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CAN ANYBODY OWN THE INTERNET?

**MICROSOFT, OPEN-SOURCE AND THE DEBATE ABOUT
INTELLECTUAL PROPERTY.**

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Date of Submission:

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

Abstract

The Internet has become one of the most important mediums of communication and information in modern society. For many, the rapid adoption of these technologies into mainstream society has been combined with a reliance on commercial software, most notably the Microsoft Corporation's Windows operating system. Questions arise out of the commercial dominance in a realm that until recently was characterised by the collective sharing of information and ideas. Although there is a lack of established sociological literature in this field, established literature on ownership, global capital, political economy and social exclusion have been identified and drawn upon to fill this gap in research. The research process highlights both traditional theoretical concepts, mainly drawn from the work of Marx, and their implications in terms of the Internet, computers and other related topics.

DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief, incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education; contain any material previously published or written by another person except where due reference is made in the text; or contain any defamatory material.

Signature..

Dated.. *16/02/2005*

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CONTENTS

Copyright & Access Declaration.....	2
Abstract	3
Declaration	4
Acknowledgements	5
CHAPTER ONE: INTRODUCTION	7
Methodology	11
Theoretical Foundations	14
CHAPTER TWO: HISTORICAL BACKGROUND.....	22
A History of the Internet	22
An Economic History	25
CHAPTER THREE: ASPECTS OF THE INTERNET	28
Content	28
The 'Digital Divide'	31
CHAPTER FOUR: THEORETICAL CONSIDERATIONS	34
Ownership	34
The Commodity and Commodification.....	35
Information Ownership	37
CHAPTER FIVE: INFORMATION OWNERSHIP IN PRACTICE.....	41
Journals.....	41
Internet Content and Ownership.....	42
CHAPTER SIX: ISSUES OF CONTENTION IN ICT	46
Proprietary Software.....	46
Anti-Proprietary Software	49
China and other Open-Source initiatives.....	51
CHAPTER SEVEN: ACCESS TO INTERNET INFORMATION.....	53
Free Information.....	53
Proprietary Information.....	55
Ownership Trends	57
Minitel: The First Example of Government Sponsored Open-Access?	60
CHAPTER EIGHT: CONCLUSION	63
REFERENCES CITED	68

CHAPTER ONE: INTRODUCTION

Governments and financial markets rely on it. Scientific and academic research communities have made rapid progress because of it. The media has become a global entity due to its use. Even oppressed and disadvantaged sections of the world's population have implemented it as a tool of their social progress. 'It' is ICT. ICT (information and communications technology) has become one of the central and most important aspects of modern Western society. As a tool it enables individuals and groups to process, access and share ideas, thoughts and information in avenues not seen before. As an industry it created an economic boom with the dot-com start-ups of the mid-1990's, and continues to be an important aspect of the global economy. Australia alone has some 235,696 persons employed in the ICT industry (Australian Bureau of Statistics, 2004).

The ICT sector covers a range of modern technologies. In 1998, member countries of the Organisation for Economic Co-operation and Development (OECD) (2002, p.4) agreed that a definition of the ICT sector should include "a combination of manufacturing and services industries that capture, transmit and display data and information electronically." A definition of this kind incorporates objects and products that are "intended to fulfil the function of information processing and communication including transmission and display" and also "must be intended to enable the function of information processing and communication by electronic means" (OECD 2002, p.6). These include anything from manufacturing insulated wire cable to the writing of protocols and software (Organisation for Economic Co-operation and Development, 2002). ICT also includes the manufacture and use of instantly recognisable products such as computers, DVDs, CDs, telephones, modems and mobile phones.

Throughout history, revolutions in technology have bridged differences and distances between people and societies. Humanity's ability to innovate and establish new technologies for their benefit has become evident in the bridging of such gaps. In his book *Cyberspace: the human dimension*, David Whittle (1997, p.298) highlights numerous examples of human innovation have helped shaped developed and developing societies:

the Erie Canal brought goods, people, services, and information to points along the canal in less time than previously possible. The steamboat did the same for cities along the Mississippi River. Alexander Graham Bell created the foundation for an entire industry dedicated to reducing one simple barrier by enabling people to communicate with one another instantaneously even when separated by short and long distances. Thomas Alva Edison not only extended the number of useful hours in a day with his electric lights but also laid the foundation for the industry serving our leisure time with his invention of audio and video recording and playback. The advent of airtime travel has fuelled the growth of modern multinational business and the global economy.

Whittle (1997, p.88) also expresses a notion that the lessons from emergent technologies are clear, that is they enable societies to "force dynamic changes that culture, ethics, and law must accommodate – and that accommodation should be made without sacrificing static quality and good." While former technological advances tended to improve a limited number of aspects of life, ICT advances have altered and will continue to alter multiple aspects of society. The changes undertaken during the 'information revolution' can therefore be viewed in economic, social and political terms. Each has directly and indirectly been affected as populations have developed ICT resources to levels that enable communities to perform tasks in a manner unlike never before.

One of the most dramatic changes resulting from the ICT revolution has been its effect on the nature of economics in modern society. In *The Rise of the Network Society*, Manuel Castells (1996) argues the most evident of these has been the alteration of Western Capitalism. He contends that:

capitalism itself has undergone a process of profound restructuring, characterized by greater flexibility in management; decentralization and networking of firms both internally and in their relationships to other firms; considerable empowering of capital vis-à-vis labour, with the concomitant decline of influence of the labour movement; increasing individualization and diversification of working relationships; massive incorporation of women into the paid labour force, usually under discriminatory conditions; intervention of the state to deregulate markets selectively, and to undo the welfare state, with different intensity and orientations depending upon the nature of political forces and institutions in each society; stepped-up global economic competition, in a context of increasing geographic and cultural differentiation of settings for capital accumulation and management (Castells, 1996, p.1).

These changes are all, in part, a result of changes and advances in ICT over the last half of the Twentieth Century. As ICT refers to the combination of both information and communication, it follows that an innovation that spans both information and its mode of transportation would be of great significance to the sector. The advent of the Internet has been one such innovation and its importance to ICT cannot be underestimated. However, its effects on broader social interaction and institution are perhaps more important and less predictable.

The Internet has spread across the developed world in a manner similar to the acceptance of many other innovations. Yet, as with many other society-altering innovations, concerns arise about the implementation of such innovations to the benefit of the greater percentage of the world's population. Similar concerns have arisen surrounding other forms of media, in the domain of health about medicines and vaccines, and other intellectual and knowledge based innovations that have all been beckoned as potential tools in the creation of a human utopia or, in their worst incarnation, dystopia. With these and the Internet, the central idea of the innovation and creation of information is its ability to facilitate the increase or decrease of freedom and equality amongst people.

If information is to be both the source and focus of modern society, open and equitable access to information is a concept that will need to be addressed, because information will be the base of much future production (Becker & Stalder, 2003). Becker & Stalder (2003) forewarn that “if this raw material is closely controlled, people are excluded from participating in the Information Societies as anything but passive consumers”. Thus, although technology has the possibility of changing society, “interest hidden in seemingly neutral technical standards build dominion on knowledge, marking the path towards Information Feudalism” (Becker & Stalder, 2003).

Freedom and equality are two notions central to one of the Internet’s latest phenomena, the Wikipedia project (<http://en.wikipedia.org>). The aim of the Wikipedia project is to create a shared and open encyclopaedia in which the content can evolve. The creators of the project highlight this aim through the three essential characteristics of Wikipedia.org (Wikipedia, 2004c):

1. It is, or aims to become, primarily an encyclopaedia.
2. It is a wiki, in that it can be edited by anyone (except for banned users, and excluding protected pages).
3. It is open content, and uses the ‘copyleft’ GNU Free Documentation License.

The concepts of open content, copyleft and GNU Free Documentation License will be discussed in greater length in a later section, but the understanding of Wikipedia as a collaborative work in which anyone can edit, access and implement information supports the notion of freedom and equality on the Internet. As of the beginning of October 2004 there were a total of 361,952 article pages with an average of 7.57 collaborative edits per page since July 2002 (Wikipedia, 2004b). While questions still remain on the validity and reliability of information on Wikipedia, it remains a vital link between community understandings of knowledge and economic restrictions on information.

In studying the effects of the Internet, or any technology for that matter, it must be remembered that it does not facilitate social interaction on its own. Technology cannot be separated from the ideological background of its users, thus it can only reflect the socio-political norms and practices of individuals; what it cannot do is alter these by itself. For example, if one views the Internet as an egalitarian medium, it follows that aspects of the cultures that have developed the Internet contain, or at least view as important, egalitarian principles. Similarly, contemporary concern of the commercialisation of society can be translated to a concern for the commercialisation of the Internet. It is this aspect that is of central importance to this thesis.

Questions of particular focus include the concepts of the commodity, capitalism, community and the possibility of freedom on Internet. Within this framework, an investigation of theoretical considerations of ownership, law and society will be combined with practical studies of software, hardware and Internet use. Consequently, the broader question of the thesis asks whether information on the Internet can be owned, or put another way, can the Internet be owned? By investigating ICT and Internet ownership the intention is to highlight not only the potential problems within the sector but also an emerging challenge to the status quo. Also in studying this field, the sociological investigation of a recent social phenomenon that deserves more attention will be developed.

Methodology

A study into the nature of ownership of information is deeply bound in theoretical understandings. As such, the methodology of this study will focus on combining theoretical discussions of ownership with a contemporary analysis of the Internet. This thesis has undertaken a critical theoretical approach towards the issues presented. The primary theoretical focus centres on Marxist ideas of the relationships between ownership, production and the resultant outcome. Central to this are the theories regarding the forces of production and the relations of production. However, such a theoretical position has been adapted to fit the Internet and other aspects of the modern world that do not fit the traditional theory. On top of these the theories of

'commodification' and 'commodity fetishism' have also been implemented as relevant understandings of the evolution of the Internet as a worldwide media phenomenon. In developing this theoretical framework, in depth study of 'primary' literature has been undertaken. The literature includes classical works on the notion of ownership, as well as modern sociological and economic studies on modern understandings of ownership, information, property and the law.

The currency of scholarly studies of the Internet has often been limited due to the rapid advance in technology, as well as shifts in global economics and politics. In an attempt to overcome such barriers this study implements a wealth of secondary source materials ranging from industry magazines, websites, web logs and online statements. Other secondary sources include a trail of hyper-links that lead investigators to a wealth of knowledge on the Internet. Many of the bodies representing interests and governing the Internet include detailed references to other sources in the governance of the Internet community. It must be noted that a critical analysis of such data must be performed carefully as the vast amounts of information on the Internet can also lead to irrelevant and inaccurate material. However, in studying the issues raised by the Internet, it is perhaps the most important resource available in such a study.

By placing these aspects of ICT into a sociological theoretical framework a clearer view of the Internet as a product of the political and economic context from which it arose, and the resistance that this has spawned, can be attained. This study will also highlight the evolution of the Internet as a means of communication. This evolution coincided with the gradual emergence of Microsoft as not only the most powerful force in ICT but also one of the most important private entities in global economics and politics. By investigating the issues surrounding the Internet, Microsoft's virtual 'monopoly' of operating systems, and the emergence of Free and Open-Source software as viable alternatives, the results of such a study will allow for an explanation of what has been happening in this field, what it is currently facing, and the possible future.

While in terms of theoretical literature on the thesis topic scholarly work remains limited, similar themes have evolved in not only the traditional media studies but also in other sectors of technology. These studies will also be used as a resource in implementing a critical theoretical analysis of content and ownership on the Internet and ICT. With this said, close attention must be paid to the ideological basis of these arguments when discussing them within the thesis to limit criticisms of bias and unsupported assumptions. In terms of the Internet, issues of globalisation and the shift towards information based economies account for changes in the economic and political thought that are so important to this thesis. Theories of the 'Digital Divide' and subsequent theories of the 'information rich' and 'information poor' are also scattered through the text. Such theoretical understandings allow for the arguments of access and ownership of content to be justified with potential consequences as well as keeping the thesis aware of problems outside of the 'online world'. These theories also give rise to the problem of social marginalisation on the Internet and question many of the utopian ideas it spawned in the mid 1990s.

