe that the intellectual property law regime could provide sufficient legal protection for these digital resources. Unfortunately, many of these digital resources are not recognised as a form of intellectual property on the basis that they do not fulfill the necessary conditions to be accorded the status of or be recognised as an intellectual property. Furthermore, digital resources and intellectual property both possess different ideologies and objectives as to how resources should be accessed and utilised. The fact that digital resources lack the proper legal status would expose them to misuses and abuses since there are no adequate laws or regulations to regulate the use and protection of these digital resources. Up until now legal recognition and the protection of these digital resources are on an \textit{ad hoc} basis in which there is no single comprehensive law to regulate the general use and access of digital resources comprehensively. The existing laws provide a limited and minimal level of protection for digital resources (where they are capable of being governed) through the law of contract or cyber-specified legislation. However, the level of protection is clearly most inadequate as the misuses and the magnitude of abuses of digital resources are on the rise.\textsuperscript{842}

Overly protecting intellectual works may lead to privatising many materials and works which render them incapable to maintain the desired balance between private interests

\textsuperscript{841} As discussed in Chapter 2 of this Thesis\textsuperscript{842} Please refer to Chapter 2 of this Thesis
and public needs. Such over-protected framework on access and sharing of knowledge would result in a negative impact on the development of society. The inapplicability of intellectual property law for digital resources is that intellectual property rights’ protection and cyber regime entails different ideologies and objectives. Intellectual property right is a form of artificial property rights which create a zero-sum situation in which one party benefits at the other's expense in which it would go against the idea of the internet that is meant to provide a forum for the sharing of knowledge or resources that would benefit society as a whole.

7.1.2 The Unique Nature of Digital Resources that contributes to their Misuse and Exploitation

This thesis has examined the meaning and notion of digital resources. The unique nature of digital resources is that they are capable of being shared. Besides, the resources are accessible, transferable, non-exclusive, non-rivalrous and replicable. Their uniqueness which also represents their vulnerability exposes them to misuse and exploitation. Notwithstanding the existence of various cyber-specific legislation that have been enacted in Malaysia, the laws are still inadequate for the protection of digital resources such as personal data. Such limited legislation are unable to provide the required and adequate protection for the body of unregulated digital resources on the basis that these cyber-specified legislation are not specifically drafted to provide effective protection for digital resources. Furthermore, there is no proper legal concept established for this body of unregulated digital resource.

843 https://www.eff.org/deeplinks/2014/04/without-intellectual-property-day Date Accessed: 01.07.2015; also refer to Boldrin, M., Levine, D., Against Intellectual Monopoly (OUP 2010) explains the dangers of private monopoly over ideas.

844 Please refer to Chapter 2 of this Thesis
7.1.3 A Re-conceptualisation of Property is needed

The body of unregulated digital resources are intangible, transcendental and abstract in nature. Based on these characteristics, it is unlikely that they would be classified as property within the existing traditional concept of property which emphasises physical existence and content-based form. This brings to the fore the dilemma in the present thesis for extending the concept of traditional property law to the body of the unregulated digital resources. The dilemma in the propertisation of the unregulated body of digital resources is that under the traditional concept of property, these intangible resources are not considered at all as a form of property. However, before propertisation can take place, in order for this body of unregulated digital resource to be classified as property, the defining concept of property needs to be re-conceptualised.

7.1.3.1 The New Property Concept.

The new concept of property should move away from the material and content-based approach to a more liberal and flexible concept. The historical evolution of the concept of property was discussed in detail in the present thesis. It showed that the concept of property evolved from a simple conception of maintaining a kind of permanent possession and ownership in dwellings for the protection of man’s family and young to a much more sophisticated conception such as that of the intellectual property. In view of this progression, the present thesis strongly proposes that the evolution and transition of the concept of property be continued, advanced and enhanced further to accommodate the unique nature of digital resources to meet the challenges of the new
cyber space era. The new concept of property that is rights-based evolves from the bundle of rights theory and the 27 rights under the exclusive right of use determination to enable same to be regulated and protected under the body of unregulated digital resources. The bundle of rights theory does not provide a comprehensive philosophical explanation as to the reasons why those rights existed in property. It also does not explain why any single bundle in the bundle of rights would make up the notion of ‘ownership’. The fragmentation of rights may lead to a ‘tragedy of the commons’ and the theory only emphasises rights rather than provide a clear understanding of property as a whole. However, the bundle of rights theory has received much criticism that we need to take cognisance of and consider them closely. Despite the criticisms promogated against the bundle of rights theory, it is contended that the bundle of rights theory is capable and suitable to provide a much needed basic structure to arrange and to prioritise the various rights in property. Its ability to fragmentise the rights and interests in property would greatly enhance the facilitation for the sharing of resources and to achieve a much higher allocational efficiency in digital resources. Higher ‘allocational efficiency’ refers to the ability to allocate resources efficiently and effectively. The true nature of digital resources in online environment refers to its unique characteristics as discussed earlier. It is noteworthy, that this theory is able to reflect the true nature of digital resources in the online environment.

