Introduction : *Making the (cyber)world safe for capitalism*

Cyberspace, the new frontier: bringing you the future live to air. It seems that sometime in the early 1990s a new place was born. The Internet, Cyberspace, the World Wide Web, the Net. A virtual place, contained in code, maintained by constantly communicating computers which give the impression of place. Cyberspace has many meanings but for the purposes of this thesis cyberspace is taken to mean the global network of computers called the Internet, as well as the wider discourse of the Information Superhighway or Global Information Infrastructure. Looking back in 1998 it seems strange, but visions of a cyberspace predate the emergence of the Internet as a mainstream phenomenon.

While accounts are notoriously unreliable it seems certain that there are over 60 million individual regular users of the Internet worldwide[1]. However, worldwide does not mean universal. The Internet is a phenomenon of the rich in the developed industrial world. How could it be otherwise when half the worlds population has never used a telephone, let alone a computer? Yet, the Internet is also the source of some extraordinary utopian claims about a connected global humanity. One thing is certain : whatever else it might be, the Internet is increasingly an important global economic institution in its own right. Recent research has suggested that the value of economic activity centred on the Internet could reach $US142 billion by 2001[2] . This new economy has been estimated, by a senior US administration figure, to be providing a third of [the] real growth of the US economy (Magaziner, 1998). The Internet today is big business.

It is hardly surprising, then, that the Internet is also the subject of major government led plans. It is useful to distinguish two distinct phases of these visions of the future (Wisebrod, 1995). The first are those which occur prior to the widespread emergence of the Internet, roughly up until 1995. Discussed at the time under the rubric of the Information Superhighway these are referred to in this thesis as the Global Information Infrastructure (GII) vision or discourse[3] . The second are those

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[1] The Internet Society at URL : *http://www.isoc.org*

[2] This figure is called the Adjusted Gross Internet Product (AGIP) by Zona Research (URL : *http://www.zonaresearch.com*). It is quoted in the SMH IT section on 27th October 1998, p 4c. It includes infrastructure and hardware, consumption, digital trade and content such as advertising or databases. The nature of economic activity on the Internet is the subject of detailed consideration in this thesis.

[3] The major documents and manifestations of the GII vision are dealt with in Chapter 5. They are GII (1994), NII (1993), Industry Canada (1994), EU (1994), MITI (1994), MPT (1994) and Howard (1996).

visions which specifically focus on the Internet, dating roughly from early 1997. These are focused on maximising the benefits of Electronic Commerce (OECD, 1997), and are referred to in this thesis as the E-Commerce agenda[4]. They are examined in detail as they become relevant to the argument.

This thesis, then, examines the broad question :

What is happening in cyberspace?

It does so through a consideration of strategic action by corporations and states as expressed in the GII vision and the E-commerce Agenda.

It develops and argues the proposition that :

Cyberspace is being colonised and made safe for
accumulation strategies based on commodifying information

Chapter One functions as an extended introduction. It considers the mainstream approach to cyberspace and the history of the Internet. It argues that examining state and corporate strategic action is an illuminating way of approaching the phenomenon of cyberspace. Chapter Two examines the abstract motivations and sources of strategic action with respect to cyberspace and highlights the vital role of the state. Chapter Three moves forward to consider in detail the E-commerce Agenda, the concrete government and business plan for the Internet Economy. It identifies and discusses the substantial tensions in this process of making the cyberworld safe for capitalism.

Chapter Four considers one special source of tension : the Internet has given rise to its own special social relations, those of cyberculture. Chapter Four utilises the metaphor of colonisation to grasp the ways in which these special relations trouble the plans of government and business for the Internet. Chapter Five places the phenomenon of the Internet and E-commerce in an historical context. In seeking to understand the success of historical moments of corporate strategic action with regard to the commodification of information, this chapter identifies and explores an historical dialectic between corporate strategy and the structures of the state.

[4] The E-commerce Agenda is dealt with in detail in Chapter Three and Four. The major documents and plans are Clinton (1997), Clinton & Gore (1997), Magaziner (1998) SEC (1998) OECD (1997;1998), EU (1997a), NOIE (1998a; 1998c) and BIAC (1998).

William Gibson, the science fiction writer and cyberpunk, popularised the term cyberspace. In his seminal novel, *Neuromancer*, he spoke of it as a consensual hallucination (Gibson, 1984). John Perry Barlow, Wyoming cattle rancher, one time lyricist for the Grateful Dead, and now frontline fighter for the Electronic Freedom Foundation called cyberspace the natural home of mind (Barlow, 1996b). However, a phrase which might be closer to the mark is cyberspace : the natural home of myth, capitalisms latest consensual hallucination. It is highly ironic that the one meaning that cyber does not seem to have in popular consciousness is its original : the prefix *cyber* derives directly from a Classical Greek word root referring to control.

Chapter One : *What is happening in cyberspace?*

> The invention of the steam engine two centuries ago and the subsequent harnessing of electricity for communications ushered in an industrial revolution that fundamentally altered the way we work, brought the world's people closer together in time and space, changed the way we organize our economies, and brought us greater prosperity.
>
> Today, we are on the verge of another revolution. Inventions like the integrated circuit, the computer, fiber optic cable, and the Internet are changing the way we work, learn, and communicate with each other.
>
> (W.J. Clinton, President, 1997a : 1)

President Clintons lyrical description begins his Presidential Directive on Electronic Commerce released in conjunction with an agenda for cooperative action between the state and business, a Framework for Global Electronic Commerce (Clinton and Gore, 1997). It neatly encapsulates the essential aspects of the mainstream and popular understanding of what is happening in cyberspace.

New technologies, those of telecommunications and computing, are driving an historical change which will affect the entire world. These technologies are converging, becoming linked through a common digital language, and the effects of this will be nothing short of revolutionary for our societies. [W]e do not think it is hyperbole to say that its impact will be as great as the Industrial revolution ... . (Magaziner, 1998). This revolution is purported to be flowing smoothly from the characteristics of new technologies.

This approach to cyberspace essentially sees governments and corporations as reacting to autonomous technical change which is brought into being by faceless and objective market forces. States especially are treading lightly, listening to the technology and to the market. The Australian government believes that, The driving force for the information economy is the private sector responding to market forces (Howard, 1996 : 70). This mainstream perspective sees the state as acting to eliminate barriers (OECD, 1997) to an unfolding future, intervening in the market-place only to ensure that the internet is a safe and secure place to do business (NOIE, 1998a : 8). In this mainstream approach state actions are necessary only to facilitate the seamless transition to the information economy, (NOIE, 1998b : 8), which will be a market-driven arena, not a regulated arena.

(Magaziner, 1998 : 3). In the face of technological change, it seems, there is no alternative.

Corporations, company structures and industries are listening to the converging technologies and acting accordingly, resulting in major industry restructuring, bringing together telecommunications, information technology and the media. Secondly, corporations are fiercely competing to provide a new array of services made possible by technological innovation, thereby spreading this revolution throughout society.

A special feature of this approach is that it relies on market relations or exchange to spread the technological revolution. After all it is in the market that corporations are competing to provide new products and services, utilising the inherent potential of these new technologies. Market relations are vital to these explanations. Yet these approaches in no way seek to examine the source and development of market relations, rather these are assumed to be natural or spontaneous. If this model of change is to be at all successful one would expect market relations to emerge naturally, spontaneously and, importantly, *easily*, around the new technologies of the Internet.

Alain Lipietz argues that tales of historical change are important because [they] put before us the story-tellers perception of reality. What is recounted and what is ignored ... show us what the story-tellers think is important in their lives and their history (1988 : 12). The exogenous march of technology is what is seen as important for historical explanation in the mainstream and popular approach to understanding what is happening in cyberspace.