Research of this nature contains some limitations. One of these is the limitation on the depth of material available and analysis of the primary sources of information. The nature of Internet research requires not only a selective eye for information, but also an understanding that some information available at the time of access but not so a week later. Also, rapid changes in technology, as well as changes in corporate and financial infrastructure, continue to this day. As such, not only will some material that was relevant five years ago may not be today, material that is relevant now may be superseded in a month's time. To allow for this some data will have to be constantly checked to make allowances for such a change.

This methodological discussion leads to an important point. In discussing the Internet, a factor that must not be overlooked is the lack of importance it plays for much of the world's population. In many areas of the world access to electricity is of greater concern than lack of computers or an ADSL connection, whilst in many Western societies there exist many people who are excluded from participating in the medium. However, in studying the Internet in sociological terms, one can keep shortcomings in mind while making a detailed inquiry.

The study of the Internet is a popular object of study in which numerous theoretical approaches have been implemented. Approaches have included its uptake as a new technology, its impact in the study of culture, consequences in education, business and other realms. The focus of this thesis centres on the manner in which the Internet has fit within the current political and economic world. It is not a critique of other perceptions of the Internet, rather it is an investigation into how issues of exploitation for commercial gain, the distortion of its potential for the benefit of owners and proprietors, and the links between knowledge, democratic and economic participation.

Theoretical Foundations

In social, political and economic terms the time from the late Twentieth Century onwards has been dominated by the surging forces of global market capitalism. Free markets, competition, and consumerism have been ideological norms for nation states that have undertaken this doctrine of economic thought. In short capitalism is the economic and political doctrine that places dependence on market self-organisation, support of privately owned wealth, freedom of consumers and the stability these provide in society. Daniel Yergin and Joseph Stanislaw (1998) argue that capitalism has succeeded due to the results it has delivered to society. These can be broadly defined firstly as the constant idea of opportunity in the social psyche; and secondly the fairer system than unchecked and arbitrary power of the nation state (Yergin & Stanislaw, 1998). Important to this study, and central to the concept of a capitalist economy system, is the production and exchange of the commodity.

As the 'first' critic of capitalism, Karl Marx (1974, p.1) notes "the wealth of those societies in which the capitalist mode of production prevails, presents itself as "an immense accumulation of commodities," its unit being a single. Therefore, he argues, an investigation of capitalism cannot be separated from, and must start with, an analysis of the commodity (Marx, 1974, p.1). Marx's analysis of the commodity and capitalism illustrates the dependence of the economy on the commodity. By

commodity Marx assumes it to be an object produced for the purpose of being exchanged. The distinguishing point of a commodity is the production that entirely focused on the market or for exchange. Thus, objects produced for reasons other than exchange, are devoid of an important aspect required by a commodity, that being the intention of the original creator to exchange it.

The commodity is an inherent requirement for the functioning of capitalist societies, and has guided changes in terms of social and political direction. The Industrial Revolution provided a great source for capitalising on existing commodities and continued the growth of capitalist economies throughout the world by creating new ones. However, the nature of the economic doctrine with its need for unrelenting economic growth; always searching for new markets, goods and consumers, has led to shifts in policies and practices of the limits of government. One of the manners in which this has been achieved is in the modern day governments endorsing of the works of economists such as Milton Friedman and Friedrich von Hayek and the *laissez-faire* policies towards the economy. These theories argue that government restrictions on the economy restrict the individual freedoms of its citizens. This is illustrated through Friedman's (1962, p.39) review of what constitutes a liberal:

A liberal is fundamentally fearful of concentrated power. His objective is to preserve the maximum degree of freedom for each individual separately that is compatible with one man's freedom not interfering with other men's freedom. He believes that this objective requires that power be dispersed. He is suspicious of assigning to government any functions that can be performed through the market, both because this substitutes coercion for voluntary co-operation in the area in question and because, by giving government an increased role, it threatens freedom in other areas.

A consequence of these critiques of government interference in economic matters has been the globalisation of market exchanges as capitalism searches for more profit-making opportunities. The requirement for constant, unrelenting economic growth was understood by Marx. He noted that capitalism was not only a social system with an inherent logic of the "unceasing movement of profit-making"

(Marx, 1974, p.254) but also provided an analysis which explained the relentless pursuit of profit. In *The Communist Manifesto*, Marx explains:

the bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society. Conservation of the old modes of production in unaltered form, was on the contrary, the first condition of existence for all earlier industrial classes. Constant revolutionizing of production, uninterrupted disturbance of all social conditions, everlasting uncertainty and agitation distinguish the bourgeois epoch from all earlier ones. All fixed, fast-frozen relations, with their train of ancient and venerable prejudices and opinions, are swept away, all new formed ones become antiquated before they can ossify (Marx, 1998, p.38).

Although Marx does not highlight the result of capitalism's search for the commodity and market in terms of global economics, he does lay the foundation for future Marxist thought. Vladimir Lenin made one such consideration in *Imperialism: The Highest Stage of Capitalism* (1917). Lenin followed Marx's comments on the constant revolutionising of the commodity in relation to the colonies of the early Twentieth Century. He argues that as capitalist economies mature, the rate of profit will always fall, and due to this capitalist economies require new markets, with colonies serving as both consumers and producers of raw materials (Lenin, 1969). The end result of these modern day laissez-faire policies has been "the establishment of the first truly global economy, integrated and interconnected, in which work and production are networked around the world and in which everything from knowledge to commerce is taking electronic form" (Yergin & Stanislaw, 2002). The modern global economy has also allowed businesses "new opportunities to exploit economies of scale and to recover innovation expenditures in larger markets" (Welfens, 1999, p.1).

The spread of capitalism has not only explored for commodities along the geographical plane. On a conceptual level the search has extended from the traditional physical plane of property to a more abstract realm of knowledge. In one aspect this can be viewed as an adjustment from industrial to a post-industrial society with less emphasis placed on the production of goods and more on the service

provided in their acquisition, use and implementation. Castells (1996, p.203) notes that the source of productivity and growth in these societies lies in the generation of knowledge, whilst shifting the economic focus from goods production to service delivery, thus altering the workforce towards occupations with high activity in information and knowledge content. The entire process can be divided into three knowledge sectors. These can be based on information (including financial services, accounting, software and science), cultural production (films, music and literature), and the manipulation of symbols (marketing and advertising).

Jeremy Rifkin (2000) points to the reliance of the economy on service sectors, such as advertising and marketing, that have developed into whole industries in a market gradually shifting away from traditional industry forms. Other services ranging from the outsourcing of traditional household labour and childcare to counselling and personal trainers can also be included with these, illustrating the opportunistic nature of markets (for examples see van der Lippe, Tijdens, & Ruijter, 2004). Rifkin (2000, p.188) argues that this process is a “new stage of capital based on commodifying time, culture, and lived experience, whereas the former age represents an earlier stage of capital grounded in commodifying land and resources, contracting human labour, manufacturing goods, and producing basic services.” Thus, the creation of an ‘abstract’ market form is considered by many as an untapped source of economic potential and growth.

The emergence of a purely intellectual sector in this industry, particularly within those aspects that deal with knowledge, information, and ICT, is of great importance to this study. Castells (1996) regards the emergence of new information technologies as enabling information itself to become the product of the production process. He defines this as ‘informationalism’, an extension of the notion of the information economy, because “the productivity and competitiveness of units or agents in this economy (be it firms, regions, or nations) fundamentally depend upon their capacity to generate, process, and apply efficiently knowledge-based information” (Castells, 1996, p.66). In a sense the ability to control, adapt and implement information has become the most critical factor in accessing wealth and power in the modern world. Alan Murray (2001) notes that these “are fundamentally

different from staples of the industrial economy such as autos and steel, or service-economy products such as banking and insurance. And those fundamental differences are wreaking havoc with traditional notions of economics that underlie antitrust laws, patent laws, copyright laws and indeed, the whole public policy underpinnings of today's economy." These and similar concerns are those that are to be discussed throughout the following investigation on the ownership of the Internet.

The consequences of the process of informationalism and particularly the emergence of the information economy are the centre of debate. Proponents of the system, including business, governmental and particular user groups, applaud it for furthering the social good by extending the reach, speed, and free flow of information throughout the world, accounting these results as the aim of the system (T. Smith, 2000). However, Tony Smith (2000) supports another view detailing what he believes the true goal of the system, capital accumulation, and how it cannot be removed from an analysis of this sort. He points to the common occurrence of "social innovations that further the flow of information (that) are assimilated with great fanfare when they are compatible with capital accumulation, and ignored or suppressed otherwise" (T. Smith, 2000, p.113) as primary evidence of the true nature of the current occurrences in the 'information market'. Views such as this point towards the commodification of information.

In the modern era, the heightened importance and transformation of information has, in the Marxist sense, become a commodity. Claims of the information commodity can be supported because of the use and exchange-value placed upon certain forms of information. Nancy Holmstrom (1997) notes that a condition of capitalism is that whatever the capitalist may produce, it always has some use; satisfying some want or another. Marx (1974, p.126) writes in the opening chapter of *Capital* that usefulness "does not dangle in mid-air. It is conditioned by the physical properties of the commodity, and has no existence apart from the latter." For an object to realise its use-value it must therefore be consumed or implemented in use.

G. A. Cohen presents a simple explanation of exchange-value. Cohen (1997, p.95) understands the “exchange value of a commodity is its power of exchange against quantities of other commodities.” Marx (1974) also highlights that it can be understood as the exchange of use-values in one commodity with the use-value of another. An important aspect of the commodity is also the simple notion that it is “produced from the start for the market, (and) must be sold, transformed into money” (Marx, 1977, p.122). Thus, the exchange-value of a commodity is its power within the market. In distinguishing between the two values, Marx notes that “as use-values, commodities differ above all in quality; while as exchange-values they can only differ in quantity” (Marx, 1974, p.128). However, each is equally important in defining and identifying the commodity in the capitalist economy.

The conditions for information's birth as a commodity differ slightly. Firstly, although the Marxist tradition has been that a commodity cannot “possess value unless it is first an object of utility” (Bensaïd, 2002, p.248), in terms of the information commodity this can be altered in some ways. An information commodity will remain in the marketplace because its use may be required by society; it also remains there due to restrictions of access. Secondly, for something to be regarded as a commodity it also has to “enter the process of exchange, and this means not merely the actual physical process” (Marx, 1974, p.974). The process of transformation from commodity into money and circulation are critical aspects to exchange and the commodity economy. However, with information being an abstract notion, especially when discussing the provision of access, the physical process of exchange must be reconsidered to simply refer to the general concept of exchange process, which granting access entails. The processes discussed here are referred to throughout this thesis, with alternatives to this view also covered.

Criticisms of the concept of the ‘new’ commodity question the manner in which the information based economy has altered or completely disregarded various institutions, ideas and values in the commodification process. One of these criticisms has been the ‘robbery’ of information and knowledge from the cultural commons. This criticism is of importance because it is a precursor to the ideas of Open-Source and Open-Access and the arguments against proprietary software and information.

Historically, the 'commons' referred to the agricultural fields used freely by farmers in England to grow food and pasture animals (Kranich, 2004). Nancy Kranich (2004) notes that between 1500 and 1800 "many of these common fields were transformed into private property in order to boost agricultural production, accommodate population changes, improve soil, advance industrial development, and bring lands under the control of wealthy aristocrats." It was the 'enclosure' of these lands that marks the defining moment of the birth of capitalism, as "expropriation of the common lands created both a new class of capitalists and a propertyless class of workers, marking the first appearance of wage labour" (Ricciardi, 2002). The cultural commons is a modern day extension of this former understanding of land.

The cultural commons refers to a wide range of common assets that are jointly owned, shared and administered within a society, including "natural resources, public lands, schools, libraries, and scientific knowledge" (Kranich, 2004). Arguments that support the cultural commons relate to an idea that "for culture and democracy to flourish, citizens need free and open access to information and creative works" (Kranich & Heins, 2004). By focusing on the cultural commons, recognition of importance of public participation and freedom of expression to democracy are raised by involving them in the differing ideas surrounding the control and ownership of information (Bollier, 2004).