This thesis has also identified the contents of the exclusive right of use determination to be adopted for digital resources. The 27 rights in the ‘exclusive right of use determination’ necessary for the regulation and protection of the body of unregulated digital resources are highlighted below. The exclusive right of use determination reflects the general position of the owner and it:

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845 Please refer to Chapter 3 of this Thesis
846 Please refer to Chapter 3 of this Thesis
(1) Allows multiple and current ownership of digital resources;
(2) Fragmentises the rights and interests of digital resources;
(3) Possesses a non-exclusive nature to allow for the public use of digital resources;
(4) Is publicly available as it is without limits to everyone;
(5) Is based on the Idea of Commons;
(6) Enables the regulation and management of digital resources;
(7) Establishes a system of laws
(8) Allows for rights to digital resources that are capable of being owned;
(9) Provides for the adequate control of digital resources;
(10) Makes use of and access to digital resources beneficially;
(11) Sets up and imposes condition(s) on the use and access of digital resources;
(12) Increases the utilisation of digital resources;
(13) Protects emerging interests in digital resources;
(14) Facilitates the future advancement of digital resources;
(15) Enables the co-relative duties to be observed and recognised;
(16) Reduces the possible risk of conflicts;
(17) Enables each right, interest and contingency of uses to be clearly defined and prioritised;
(18) Accommodates the shareable nature of digital resources;
(19) Is Accessible;
(20) Can be commonly owned;
(21) Incentivises creators of digital resources;
(22) Grants rights according to the needs of individual users;
(23) Enables coordination of inter-personal relationships;

(24) Grants the legal right to exclude non-members of that group from using digital resources;

(25) Possesses the private right with a public function;

(26) Facilitates commodification and

(27) Provides a legal entitlement to fair compensation.

7.1.3.2 Explanation of the 27 rights of the Exclusive Right of Use Determination.

In this sub-section, the valuable contribution made by the exclusive right of use determination through its 27 rights as compared to the earlier scenario when there was no regulation or protection is considered. The impact of the list of rights that make up the exclusive right of use determination and how these rights are peculiar to digital resources in cyberspace are summarised below:

(1) Allows multiple and current ownership of digital resources

The term ‘ownership’ in traditional property law refers to tangible property where a person owns a piece of property. In the context of digital resources, ownership is not only confined to joint ownership or full ownership as in physical property but multiple and current ownership in which it allows many parties to be an owner of the digital resources jointly as well as simultaneously.

(3) Fragmentises the rights and interests of the digital resources

The term “fragmentise” refers to separating various property rights in digital resources. The implication on the fragmentisation of the various rights and interests is that various rights and interests of the digital resources could be
divided and shared among various parties. For example, in the context of online journals, the right to access could be granted to many parties who may be interested in reading the journals. In addition, the right to copy could be granted to readers who may want to copy part of the journals in their research work. When various rights and interests are divided and compartmentalised it would allow the parties to utilise those rights appropriately without interference with others’ rights and interests. This may be contrasted with the traditional hard copy journals in which a limited right to copy inevitably comes together with the right to access (one cannot copy without having physical access to the journal). Although the right to read and the right to copy are two separate rights, they are inter-dependent on each other in the case of traditional hard copy journals. The inter-dependent relationship is not found in the case of online journals.

(3) Possesses a non-exclusive nature to allow for the public use of digital resources

The phrase ‘non-exclusive nature’ refers to the general availability of the resources. Many digital resources are meant to be shared due to their non-exclusive nature. However, many traditional, physical resources such as precious metals are rare and exclusive in nature because one needs to control the use and access of it in order to maintain the continued subsistence and availability of the resource.

(4) Publicly available as it is without limitation to everyone.

Digital resources are publicly available. Their non-exclusive and non-excludable nature, that is, the sharing nature of a digital resource, allows it to be shared and no limits are set as to its availability to everyone whereas the same cannot be achieved of traditional physical resources.
(5) Based on the idea of Commons

The term ‘Commons’ refers to resources that can be commonly shared among users. Many traditional physical resources are limited and they are potentially subject to depletion: the idea of ‘commons’ is unable to sustain its constant supply. However, digital resources are not subject to depletion and therefore, it can be based on the idea of a ‘commons’ in which it allows digital resources to be commonly available without limitation to everyone.

(6) Regulation and Management of digital resources.

The non-physical and intangible nature of digital resources need to be regulated and managed with clearly defined set of rights and interests through the 3 Approaches as discussed earlier.

(7) Establishment of a System of Laws

The exclusive right of use determination is able to establish a proper system of laws that can regulate and manage the use of digital resources by identifying the various contingencies of use and interests.

(8) Allows for rights to digital resources that are capable of being owned

When digital resources and their rights are capable of being owned, it would lead to attaining ‘property’ status. The implication of this is that when a digital resource or its rights is considered as property, any dealing in relation to that digital resource or its rights would be subjected to the relevant legal rules and principles of property law.
(9) Provision for the adequate control of the digital resources

One of the legal lacuna facing the above-mentioned body of unregulated digital resources is that there is no clearly defined rights and interests in these resources. With clearly defined rights and interests such as right to use and right to access, it would facilitate control over digital resources adequately and effectively.