Technological determinism as a theory of history

The idea that history is the unfolding of technical and scientific knowledge is far from novel. Recently it has been associated with Alvin Toffler who is well and widely known, mostly as a result of the US Republican senate leader Newt Gingrich s championing. Alvin Toffler, in books such as *Future shock* (1970), *The Third Wave* (1980) and *Powershift* (1990) divides history into three great epochs. The Agricultural, the Industrial and now the Informational, with these central technologies driving historical change though the whole of society, economy and polity. This approach has been adopted by leftist groups, as in the self - proclaimed radical socialists in the journal Cyber Revolution or CyRev :

> The microchips impact is changing everything about our world and the way we live. Civilization is undergoing a quantum leap on the order of the agricultural revolution launched 6000 years ago and the industrial revolution launched 200 years ago. We have now entered a third period of human history. We prefer to call it the information era; others refer to the same phenomena as post-industrial or post-modern civilization to differentiate the present from the agricultural or industrial past.
>
> (Davidson et al, 1993)

It is even suggested that Marx was a technical determinist, because:

> If a handmill gives you society with the feudal lord and the steam-mill gives you society with the industrial capitalist , the microchip gives you society with the global capitalist.
>
> (Sivanandan, 1997 : 20 (quoting Marx (1847))

Technical determinism makes some important claims about historical change. Mulgan argues that historical change is conceived as discontinuous, a profound break with the past, and described as a new industrial revolution that demands rapid changes in institutions, everyday processes and attitudes. (Mulgan, 1991 : 14). Nigel Thrift (1996 : 1463) argues that this is a feature of what he refers to as the virus of new era thinking and reflects a continuation of historical patterns of reading technology. Specifically he points to the treatment of technology as part of a second, usually distanced nature (1996 : 1468), and the presentation of technologies as coherent, consistent and [part of a] cumulative whole working in ... splendid isolation as though it is the central node of the social universe. (Thrift, 1996 : 1468).

Periodising history by positing radical technical discontinuities leaves very little scope for strategic action and struggle. Intentions, desires, power and social interaction, in short, people, are relegated to a merely responsive acquiescence. This is important because the mainstream claims of spontaneous revolution are made, it will be shown, at the top of quite comprehensive action agendas and about technologies which have been developed in service of quite specific aims. The OECDs first major report on E-Commerce, prepared by the CEOs of major international companies such as American Express, argues that Electronic Commerce is a marriage between a rapidly evolving technical environment and *an increasingly pervasive set of ideas as to how markets should function*. (Sacher, 1997 : 27)

(emphasis added). In fact, as shall be argued in detail in Chapter Two, Three and Four, the emergence of these market relations is far from spontaneous, instead these relations appear to be the aim of strategic action being taken in the name of a spontaneous technological revolution. This is important, leaving a significant gap in the mainstream approaches to the Internet. The very relations which are meant to give effect to the spontaneous revolution must be created by intentional strategic action.

Old new technologies and revolutions long past

This is, of course, not the first time new technologies have emerged, bringing with them claims of revolution. Analysis of these old new technologies, and their subsequent development, can perhaps suggest a better way of approaching the phenomenon of cyberspace.

The emergence of new technologies, especially those of electricity and the telegraph saw similar claims to those being made for the Internet. Bill Gates, of Microsoft, has written that the technologies of the information infrastructure are taking us to frictionless capitalism (Gates, 1995). President Clinton implores Americans to see his bridge to the 21st century,

> Imagine you had a device that combined a telephone, a TV, a camcorder, and a personal computer. No matter where you went or what time it was, your child could see you and talk to you, you could watch a replay of your team's last game, you could browse the latest additions to the library, or you could find the best prices in town on groceries, furniture, clothes -- whatever you needed.
>
> ...
>
> It can ameliorate the constraints of geography and economic status, and give all Americans a fair opportunity to go as far as their talents and ambitions will take them.
>
> (NII, 1993)

Carolyn Marvin (1988) identifies a similar utopian strand in the literature surrounding the introduction of electricity. It was broadly held that electrical prosperity would end politics, conceived as the struggle of groups over scarce resources. (Marvin, 1988 : 206) She also highlights claims that, In one of the stock phrases of the late nineteenth century, flight, telephones, and telegraphs had brought every individual of the nation into immediate and effortless communication

with every other. (Marvin, 1988 : 201). This togetherness usually progressed into predictions of electronic voting and push-button democracy.

But what, historically, has happened to the claims made for these old new technologies? The problems, usually poverty and human disconnection that they promised to solve, are still with us, to say the least. Marvin argues that understanding the history of these episodes of technological change requires an approach which sees technology as mediated by social practices. The failure of the claims of utopian revolution can be understood, not due to a failing in technical potential, but only in the concrete history of how these technologies have been used.

Nigel Thrift argues for a view of technology which sees it constituted through the social practices with which it is bound up. Any technology exists as part of a linked repertoire of practices. It is linked - by the social purposes to which it is put - to humans and other technologies of different kinds. (Thrift, 1996 : 1468). He supports his argument with cases studies of old new technologies, such as the introduction of the telephone into The City in London, emphasising the social practices through which we have become *socially acquainted* with these technologies (Thrift 1996 : 1472). These are found to be inconsistent and highly contextualised. For example the telephone was initially perceived of, and promoted, as an instrument for business, but later experience shows it is an object with hugely divergent meanings and practices depending on its social location; business, home, bedroom, street. The subsequent use and development of technologies is not determinate, rather it is the result of social practices.

This thesis, in part, adopts this perspective, stressing the social practices through which we have become socially acquainted with cyberspace. However, the social origins of cyberspace are also pursued.

Calling it a revolution

What then of claims of revolution?

> Electricity was frequently characterised as revolutionary to compare it to the steam revolution that had preceded it. That comparison reversed the usual meaning of *revolution* as a decisive break with the past ... [and t]he ominous meaning of the term revolutionary was thus neatly transformed and appropriated.
>
> (Marvin, 1988 : 206)

Technical revolutions are revolutionary because of their efficiency in answering existing questions. They are revolutionary in that they continue the work of the past in a new and better form. Mulgan argues that Information technologies continue to be most revolutionary not in creating the new out of nothing but rather in restructuring the way old things are done. (Mulgan, 1991 : 13). They are certainly not revolutionary in the sense that they threaten the status quo of social power. Thus the *positive* sense in which revolutionary is employed within mainstream approaches to cyberspace.

However, as has been mentioned, these claims of revolution occupy an important place in political discourse. They are the reasons given for an agenda which will significantly alter social practice. Marvin, again referring to revolutions long past, argues that a ... useful strategy for stripping social phenomena of the power to endanger the status quo is to anchor them to safely established nations while presenting them for public consumption as revolutionary. (1988 : 205).

Quirk (1989), in an article entitled, a history of the future, has identified appeals to a shared abundant future through technology as ... a cultural strategy for moving or mobilising or arousing people toward predefined ends by prescribed means. He speaks of the rhetoric of a sublime future as an alternative to political revolution and a stimulus to acquiescence. (Quirk, 1989 : 180). Dov Wisebrod (1995), speaking of the documents that make up the Global Information Infrastructure discourse, writes that,

> ... it must be remembered that an important reason for producing these reports is to by turns alarm, pacify, and inspire the industry and citizens of each nation: alarm by showing areas in which the nation is behind its competitors; pacify by listing areas in which the nation is a leader or prepared to assume a lead role; and inspire by trumpeting the benefits to be enjoyed in the future. Optimism serves the third purpose well. It does not necessarily reflect objective truth.
>
> (Wisebrod, 1995)

In Chapter Three it is argued that the same could be said for the E-commerce Agenda. This analysis suggests that the claims of revolution which begin mainstream analyses of cyberspace can themselves be understood as strategic action. Quirk concludes that, The ideology of the future can serve as a form of false consciousness, a deflection away from the substantial problems of the present,

problems grounded in conflicts over wealth and status and the appropriate control of technology, towards a future in which these problems, by the very nature of the future, cannot exist. (Quirk, 1989 : 180) . Calling it a revolution is far from a value-free observation.