An argument that has been raised regards concerns that the 'commons' of culture have been enclosed just as the agricultural commons before it. Jeremy Rifkin believes that this enclosure is far reaching noting that leisure has been enclosed and commodified into tourism, the public square has transformed into the shopping mall, the arts have been engulfed by the show business and communications by the notion of access. In terms of the Internet, Kranich and Heins (2004) argue that "the same technology that enables unfettered access can also restrict information choices and the free flow of ideas." Thus, the idea of the commons on the Internet become an important notion, but emerging commercial interests and the resulting Intellectual

Property protection measures have come to restrict many aspects of the average Internet user, threatening its existence.

The importance of where information is situated and its control should not be underestimated. As Ben Bagdikian (1990, p.31) emphasises, “the capacity to propagate information and ideas is at the root of political power, and political power is essential to modern corporate ambitions. So is the power to suppress information and ideas.” Similarly, if we lose the forums for debating public issues, especially public space, to private administering entities, we lose the ability to engage in “constitutive discussion and critique” and the capacity to alter the world (Agger, 1989, p.5). David Bollier (2004, p.269) notes that the claims upon the commons can potentially affect a range of situations including the “abilities of libraries to offer universal access to information; consumers to have competitive access to diverse sources of content, including non-commercial content; citizens to have free or cheap access to the government information that their tax dollars have financed; and students to perform research and collaborate online with each other.” Also at stake are the “ability of musicians and other artists to pioneer new forms of online creativity; creators in all media to freely quote and use a robust public domain of prior works; computer users to benefit from the innovations of competitive markets; and individuals to control how intimate personal information will be used” (Bollier, 2004, p.269).

From these brief theoretical considerations the major points of contention have been uncovered. Ideas of universal access have illustrated through the comments on the cultural commons; the important notion of ownership has been provided through analysis of Marx’s commodity theory; and the growth of the information economy has been discussed. What these have in common is, in the first instance, the consequences of the shift towards an increasing importance of information in society, and as a broader question, considerations of the impact this has upon the Internet, ownership and alternative views of ownership.

CHAPTER TWO: HISTORICAL BACKGROUND

A History of the Internet

In studying the rise of the Internet as an important player in media and communications, three major phases of development can be identified. The first stage of development can be understood to be between the early 1960s to the early 1980s. This stage is understood as the birth of ICT and began out of governmental and military requirements (Barr, 2000, Castells, 1996, Golding, 1996, Kirshenblatt-Gimblett, 1996, Whitaker, 1999). The foundations of the Internet arose when the US Defence Department 's Advanced Research Projects Agency (DARPA) set out to design a decentralised communication system to "prevent a Soviet takeover or destruction of American communications in case of nuclear war" (Castells, 1996, p.6). Early networks included APRARNET (1968), USENET (1979) and perhaps the most important, the Internet Protocol (IP) (1977) (Kirshenblatt-Gimblett, 1996). These networks laid the technological and protocol foundations of the contemporary Internet. They also illustrate that the intentions of the creators of these networks were primarily on the communication level.

After relatively slow progress under governmental and military control, the second stage of development was undertaken by various academic, public and private research bodies during the early 1980s to the until the early 1990s. Trevor Barr (2000, p.121) highlights a duality of the relationship between academic and private interests as being important in the standardising of protocols, software and technological innovation. This period also saw the birth of the World Wide Web at the European Center for Particle Research in 1989 (Golding, 1996). Information and knowledge also became of as much importance as communicative powers at the time. The final stage, from the mid-1990s, is characterised by the rapid adoption of

the Internet as a means of mass-communication as well as computers evolving into an affordable commodity more widely accessible to a broader section of Western society. In this stage the Internet has evolved from a mode of communication and information into a global marketplace (Barr, 2000).

From this simple history it can be noted that the Internet has developed into a complex network of networks, and as a result of these complexities, contemporary understandings of the Internet differ dramatically. Manuel Castells (1996, p.7) illustrates this point by arguing that the Internet has become a “global, horizontal communication network of thousands of computer networks... that has been appropriated for all kinds of purposes, quite removed from the concerns of an extinct Cold War, by individuals and groups around the world.” The Pew Internet and American Life Project (2003) suggest specific demographic groups who use the Internet have high incident levels of various on-line activities. Thus it must be understood those who use the Internet define it in different ways. Wall-Street executives who use the Internet to trade stocks and access financial information can have a totally different understanding to a member of the Zapatistas in the Mexican forests who access the Internet to promote their political stance; an 18 year-old German high-school student who distributes a virus across the medium can have different perceptions compared to a class of Perth primary school students who use it to communicate with another class of children in England.

With this said, there exist prevalent trends in general scholarly understanding of the Internet. One understanding views the Internet primarily as a tool of communication. The networking of computers, as discussed previously, was primarily done for reasons of communication within the US Defence Forces. Today the Internet can be understood as an extension of this aim, allowing computers to be connected, resulting in the ability for people to interact. John Hindle (cited in Barr, 2000, 118) understands the Internet as an open communication medium – open to any computing device, open to any communications medium, open to any public or private purpose. It is a communications medium that “permits social contact across time, distance, and personal circumstances, it allows people to connect with distant as well as local family and friends, with co-workers, with business contacts, and with

strangers who share similar interests (Kraut et al., 2002, p.50). Dave Taylor (1996) regards the Internet as always having been a communication medium first and foremost, highlighting the use and reliance of those who access the Internet on e-mail and other communicative technologies as opposed to any other of the Internet's abilities. This argument is best summarised by the fact that Internet users overwhelmingly rely on email as their communication tool of choice and that more than nine in ten online Americans have sent or read email (The Pew Internet & American Life Project, 2003).

Another understanding views the Internet as a source of information. Although not denying that it is a form of communication, this understanding accepts information collection and sharing as the more important function of the Internet. This is perhaps best described by the label 'information superhighway'. Those who follow this view understand the Internet's power to lie in its ability to cut across boundaries and barriers that have, until recently, limited access to information for ordinary people (Wheeler, 1997). Peter Golding (1996) highlights that surveys of Internet users generally suggest that the demand for information on-line is high. However, Reg Whitaker (1999, p.7) notes that this understanding views the Internet as a "treasure trove of information" for those who already have treasures to spend while for the rest it often means an "overstuffed, cluttered, anarchically disorganised jumble of infotrash." On top of this, while the ability of the Internet to cross boundaries can be justified, it has not broken all social and cultural barriers, a point that must be considered when discussing any form of media. Throughout the Asian region, most notably in Singapore and China, governments and other powers have been resistant to the 'information superhighway' as a free-flow of information and a source of products from the culturally different (Whitaker, 1999).

Regarding the Internet as combination of both information and communication allows an understanding of the Internet as a form of social interaction which has the ability to supersede any form of discourse available today. The US Congress Telecommunications Decency Act (1996) exemplifies this thought in its conclusion that "the Internet and other interactive computer services offer a forum for a true diversity of political discourse, unique opportunities for cultural

development, and myriad avenues for intellectual activity.” Such an understanding implements the Internet as a tool to gain political, social and economic goals. This view extends the Internet as an aspect of social interactivity.

An Economic History

Before one can begin to understand the Internet as it exists today, the political and economic changes during its rise to prominence must be understood. Conventionally, the ability of nation states to attain global power has rested upon three pillars of power: economic, military and political (Rothkopf, 1998). By the end of the Second World War only two nations could rightfully claim to dominate these three pillars and be recognised as global powers, the United States of America and the USSR. As stated previously the Internet was founded out of the resultant Cold War fears of the United States. These fears were expressed throughout all aspects of American society including the Marshall plan, the rise of McCarthyism, Reagan’s rearmament programme, Star Wars, and US support for anti-Communist guerrillas throughout the world (Ellman, 1993, Kunz, 1997). These combined with a most favourable view of capitalism in the American psyche has led to the myth that citizenship is to be equated with consumerism (Wheeler, 1997, p.175).

The incredible technological advancements already mentioned and the eventual death of communism in the Eastern Bloc helped in giving birth to the ‘global economy’ and consequently the transnational corporation. Although trade between nations on a global scale was hardly an innovation, the emergence of a ‘global economy’ was a vastly different form of trade than had previously existed (Cox, 1998). Between the late 1970s and the early 1990s the development of truly international financial markets and the globalisation of production led to the liberalisation of capital control and mobility throughout the industrialised world. Goodman and Pauly (1993, p.81) contend that the liberalisation and decontrol of capital are now deeply imbedded not only in financial sectors but also throughout political ideology. Thrift & Leyshon (1994) extend this idea further adopting the notion of the global economy as a ‘nomadic’ or phantom state that has adopted the

networking futures of the Internet' into its financial system, constantly circulating, trading and operating 24 hours a day unrestricted by traditional apparatus of a nation-state. Francis Fukuyama (1999) also believes that inexpensive information technology has made it easier to move information across national borders and erodes the boundaries of long established communities. As a consequence, this ability has shifted the focus of economies.

A defining aspect of the form the 'global economy' adopted was the nature of trade and the goods which were exchanged. Just as the Industrial Revolution brought with it the exchange of raw materials and the resultant manufactured by-products, the new 'global economy' brought change (Rothkopf, 1998). In recent times industrialised nations have diverted their economic interests away from traditional industry with a focus in the growth of industries that trade in intellectual property (McCourt & Burkart, 2003). Beverly Crawford (cited in van Dijk & Hacker, 2000, p.37) regards this change as an:

important shift in economic priorities among industrialized nations from a focus on heavy industry to knowledge-based production. The foundation of a state's economic strength and ability to compete internationally is no longer sought in the promotion of heavy industries that depend on relatively simple technology and a large unskilled labour force. It is sought instead in knowledge-based production that relies on a cadre of highly trained engineers and a smaller, technologically sophisticated production workforce in all sectors of the economy.

The knowledge or information economy supersedes traditional economic focuses because of underlying differences in the tradable commodity. Unlike the owners of resource or agricultural commodities the possessor of knowledge does not necessarily lose value by sharing the information or giving it away (Black, 1998). Stephen Coleman (1999) regards distribution and consumption of information as more important than at any other point in the past. This shift away from the traditional, industrialist, economic status quo has also been labelled a change not only towards a knowledge economy but a knowledge society. It is also the result of an understanding that information is not produced in a context that is devoid of a cost in terms of labour, production and distribution (Martin, 1988). Luttwak (2002, p.7) describes the benefactors of this economy as consisting of those "entirely new

internet-based businesses, the telecommunications services both old and new whose economic value they enhance and, of course, related computing technologies.” As with many changes in economics throughout the ages, the ‘information economy’ has also brought with it a change in society.

Robert Hassan (2003, p.97) understands the knowledge economy as part of a greater movement where everyone is linked in a social sense to networks of immediacy, efficiency, convenience and connectivity. For the purposes here the information society will be defined as one in which the quality of life, as well as prospects for social change and economic development, depend increasingly on information and its exploitation. In such a society, living standards, patterns of work and leisure, the educational system and the marketplace are all influenced markedly by advances in information and knowledge. This is evidenced by an increasing array of information intensive products and services, communicated through a wide range of media, many of them electronic in nature (Martin, 1988, p.42). In such a world where information has perhaps become the most important of all resources, the debates over ownership of content rights and distribution have become a significant focus for ‘new’ media studies.

CHAPTER THREE: ASPECTS OF THE INTERNET

Content

The critical point of discussion for this piece of work are the ideas and issues surrounding ownership, content, distribution of the Internet and other forms of new media. The study of ownership of content on the Internet and the means of distribution must be understood to take a very different form to that of any other sector of the media. Reasons for this difference occur at multiple levels, including access to the medium, the interactivity of the medium, ownership of multiple layers of content, and the distribution of information. Although there exists a difference in understanding ownership related to the Internet compared to traditional forms of mass media, because of the lack of research in these fields purely on the Internet, it is necessary to rely on some of the criticisms of ownership in the broader media for studying ownership in the newer form of media.