(10) Make use of and Access to digital resources beneficially

The term ‘beneficially’ used here refers to digital resources that benefits society as a whole. Various rights and interests in digital resources could be fragmentised and be granted in order to take into consideration other legitimate competing interests. For example, an individual may grant a specific right from his personal information to another for the purpose of furtherance of scientific research while maintaining his other proprietary interest.

(11) Sets and imposes condition(s) on the use and access of the digital resources.

Conditions here refer to the specific conditions on the use and contingency of use. With advanced computer and information technology, an owner of digital resource is able to set specific conditions on the use and access of the digital resource. For example, a user cannot copy more than 20% of the digital work or that the user may only have access to the digital resource for a duration of one week only. However, it may require more effort to monitor the access or usage with regards to physical resources like in the case of a lease of a physical property.
(12) Increases the utilisation of the digital resources.

Utilisation means to put digital resource into use. Well-defined rights and interests in digital resources allow an owner of digital resources to transfer or to deal with its rights and interests confidently and hence increase the utilisation of digital resources.

(13) Protects emerging interests in the digital resources.

The exclusive right of use determination does not set limits as to the number of rights and interests in digital resources and hence it is able to include and protect newly created rights or interests in the future.

(14) Facilitates future advancement of the digital resources.

When legal rules and laws governing digital resources are in place and well-developed, it will further facilitate the advancement of digital resources on the basis that creators of digital resources will know that their creations will be properly protected by the laws.

(15) Enables co-relative duties to be observed and recognised.

Co-relation refers to mutual and corresponding duties. When one has a right in a digital resource, the legal-claim right means the owner is legally protected from any unauthorised interference by others. At the same time, the others who have been restrained to interfere are under the correlative duty to do so.

(16) Reduces the possible risk of conflicts.

Conflicts here mean disagreement among users of digital resources as to how the digital resources are to be used or accessed. When all the rights and interests of
digital resources are clearly laid down and defined, it reduces the possible risk of conflicts among parties who are interested in the digital resource.

(17) Enables each right, interest and contingency of uses to be clearly defined and prioritised.
Apart from clearly defining each right and interest, it is also important to prioritise each of the rights and interests accordingly, as some of the rights or interests take priority over other rights or interests. For example, when there are competing rights over digital resources, namely, a proprietary right and a contractual right, then the proprietary right takes precedence over the contractual right because the proprietary right is enforceable against the rest of the world whereas a contractual right is merely enforceable among the parties to the contract.

(18) To accommodate the ‘sharing’ nature of the digital resources
The ‘sharing’ nature of digital resources points out that these resources can be shared by many parties at the same time. When digital resources are available over the internet with proper control and regulations, it serves to accommodate the sharable sharing nature of digital resources.

(19) Accessibility.
The non-exclusive, transferable and replicable nature of digital resource makes it easily accessible. Accessibility refers to the digital resources being easily reachable.
Common ownership.

When a digital resource is commonly owned, it means that the digital resource is being owned by a number of individuals as co-equal owners who have the right to use the digital resource. Common ownership also empowers them with the authority to decide on the access, use and exclusion of the resource. This is as opposed to privately owned digital resources where the owner may be an individual who seeks exclusion by limiting the use and access of the digital resources in order to maintain their value.

Incentivises the creators of the digital resources.

When digital resources are capable of being owned and propertised, the creators of the digital resources are incentivised to create more digital resources in the future as they know their creations will be duly protected by the laws.

Grants rights according to the needs of individual users.

The exclusive right of use determination is able to fragmentise various rights specifically such as the right to use or the right to copy and those rights can be granted for the specific needs of the users.

Enables coordination of inter-personal relationships.

Inter-personal relationships refer to relationships amongst individuals. When rights, interests and priorities are clearly defined, each party who has an interest in the digital resource is fully informed and aware of their legal position and hence, they are able to coordinate inter-personal relationships among parties who are interested in those digital resources.
To have the legal right vested in the owners of digital resources to exclude a non-member of that group from using the digital resources.

When digital resources are common property, such common property is owned by a group of individuals who have the right to exclude non-members of that group from using the digital resources in order to incentivise co-owners by giving them the shared benefits and enforcement.

Possesses the private right with a public function.

The exclusive right of use determination is the most appropriate way to regulate digital resources on the basis that it allows creators of digital resources to possess private right (control) in digital resources and yet maintain the public function of digital resources by providing a system to facilitate sharing of digital resources.

Facilitates commodification.

Before transforming a digital resource into a commodity, its rights and interests must be recognised as valuable. Propertisation is able to achieve that by attaching property status to a digital resource.

Provides for legal entitlement and fair compensation.

Owners of the body of unregulated digital resources who have suffered misuse of their resources have no proper legal recourse as to their entitlement for fair compensation.