Getting beyond technical determinism : The approach of this thesis

The real world sources of the Internet

This thesis rejects at the outset the notion that technology and technological change is exogenous, delivered from on high like some *deus ex machina* for capitalism. Technologies have their origins in the particular motivations and dynamics of the relations in which they were born and in which they develop. Importantly, the motivations behind the development of technologies, and thus the meaning and potential of the technologies themselves, can change.

The Internet was initially developed by the US military as a communications system which would be capable of withstanding a nuclear attack, this was known as ARPANet[5] . It is perhaps best understood as a protocol, a digital common language which operates as a packet switched network. This is referred to in this thesis as the TCP/IP protocol (Transmission Control Protocol / Internet Protocol). Packet switched means that messages which pass across the Internet are broken up into packets, each of which have addressing information which enables them to find the shortest available route to their destination. Thus there is no need for a central interchange and the packets have no predetermined route. The advantage is that if one part of the network is taken down in an attack, the network will still exist and any messages in transit will find another route to their destination.

The US state owned and managed the main infrastructural backbone through the National Science Federation. This was known as NSFNet. The scalable and decentralised structure of the network meant that other international networks could be connected and the network of networks grew as university networks, especially in the hard sciences began to settle on the TCP/IP protocol. A major source of the universality of the TCP/IP protocol is that its use was mandated in the

[5] This stands for Advanced Research Projects Agency Network. The Advanced Research Projects Agency was an agency of the US Department of Defence. The Agency began in the late 1950s specifically to work on a response to Sputnik. Research on computer networks begins in the 1960s. An interesting, if obscure, early vision of what the network might mean is contained in Brand (1974). For a decent history (without the hyperbole) see *http://www.isoc.org/internet/history/brief.html*

US Department of Defence extremely powerful purchasing guidelines during the 1980s[6] . The Australian componant of the Internet was known as AAARNet[7] which was owned by the Australian Vice Chancellors Committee and funded through the Australian Research Council.

Up until 1993, then, the development of the Internet is bound up in the motivations and strategy of states and in particular the US state. The management of the infrastructure of the Internet was undertaken by a private company under contract to NSF. This contract ended in 1995 and the Internet backbone was privatised. This process was repeated in most states, often as a result of the privatisations of a government telecoms company. Telstra in Australia owns the majority of the high-speed connections, but others are run by Optus and AAPT. Today almost all of the hardware of the Internet is in private hands, but the TCP/IP protocol is still a public resource overseen by a technical Ad Hoc committee of the IETF[8]. The US and other countries are stepping back from their historical strategic interests in the Internet. However, State involvement is still driven by strategy, as will be discussed in Chapter 5, but today the imperatives are different.

Coinciding with this shift in state involvement has been a substantial increase in corporate interest in the Internet. Figures on the level of corporate activity on the Internet vary an enormous amount[9]. Web sites in the .com (for commercial) domain have since mid-1995 outnumbered the total of other domains on the Internet.[10] The graphs below are created from information gathered by Matthew Grey (1998), a Phd. student at the Massachusetts Institute of Technology.[11]

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[6] see *http://www.isoc.org/internet/history/brief.html#Commercialization*

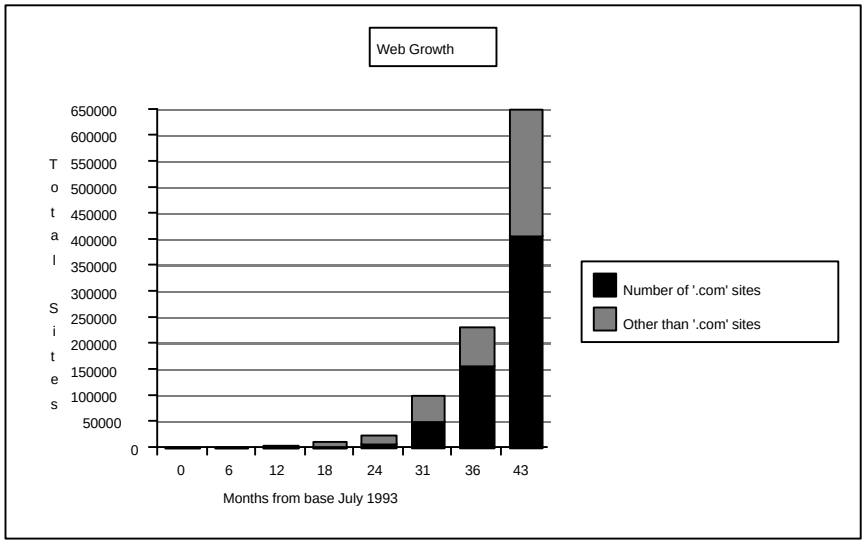
[7] Australian Academic and Research Network see ASTEC (1994).

[8] The IETF is the Internet Engineering Task Force it is a non-government, non-profit, professional organisation. See The Internet Societys web page at *http://www.isoc.org* for more information.

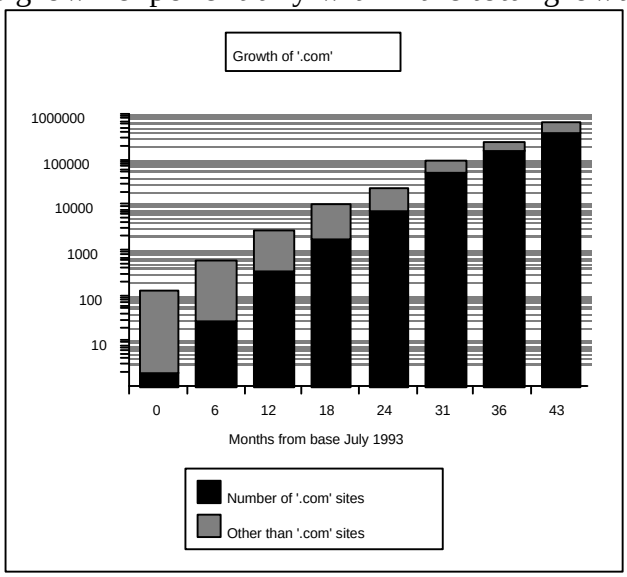
[9] The interested reader is referred to Baran (1998) or Net Wizards URL : *http://nw.com/zone/WWW-9801/*

[10] The main domains (an addressing term) of the Internet are com or co (commercial), edu or ac (educational or academic), org or or (non-profit organisation), gov or go (for government) net (media network or Internet service provider) and mil for military.

[11] These statistics are of WWW growth only, they do not reflect the also exponential growth of corporate Intranets. See URL : *http://www.mit.edu/people/mkgray/net/web-growth-summary.html*



The graph above demonstrates the exponential growth of the WWW. The graph below has the vertical axis expressed as a logarithmic function of the total number of sites, as such this second graph demonstrates that the great proportion of this growth has been in commercial sites. This graph also suggests that the number of commercial sites has grown exponentially within the total growth.



Getting beyond technical determinism (2) : Strategic action in history

This thesis seeks to understand what is happening in cyberspace by focusing on strategic action, both by capital and the state. It attempts to come to grips with strategic action by first considering the abstract motivations of capital in seeking to utilise these new technologies, and the cyberspace which they open up. Strategic action is defined as intentional action designed to structure social practice for some desired end. Accordingly, Chapter Two begins by examining the commodity forms

which capital is seeking to exploit, and asking the broad theoretical question of how the state is needed for the realisation of these commodity forms.