As with many aspects of Internet culture, content is an entity that can be simultaneously abstract and concrete. Studies of other forms of media content are of little relevance when studying Internet content, as it is a vastly different entity to that of other media. While all provide audiences with information, internet content does so at the request of and tailored to the individual user (Grunin, 1997, Halper, 1997). Content is handled on three important levels in regards to the Internet. The first is the software used to access the network (see section on software and ownership); the second is the hardware or communication technology used to access the network; and the third is the information accessed on the network. The third aspect of content is of most concern most concern in this study.

Content on the Internet has diversified as the technology and infrastructure supplying it has improved. Early electronic networks were segmented by the specific terms of content that they carried and supplied. Kramer (1997) notes these separate networks where local area networks (LAN) only carried data, phone networks handled telephone and video traffic, and wide area networks (WAN) linked the local networks together, with all networks running upon separate sets of protocols. Kramer (1997) contrasts this complex set of networks to that which exists today where “voice, data and video now are transmitted via a single network pipe, using a single protocol.” It has been the unification of these networks into a single delivery system that has not only enabled the Internet to become an important aspect of modern society, but has also made defining content a difficult task.

Although many different definitions exist, since those who produce content define it in different terms, there exist similarities in the definitions of those who run websites. One of the primary regulators of the Internet, the World Wide Web Consortium (W3C), offers a broad and all-encompassing definition of content. In the W3C’s *Web Content Accessibility Guidelines 1.0*, Chisolm, Vanderheiden and Jacobs (1999) state that it “refers to what it says to the user through natural language, images, sounds, movies, animations, etc.” Stanton (1996) understands the extent of this definition of content in the realm of ICT to embody all forms of information, without limitation, including: “text, formatted text such as HTML pages, interactive and/or dynamic Web pages (such as those generated from data files and databases), images, animation, video and sound files. It may also include software, Web-based output from software applications and Web-based input (i.e. transactions).” Thus, for the purpose here, content will be regarded as any form of data or information that can be dispersed throughout the Internet or other electronic communication media.

Using similar definitions the Pew Internet & American Life Project discovered in 2003 that over 53 million people created and posted content on the Internet (Lenhart, Horrigan, & Fallows, 2004). The study found that of the United States’ adult Internet users (18 years and over):

21% of Internet users say they have posted photographs to Web sites, 17% have posted written material on Web sites, 13% maintain their own Web sites, 10% have posted comments to an online newsgroup, 8% have contributed material to Web sites run by their businesses, 7% have contributed material to Web sites run by organizations to which they belong such as church or professional groups, 7% have Web cams running on their computers that allow other Internet users to see live pictures of them and their surroundings, 6% have posted artwork on Web sites, 5% have contributed audio files to Web sites, 4% have contributed material to Web sites created for their families, and 3% have contributed video files to Web sites” (Lenhart et al., 2004).

This study illustrates that for the all the diversity in forms Internet content, there also exists a great range of use and application of this information.

There seems to exist a difference in opinion of what can be considered content in terms of its legal definition. Pamela Samuelson and Kurt Opsahl (1999, p.2) illustrate that the current United States legal understanding of what can be understood as electronic content encompasses “all ‘computer information transactions,’ which includes computer software, databases, CDROM encyclopaedias, multimedia products, and interactive computer services”. This definition can be viewed as the result of software producers and manufacturers to enforce the licenses placed upon end-users (Samuelson & Opsahl, 1999). That is to say, any information that enters the information economy can be considered for content licensing. Considering this, it would seem that how one defines and implements content alters the conditions of use on the Internet. For the purpose of this study, the broadest definition of content (the W3C version) will be implemented as this will allow for vastly different forms of information to be included in the question of the commodification of the Internet. Esther Dyson (cited in Whittle, 1997, p.252) summarises the problem faced by those in control of content on the Internet by arguing that in “the new communities of the ‘Net, the intrinsic value of content generally will remain high but most individual items will have a short commercial half life... The problem for providers of intellectual property in the future is this: although under law they may be able to control the pricing of their own products, they will operate in an increasingly competitive marketplace where much of the intellectual property is distributed free and suppliers explode in numbers.”

The 'Digital Divide'

In his book *Technology and Social Inclusion: Rethinking the 'Digital Divide'* Mark Warschauer (2003, p.35) argues that "the diffusion of any technology is the site of struggle, with access policy reflecting broader issues of political, social, and economic power." The issue of the 'Digital Divide' falls into this category. The 'Digital Divide' is a term that has come to signify those social groups who are excluded from participating on the Internet (Dawson & Foster, 1996). These marginalised or excluded groups in the realm of the Internet may be so in terms of race, gender, age, socio-economic status, or location in terms of the country in which one lives (Dawson & Foster, 1996, Golding, 1996, Novak & Hoffman, 1998). Concerns arise out of a potential 'Digital Divide' due firstly to problems that may occur for the already disadvantaged who may be 'left behind' through their inability to use such technology, and secondly, concerns that lack by some groups of the required IT skills and access exacerbates existing social divisions already evident (Holloway, 2002). For the purposes here, the United States will be investigated as the example of the 'Digital Divide', for reasons of population, Internet use, population diversity and available research information.

As one might presume, age is a factor when discussing the adoption of the Internet. Susannah Fox (2004) notes that a large discrepancy exists in relation to seniors' use of the Internet in America. Her study into Americans' Internet usage discovered that 22% of Americans aged 65 or older reported having access to the Internet, in contrast to 58% of Americans age 50-64, 75% of 30-49 year-olds, and 77% of 18-29 year-olds (Fox, 2004). Discrepancies such as this can also be discovered in Internet use and 'connectivity' of other social groups and minorities.

The 'Digital Divide' also occurs along racial boundaries. In the United States, a National Telecommunications and Information Administration (2002, p.21) survey discovered that amongst the 'racial' groups in America home computer ownership, access to and use of the Internet were higher in the lives of Whites, Asian Americans, and Pacific Islanders compared to that of Blacks and Hispanics. The survey noted that during the study "Internet use among Whites and Asian American and Pacific Islanders hovered around 60 percent, while Internet use rates for Blacks

(39.8 percent) and Hispanics (31.6 percent) trailed behind” (National Telecommunications and Information Administration, 2002).

Geographic considerations must also be considered in relation to the ‘Digital Divide’. The divide is most apparent between the developed and developing world. Chandrasekhar (2001) argues that the ‘Digital Divide’ is one of the great differences between cultures as “less than 5% of the world’s population is participating in the Internet revolution.” In many of these countries Internet is of less concern than clean water, food and medicine. Even so, problems exist in access to the Internet throughout Asia, Africa, South America and sections of Europe. Sarah Parkes (2004) highlights problems with Internet access in Africa, as well as other developing areas, include “high access costs, chronic lack of infrastructure, poorly coordinated ICT policies and obstructive regulation (which) are conspiring to keep the internet out of reach of 99 per cent of the continent’s population.” Another barrier for these locations is language. As most transactions in the information economy are carried out principally in the English language, it follows that familiarity with English is required, which hinders the adoption of ICT and slows any attempt for these areas to ‘catch-up’ (Chandrasekhar, 2001).

Of the potential ‘Digital Divide’s, those based on income inequality must be considered. In capitalist societies income inequality affects the ability of individuals and groups to gain adequate access to many requirements of life, with those at the higher end of the spectrum gaining greater accessibility to the market and conversely those at the lower end restricted in their access. The same is true of the Internet. The US Department of Commerce *Falling Through the Net: Toward Digital Inclusion* (2000) highlights strong relationships between socioeconomic position and Internet use and access. Of its many findings, one was that “only 18.9% of individuals who lived in households with annual incomes of less than \$15,000 were Internet users in August 2000. In contrast, 70.1% of people who lived in households where the annual income was greater than \$75,000 reported using the Internet. Middle income groups saw the largest point gains while the lowest income groups had the fastest expansion rates, albeit from low starting levels” (U.S. Department of Commerce, 2000, p.36).

What these and other divides display are trends in which many minority groups significantly lack access to the Internet, as well as computer ownership and usage (Novak & Hoffman, 1998). For Warschauer (2003, p.8) the problem of the 'Digital Divide' is its effect on social inclusion, or put simply "the extent that individuals, families and communities are able to fully participate in society and control their own destinies." That is to say, in a world where ICT is becoming more important to many, a major issue which arises is the inability of significant portions of the population to be granted or afford access to the Internet. Whilst those with access debate the lack of WiFi or the affordability of a broadband connection, there exists an even more significant portion of the world's population for whom these issues are at this time irrelevant. By highlighting these groups who have limited or no access to a medium that is heralded as democratic and egalitarian, an understanding of the 'Digital Divide' places the importance of the Internet throughout the world into context.

CHAPTER FOUR: THEORETICAL CONSIDERATIONS

Ownership

At first glance the concept of ownership would seem a relatively simple notion. It is a concept that requires a participant or object, defined as property, and the holder of rights to it, the owner. However, detailed studies of the idea can often develop it into a difficult and complex concept. To overcome such problems, an understanding of the theoretical ideals of ownership is required as the basis for those who wish to develop a critique of the nature of ownership in modern society which is much clearer and more precise. John Locke noted that ownership rests on the individual's rights to use whatever is in their natural environment and is deemed necessary for the satisfaction of needs, and the right to own whatever one has expended labour upon (Locke, 1690). As he states "the labour that was mine, removing them out of that common state they were in, hath fixed my property in them" (Locke, 1690). Thus, for Locke, labour was a significant aspect of ownership. Castells (1996, p.15) defines labour in this sense as "the action of humankind in matter (nature) to appropriate it and transform it for its benefit by obtaining a product, consuming (unevenly) part of it, and accumulating surplus for investment, according to a variety of socially determined goals." From these understandings of ownership, it can be understood that space, land or property are the most traditional forms of ownership, and as such property and property rights have become central to capitalist societies.

In *The Beginning of Ownership* (1898-9), Veblen outlines the historical beginnings of ownership based upon 'production', work and social contract theory. Veblen (1898-9) defines ownership as an "accredited discretionary power over an object on the ground of a conventional claim; it implies that the owner is a personal agent who takes thought for the disposal of the object owned." He underlines a

process in which many assumptions developed into habitual understandings which have transformed the institutions of the Industrial Age (1898-9). An important point that Veblen makes is in relation to the nature of ownership in primitive societies (to which Internet parallels can be established through the notion of 'shared' resources in its early development). He concludes that, in his mind, primitive societies, typically being more communal than industrial society, have no concept of ownership, neither communal nor personal (1898-9).

Ownership can also be discussed in terms of the apparent laws that have resulted from the processes Veblen discusses. Patent, copyright and intellectual property laws have become increasingly institutionalized throughout the world to protect the 'rights' of those who produce or finance goods and services. In 1952, the United States Congress declared that "anything under the sun that is made by man could be patented" (cited in Basu, 2002, p.339). These are the understandings of ownership and production that will be implemented in the discussion of the online world. With an understanding of the nature of ownership in capitalist societies, relationships between these notions and the detail of modern law evolve. One of the primary goals of this law can be understood to be the protection of property. Edelman (1979, p.8) argues that "law establishes titles to property and obligations arising from contract, it arbitrates in terms of these formal representations of possession and exchange when relationships between subjects lead to dispute. Law is thus an organic outgrowth of commodity relations". Edelman's view states that law must be considered as an extension of the economic system in which it is placed, and as such cannot be separated from this system. As he states "the advance of capitalist productive forces is concretely realised in the site of the subject in law (Edelman, 1979, p.15).

The Commodity and Commodification

Marxist theories of commodification are of significance when studying ideas of ownership and the Internet. Marx (1974, p.126) defines a commodity as "an object outside us, a thing that by its properties satisfies human wants of some sort or another". In this understanding, the satisfaction of human wants gives the object use-

value but this is not what gives commodities their character, rather the exchange-value it presents to the producer (Marx, 1974). He extends this further, noting that a commodity is “a mysterious thing, simply because in it the social character of men’s labour appears to them as an objective character stamped upon the product of that labour; because the relation of the producers to the sum total of their own labour is presented to them as a social relation, existing not between themselves, but between the products of their labour” (Marx, 1974). Put simply it is a change from a judgment of an object’s usefulness to its value in the marketplace. The terms commodification and commodity fetishism are used to describe this process.