When digital resources are propertised, any interference with the rights or legal entitlements cannot be taken away without fair compensation. This scenario may be compared with a claim for legal entitlement under a contract which is
dependant on many preliminary issues such as privity, formation of contract, the breach of contract and the extent of loss suffered by the other party.

7.1.4 Differences between Common Resources Model, Common Property Model and Private Property Model

There are some misconceptions as to how the property law regime would work particularly in the context of sharing of resources. In the common resources model, resources are not property and therefore, common resources are to be made freely available to all users. The problem with the common resources model is that as resources are freely available to everyone, people get a free ride on the work produced/invested by the others therein. As Garrett Harding explained, when everyone tries to exploit what is available, multiple individuals acting independently are only concerned about their own self-interest which ultimately results in a depletion of the limited resource. It is the individual irrational use of the commons that would inevitably result in such a collectively tragic outcome – The Tragedy of the Commons. A private property model on the other extreme confines ownership in property to an individual or individuals or firms which emphasises the right of exclusion and absolute control over the property concerned.\(^\text{847}\)

The common property model should be distinguished from the private property model on the basis that the private property model only allows an individual or a corporation to hold property privately to the exclusion of all others. The common property model on the other hand, allows the distribution of property rights in resources to such designated number of owners who are co-equals in their rights to use the

\(^{847}\) Please refer to Chapter 3 of this Thesis
resource. In essence, the sharing of digital resources is always emphasised. The common property model is set to comply with and will undoubtedly observe the sharing culture by distributing various rights in digital resources to different parties. At the same time it is able to maintain a form of control over the digital resource on the basis that the ‘property’ status gives incentives to the creators by giving them the authority to decide on the access, use and the exclusion of the others from the digital resources. 848

7.1.5 Important Principles of having a stable Institution to Manage and to Regulate Digital Resources

There are important principles to be considered in establishing a stable institution to manage the regulation and protection of digital resources. In this context, a stable institution means a system or an organization which consists of formal or informal rules for the purposes of regulation and protection of the body of unregulated digital resources.

One of the most important principles of having a stable institution is that the user’s right to the resource needs to be clearly defined and identified. Without defining the rights and the interests of the various groups of users of resources, it will be hard to establish an institution in which all the parties’ rights, interests and co-respective duties are observed and recognised. Hence, the metaphorical bundle of rights and its theory would be able to achieve that by providing a system of laws to fragmentise rights and interests as well as the co-respective duties of the respective parties to digital resources. When rights, interests and conditions of use are clearly defined it would reduce the possible risk of conflicts and disputes. When the stable Common Property Institution with all its rights which are clearly defined is applied to the body of unregulated digital resources,

848 Please refer to Chapter 3 of this Thesis
then the digital resources could be utilised at the most optimal level and be protected adequately. It is strongly submitted that the Common Property Institution and the Bundle of Rights Theory are able to work hand in hand to jointly develop a set of laws for the effective management and protection of digital resources in cyberspace. Once the proposed concept of property and proper set of laws are formulated and mapped out, the next important step is to examine how the body of propertised digital resources could be subjected to and benefit from this set of laws when this new concept of property is applied to the body of unregulated digital resources which would then be categorised as ‘property’.849

7.1.6 The Benefits of Applying Traditional Sources of Law.

The traditional sources of law as discussed and considered are property law, contract law, law of tort, trust law, and criminal law as these are the current laws that regulate properties in the physical world. They have been tested and applied and have proven their acceptance and effectiveness. The traditional sources of law could be applied to the body of unregulated digital resources as a result of ‘propertisation’. The application of traditional sources of law would be effective in resolving the issues and concerns that have been discussed in Chapter 2 of the present thesis. The traditional sources of laws are also able to fill up the existing gaps and deficits in laws for the prevention, reduction and control of certain misuses and to regulate the use of digital resources in cyberspace. The traditional sources of law, property laws, its principles and other relevant laws are able to protect emerging interests in digital resources so that it may be productively used.850

849 Please refer to Chapter 4 of this Thesis
850 Please refer to Chapter 5 of this Thesis
7.1.6.1 Property law.

Upon propertisation, property laws and its principles will be able to safeguard the interest of the owner of personal information. They are able to provide appropriate remedies to those whose property rights have been violated. Any misuse and abuse of such property would allow the owner to act and protect his/her property through a proper cause of action. Property laws also provide several options for the property owner. The type of action the owner chooses to initiate depends on the nature of property in question as well as the remedy the owner intends to obtain.

7.1.6.2 Trust law.

The constructive trust is able, being a civil remedy, to bring about a specific restitution of a particular fund of property held in the hands of the wrongdoer or a third party who is obliged to hold the beneficial interest in trust for the victim. In many cases, a wide extension of the constructive trust called ‘constructive trust of a new model’ has been introduced. This broad principle allows a constructive trust to be imposed regardless of established legal rules to provide justice and conscience. The question often arises whether a claimant of a constructive trust need to consider the legal redress to claim for compensation and an injunction against further usage besides demanding for the return of the property to which he or she is entitled in equity which in digital resources may be academic and not relevant since no physical exchange has taken place. The claimant may ask for a specific recovery and for inclusion of any profit made in the process or derived from the property.
7.1.6.3 Law of tort.