Thus initially the question is framed in the abstract terms of capital in general and the theoretical state. However, strategic action is undertaken by people, people in positions of power within corporations and countries. An adequate understanding must go beyond the abstract and deal with the question of how these abstract issues are framed in the concrete. Specifically this means asking questions about the ways in which those seeking to make money over the Internet are able to get access to the needed resources of the state. Chapters Three therefore discusses concrete strategic action and focuses on the tensions in realising the commodity forms.

If, as is suggested above, there is nothing natural or spontaneous about market relations growing up around new technologies, the thesis will have to deal with the possibility of other, non-capitalist, relations arising in cyberspace. This intriguing possibility and its potential to cause tension in the purportedly spontaneous revolution is the subject of Chapter Four.

Chapter 5 attempts to understand this strategic action in historical context. It therefore, examines the concrete reasons for the success or frustration of concrete strategic action. It develops the proposition that capital strategies with respect to information have developed through a dialectical articulation with the reforms and motivations of the US state. The E-commerce agenda is a moment of strategic action, with its own tensions and difficulties, within this broader dialectic.

Chapter Two : *Strategic Action in the abstract*

This Chapter considers, in abstract terms, the question of why capital is interested in the Internet. Three commodity forms in information are developed and it is argued that these are driving capital strategies. These commodity forms are ways in which the Internet can be a source of accumulation for capital. Realising these commodity forms depends on the structuring of social practice in particular ways. The state, it will be argued, is vital to this process. These abstract understandings are crucial to interpreting the concrete strategic action of the E-commerce Agenda which is pursued in Chapter 3.

The three commodity forms motivating corporate strategy

Understanding corporate strategic motivations, in the abstract, can be done by drawing on the notion of commodification.

What is Commodification?

When this thesis speaks of commodification, it is describing a process which Vincent Mosco characterises, The process of commodification describes the way capitalism carries out its objective of accumulating capital or realising value through the transformation of use values into exchange values (1996 : 140). Information is used in many different ways, some of which are explored in Chapter 4. However, the process of commodification has as its specific motivation the creation of a commodity form. To be clear: a commodity form is not an object, even though it appears in this form. While information may please or distress, enlighten or confuse, economically speaking information is always *about* something ... Behind all these bits of information are relations of power .... But in the celebration of immateriality ... these links and dependencies are forgotten. (Henwood 1995 : 171). Information is by its nature more obviously a relationship then other commodities. Information may well take the form of a virtual commodity, but it is still created and maintained by social relations, the commodity, whose appearance fills the image space of capitalism, is also a congealed set of social relations ... (Mosco, 1996 : 143).

I want to be clear as to what is meant by social relations because this is often obscure. Social relations in this thesis are understood as established patterns of social practice, in Lipietzs terms, to speak of a social relation implies that there is some continuity in the manner in which people enter into relationships (Lipietz,

1988 : 14). Thus in a concrete sense social relations are directly linked to the interactions of people in the real world. We therefore must be conscious at all times that these commodity forms are not things but relations, and they are made and remade by structuring social practice. Lipietz goes on to say, To study social relations is ... to study a history of regularities derived from past struggles *and* a new history in the making; it is to examine simultaneously the reproduction of social relations, their evolution, their crisis and the invention of new social relations. (Lipietz, 1988 : 14). Strategic action is all about altering and influencing social practice.

In this context corporate strategic action can be seen as an attempt to structure social practice in order to create three commodity forms which are relevant to the Internet. For each this chapter will first outline the commodity form, discuss its history, and ask how it could be developed on the Internet and finally identify what sort of businesses are interested in these commodity forms.

Generally speaking, the key to commodity forms in information is that Information must be given boundaries, within which use is legitimate, outside of which use constitutes theft. (Mulgan, 1991 : 119). These boundaries are boundaries of social practice, but technology is often developed in strategic ways which reinforce and support the desired social practice.

Communication for competitive control

Corporate use of communication can be understood as a developing commodity form. Corporations use communications for specific ends, primarily the competitive control of the production process. The greatest value of information appears in situations of conflict and competition, where exclusive or superior knowledge confers leverage. Networks are created not just to communicate, but also to gain position, to outcommunicate. (Mulgan, 1991 : 21). Control over the production process is vital to the performance of modern corporations. Indeed the corporate form itself can be comprehended as a structure which has better control of production as its aim. Control over production allows value to be pursued, mostly by more cost-efficiently utilising resources, particularly labour. Control is a source of competitive advantage for corporations. To serve this end, communications must be structured as private property. That is to say that the messages carried across communications networks must be private and not accessible to those not intended to receive the message.

However, it is not only within a corporation that communication can be seen as important to the capitalist production process. All production relies on interaction with other corporations, this is often known as a firms supply chain. It appears that increasingly co-ordination with suppliers is central to profitable production: it allows costs to be kept low by eliminating inventories and provides flexibility. Sharing information about the requirements of a production process also requires that corporate communication be private. However communication is not only important in production. Communication with customers, allows production to be customised to meet tightly defined and changing needs. Such niche production is highly profitable.

The development of corporate communication structures is the development of communications as private property. It begins with the corporate struggle to lease lines from the public network. Following World War Two, international telecommunications was organised, other than in the USA, through publicly owned networks. Corporate strategic action, which is detailed in Chapter 5, sought to force these public networks to provide leased lines for their communications needs. This meant that the corporation would rent a private line, the idea being to buy in bulk and thus reduce the total cost of telecommunications. At first these were mainly voice lines, but as more complex information was desired, and computers developed to process it, corporations, in an increasingly deregulated telecommunications environment, moved to establish private networks. These operated on a mixture of owned and leased lines. Importantly, these private networks utilised proprietary protocols. These communications protocols were often buried in the proprietary software which ran the private corporate networks. IBM owned the standards for many of these networks. These networks were certainly private, but they were not interconnectable, as they mostly ran on incompatible proprietary protocols.

The incentives to interconnect and make possible detailed communication, across the corporate enclosure derive from the desire for better coordination with suppliers and customers and so to streamline the productive process. Interconnection offers the cost advantage of enabling corporate communications to travel across larger networks, drawing on economies of scale to reduce costs. It also allows the dynamic scaling of telecommunications needs, eliminating the purchase of expensive excess bandwidth (communications capacity).

The Internet, a non-proprietary protocol, allows this interconnection, utilising the public telecommunications network. Much of the growth of the Internet is made up of what are known as Intranets. These are virtual private networks which utilise the common language of the Internet, but do so behind firewalls. Firewalls are ways of utilising encryption technology to structure access to company networks, conceptually they can be thought of as borders in cyberspace. In Chapter 3 the argument returns to encryption technologies, what is important at this stage is that corporations utilising the public Internet for their communication needs must structure that communication in a way that makes it private.

This commodity form is clearly relevant across all industries and is in the interests of an enormous range of corporations. It is this commodity form, private communication, which is the source of claims like Ira Magaziners ...we do think is it not hyperbole to say that its impact will be as great as the Industrial revolution because it will affect all sectors of the economy. (sic) (Magaziner, 1998). It is particularly important for entities such as banks as they have demands for real time complex statistical information. It is also vital for companies which engage in widely dispersed production across large geographical distances such as Nike and Benetton. Private communication for competitive control is vital to complex high-tech production, such as hi-fi equipment, computers and electronics, companies like Sony and General Electric[12]. Such capital interests have been expressed through Telecommunications users groups, which are heavily dominated by corporate users.