These terms have become synonymous with the work of Marx, and as such continue as the centre of many debates. Many argue that commodification is a necessary aspect of the capitalist system which allows for the continuation of capitalism as system. It allows for the market to decide those objects, services and products that are deemed most necessary or desirable to a society and adjusts prices accordingly. Marx argued that this was the fundamental difference between the cost of a commodity and the labour spent on its production. As he states “the capitalist cost of the commodity is measured by the expenditure of capital, whereas the actual cost of the commodity is measured by the expenditure of labour” (Marx, 1977, p.118). As such, coal, which was an important and costly commodity (in terms of capital) less than 100 years ago, in real (labour) terms is worth much less today. Conversely, commodities such as natural gas were not valuable until technology, use and need made it so.

These relationships carry similarities with those of the idea of ownership presented earlier. In distinguishing a commodity from other aspects of the world, Marx makes a clear distinction that expended labour, the social relations and the properties of a product are what make it a commodity. Similarly, ownership of property in the view of Locke and Veblen is determined by labour, and the social relations of use and need. Thus, a relationship between ownership, property and commodification can be made through their inherent use-value and the labour embedded by man into it.

The information, technology and tools used in accessing the content of the Internet can be investigated using a similar framework to that used by Marx. In distinguishing a commodity from other aspects of the world, Marx makes a clear distinction that expended labour, the social relations and the properties of a product is what makes it a commodity. The only problem in understanding modern intellectual property in terms of the commodity theory developed by Marx is his reference to an “object outside us”. The abstract nature of information and knowledge is not only a problem in determining its nature but is also the fundamental problem in its policing, and also its strength as a tool in sharing it in an egalitarian and democratic way.

Information Ownership

The ownership of information has been of critical importance to those who promote the integrated capitalist economy which has come to dominate the world today. In any society information has an influence on the direction it will take and as a result of the changes in production, distribution and reception technologies, so to have its capacity for political influence. Questions of information ownership are not new or generally specific to modern economic thought or society. What is new however, is the underlying importance and necessity of ownership rights in this system. Traditionally, ownership of information could be defined by the physical possession of an article containing information (for example; books, articles, essays, poems, songs pieces of music or pictures) (Whittle, 1997). In addition to the physicality of the information storage, traditionally information ownership was confined to those few people with the ability and tools to produce, reproduce and distribute this information. However, this situation was altered with widespread access to digital and communications technologies.

Ownership of the information node can manifest itself in a multitude of ways. The first notion of information ownership lies in the hands of those who undertake what one may define as the ‘creative process’ of information construction. In this sense Paul Q. Hirst (cited in Edelman, 1979, p.15) proposes that ownership “is

ultimately vested in the producer, property right through the creative act is secured in the interest of the capital advanced.” From this point ownership rights may exchange hands but can always be traced to those who performed the creative act, be it an individual or team of creators. With this in mind Bernard Edelman (1979) notes that the product of the creative act will remain in the realms of the ‘true productive power’, capital. That is to say, a world of information is defined in terms of its worth in capital, not how it is produced, consumed or any other aspect of its being.

Many modern democratic states have implemented numerous copyright, trademark and other intellectual property laws to protect those who produce information. John Perry Barlow (cited in Whittle, 1997) argues that in the United States these laws were created in the first instance by Thomas Jefferson and others as a ‘a practical necessity in order to maximise the availability of ideas’, not as private rights to control or receive profit from an idea which are common motives of today’s copyright holders. The constitution conveys the power of authors to secure “for limited times to authors and inventors the exclusive right to their respective writings and discoveries” in order to “promote the progress of science and the useful arts”(US Constitution Art 1 sec 8 cl 8, 1993). This power has long been understood as an important means to promote the greater public interest by creating incentives for authors and inventors to pursue their curiosities (Samuelson & Opsah, 1999). The necessity of ideas can also be discovered in the French legal system which notes that the creator who holds an information property right is attributed with rights “of an intellectual or moral nature as well as attributes of an economic nature, as determined by this law” (Edelman, 1979, p.15). In recent times the social and moral obligations of copyright and other intellectual property owners have been overshadowed by the economic and legal aspects of these laws.

As discussed previously the Internet has evolved as product of the political and economic forces in the contemporary world. These modern economic and legal frameworks have allowed for intellectual property protections to extend beyond the individual, toward groups whose existence is based solely on profit motives. McCourt & Burkart (2003, p.333) argue that the growth in the ‘New Economy’ can easily be correlated with the growth in industry bodies that trade in intellectual

property. The consequences of such a shift in intellectual property have impacted on many aspect of life, and are the precursor to the question of the Internet and ownership. Alan Toner (2003) suggests that a concentration of companies dealing in intellectual property is occurring, creating "Copyright monopolies which drive concentration of ownership, push up costs of entry into markets, and exclude effective activity for many independent actors". Ron Diebert (1998, p.31) continues such criticism by arguing that concentration of intellectual property in the hands of transnational corporations and the increasing pressures upon nation states to conform to liberal economics undermines a nation state's ability "keep a 'firewall' between information intended for economic reasons and other broader forms of social and political communication." It is this difficulty which is exacerbated on the Internet, an area that is in many aspects independent of the traditional nation-state but not of these economic forces.

Before discussing this in terms of the Internet, other areas can be implemented to illustrate the issue of information ownership in today's world. An important and similar issue to the one faced in the realms of the Internet, ICT and content ownership can be found in the field of biotechnology, particularly in the case of the Human Genome. In the mapping of the human genome there are two forms of research occurring. Subhajit Basu (2002, p.340) emphasises that while governments and supported researchers search for the complete mapping of the project, "as many as 185 private laboratories financed by Wall Street and other financial centres are attempting to cover much of the same ground but are hoping to profit from the scientific community's need for fundamental information." These differing contexts of research has led to much debate in the field as it equates fundamental questions on ownership of DNA, the commodification of natural materials, the benefits of these and other issues of power to distribute information (Basu, 2002).

In the early 1990s, Al Gore (1991) drew a comparison between the problems faced by information and biotechnology research during that decade. One of the concerns raised was the impending focus of biotechnology firms to make new discoveries, and protect these with patents with disregard for the wider public's best interest. Gore warned of the tendency of bio-tech firms "to use the law too often as a

shield to defend a technology rather than as a sword to promote its beneficial uses” (Gore, 1991). This he argued was one the most pressing concerns for the field of biotechnology not only in the benefits that may be denied due to their economic situation but also the precedent it sends to other information and research fields.

CHAPTER FIVE: INFORMATION OWNERSHIP IN PRACTICE

The ownership of information is not an entirely new or Internet specific notion. This section illustrates just a few other sectors where claims of information ownership have become important

Journals

One such area has been in the realm of academic journals. Academic journals function as a medium of exchange of information within and between academic communities. The first scientific journal began in 1665, titled *Le Journal des Scavans*, and twenty years later this journal was published officially by Elsevier in 1684 (van Loon, 1999). Whilst traditional printed scientific journals have existed for over four hundred years it has only been in the last decade that alternate forms of accessing and publishing scientific material have begun to challenge the need for the printed form. Following the second World War, the rapid growth in scientific progress and technology led to increasing numbers of papers being submitted and a subsequent increase in the number of journals (White, 2001). This immense increase in scientific articles forced the scientific communities to hand over the task of publishing to commercial publishers. Once in the hands of commercial publishers, the scientific communities no longer determined the prices of scientific journals. . The advent of the Internet and the World Wide Web was one of the catalysts in altering the economics of publication, especially during the 1990s, theoretically allowing anyone to become an author, printer and distributor (Committee on Intellectual Property Rights and the Emerging Information Infrastructure, 2000).

In discussing the policies of in this area Peter Suber (2004b) notes that the economics of print was originally the barrier between free content and the audience, and the justification for the price of access. In this modern world, Suber argues, there should be no barriers between the sharing of academic knowledge and information,

yet the economic benefits that accrue to the intellectual property owners (publishers) are too great for them to think of relinquishing them. Electronic journals allow faster dissemination at lower costs, as well as instant communication between scientific communities (Abate, 1997). In addition, electronic journals offer huge potentials for accessibility to users (including the public), forwarding of references, endless capabilities for displaying data etc. (Ludwick & Glazer, 2000). Replication of printed journals requires paper, print, binding and postage, costs that are not negotiable. With electronic articles, by comparison, the costs are much reduced, even though the costs of printing are cheaper than those of photocopying (Delamothe & Smith, 2004).

However, little has changed in terms of access of academic knowledge to a broader audience. According to the Association of Research Libraries, the average price of journal subscriptions between 1986 and 1999 increased by 207%, well above the price of inflation (R. Smith, 2001). One reason for this remarkable price increase was driven by the need for authors to be published in prestigious, peer-reviewed journals in order to further their professional development and stay current with progress and trends in their field (Tenopir, King, & Bush, 2004).

Internet Content and Ownership

In a world in which the media has evolved into the primary resource in which individuals access news, politics, major events and information as well as being the primary source of entertainment (Bagdikian, 1990, Thompson, 1995), it follows that ownership of the distribution and content of these media is an important factor in the lives of those who access them. Contemporary criticisms of the media ownership range from those that argue bias from the left and the right, to those that highlight the political and economic inadequacies of modern ownership (Bagdikian, 1990, Champlin & Knoedler, 2002, Herman & Chomsky, 1988). As a form of media, it is the latter which is of concern in the case of the Internet and its content.

As yet, the Internet has not been locked into the almost total corporate dominance which has overtaken other forms of mass media. However, it would seem

that two models of understanding of ownership exist, with one firmly entrenched as the status quo. The dominant theory of internet extends contemporary United States property and intellectual ownership rights into cyberspace (Gore, 1991). McCourt & Burkart (2003, p.334) highlight this view with their Internet Nirvana Theory of Intellectual Property:

the Internet is an arena of free exchange in which everyone wins. Creators of intellectual property will regain control over copyright while reducing barriers to entry and distributor interference in their productions. Distributors will gain a huge new revenue stream, eliminating material costs, overheads and geographical boundaries while creating opportunities for subscription and licensing systems that require perpetual repurchase of their goods and services. Consumer electronic and computer companies will sell new recorders, playback systems and auxiliary devices. Technology companies will reap a windfall through patents on anti-copying software and license fees. Service providers like telephone and cable companies will see growing demand for lucrative broadband services. Consumers will find innumerable choices at low cost as the Internet becomes a vast intellectual commons.

The utopian view of the Internet portrays a situation in which all parties concerned benefit from its emergence as a communication and information distribution tool. "For the information consumer (or user), the electronic holdings of libraries around the world become continuously available from a computer. For authors and publishers, information technologies provide new opportunities and markets" (Samuelson & Davis, 2000, p.4). In the realities of modern economics and Internet practice, this ease of use combined with a potentially vast audience has become problematic. Samuelson & Davis (2000) note that for producers of content questions arise out of the number of sales (or licenses) of a work that are made, with the worst case scenario being one that is copied 'illegally' on multiple occasions. On the consumer side, the potential barriers that can be created to protect authors and producers may inhibit their ability to access important cultural and intellectual heritage (Samuelson & Davis, 2000).

With this said there exists what could be referred to as an 'open-content' trend apparent on the Internet. Sites such as Wikipedia (<http://en.wikipedia.org>) and the Creative Commons (<http://creativecommons.org>) present viable alternatives to

the dominant commercial content on the Internet. Those who access or are recipients of content from 'open-content' websites are "given permission to use the content for any purpose, copy it, modify it, and to redistribute modified versions" (Wikipedia, 2004a).