Under conversion at common law, a wrong is committed by dealing with the goods of another person which deprived the rightful owner of the use or possession of them. There must be some deliberate act of depriving the claimant of his right. Conversion at common law could be applied to recover property that has been lost or misappropriated as a result of misuse of personal information.

7.1.6.4 Contract law

Modern commercial practices and the increasing importance of contract in the commercial world suggest that contractual rights are not merely personal rights. Many rights similar to proprietary right may be granted under the contract. The traditional distinction between real property (which possesses proprietary right) and intangibles (which possesses personal right) is no longer sustainable as there are many rights that do not neatly fall within these categories.

7.1.6.5 Criminal law.

Criminal law focuses on offences such as theft, criminal misappropriation and extortion. However, the offence of extortion in English law and Malaysian law varies. Section 4(1) of the English Theft Act 1968 has a wide definition of the term ‘property’ comprising both tangibles and intangibles: it “includes money and all other property, real or personal including things in action and other
intangible property”. The English Theft Act of 1968 has laid down a wide and flexible principle of appropriation (misappropriation) in the offence of theft, (that assumption any ‘right’ is sufficient). The actus reus of ‘appropriation’ is required as a component that needs to be satisfied in the offence of theft. Section 3 of the Theft Act 1968 defined appropriation as an interference with any rights of an owner and this includes where he/she came by the property (innocently) without stealing it, and any later assumption of a right to it by keeping or dealing with it as owner.

Under English law, the offence of extortion emphasizes the physical protection of the owner and not the property of the person. On the contrary, the Malaysian Penal Code affords protection to owners of digital resources because the law offers protection to the digital resources of the owner. Though the discussion on the Malaysian Penal Code does not suggest how the law should be changed or amended, the discussion demonstrates the complexity and conceptual challenges involved in adopting the new rights-based concept of property in the existing system of laws.

### 7.1.7 Possible Challenges.

The challenges facing the body of unregulated digital resources are in summary as follows. First, digital resources are not property. Secondly, they are not recognised as capable of being owned. Thirdly, the existing laws do not recognise these resources as property. There is no application, implementation or institution governing the body of unregulated digital resources.
As the ‘Exclusive Right of Use Determination within the Bundle of Rights and the Common Property Institution’ are quite distinct from the existing concept of property, a close examination of the various issues relating to the implementation and the possible conceptual and other empirical challenges encountered by this exclusive right of use determination would provide valuable analysis for consideration as to the extent of suitability in incorporating this new proposal into the existing laws and to evaluate the effectiveness of such.

When a dispute occurs in cyberspace which involves more than one country, a potential challenge would arise in the application of the conflict of laws rules to intangible resources which lacks the physical existence found in cyberspace.851 It is submitted that this thesis has examined and proposed certain possible solutions to these challenges in relation to the implementation and conceptual indifferences.

7.2 Summary of legal solutions proposed for the problems in the body of unregulated digital resources.

The following are the summary of legal solutions offered by the concept of propertisation, the exclusive right of use determination from the bundle of rights theory and the common property institution for specific problems encountered by the body of unregulated digital resources that have been discussed in detail in this thesis.

851 Please refer to Chapter 6 of this Thesis
7.2.1 General personal information, identification data and location data.

The problems created by the lack of adequate and suitable laws to govern and to recognise the rights of unregulated digital resource such as personal information, identification data or location data would be resolved by granting these unregulated digital resources property status. A property status would allow personal information, identification data or location data to be owned. A proper legal status would allow personal information, identification data or location data to have due recognition to its legal status and laws can be drafted and enacted to this effect. Hence, a proper set of laws would be in place to protect the use and access of personal information, identification data or location data by means of applying and extending existing legal theories and the principles in of property laws. When personal information, identification data or location data are propertised, the owner of these digital resources will acquire the exclusive right of use determination. These digital resources are largely concerned with the various rights in the resources. As there will be more than one user or holder of rights in digital resources at any one time, what is needed is to have a concept of property that is similar to what Felix Cohen has described in that the ideological concept of property is to co-ordinate relationships between people. It is contended that the rights-based concept of property – the bundle of rights theory is able to deal effectively with social legal correlation in relation to property. It is the most appropriate concept of property to be applied to this body of propertised digital resource on the basis that it characterises property as a set rights and the scope of each right in the bundle can be sub-divided and be a recomposed privilege of use accorded to various parties which is essential for digital resources – the sharing of resources. From the exclusive right of use
determination, the contents of bundle for personal information; identification data or location data in turn comprises various rights namely right to access information or data, the right to correct information or data, the right to withdraw consent to process information or data, the right to prevent processing likely to cause damage and distress, the right to prevent processing for direct marketing and the right for compensation as the consequences of wrongful use of information or data. The right for compensation is of particular importance for the reason that there is no provision under the Malaysian Personal Data Protection Act of 2010 and other cyber-specified laws in Malaysia which provides compensation for the victims in situations when their personal information or data has been misused.