Finally this commodity form is a direct source of accumulation for service providers such as telecommunication companies, Information technology companies and the consulting industries which set up Intranets. These corporations are enormous, often bound up in joint ventures, such as Global One which includes Deutsche telekom, France Telecom and the American Sprint / MCI.[13]

The commodification of information as an object

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[12] Ira Magaziner (1998) argues that these business to business applications ... will grow to over three hundred billion in the United States alone. Companies like General Electric that just went on to the Internet about a year ago are already doing about a billion dollars of business-to-business commerce. Theyre realising significant productivity improvements and, therefore, theyre driving it thoughout their corporations .... GE expects to do five billion dollars alone as a company on the Internet business - to - business; that is putting its purchasing up, not including sales to consumers

[13] See the Appendix for a concrete demonstration of the linkages and extent of corporate interest in this commodity form.

The second commodity form which is relevant to the Internet is the commodification of information as a discrete product. This is epitomised by intellectual property, especially the concept of copyright. Essentially this is the notion that packets of information are capable of being defined as property and thus produced and sold. It is created by laws which define who has rights in information. These rights may not be to exclusive possession, but rather to the enjoyment of financial reward from selling the packet of information. Copyright has historically been attached to the technologies used to deliver intellectual property, be it book, CD, or movie. However, this commodity form can incorporate more than cultural goods and entertainment. Specially developed and manipulated agricultural seeds have been defined as intellectual property. Knowledge expressed in description, such as maps of genes, can also be commodified as packets of information. Descriptions of business processes, such as consulting companies methodologies, can also be protected as intellectual property[14]. It is also possible to protect pharmaceutical formulas. The commodification of information as an object is relevant to the Internet because the digital language of the Internet means that most copyright products can be, or will be able to be, delivered over it. These could be text, music, television or hybrid multimedia or even complex genetic or chemical descriptions.

The difficulty in commodifying information is that the more reproducible the information becomes, the easier and more likely it is that the product will be illegally copied, or stolen. The history of copyright law shows that with each extension of reproducibility, copyright has been reinforced and extended. As we shall see in Chapter Two and Three, this is also true of the Internet.

The key to commodifying informaton as a discrete packet, then, is controlling its reproduction. This control is the source of revenue from intellectual property. Making money from intellectual property is a question of structuring social practice so as to open up new delivery models, while at the same time retaining control over the distribution of the product. This is not an easy task. Computer software is largely covered by copyright legislation, has been bought usually in shrink wrapped packages on physical disks, many of which used to be copy-protected in some way. This delivery model suffered, and continues to suffer from enormous levels of piracy, often originating in countries with lax copyright laws, such as China[15] .

[14] This raises the possibility that the activities of a worker could be subject to copyright protection, making discussion of conditions in the workplace with, for example, a union, a breach of copyright.

Commodifying information as an object is also utilised in the marketing of demographics. Many web sites ask users to provide personal details before they can get access to a web-site. This is a way of building up demographic information which can then be sold to advertisers, in practice similar to but far more detailed than conventional mailing lists. This has led to a proliferation of surveys as a condition of access to sites, designed to identify the profiles of individual users, which can then be sold to people wishing to contact tightly targeted groups[16] .

The corporations most interested in this commodity form are the global media, a highly concentrated industry which is looking to the Internet as *the* key to future growth. This includes such firms as News Corporation, Reuters, Bertelsmann, the Associated Press and CNN. Cultural producers, especially those in Hollywood such as Disney, are also particularly interested in the protection of intellectual property on the Internet.

The commodification of information as a relationship

The third commodity form of information relevant to the Internet is the commodification of information, not as a discrete package, but rather as a relationship. It is useful to differentiate two related ways of pursuing this.

The first has historically derived from the problems of stemming the leakage of information sold as a product. So, software firms are turning to users support plans and upgrade subscriptions to gain revenue without having to combat piracy. Copyright was designed to bear on physical forms. Today the emphasis has moved to control over flows and to sophisticated technologies to determine who has legitimate access to flows. (Mulgan, 1991 : 136).

The second way of commodifying information as a relationship revolves around advertising. This commodity form is the key to the enormous success of commercial broadcast television. Business gains revenue by selling air time to advertisers whose product is broadcast to targeted markets. John Bellamy Foster argues that

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[15] Figures about business lost through piracy are next to useless. They usually estimate the number of pirate copies in existence as the amount of lost business. This ignores the fact that many people who are using a pirate copy would not be capable of buying a copy even if the enfringement could be discovered.

[16] Try accessing articles through the Economist site URL : *http://www.economist.com*

advertising could be the most important aspect of the Internet (Foster and Dawson, 1998). One reason that advertising has so much potential is that advertisers want to know how effective their attempts have been and on the Internet the market response can be better verified as people click through to the advertisers site. This is backed up by the use of cookies which are data collection agents stored in a users browser which transmit information about the actions of the user back to the site which installed the cookie. This tracking has caused much protest, as will be discussed in Chapter 4, but it is extremely profitable. Many websites also utilise similar technology in seeking to offer an individually customised service, focusing on providing the user with an environment which matches their interests (and marketing demographic).

It is clear that this commodity form is most relevant to the advertising industry, but also to industries like software and cultural production who are giving up the battle to protect packets of information, in order to build profitable individualised relationships

Hybrids

These three forms are not mutually exclusive and one product may draw on aspects of all three. Enterprise management software, such as SAP and ORACLE financials, is software for running businesses. The business models, international best practice management and competitive control techniques, which are embedded in the software are intellectual property. Within the software there are components that enable the integration of similar information systems from other firms. When this software is implemented, consultants are used, not to make the software fit the company, rather to get the company to fit the software. This is known as change management consulting and operates on a relationship model.

These categories are designed to help understand the ways in which capital is seeking to structure social relations to make money out of the Internet. They are not hard categories, with shifts and hybrids possible.

What, in terms of social practice, is necessary to realise these commodity forms?

Exchange relations

Clearly if these commodity forms are to be of use to capital there must be the potential to exchange them for money. In the context of the Internet, this means that reliable systems must exist for the transfer of money from the purchaser to the producer across the public network. Generally speaking, this is a question of utilising encryption technology to protect transactions. Encryption technologies, and the states involvement with them, are dealt with in detail in Chapter Three.

Identity

Establishing real world identities in cyberspace is vital to realising these commodity forms.

> If commerce rests on any single concept it must be identity. There can be no business without ownership, and no ownership without an I to do the owning. To regulate that commerce, there must be a legal system with accountability - and there can be no such accountability without very precisely identified individuals
>
> (Browning, 1997 : 65).

Establishing identity is critical to exchange relations and to all three commodity forms. For communication it is the means for determining access, especially outside the corporate enclosure. Exchanging intellectual property in cyberspace clearly involves reliably identifying the producer and the customer. Relationships also clearly presuppose the establishment of identity, especially as it relates to feedback from advertising. The development of this critical issue is pursued in Chapter Three, as ways of establishing identity are part of the E-commerce Agenda. It is also pursued in Chapter Four as establishing identities has the potential to negate the social practice of anonymity on the Net.

Property

These three commodity forms must be realised as property. This relies heavily on legal definition and enforcement. All industries which produce and sell symbols, stories, ideas and images and sounds ultimately depend on the powers of the state and the law to control the free flows of piracy and unauthorised copying which can rob them of economic remuneration. Without laws and enforcement agencies to protect exclusive rights of this kind markets in information could not function. (Mulgan, 1991 : 118). The legal system of the state is clearly the key institution to protect the property status of information and thus all three commodity forms.

However, private property, *as a social relation*, has two vital characteristics or two faces. While one is exclusion, the other is the social validation of that exclusion. Legal systems typically attempt to be sure that property has been acquired legitimately and thus the claim on social labour which it represents is valid. Lipietz writes that exchange involves the recognition of the social value of the labour invested.... (1988 : 22). In this way private property is embedded within society.