While a fuller investigation of these conflicting models will take place in a later section, there exist a few relevant problems that have also emerged in terms of ownership and the Internet. One area of concern in terms of content ownership is the individual's rights to their personal information at one end of the spectrum and their very identity at the other extreme. Starke-Meyering, Burk, & Gurak (2004) illustrate the European Union (EU) Data Protection Directive and United States Corporate Self-Regulation as the two predominant legal approaches to the issues of privacy and ownership in regards to personal information. The EU Directive understands personal information and the right to control and privacy of its use as a fundamental human right (Starke-Meyering et al., 2004). With such an understanding individuals must give consent when dealing with personal information and corporate bodies are obliged to inform of the purpose of the data collection, possible recipients and the consequences of allowing access to it (Starke-Meyering et al., 2004). In summary the EU Data Protection Directive views individual rights as the primary security concern both currently and in the future, and as such serves to protect the interests of the individual.

In contrast to the EU directive, the US model views personal information not as an inalienable right but a commodity which can realise ownership. The US model of corporate self-governance implements a mix of limited government oversight and market driven, corporate self-regulation, viewing personal information as a free commodity open to contractual negotiation (Starke-Meyering et al., 2004). Starke-Meyering et al (2004, p.287) conclude that the US model is dictated by the interests of the industry and the inability of the US to adopt a similar rights based model to the EU denies security and privacy to not only Americans, but all Internet users.

One of the consequences of the changes towards global and information based economies has been the emergence of international law and governance. In terms of Intellectual Property Rights and ownership the World Intellectual Property Organization (WIPO) ensures the 'rights' of creators are to be recognised and rewarded for their ingenuity, and in doing so provide a stable environment for the marketing of intellectual property products and oil the wheels of international trade (WIPO, 2001). In particular the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) cover new forms of social, technological and economic innovations and developments. WIPO focus is primarily upon the commercial viability of "music, films, trade identifiers and knowledge on the Internet, as well as (the) protection of the rights of their creators and owners" (WIPO, 2001). Thus the focus of WIPO and the US system is upon the 'commodification' of ICT and the Internet and not the utopian ideals heralded through the 1990's. In the eyes of the 'anti-proprietary' movement such treaties threaten broader use of the Internet and other ICT applications as outlined in the earlier discussion of the 'Digital Divide'.



CHAPTER SIX: ISSUES OF CONTENTION IN ICT

Proprietary Software

Since the rise of the Internet as a form of mass communication and a commercially viable and socially accepted medium, the software implemented on the majority of home computers has been accessed under commercial licenses. Here, it must be noted that while software runs on different levels, that is applications, web browsers, games, and network servers among others, the most important to this discussion is the operating system. In making this distinction, the dominant force in ICT since 1983 (Antov, 1996) has been the various incarnations of Microsoft's Windows operating system. In 2002 Microsoft Windows represented 94 percent of the consumer client software sold in the United States, with comparable sales figures throughout the developed world (Geer et al., 2003).

Before the development of Microsoft as a dominant interest in computer software, personal computer software was either bundled with hardware as an inducement to buy, it was individually licensed to customers who often had it specially commissioned or 'stolen' by enthusiast hackers (Samuelson & Opsah, 1999). Those who attempted to question this and demand payment, such as Bill Gates did in his *Open Letter to Hobbyists* (Gates, 1976), were a minority in the computing community. However, with the emergence of Microsoft's Windows and other commercially licensed software in the early 1980's, Gate's plea for profit was answered when "shrink-wrap licenses" became the norm in software.

'Shrink-wrap licenses' are implemented by software producers to define an agreement between themselves and the boundaries of use within which those opening the package may use the software (Berman, 1997). Struan Robertson (1998) defines

'shrink-wrap' licenses as "license agreements which state that acceptance on the part of the user of the terms of the agreement is indicated by opening the shrink-wrap packaging or other packaging of the software, by use of the software, or by some other specified procedure." He notes that the purposes of shrink-wrap licenses include "restricting the use of the software, declaring the governing jurisdiction, disclaiming legal warranties and limiting the availability of monetary damages" (Robertson, 1998). Those who support proprietary software and 'shrink-wrap' licenses' provide an ample supply of benefits of the proprietary and license system.

Jason Matusow (in Krill, 2004), manager of Microsoft's Shared Source Initiative program, argues that proprietary software has the benefits of standardised testing, multiple and backward compatibility features, and easily accessible support networks for users. On top of this, Matusow argues that ownership and cost does not solely comprise of the software; he points to maintenance and management as a requirement of ownership, one that integration provided by commercial software is able to limit (Krill, 2004). Although, this argument can be supported when one is analysing the commercial viability of software in the corporate sector, the implications Matusow discusses are of little relevance for those whose only requirement of software is for personal use. This is a point that can be discussed a greater length when questioning aspects surrounding the commodification of the Internet.

Matusow's argument is perhaps best highlighted by his employer's Windows Operating System. In discussing corporate achievement in the 1990s, Francis Fukuyama (1999, p.221) highlights that Microsoft's success lay not in any technological or capability superiority but the Windows software "large, installed base (that) gave everyone an incentive to use it because they would be able to use and share more applications." The benefits of this sharing also extend its presence to the Internet. The presence and standard use of the Windows operating system has to a large extent made possible the specific use of the Internet.

The near monopoly Microsoft has created also has its detractors. The Computer & Communications Industry Association (CCIA) presented in its report *CyberInsecurity: The Cost of Monopoly* a variety of issues surrounding the dominance of Microsoft in ICT. The most compelling of these are the issues of security, quality and cases of anti-trust. They argue that Microsoft has successfully designed its software to be so “evermore complex as to illegally shut out efforts by others to interoperate or compete with their products”; furthermore, the “monopoly product we all now rely on is thus both used by nearly everyone and riddled with flaws” (Geer et al., 2003, p.3). In addition to this the CCIA note that the software ‘monoculture’ that Microsoft has created “each day becomes more susceptible to computer viruses, Trojan Horses and other digital pathogens” (Geer et al., 2003, p.3). The issue of a software ‘monoculture’ is also of concern to regulators of trade practices in the marketplace.

Microsoft’s dominance in the software industry has in recent times become the focus of anti-trust cases in various countries. The corporation’s attitude toward the idea of monopoly could best be illustrated through the words of Bill Gates. In the early years of the Windows Operating System, Gates justified monopoly in what he viewed as a natural monopoly “where somebody properly documents, properly trains, properly promotes a particular package and through momentum, user loyalty, reputation, sales force, and price builds a very strong position within that product” (Manes & Andrews, 1994, p.202). To a certain extent the theory Gates portrays can be applied to the rise and success of his business. However, aspects of Microsoft’s policy violate the regulations that “curb the excesses of the market” (Hahn & Layne-Farrar, 2003, p.878). The CCIA report notes that “Microsoft has a high level of user-level lock-in; there are strong disincentives to switching operating systems” (Geer et al., 2003, p.12). The disincentive is partly obtained by the “inability of consumers to find alternatives to Microsoft products” due to the “...tight integration between applications and operating systems” (Geer et al., 2003, p.12). Claims have been issued in US and European courts debating whether Microsoft “used its monopoly to distort competition in other markets such as the bundling of Internet Explorer (IE) with Windows; and whether MS forced original equipment manufacturers (OEMs) and other related companies to enter into exclusionary contracts that prohibited these

companies form carrying products competitive with those of MS (Microsoft)” (Blackstone, Roccili, & Fuhr Jr, 2002, p.433). Others have also focused on the bundling of the Microsoft Media Player with the XP Operating System and the difficulty of removing programs from the operating system (Rogers, 2001).

Anti-Proprietary Software

The opposing view of economic benefit and proprietary ownership can be labelled ‘anti-proprietary’ software. The ‘anti-proprietary’ software movement consists of two major software groups: the Open-Source and Free-Software movements. Although both movements have different philosophies they oppose the current view of proprietary software, especially the dominance of Microsoft in operating system software. The movement is based upon an understanding about the lack of ‘freedom’ available to software users (Stallman, 1998, 2001). Advocates argue the limitations of commercial licensed programs impinge on user’s freedoms to run the program (for any purpose); to modify the program to suit their needs (that is they must have access to the source code); have the freedom to redistribute copies, either gratis or for a fee; and finally have the freedom to distribute modified versions of the program (so that the community can benefit from their improvements) (Stallman, 1998, 2001). Central to this notion is the GNU General Public License.

The GNU General Public License directly contrasts the intellectual property protections in which the proprietary software creators envelop their work. The Free Software Foundation define it intention as “to guarantee your freedom to share and change free software--to make sure the software is free for all its users” (Free Software Foundation, 1991). It must be noted that free in this case does not necessarily equate to the cost aspect, but in many cases the software is available at low or no cost to the user. Sean McBride (in Schultz, 1994a) understands an important point of the ‘anti-proprietary’ software argument. He states that “the freedom of a citizen or social group to have access to communication both as recipients and contributors cannot be compared to the freedom of an investor to derive profit. One protects a fundamental human right, the other permits the

commercialization of a social need” (Schultz, 1994a, p.33). As such they exist as some of the only viable alternatives to the dominant view of ownership in ICT.

At the forefront of the ‘anti-proprietary’ movement is the Linux operating system. The Linux operating system was initially created by Linus Torvalds, as an improvement of an existing UNIX system, but one which was also to be produced and distributed under the GNU General Public License (Linux Online, 1994-2003). Although originally dismissed by many as an unstable and unworkable for the general public’s computing needs, Linux Operating Systems have been established as a significant factor in the world’s server and operating system markets.

Although Linux has come to signify the movement, there exist other forms of ‘anti-proprietary’ software. For nearly every proprietary application there exists an Open-Source equivalent. The often expensive Microsoft Office package competes with the free OpenOffice.org and GNOME Office packages; in the field of image editing Adobe PhotoShop contends with GIMP and ArachPaint, and most importantly to this study, in the category of web browsers Microsoft Internet Explorer battles with Mozilla and Lynx (Di Justo & Freund, 2004). These, a number of other applications, and Linux operating systems provide low or no cost solutions to the proprietary products that have been most popular in the ICT sector.

There have been some impediments to the Open-Source movement becoming an equal and viable alternative to the commercial software status quo. One obstacle is the contemporary state of intellectual property litigation. Antone Gonsalves (2004) notes that there exist some “283 issued, but not yet court-validated, software patents that could conceivably be used in patent claims against Linux.” Bradley M. Kuhn (cited in eWeek, 2004) argues this is in part a result of the ‘alarming rate’ of patent granting in the US leaving little room for software of any license to be developed without incorporating some aspect of another code. In this aspect even Microsoft has not been immune (see Gallagher, 2003). Such concerns threaten the research, development and ultimately the success and wider application of Open-Source software throughout the world. Problems also exist in Linux’s compatibility with

existing and future hardware. Although completely unsupported hardware is rare, many aspects of computing hardware needs to be specifically altered to work within a Linux environment (Venezia, 2004). The complexities of this only create more barriers to further Open-Source adoption.

China and other Open-Source initiatives

In recent years the Chinese Government has established numerous initiatives as alternatives to the commercial and culturally homogenous ICT status quo. The government, in cooperation with industry partners, has in recent times developed alternative protocols to DVD, CDMA mobile networks, MP3 and MPEG encoding, as well as supporting the development of the Red Flag Linux kernel (Hoo, 2004, Xiaonan, 2003). Hoo (2004) understands the nature of the Chinese response as a sign that the nation will embrace the modern world, but on their own terms. In 2003, the State Council ruled that government ministries must only buy locally produced software, creating a challenge not only to the proprietary mode of software production but also to the Western dominance in ICT in the Asian region (Xiaonan, 2003). Earlier in 2002, China began installing Red Flag Linux on some 500,000 computers, with a potential 200 million more to be established within that country alone (Goetz, 2002). Goetz (2002) argues that this is “bad for Microsoft but good for Linux, as China’s vast pool of programming talent turns to developing the software further.” With this said China is not the only region to question the principles and cost of proprietary access to software.