The thoughtful and careful creation of the new property rights system will be able to maintain the right equitable balance between the interests of creators, other users and society in general. The Common Property Institution would facilitate personal information, identification data or location data to be shared and accessed by different parties under such conditions and terms stipulated by the owners of these digital resources as well as adherence to the agenda setting of its owners. Furthermore, it balances those property rights with other legitimate competing rights for reason that a failure to do so is detrimental, undesirable and non-productive as it would allow one party to own and potentially monopolise the access and use of the digital resources in hand.
7.2.2 Company Information.

Although Company’s information is protected under the various laws such as the law on confidentiality, trade secret law, employment contract, patent law and the duty of good faith in Malaysia, yet when the Company’s information is exposed on the internet or online system, the above laws and principles seem to be unable to provide fair and adequate remedy to the Company that has suffered loss. However, when the Company’s information attains the status of ‘property’ then as understood in traditional law, traditional principles of law in relation to property are then applicable.

The traditional principles of law would provide a far more comprehensive and holistic set of laws to protect the company’s information. Property laws and principles are able to provide more remedial options than any other cyber-specific legislative enactments. The tort of conversion at common law is one of the possible remedial options. Although under English law as well as Malaysian law, the tort of conversion may not be available to intangibles, however, it is most likely that the law would be developed in order to allow the tort of conversion on intangibles especially involving property rights.

Apart from conversion, the constructive trust as currently applied in Malaysia would also bring specific restitution of a particular fund or property held in the hands of the wrongdoer or third party. When a constructive trust is imposed on the wrong doer or the third party, the wrong doer or the third party is obliged to hold the beneficial interest of the subject-matter in trust for the victim. In the case of a breach of trust of a company’s information, when the perpetrator misuses
company’s information causing financial loss, the principles of constructive trust would then be applied to assist the victim to recover what has been lost or misappropriated as a result of the breach or misuse of the company’s information when the company’s information has been exposed on the internet or online system. Constructive trust can also be imposed on the wrong doer who would be obligated to hold the beneficial interest in the specific property for the plaintiff regardless of whether a relationship exists such as employment relationship or duty of good faith. Such remedy is available even to mixed property even though such mixed property’s value has subsequently increased.

Furthermore, an injunction is another equitable remedy offered by equity that may be able to assist the victim to prevent or to restrain the wrongdoer or a third party from making use of the company information in question. The court will only grant an injunction at the suit of a private individual to support a legal right when he or she has a local standi in the given case or action.

7.2.3 Meta-tags and keywords.

For meta-tags and keywords, the property status will ensure that the individual or company who owns the exclusive right to use the meta-tag or keyword secure the top-listing in the search engine concerned. An individual or company would be in an exclusive position and such exclusive position will no longer be affected by any unfair contractual terms dictated by the search engine provider companies. The significance of having a right derived from the notion of property as opposed to contract is that any interference or removal of such right needs to be supported by moral and legal reasoning and principles. When a
meta-tag or keyword (the exclusive right to use the meta-tag or keyword) attains its property status, any attempt to take away or affect its right would be sanctioned by the respective property laws. Property right takes precedence over other rights and claims. Property right is one of the ‘absolute rights’ of an individual (natural rights which exist prior to the State) that takes priority over social rights (contractual rights which only evolved later). Therefore, by regarding the exclusive right to use the meta-tag or keyword as property, it would ensure that no contractual clause would vary the exclusive position of the owners of exclusive rights to use the meta-tag or keyword.

7.2.4 Emails and social networking accounts.

The problem with emails and social networking accounts is that it is difficult to decide as to the rightful legal ownership of the service provider and account holders: for example, who owns the email or social networking account after the demise of the original owner. The Common Property Institution would allow the email service providers, social networking account providers and account users ownership concurrently but separately. They would each own the accounts in different perspectives and hence would resolve the problems in ownership. Propertisation and the new rights-based concept of property are able to provide an effective and adequate system to regulate and to protect emails and social networking accounts and its contents. The Common Property Institution will be able to ensure that property is not necessarily restricted to privately owners as they could belong to multiple owners and each shall have equal rights. When email and social networking accounts are regarded as joint property, each owner
may have an unequal right or shares in property. The bundle of rights theory is able to define and fragmentise the various rights in emails and social networking accounts and it would then allow the owners of the emails and social networking accounts to divide those rights accordingly. Multiple or concurrent ownership allows email and social networking account providers and account holders to resolve the issues of ownership and its contents.