This social validation of private property is vital to system-wide confidence and is central, as will be explored in Chapter Three, to tensions in the realisation of the commodity form of communications as private property. Capitalism is a complex system in which the steps in the circuit of capital may be separated by great distances and long times. Indeed, all the commodity forms above involve a complex production and realisation process. If capital is to move from M - C - P, a capitalist must be confident that it will be possible to move back into M and so on. This means that there must be confidence that the commodities at C are validly owned. Systemic confidence does not proceed on the assumption that each and every transaction is inspected and approved, rather it relies on the demonstration effect of a number of instances. Clearly the state is integral in maintaining systemic confidence about the legitimacy and validity of private property. This will be considered further in Chapter Three.

Coordinated competition

The interaction envisaged in the commodity forms above differs from that of private and military networks in that exchange of information extends beyond the corporate enclosure. Capitalism, unlike a military command system or a private network, is defined by competition. This makes exclusion a vital social practice. However, capitalism is also a complex system of coordinated production, exchange and consumption. For this system to operate there must be certain standards which allow the interaction of capitals in production and allow the realisation of value in exchange and consumption. Capitalist competition is not war, it is a social system of production. Interaction across the corporate enclosure requires some shared standards of interaction. Clearly prices and money are the most common, but also relevant are notions of time, both time units (hours, minutes) and systems of timing, such as time zones and daylight savings time. Standardisation is also required, in areas such as distance, weight and other measurement methods. These activities, so crucial to a social economy, have a history of conflict and tension which has by and large been resolved by seeking the seemingly objective forms of the state or combinations of states. These issues are still sources of great dispute in international trade where they are often seen, by those not within the coordinated system, as protectionist non-tariff barriers. The involvement of the state in the elaboration of standards for the Internet was outlined at the beginning of this chapter and is considered in more detail in Chapter Four.

As we can see, the state is clearly vital for the realisation of these commodity forms. This raises an interesting analytical question: What is it about the state that makes it suitable, vital perhaps, for pursuing the abstract needs of capital?

State theory

Similar questions been explored by West German state theory in its interaction with the French regulation school. These discussions usually proceed by considering the needs of capital in the broadest abstract possible. That is the needs of capital *as a class* are in the reproduction of capital *as a relationship*, that is, the power relations which define capitalism. There are two main strands which are of interest here.

The first is the capital logic school of state theory that is epitomised in the work of Elmar Alvater. Starting with the bare bones of the capitalist mode of production he attempts to derive the role of the state. He argues that, capital cannot itself produce through the actions of the many individual capitals the inherent social nature of its existence; it requires at its base a special institution which is not subject to its limitations as capital ... bourgeois society produces in the state a specific form which expresses the average interest of capital. (Alvater, 1973 : 41). Thus the form of the state is derived from the needs of capital in general to reproduce, the inherent social nature of its existence . Alvater thus conceives of the state as an ideal collective capitalist (1973 : 42). While this just avoids the fallacy of seeing the state as the brute instrument of class rule, it does not contain conceptual room for the complex process by which this role is performed in the concrete. In short, ... this school reduces history to an effect of the logical self-realization of capital. (Jessop, 1990c : 38).

This critique is taken up by the second strand of interest in West German state theory authors such as Joachim Hirsch (1978; 1984) and Holloway and Picciotto (1977). This strand accepts the insight that the capitalist mode of production requires a special institution above competing capitalists to secure particular non-commodity relations of production. However, it argues that this objective form (especially democratic) necessarily problematises the very function of the state, such that the state has its own motivations and imperatives. As such the form of the state becomes an aspect of class struggle, not determined by the logic of capital but historically, as capital is forced, in the struggle for accumulation, to strive to overcome the limitations of the state form, it tendentially undermines that

particularisation of the state which is a precondition of its own existence. (Holloway and Picciotto, 1977 : 97).

Bob Jessop (1988;1990;1990a;1990b) has developed these understandings of the role of the state. In the broad context of regulation theory, he stresses the need to understand the articulation of the needs of capital with respect to the state, in terms of *strategic action*, both of actual states and fractions and coalitions of capital. He especially focuses on the terms of access to concrete state resources that corporations are able to achieve. Chapter One identified intentional strategic action as the appropriate analytical subject if the phenomenon of cyberspace is to be understood.

However, this thesis is not seeking to describe the reproduction of capital as a relationship, but rather the elaboration of specific commodity forms which are relevant to cyberspace. It may well be that these processes are related, but that is outside the scope of this thesis. Even in this context the basic insights of Jessops development of the West German school of state theorists are useful. These concepts will be developed and explained as they are needed for the argument.

Commodity forms : Moving from the abstract to the concrete

The abstract motivations described in this Chapter must be articulated through concrete corporate strategic action and if the state is to function for capital in the commodification of information, these corporate strategies must articulate with real states. On an abstract level this thesis is dealing with capital and the state, but in the concrete this thesis must deal with corporations like Sony, Microsoft and AT&T and countries like the US. It is through these *competitive* and *complex* institutions that any change must flow. The next chapter takes up the challenge of dealing with concrete strategic action. It aims to understand how these abstract motivations centred on commodity forms are being realised through concrete strategic action involving corporations and countries.

In Chapter One the technical determinist argument is critised for its ignorance of strategic action and presenting the revolution as natural and easy. The next chapter, in considering the realisation of the commodity forms, will seek to demonstrate that there are substantial tensions in this process. This makes it the very opposite of a determined progression. Rather realisating the commodity forms identified in the chapter depends on strategic action and specifically on whether that strategic action is able to overcome, possibly through access to the resources of powerful states, the

important tensions in the realisation process.

Chapter 3 : *The concrete agenda for strategic action in cyberspace*

This chapter considers the concrete E-commerce Agenda. It will argue that these actions can best be understood as seeking to structure social relations in an effort to realise the commodity forms identified in Chapter Two. This chapter also seeks to make explicit the sources of tension in this supposedly spontaneous revolution. The most important aspect of this Agenda is its explicit content, however the context of the Agenda must also be considered.

This Agenda is elaborated at conferences organised by, and in documents published by, business, national governments and international organisations. The US led in July 1997 with the Framework for Global Electronic Commerce (Clinton & Gore, 1997) and has established a Secretariat on Electronic Commerce within the US Department of Commerce which published The Emerging Digital Economy (SEC, 1998). The OECD has hosted two E-commerce specific conferences each of which have published Agendas for Action, Turku in 1997 (OECD, 1997) and Ottawa in 1998 (OECD, 1998). The European Commission, long interested in the information society has published an Initiative on E-commerce (EU, 1997a). In his 1996 industry policy statement (Howard, 1996) Prime Minister Howard appointed Senator Alston Minister for the Information Economy[17] and established the National Office for the Information Economy (NOIE)[18] . This secretariat has published two major documents, *Building the Information Economy : a progress report* (NOIE, 1998a) and *Towards an Australian Strategy for the Information Economy* (NOIE, 1998c). It organised a major conference, sponsored by Telstra, in April 1998 called Enabling Australia, at which Ira Magaziner (E-commerce advisor to President Clinton)[19] gave the keynote speech (Magaziner, 1998). International business groups, in attendance at the OECD Ottawa conference, published A Global Action plan for Electronic Commerce prepared by Business with recommendations from Governments (BIAC, 1998)[20] .

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[17] In the recent cabinet reshuffle this portfolio was expanded taking over certain activities from the John Moores industry portfolio. Senator Alston is now the Minister for Information Technology.