A possible shining light for the international Open-Source community has been the Spanish region of Extremadura. One of the poorest regions in Spain, Extremadura has embraced a version of Linux named Debian through a government sponsored ‘hand-out’ of some 80,000 CDs of the kernel (Sterling, 2003). The project was born out of the need for cheap, easy-to-use systems to equip the region’s 32 technology centres, where citizens can take basic computer courses free of charge, with savings to the government of \$7 million (US) a year over the proprietary alternative (Scheeres, 2002). Similar projects have also been or are about to be

adopted in various Indian states in local dialects, Argentina, Bulgaria, Peru and the Ukraine (Sterling, 2003).

Microsoft's response to these has been an ideological leaning towards the ideals of limited government and advocacy in the freedom of markets, arguing that consumers, not regulators, should determine the course of software selection (Kageyama, 2003). Although on the surface this stance may seem to be defending the freedom of markets and individual choice, Microsoft's actions in the marketplace negate their ideological stance. In a number of markets, Microsoft has "turned up the heat in its offensive against vendors of Linux software and services (by) ... creating special funds and discounts to win over budget-conscious potential customers" (Reuters, 2003). For example, Weir (2004) notes Microsoft's stance of offering a low-cost starter edition of its Windows XP operating system in Asia as of October 2004, as it attempts to hold onto market share facing erosion from the both Open-Source Linux system and software piracy. Although the focus here has been upon Microsoft, the central issue is of concern to all proprietary software creators and intellectual property owners. The question is, how can they exist in a world where a duality of information ownership understandings dominate the medium.

ICT is not only the industry where governments are discovering paths around information ownership. As industries grow primarily in the US around the ownership of agricultural, pharmaceutical and media information, alternatives have also been established (Goetz, 2002). Goetz (2002) illustrates that "researchers in Australia and India are sidestepping agriculture patents held by the likes of Monsanto and DuPont to develop competitive technologies and foods (such as a high-protein potato) that are, by design, open and unrestricted. In pharmaceuticals, India is skirting patents to create generic AIDS drugs that are orders of magnitude cheaper than those made by the transnational drug companies." For the Internet, similar forms of ownership, ownership issues and solution have emerged.

CHAPTER SEVEN: ACCESS TO INTERNET INFORMATION.

The precursors for this section have laid the foundation for the answering of the question whether anyone owns the Internet. Whilst criticism of ownership will always occur, two versions of ownership have been established and continue to dominate the online world. Thus, the next step for the purpose of this study is to investigate whether anyone can own the Internet or if it is to be available only to specific groups and individuals. During this process the 'Digital Divide', questions of commodification, ideas of ownership, modern politics and economics, and ICT history all meet to provide some clarity into a question that needs to be answered.

Free Information

The history of the Internet illustrates its potential through the aims of those who helped develop it. This same history also illustrates what could be viewed as a much more innocent and perhaps naïve understandings the creators originally had for the medium. Melissa De Zwart (1998, p.373) understands the historical foundations of the Internet as opposing some of the traditional concepts of information ownership, with much of the content originally used as "an avenue for free and open sharing between academics and researcher." She notes that this initial period of public use was interrupted with the development of the graphical user interface of the World Wide Web and when more affordable computing technology became available to the general public and consequently brought commercial interests into the field (De Zwart, 1998). The creator of the World Wide Web, Tim Berners-Lee (1998) describes his aim for information and the Internet in *The World Wide Web: A very short personal history* as being a dream of:

... a common information space in which we communicate by sharing information. Its universality is essential: the fact that a hypertext link can point to anything, be it personal, local or global, be it draft or highly polished. There was a second part of the dream, too, dependent

on the Web being so generally used that it became a realistic mirror (or in fact the primary embodiment) of the ways in which we work and play and socialise. That was that once the state of our interactions was on line, we could then use computers to help us analyse it, make sense of what we are doing, where we individually fit in, and how we can better work together.

Nathaniel Borenstein (1997) supports this theory. He argues “the ‘Net must be available to all who wish to use it, regardless of economic, social, political, linguistic, or cultural differences or disabilities. Any legislative or practical barriers that limit access to the Net will isolate those who are denied access while diminishing the value of the Net for all others, by limiting its ability to reflect the diversity of humanity”. Borenstein (1997) argues his point further noting the errors of commercial enterprise on the Internet arguing that “we must work to preserve the free and open nature of the current Internet, as a fragile resource that must be enriched and passed on to our children. Administered inappropriately, the Net could become an unprecedented tool for the repression of dissenting individuals and groups, or it could become a vast commercial wasteland.” As such Borenstein (1997) concludes that the Internet should be, in a sense, free from ownership just as the air we breathe.

Currently, access to ‘free’ information has been labelled by industry and scholarly authorities as Open-Access. Put simply, the nature of Open-Access information “removes price barriers (subscriptions, licensing fees, pay-per-view fees) and permission barriers (most copyright and licensing restrictions)” (Suber, 2004a) to the end user of the information node. A central supporter of this form of access has been the Budapest Open Access Initiative (2004). They define Open-Access as “free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself” (Budapest Open Access Initiative, 2004).

With this said, the Open-Access movement does not wish to completely disengage itself from current Intellectual Property laws. The only constraint on

reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited (Budapest Open Access Initiative, 2004). In this sense Open-Access information differs from other dominant forms of information, as the former's focus is on access and knowledge rather than the business and profit model implemented by the latter (Suber, 2004a).

These 'dreams' and understanding illustrated here are reminiscent of the Open-Source Software movement discussed earlier. They highlight both the need for and benefits of collaborative effort. Those who now are defined as Internet users would have also become Web creators and editors in this dream (Berners-Lee, 1998). The Internet, like the current Open-Source Software movement, would improve the status-quo in terms of information through collaborative evolution (Gauntlett, 2004). In this sense Janet McCalman (1996, p.4) argues that information "is not a commodity like iron ore or wheat. It has a higher purpose and depends on freedom of expression and freedom from fear. The future of mankind lies in educators, scholars and scientists and in the exchange of knowledge which transcends commercial and political intent." These views, it must be remembered, constitute aspects of Berners-Lee's dream; they are not, however, an accurate representation of how the information on the Internet exists today.

Proprietary Information

Those who view it as a tool of the political and economic status quo understand the Internet in an entirely different way to Berners-Lee. To them it is only a tool or commodity which can be implemented in the market and exploited to meet their aims. This thought was evident as early as 1993, when a former US Vice President noted that the Internet was "by all odds the most important and lucrative marketplace of the 21st century" (TIME, 1993). Bill Gates, a source of information for many who support the general shift away from Open-Source highlights a difference in forms of information, one that looks remarkably similar to the commodification process highlighted earlier. Gates (cited in Dawson & Foster, 1996) writes "there are those who think the Internet has shown that information will be

free, or largely so. Although a great deal of information, from NASA photos to bulletin board entries donated by users, will continue to be free, I believe the most attractive information, whether Hollywood movies or encyclopaedic databases, will continue to be produced with profit in mind.” A distinction he establishes is the reasoning behind the production of information; those who produce information with profit in mind, Gates argues, should be justifiably rewarded.

Tom McCourt and Patrick Burkart (2003) envisage a different outcome for ownership in the form of the Internet Nirvana Theory of Intellectual Property (see section on Internet Content and Ownership). Although they understand it as an ‘arena of free exchange’, they juxtapose this with the notion of subscription, license and other forms of market exchange (Mccourt & Burkart, 2003). This presents the Internet as an extension of the market with an inability to free itself into the dream Berners-Lee hoped to create. In contrast this utopia is a utopia in terms of current market models and social standing, it is not utopian in the aspect of an attempt to alter the worldview or status quo to the benefit of all.

Differences in the nature of information and how it is accessed occur under the different models of information access. One is that it restricts the information disseminated into the broader consciousness. Besser (1995) argues that free and even ‘flat-fee’ access arrangements encourage information and knowledge exploration. Conversely, pay-for-use environments create disincentives for independent knowledge and by contrast “give users the incentive to focus their attention on what they already want, or to look for well-known items previously recommended by others” (Besser, 1995, p.61). Another factor in the difference between the two models of access is their motives. Ian Reinecke (1987) points to profit motives of pay-for-use information as the distinguishing point between the two. In pay-per-use environment “selection of information for distribution is determined by its potential to produce profit. No matter how greatly needed, information is seldom supplied to those who need it but cannot afford to pay for it” (Reinecke, 1987). Reinecke (1987) goes further in claiming that the modern form of content ownership results in a narrower range of information than before the era of the printing press became a tool

for self expression This argument can be translated to the internet and the fears that it has become a tool of only those who can afford it.

Iain Boal (1995, p.23) argues that “a privately constructed and owned electronic information system will, of necessity, embody the essential features of a private enterprise economy: inequality of income along with the production of goods and services for profit.” Information in this sense loses any notion of public good and other ‘noble’ qualities and as such becomes inseparably linked with production and sales whilst inexplicably turned towards the interests, needs and income of the already wealthy and advantaged (Boal, 1995). Using Boal’s prediction, the resultant outcome of private information ownership will be an extension of restricted access from the currently disadvantaged to those who have had connection to the Internet but can no longer afford to access its content. Thus, the outcome of the battle between the two license movements will not only affect how the world accesses the Internet, but also who can connect to it.

Fundamentally speaking, the underlying difference between Berners-Lee and McCourt and Burkart’s utopian view of the Internet are their different concepts of information ownership. Berners-Lee envisages the Internet to continue more traditional forms (in the limited history of ICT) of information production and ownership with social and intellectual rewards. McCourt and Burkart’s utopia displays ownership in terms of the market, with social and market rewards. It has become evident that the latter’s conception of information has become common amongst those who wish to trade in such properties. To those who support Berners-Lee’s dream these views will only disintegrate any opportunity for the Internet to establish itself as a democratising and egalitarian force, just as other utopian ideals were destroyed for other mediums including print, radio and television.

Ownership Trends

Ownership of the means of content distribution offers many possibilities to the owner. Boal (1995, p.20) highlights that “control of information instrumentation

invariably goes hand in hand with control of the message flow and its content, surveillance capability, and all forms of information intelligence.” From this not only do profits under modern intellectual property laws ensue, but also influence and power. One form of power that these owners have discovered is the ability to influence patterns of Internet use.

Before this section can begin, a distinction here must be established between two different forms of information ownership. The first is that which until now has been referred to, that is, information in the form of content. The second is the information used in the granting of access to users to the Internet. This is established in a manner of methods, some of which are to be discussed now. With this said, it is the similarities between the two forms of ownership that have not required this distinction previously.

One form of marketplace influence is performed through the deployment of ‘cookies’ on to users’ computers. Patrick Cunningham (2002) defines a ‘cookie’ as “a piece of information passed between an Internet server and a user’s Web browser.” It is information that is used by the server, the owners of access, to track the specific Web browser (and thus, the user) that is making a specific request of the server (Cunningham, 2002). Philip Howard (2003, p.234) argues that cookies, along with banner advertisements help interested parties collect information about the Internet users by allowing website designers to follow their journey through cyberspace. He notes further “they allow organizations to track users and their habits and create relational profiles for use as marketing tools.” The results allow the owners of the information and information distribution channels to search for ideal customers, promote their products to users and gather information as to where users gather their own (Howard, 2003, p.234). These include Information such as names, shipping addresses, email addresses, phone numbers, credit card numbers and users’ behaviour on the web including “which pages of the web site were visited, any search requests, links used, and the like” (Warrington, 2002).

Other forms of Internet surveillance are also available to the owners of information access. For example, Allot Communications says it has produced software which can track and filter Internet communications and use that analysis to bill consumers (Chester & Rosenfeld, 2003). It is the ability of tracking technology to follow Internet use that is threatening even greater private ownership on the Internet. Chester and Rosenfeld (2003) note that in "this new world of metering, monitoring and monetising, Internet content has prompted new business ventures, such as cable firms exploring partnerships with the videogame industry, where there's plenty of money to be made in high-volume interactive uses." This movement can be understood through the needs of the current economic system.