7.2.5 Domain Names and Trade-marks.

The exclusive right of use determination will also allow the owners of the domain names and trade-marks to prevent others from using the same name in the future. The exclusive right of use determination and the bundle of rights are able to provide a win-win situation for both domain name user and trademark user in cases of dispute. There is no system currently that unifies the domain names system and the trade marks system as they are two separate parallel systems in existence. The property law system is able to resolve the ownership and issue of priority by applying the equitable maxim *qui prior est tempore potior est jure* (he who is earlier in time is stronger in law). This means that the first in time prevails over the others. This will resolve the dilemma of the domain name user who always loses out to the trademark user even though the trademark user registered the name later in time. The owner of the name (either the domain name user or the trademark name user) may use the name and at the same time concurrently grant the right to use the same name to the other user upon such prescribed terms and conditions. This would allow another user to use
the same name provided that the terms of usage are clearly defined and agreed upon and it causes no confusion to the consumers at large. The exclusive right of use determination which is based on the notion of exclusivity emphasises the harmonisation of the use of property consistent with the owner’s agenda setting. The exclusivity rules would regulate the relationships between the owner of the name and other user(s) who have interests in the name. The rules are for the purpose of rendering those interests to be consistent with the owner’s supreme position.

7.2.6 Hyper-links.

For hyper-links, the solution lies in this digital resource acquiring property status through the right of exclusive use determination which will serve to regulate hyper-link by propertising the rights such as the right to link and right to associate. The owner who possesses the exclusive right of use determination – right to link and right to associate would be in the exclusive position to decide who or which website can create a hyper linkage rather than relying on consent or permission when consent or permission is merely a part of the netiquette and hence nobody will strictly enforce it. Furthermore, linking implicit endorsement may have serious implications on the reputation of an individual or a company. The law generally treats reputation as property to the extent that reputation has real-world economic value. Hence, the traditional property law and principles would provide remedy in cases of wrongful association or implicit endorsement resulting in bad commercial image and business reputation.
7.2.7 Cloud Computing.

When data in cloud computing are propertised, the exclusive right of use determination would further enhance the users of cloud computing in gaining control of his or her data stored with the cloud provider through clearly established property and ownership status. Similar to personal information; identification data or location data, the exclusive right of use determination from the ‘bundle of rights’ in turn comprises of the various rights such as the right to disclose, right to access, right to analyse for further research, the right to process, right to be informed of security breach and the right for compensation as the consequences of security breach.

7.2.8 Open Educational Resources and Online Creative Communities.

When creative works in Online Creative Communities have been propertised, the Common Property Institution would facilitate creators to commonly and jointly own creative work they have jointly and or collectively created. The exclusive right of use determination allows the owner(s) of those creative works to assign various rights to other creators or users such as the right to access, the right to reuse, the right to remix, the right to distribute, the right to copy, the right to adopt, the right to transform, the right of attribution, the right to modify and the right to develop further on the existing creative works without having the fear of breaching copyright law and any other laws. Not only that, the owner’s power to control the use of the creative works is no longer confined with those rights or the type of licenses that have been stipulated by the creative
communities. The exclusive right of use determination and the bundle of rights theory fragmentises those rights and would enable the owner to assign and to transfer those rights as stated above. With proper norms and reasonable behaviours, it will enable each member of these online creative communities to respect each others’ works and contributions, hence creating a platform that genuinely allows the meeting of creative minds to share their works and knowledge towards the greater development and advancement of society.

7.2.9 Traditional Laws.

The application and extension of existing traditional laws is able to provide better and more effective governing laws to regulate and to protect the body of unregulated resources on the basis that existing traditional laws are backed by well-established time tested legal theories and principles. One must also consider the conceptual and empirical challenges that could possibly be posed by the exclusive right of use determination from the bundle of rights theory and Common Property Institution being introduced into the existing laws and doctrines. In searching for the most appropriate approach for the implementation, one needs to evaluate the flexibility of the existing system of laws and the relevant legal doctrines in accommodating this new concept of property and the proposed overarching concept for digital resources. Although the relevant criminal provisions in the Malaysian Penal Code have illustrated the technicalities and complexities involved in adopting this new rights-based concept of property into the existing system of law, however, the existing penal provisions are capable of adopting the new rights-based concept of property and hence provide more adequate protection to digital resources.
7.2.10 Proof of ownership and Digital Rights Management.

The exclusive right of use determination and fragmentising the rights give rise to multiple ownerships and concurrent ownerships. When there are multiple or concurrent ownerships in digital resources, the proof of digital ownership and property rights becomes an issue. A proper system is needed to manage these multiple ownerships and rights in digital resources. Digital rights management will be able to effectively provide a comprehensive system to manage and control the access and assignment of rights of digital resources. From a legal perspective, a proper legal framework is necessary for implementation of digital rights management system. If Malaysia is to implement a proper legal framework for digital rights management system, it would involve enacting new legislation that support issues such as compliance, investigation, and enforcement. The laws should also lay out compliance rules for hardware and software manufacturers, service providers, owners, distributors, and consumers.

When a digital rights management system agreement has been violated, there should be a mechanism in which the regulatory body is able to track the violations and prove the culpability of the violators. The laws should also provide ways in which the digital rights management system is to be enforced. It is also to provide guidelines on the penalties/compensations for digital rights management system agreement violations. Personnels for the management of this system need to be established as well. They would require special training in


hardware and soft-ware skills and to acquire good knowledge of digital resources law and rights. Financial outlay by the relevant governmental ministry would also be necessary. The closest Ministry for this purpose in Malaysia would be the Ministry of Information and Multimedia.\textsuperscript{854} Currently this Ministry does not undertake the regulation or protection of the body of unregulated digital resources. Non-governmental organisations could also play a strong role in monitoring situations. Governance at each institutional level also needs to be considered. Education of the public in this matter is vital as they are part of the stakeholders in the digital resources ecosystem.