[18] This is overseen by a Ministerial Council for the Information Economy, which has been chaired by Senator Alston. It includes the Minister for Trade; the Minister for Industry, Science and Tourism; the Minister for Employment, Education, Training and Youth Affairs; the Minister for Finance and Administration; the Treasurer and the Attorney - General. See URL : *http://www.noie.gov.au*

[19] Ira Magaziner is a former chairperson of the Joint National Economic Council.

[20] This was prepared by The coalition for coordinating world-wide business action on electronic commerce (BIAC, 1998 : 68). It is A joint statement by: Business and Industry Advisory Committee to the OECD (BIAC), the Global Information Infrastructure

The Implicit Agenda : The context of strategic action for E-commerce

State action : for national advantage or neutral market facilitation?

The reasons for state action given in the E-commerce Agenda are not consistent. It is not at all uncommon to see the same policy processes described in one forum as promoting a nations competitive advantage over and against other nations, and in other forums as a neutral and transparent market policeman co-operatively building the Information Economy. In a welcoming speech to the Enabling Australia conference in April 1998 Ira Magaziner characterised the American approach as one which seeks to,

> come together with other countries and, as equal partners, [try] to architect the basic structures for this new era.

This feel good co-operative rhetoric was quickly followed by the more realistic;

> For those countries that dont want to, were not interested in conducting this as a trade negotiation. If theres a country which wants to make its own standards, keep its markets closed, erect non-tariff barriers, require that everything be translated into its own language or whatever were not going to try to convince them to do otherwise. It will be unfortunate for their people but were not going to try and make this a trade negotiation. There is going to be a billion people on the internet in the year 2005. If the people of some countries arent there, it will be their problem, not the worlds problem.
>
> (Ira Magaziner, 1998)

Prime Minister Howard released the Australian governments first full treatment of the Information Economy in the context of his 1996 Industry Policy statement, *Investing for Growth.* At the heart of this statement is a range of significant initiatives to encourage innovation, promote investment, develop Australias export trade, [and] maximise Australias gains from the information age . (Howard, 1996 : 1)

Commission (GIIC), the International Chamber of Commerce (ICC), the International Telecommunication Users Group (INTUG) and the World Information Technology and Services Alliance (WITSA). See Appendix A for the full list of corporate involvement at this conference, it is quite something.

Reform of the Domain Name System (DNS) has seen a clash between the US and the EU. The US, as was discussed in Chapter 2 is privatising the DNS agency which controls the desirable universal domain. The universal domain are domain names which do not have national signifiers attached, such as *www.ecommerce.gov* as opposed to *www.noie.com.au*. There is a *.us* domain but it is rarely used. In February 1998 the US issued a green paper on the future of Internet organisational issues, focusing on DNS. The EUs response could not have been more unequivocal, The US Green paper proposals appear not to recognise the need to implement an international approach. The current US proposals could consolidate permanent US Jurisdiction over the Internet as a whole. (EU, 1998). The EU supports the establishment of an independent non-profit body to oversee the DNS system. This has led to the deferral of the US plans, and a state of confusion over the future management of this crucial Internet system.

The discrepancies in the characterisations of state action point to real tensions underlying the E-commerce Agenda and its various manifestations. One such tension is the fear of cultural imperialism if a seamless global marketplace for cultural production is allowed to develop on the Internet. This is because the US culture industry, especially Hollywood, is so dominant. The EUs agenda tends to give more weight to this, driven mainly by French concerns. Canada places cultural protection at the top of its approach, expressing as a central principle a desire to reinforce Canadian sovereignty and cultural identity (Industry Canada, 1994).

Much of the discussion of E-commerce takes the form of proselytising, or education on how to maximise the benefits of E-commerce (OECD, 1998 : 2). Spreading the E-commerce message is an important part of what these gatherings are about. In this vein a recurrent feature of all the conferences is an E-commerce Showcase which is designed to demonstrate E-commerce in action, always sponsored by the telecommunication and computing industries. These are designed to bring E-commerce to small and medium enterprises, the bulk of the national economies. The 1998 OECD conference in Ottawa and the Australian NOIE *Telstra Enabling Australia Summit* conference in April 1998, both had extensive showcases. The NOIE conducted a business survey which found that many businesses are still to recognise the importance of going online and of electronic commerce. The National Office is therefore embarking upon a comprehensive awareness raising programme, entitled *Online Australia* (NOIE, 1998d). In pursuit of this comprehensive awareness Australia will have its first *Online Australia Day* on 27 November 1998.

The agendas often argue that Governments will need to establish policies to encourage the use of advanced multimedia services in a continual attempt to educate the public to their benefits (Tang, 1997 : 206). Governments are to utilise their administrative structures and buying policies to promote the use of these technologies and demonstrate their effectiveness. The OECDs business led Sacher report argued that governments must pursue Direct promotion through applications of Electronic Commerce principles in government administration and procurement, and in the provision of public services. (Sacher, 1997 : 64) These are the same agendas which declare, usually as a first principle, The Private Sector should lead. (Clinton & Gore, 1997) (original capitalisation).

It is hard to see this implicit agenda as anything other than a concerted effort to spread a message which is justified as the natural result of an autonomous (and neutral) technological revolution. This implicit agenda supports the interpretation, suggested in Chapter One, of the E-commerce Agenda documents and process as strategic action in themselves.

The Explicit Agenda

These agendas are making important decisions about the social relations which are to prevail in cyberspace. The E-commerce Agenda is a comprehensive treatment of the issues involved in facilitating E-commerce. There is basic agreement that Cyberspace should be free of tariffs, after all in the words of Ira Magaziner, Weve spent fifty years bringing down customs duties in the physical world. Theres no reason to introduce them to this new world and, in addition, collecting them would be a bureaucratic nightmare. (Magaziner, 1998). There are detailed discussions to consider the taxation issues of cyberspace (especially problematic in countries which rely on a sales tax system, such as a GST). This section examines four elements of the E-commerce agenda: encryption, intellectual property rights, digital signatures and questions of legal jurisdiction, especially contract law. While the concrete agenda in each of these areas will contribute to the realisation of the abstract commodity forms identified in Chapter Two, there are also important sources of tension in this concrete process.

Encryption

Encryption is a critical technique for the vision of cyberspace expounded in the E-commerce Agenda. However, it is also one of the most controversial. Essentially encryption is a way of coding information using algorythms which mean that the original meaning can only be made intelligible by someone with the appropriate key . Encryption techniques have traditionally been a military technology, used for protecting critical information from enemies.

Encryption technology is vital because it is a secure way of structuring the mass of information and signals that make up cyberspace. By encrypting information, borders can be erected in cyberspace, excluding those without the appropriate key from the information and conversations. As we have seen, the ability to exclude is fundamental to all three of the commodity forms outlined in Chapter 2. It is used create Intranets, the virtual private networks, whose uses were discussed in Chapter One. It is also vital for exchange to take place over the Internet, for example protecting credit card numbers.

The strongest encryption technologies had been developed in the US military economy and they are still classified as munitions under US legislation, making it illegal to export them. This restriction has been the source of much controversy as US companies have sought to utilise this technology commercially. Companies seeking to use it in the course of business and businesses seeking to sell the technology as a service, have both been lobbying the government to relax these controls. Corporations argue that these restrictions stop US companies from exploiting their competitive advantage in these technologies. The export restrictions are said to be holding back jobs and profit for Americans.

The major issue in this tension is that the best encryption technology is strong enough to make cracking the codes a nearly impossible task, requiring enormous processing power and a long time, probably months. It is not certain that they can be cracked at all[21] . The US Congress and President Clinton have proposed a mandatory public key system, known (somewhat obliquely) as the clipper chip. This would make it compulsory for all legal users of strong encryption technology to have an emergency

[21]There are famous and hotly contested contests to crack strong encryption technologies. Recently a hardware machine purpose built by the Electronin Freedom Foundation won the RSA Digital Encryption standard competition. It took this machine 3 days to crack the code. This code is about 1/10 as complex as the strongest technologies. The EFF have used this to gain publicity for thier calls to have the strongest encryption technologies released. See
URL : *http://www.eff.org/descracker.html*

key, lodged with the government or state licensed trusted agencies. This would enable courts to bypass the encryption and access the original information.