Jonathan Marshall (2001, p.89) views these aspects of the Internet as an extension of inherent aspects of the commercial marketplace. The need of commercial entities for consumers has seen them establish such initiatives in the hope of luring 'customers'. Marshall (2001, p.89) argues that "commercial interests seek to establish themselves as these recurrent centre points, and to influence the priority of the selection of their web sites by already established search engines." As such Marshall views the purpose of this Web space is as market or advertising, not the benefit of the end-user or knowledge, and reasons the share market value of Yahoo and Excite (in 1999) as examples of this (Marshall, 2001).

One of the most recent examples of this process on the Internet has been the public float of Google. It is an interesting case because Google.com has evolved in a perceived duality of ownership, that is to say it was thought to share aspects which are clearly proprietary in nature whilst also appearing in other aspects Open-Source. As the Internet's leading search engine, both in terms of use and accuracy (Google, 2004b, Pack, 2003), its creators have been most protective of the algorithms and source code which has made it popular. This has been the source of profits through licensing the search engine's use to other entities such as WashingtonPost.com and America Online (Google, 2004a). The contrast, however, exists in the fact that access to the website, the search engine and other tools has thus far remained free and open for individuals' use in any manner they view fit. Google also contrasts its licensing to business entities making its search technology available to universities and

educational institutions free of charge (Janes, 2002). With implementations of differing forms of ownership Google, a private business, has produced profits and gone public in a market still wary of the dot-com boom and crash in the mid to late 1990s. With this said, the public float of Google potentially creates more barriers to the Open-Access of information.

Once again, academic journals offer a pool of experience. As with their adoption on the Internet, academics have also been quick to embrace a differing understanding of the concept of ownership. Open-Access has become an influential aspect of the academic forum. Peter Suber (2004a) emphasises that scholarly support of Open-Access is due to the royalty-free nature of their work, whereas controversies surround Open-Access and royalty-producing content such as music, movies and other form of literature. In the academic realm however, Open-Access is highlighted as a viable alternative to the commercial publishing arrangements. The removing of access barriers to academic journals “accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge” (Budapest Open Access Initiative, 2004).

Minitel: The First Example of Government Sponsored Open-Access?

A different form of Open-Access is the connection to the communication system itself. Modern Internet connectivity has been established in the domain of telecommunications companies who have established the common practices of charging for the right to access. Access is granted to subscribers across numerous platforms. The methods of charging include download rates, time charged, flat rates or a variation on these. Open-Access to an Internet connection is yet another alternative to the commercial dominance in ICT.

The Minitel communications system in France is an example of the potential of an Open-Access to an Internet-style computerised network. Launched in 1983,

Minitel was a closed network precursor to the Internet. Minitel is a system which implements low-graphics and is designed for speed to satisfy users, two important differences to the World Wide Web (Reid, 2003). A graphic-based videotext system, Minitel, was made available free to householders through the initiative of the French telecommunications, Direction Générale des Télécommunications (DGT) (Schultz, 1994b). Schultz (1994b, p.109) illustrates its impact noting that by 1994 more than five million terminals had been installed, with access granted to a system that contained 12,400 service codes and was "used by millions of French citizens to search a telephone directory, reserve a ticket, teleshop, learn a foreign language, receive news and send mail." Its adoption displays the potential of free-access on a mass scale.

Before jumping to early conclusions of Minitel as the blue-print for Open-Access, it must be highlighted that Minitel has not been without its problems, nor is it anywhere near a complete and total Open-Access system. In May of 2000, French Telecom was forced by a French court to alter its practice of making wireless Internet customers access its Web site, a practice commonly established by ISPs throughout the world (Carney, France, & Ante, 2000). The demise of its Open-Access beginnings has also taken place. Allegedly in the spirit of experimentation, France Telecom set up a payment system, allowing clients to invoice Minitel transactions to their phone bill, and invited outside service providers to start providing content (Arnold, 2003). At its peak, around 1997, there were more than six million terminals in use, and payments worth about \$750m passed through the system - roughly equivalent in size to the entire US e-commerce market at the time (Arnold, 2003). Currently, Minitel users can access certain content for free, or for a limited time, otherwise French Telecom bill the user for the content they access. James Arnold (2003) notes that in these tiny transactions, for example 50 cents for a newspaper article, and the trust the French citizens have in being charged onto phone bills rather than the credit cards, Minitel may have the makings of a killer application. Thus, although the Minitel system was set-up in terms of Open-Access it has conceded to the commercial pressures just as the US led Internet.

In discussing Minitel, the broader objectives of its original implementations are of most importance. The requirement for a directory and communications system could have been undertaken in the norm by turning to the market to provide its services. However, a relatively free and open alternative was adopted, and was relatively successful. It illustrates, just as the 'community' based Linux solutions, how Open-Access can succeed as an alternative to the commercial norm of Internet access.

CHAPTER EIGHT: CONCLUSION

Throughout this thesis the increasing importance of information to the modern world has been emphasised. It has been illustrated that in its earliest forms, the information on computer networks was primarily free and open communications between scientists, academics and 'geeks' through to its 'middle ages' when financial institutions also adopted the medium. This leads us to the Internet's latest stage, which began with the development of Berners-Lee's HTTP protocol and Netscape's graphical Web browser, both of which looked to continue the 'open' era of the technological revolution. However, during the early 1990's, a market potential or use-value was discovered in the developing World Wide Web. From this the information commodity became central to the knowledge economy.

It has been highlighted that the information and Internet commodification is unique. The newest form of commodity must be understood in a different light to the conventional Marxist view on the object and process. Most notably, unlike other objects of a commodification process, information commodities do not necessarily contain the concrete use-value inherent to Marx's discussion. The point of distinction can be discovered in the use-value Marx views as a requirement of the commodity, one which in many instances is lacking in information commodities.

By looking at the immense content provided by many proprietary information owners, it is easy to see that what is being provided is not so much the usefulness of the information but the access to an abundance of it. In a sense, what these information commodities contain is a *potential* use-value rather than any notion of an *actual* use-value in society. Information remains the centre of a commodification process. Use-value or not, the owners of information view it highly enough to 'ask' for a monetary reward for granting access to it. While the reasons for claiming the occurrence of information commodification on the Internet related to them containing aspects of Marx's commodity theory, this argument is not a critique of the

concept itself, rather making a clear distinction of the unique character of information.

Another concern is whether or not the information commodity is the centre of the market transaction. Jeremy Rifkin (2000) questions ownership of the information commodity, arguing that profits are not being made upon the ownership of an object but rather the protection is pushed towards limiting access to an abstract notion. In this sense, the consequences for the information commodity become clear for the question of ownership on the Internet. With websites, multimedia content, email, bulletin boards, and instant messaging all having become staples of Internet use, it is clear that access to the medium is of as much importance as its content. However, access to them alters between users, and thus creates inequality in a required staple of the modern world. It is the democratic demand for equitable access to information that has spawned the birth of Open-Source and Access ideology.

The result of restriction to information and the Internet access has implications for the notion of the 'Digital Divide', both on local and global scales. As with many things that occur on the global level, the consequences of what occurs there is often the direct result of what has happened on the 'local' level. In the global entity that is the Internet, local refers to the ability to communicate with people along the same medium. Just as in the physical sense we view those in close proximity as our neighbours, or 'local', on the Internet I view those who are connected to the same medium another form of 'locality'. Thus, the grander scale of 'global' incorporates not only the 'local', but those who do not have connectivity and will be affected by the outcomes of the 'local'. Those people living in such areas are what Castells refers to as "the black holes of informational capitalism" (Castells, 1999, p.165).

Those who do not achieve a high level technological capacity fall into the 'black hole' Castells discusses because of the requirement of the information economy, and the generation of wealth and power, for this capacity. In *End of Millennium*, Castells highlights the 'dehumanisation of Africa' as the greatest of the 'black holes', noting that "Africa (with the fundamental exclusion of South Africa)

is, for the large time being excluded from the information technological revolution” (Castells, 1999, p.92). Although Castells views entering the information revolution as an important step, he notes that before this can happen, great sections of the continent require access to electricity and telecommunications systems, not to mention stable governments and an end to poverty (Castells, 1999). From these structural limitations, emerge skill and knowledge shortcomings, further denting the continent’s ability to engage itself with the connected world (Castells, 1999).

This ‘black hole’ is a problem not only limited to Africa, as it is also a reflection of the broader inequalities discussed in the section on the ‘Digital Divide’. However, in what would seem like backwaters of the ‘Information Society’, solutions have been presented to these problems. The examples of the Chinese and Spanish Open-Source solutions can provide hope to those in the ‘black hole’ of information. What these solutions prove is the requirement for those in the ‘Digital Divide’ to gain access to the Internet to have any chance in establishing themselves in a world where economics and power seems to be heading towards this area. The question of how to do this is not of concern to this thesis. The manner in which the outcome of the debates of ownership in the ‘local’ will impact on the nature of the Internet when, if ever, these people connect to it.

The consequence of ownership of the Internet can be brought down to simple notions of freedom of choice and democratic ideals. Monopolistic ownership of software or content, threatens these very notions. The restrictions placed upon information users by proprietary ownership not only turn users into consumers, but also reinforce the need of others to do the same. An example of such restrictions and coercion towards the marketplace can be found in the writing of this thesis. The early stages of research and writing were undertaken on a computer running a Linux Operating System and examples of Open-Source software in the form of a word processor and Internet browser. However, the use of third party software, the acquisition of a laptop and compatibility problems with the university’s software forced the use of Microsoft created software. These have not only created barriers to my individual use of Open-Source, but also increased my reliance on software created by Microsoft and other commercial interests. On a larger scale barriers

similar to these not only threaten the broader success of Open-Source but also reinforce the dominance of the proprietary ownership of software and information.

The reinforcement of this dominance enables the capturing of the commons of information and culture by commercial interests. The presence of entities like Microsoft on the Internet only reinforces this. For many the Internet and Microsoft are inseparable. In accessing the Internet, one could use a Windows Operating System, Internet Explorer for browsing webpages, Windows Media Player to listen or view online multimedia, Outlook, Messenger or Hotmail to communicate with other Internet users, and any number of Microsoft owned and administered forms of information. These examples illustrate how commercial dominance has become common place in areas of the Internet that seem from the outside as part of the commons. The Open-Source and Access movements are a response to these.

Both movements value the open and equitable forms of ownership. They recognise the authorship of others but promote a shared or collective aim rather than the profit motive of commercial ownership. They are understandings that can potentially impact the manner in which the world recognises claims to intellectual property and information. It can also impact on the veracity of democratic debate by allowing greater access to information and connectivity to debate. Most importantly they provide an alternative to the consumer orientated nature of proprietary information and software. As an alternative, Open-Source and Open-Access lift the restrictions placed upon computer and Internet users by capitalist institutions and their ideals of ownership.

However, the Open-Source solution, whilst perhaps a viable alternative, does not have to be the only alternative, and is perhaps not the best solution. Much like the battle between capitalism and communism, the proprietary and Open-Source arguments are only answers to a problem, in this case the role of intellectual property in the modern world. They are different ideological solutions to the same problems, and should not be judged only on whether or not they fit in the broader ideological spectrum.

Open-Access is not only an important solution to the possibility of information inequality in the modern world. For those who vest their faith in the capitalist economy Open-Access can, in theory, also lift the standard of 'proprietary' information. Standard reasoning suggests that if desirable information can be acquired for free it will impact on the market in one of two manners. One would be that free information would diminish the power of proprietors because of their inability to persuade information users to pay for an inferior 'product'. The other possibility is that for those willing to pay for access, the standard of information will rise in an effort by proprietors to keep their market. In this situation, Open-Access would act as the catalyst to improving the information within the modern world.

In this thesis the saying 'knowledge is power' often would seem to refer to economic and political realms. However, I propose that information can also be power to alter the way the world is. Information is a tool that if used in the right manner enables people to live better lives. However, constraints such as the access limitations imposed by proprietary regulators threaten democratic ideals and institutions. Instead of burning books, information can be removed from the minds that need it by restricting their access to it. This is just one reason for the continuation of Open-Source and Access in the online world. Without them, proprietary owners will obtain a never before seen level of control. Throughout the world what can be watched, heard, read, and distributed will pass through their filters and bank accounts, ever increasing their power.

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