Property law and its principles such as common property institution and the bundle of rights model should be incorporated as the underlying framework in the digital management system. The digital management system would allow the owner of digital resources or contents to create various rights, define the boundary of those rights and provide a mechanism to assign those rights according to the terms and conditions laid down by its owner.

7.2.11 Lex Situs: Governing law for the body of unregulated digital resources

As an intangible right such as a chose in action or a contract obligation did not in fact occupy space, it should not be subject to the \textit{lex situs} rule. However, since an intangible right has a legal existence, the law which governs its creation, where the right can be effectively transferred and assigned, is where their holder is and it will be the governing law of the dispute in the absence of any arbitration or jurisdictional clause. When the governing law for intangibles is held to be the law of the situs, in determining the situs of a chose in action or


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contract obligation, it would involves the determination of the legal relationship between the two parties who may in fact be in different States and the courts are guided by the purpose for which the control over these intangibles is sought.

7.3 Conclusion and Way Forward

In the current dynamic state of the internet with its ever-growing body of online and digital resources, the present thesis has addressed some of the challenges facing the law in regulating and protecting a body of unregulated digital resources. The present thesis has analysed the legal challenges and issues facing this body of unregulated digital resources and advanced a conceptual framework for their regulation and protection. It has stressed the importance of such regulation and protection by advocating the propertisation of digital resources. In order to achieve its objective, this thesis has identified for the establishment of a proper set of laws to regulate and to protect the body of unregulated digital resources found in cyberspace including civil and criminal laws to recognise, regulate, protect and balance the rights of creators, providers, holders and users of the digital resources By granting the body of unregulated digital resources property status and through the application of property laws and its principles, it is able to effectively fill up the vacuum in the existing cyber-specified laws in relation to the protection of digital resources. This will be necessary for future generations too as the use of cyberspace for the growth of internet-based applications will only increase when adequate and balanced protection is given to the stakeholders. It is vital that the law catches up with science and technology. This thesis addresses such an important measure in our world where people, data, technology and cyberspace interact at great speeds and perhaps even exchange functions, leaving the law to
recognize the various rights and duties of stakeholders and implement the necessary regulatory aspects.

This research is the first of its kind to put in place a legal concept of property that capitalises on the exclusive right of use determination within the bundle of rights. In addition, the Common Property Institution and other legal theories to form a set of laws to regulate and to protect the body of unregulated digital resources from the perspective of the various stakeholders while promoting the use of cyberspace and other technologically advanced applications. The proposed rights-based concept of property is contentious and may attract observations, comments, criticisms and challenges ahead. The application of property law in a digital environment has always been problematic on the basis that the traditional concept of property does not fit well into the modern era of digitalisation. A re-conceptualisation of property is urgently needed and the modern era of digitalisation requires a liberal, flexible concept of property to accommodate the unique nature of digital resources.

Despite the challenges faced by the traditional property law concept and some of the misunderstandings on the property law regime, property law and its principles are the most promising and appropriate set of laws to be adopted and to provide the much awaited and needed additional protection for digital resources on the basis that property laws and their principles are able to be developed into a comprehensive system that will strike an equitable and just balance between an owner’s control over digital resources and at the same time maintain the greatest benefit of the internet and information technology, that is, the borderless sharing of information and knowledge.
It is impossible to cover every aspect of this new “provocative” set of laws for the body of unregulated digital resources in a single research thesis. The present thesis has merely initiated the establishment and development of the idea and set of laws that could manage and protect digital resources. There are many issues and concerns that go beyond the scope of this present research and would require further evaluation and critical analysis from time to time in view of the future development of digital resources and information technology. It requires an ongoing effort, critical evaluation and further contributions on this proposed new concept of property for digital resources.

A comparative study should also be carried out in the near future in order to examine the effectiveness of propertisation in comparison with other ways of protecting digital resources such as through self-regulation. The present research could be extended even further by examining the social and legal impacts of propertising digital resources in society and one may be able to gain valuable insight as to how this new concept of property would affect the overall social and legal structures in society.

Last but not least, the problems of misuse of digital resources and the inadequacy of the laws have implications not only at the international but also at the national level. It may occur in increased frequency in less developed countries like Malaysia as the cyber-specified laws therein are not fully developed yet and existing traditional laws and concepts do not cater for all cyber scenarios. This thesis has advanced 40 recommendations so far which includes the twenty-seven [27] rights that make up the contents of the exclusive right of use determination for digital resource. It is contended that these twenty-seven [27] rights should not only be applied in developed countries but also to the less developed countries like Malaysia so that there is a joint global initiative and genuine effort and universal co-operation in attempting to regulate and
protect digital resources in cyberspace irrespective of language, race, religion or place of abode.
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