In Chapter Two we raised the abstract notion that private property is embedded in society and that the state guarantees the legality of transactions, thereby raising confidence in the entire system. Encryption technology without a state back door raises the prospect of corporate (and other) communication and exchange which is too private. It could be too private in that it couldnt be broken quickly enough to be relevant to court proceedings. The idea behind the clipper chip, public key technology, can be seen as continuing the states role in assuring the social relation of private property within cyberspace, and allowing cyber-property to interact with real property. While this may be in the interests of capital in general it is not in the short term interests of the corporations wishing to exploit these technologies.

Intellectual Property rights

The E-commerce agenda calls on governments and international organisations to improve their laws regarding intellectual property (IP). The US Framework for Global E-commerce argues that, International agreements that establish clear and effective copyright, patent and trademark protection are ... necessary to prevent piracy and fraud. While, technology, such as encryption, can help combat piracy, an adequate and effective legal framework also is necessary to deter fraud, and to provide effective legal recourse when these crimes occur. (Clinton & Gore, 1997). Stronger and more globally applicable intellectual property rights are being pursued through organisations such as the World Intellectual Property Organisation (WIPO).

Digital technology presents new problems as it is common language for expressing copyright items. It threatens many existing ways of protecting IP. John Perry Barlow, in a seminal paper, has described these ways as protecting the bottle not the wine (Barlow, circa 1993), thus the CD, not the music was copyright. With the breakdown of analogue barriers these types of intellectual property law are under threat. WIPO has initiated a new series of treaties to attempt to deal with this. The impetus is to create technology neutral protection. Australia has reformed its copyright laws to specifically respond to the digital agenda. Legislation is before the Australian parliament to create a technologically neutral right to communicate. This is designed to identify those who have a right to present information, making it unlawful for someone else to make this property available. (Attorney-General's Department, 1998).

Action aiming to reform and extend intellectual property rights in this way should be seen as aiming to secure the commodity forms outlined in chapter two. These concrete actions are bringing these abstract commodity forms to cyberspace. Tension is evident in the difference between the IP requirements of the second commodity form information as object and the third commodity form, information as relationship. The practice of websites tracking users and selling this information about their activities along with users profiles and demographics has led to calls for government privacy legislation. This directly conflicts with the desires of those organisations seeking to build a customised and profitable relationship with customers, as the methods used are virtually identical. Some sort of voluntary standards may be the only workable compromise, but their establishment has been slow.

Digital Signatures

Chapter Two considered the importance of verifiable identity if the commodity forms are to be realised. The Internet however has no built-in identity requirements. Communications are marked by computer addresses only. It is anticipated that under these circumstances fraud and forgery will flourish, killing business and consumer confidence. The E-commerce agenda thus calls for changes to legislation which will make digital signatures as valid as paper based signatures. The Australian government is preparing legislation and the Attorney-General writes,
The underlying rationale to the Government's approach is that business transacted electronically, and contracts entered into over the Internet, should be treated the same as "paper-based" commerce. (Williams, 1998) This legislation will be based on that prepared by UNCITRAL, The United Nations Commission on International Trade Law which has had model legislation available since 1996. (OECD, 1997)

The Australian National Office for the Information Economy (NOIE) argues that
For businesses and consumers to use digital signatures in electronic commerce, they must have faith in the system which issues, validates and revokes the signatures. (NOIE, 1998a : 11). One proposal which is receiving support in Australia and is partially operational, is the idea of trusted certification authorities (CAs). These bodies would check real world identity credentials and issue digital certificates supporting claims of identity. Further developments may see smart-cards which have an encrypted signature file which would sign a message. This file can then be checked against the list of keys maintained by the CAs. If the key decodes the

message, the recipient can be certain that the message was sent by the person certified by the CA.

In Australia this has been characterised as a market for trust (Lowe, 1998 : 6c), with organisations such as consulting company KPMG and specialist Security Domain competing to certify identities. The systems vary, for example KPMG has opted just to provide the tools and management systems for companies to run their own internal CAs (Lowe, 1998 : 6c). Security Domain seeks to act as a go-between, drawing on for example, the Australian Medical Association to certify doctors. These schemes proceed on the belief that a secure and trusted system can emerge from market interaction because transactions will be entered into only if people are sufficiently satisfied, or more importantly, willing to take the risk. The market is believed to be able to decide the appropriate level of certainty.

There is concern however that a market based system will not be adequate and could just confuse and further hinder the adoption of e-commerce (Lowe, 1998 : 6c) and thus calls for various levels of state involvement have been made. The NOIE has suggested a series of internationally linked National Authentication Authorities (NOIE, 1998b). These would be independent state backed bodies to either issue certificates or licence operators such as KPMG or companies which have internal CAs. However there are also fears that state action could prove restrictive, requiring too stringent proof of identity and thus slowing down the growth of E-commerce. Interestingly those seeking a market solution, (and a profitable business) are looking to the state in another way, hoping to utilise the buying power of the state to provide a critical mass of support behind thier product, If youre looking for mass penetration it will have to be a large-scale government scheme [like] Centrelink ... (*Security Domain* CEO, quoted in Lowe, 1998 : 6c) The Australian Tax Office has also been suggested. A hybrid solution may emerge out of an Australia Post initiative which is drawing on the resources of the Universal Postal Union.

Identity is a fundamental of trade and markets, but there is as yet no answer to the question: can it be left to the market, or is coordinated state action necessary to establish a trusted system? This appears certain to be a continuing source of tension in the E-commerce Agenda. Realising the commodity-forms needed for cyberspace to be suitable for capitalism is by no means a certain or determinate process.

Contract law

What laws are to apply to actions taken and contracts signed in cyberspace? Answering this vital question in national and international law has relied on establishing the physical location of the transaction and thus the appropriate jurisdiction. But in cyberspace these interactions are represented by identical digital code, which can exist anywhere and be moved instantaneously. The Internets challenge to legal jurisdiction is immense.

The dominant answer, pushed by the US, in the E-commerce Agenda is to seek the extension of terrestrial systems of contract law to cyberspace, but on a voluntary basis. That is, the law which is to be applied to the terms of a contract or interaction, could be chosen by those forming the contract. The UN through UNCITRAL has issued a model law which could be made available through national legislation. The US is seeking ways, in conjunction with the American Bar association, to allow the federal Uniform Common Code to be chosen for contracts. Johnson and Post (1997) have labelled this Darwinian competitive pressure on law, hailing the arrival of a competitive market for corporate law, and suggested that the jurisdictional question should be resolved by considering cyberspace as its own special jurisdiction, perhaps establishing a WTO run court of cyberspace. Again is far from settled, but it demonstrates that the concrete agenda for cyberspace does push forward with strategies which will aid in the realisation of the commodity forms discussed in Chapter Two.

Voluntary contract and corporate law has the potential to cause tension with the principles of corporate regulation, as they have been traditionally understood in democracies such as the US, UK, the EU and Australia. Corporate law is ostensibly about the regulation of corporate action, the collective setting of conditions for legitimate corporate action. In this sense corporate law, especially contract law, regulates many day to day activities and relationships. If contract and corporate law is to apply only according to the desire of corporations to utilise it, what hope is there for democratic control of this law? The growth of international jurisdictional law recently, such as the WTO (state-to-state) dispute panel and the corporation-to-state facilities of the NAFTA dispute system do not set a hopeful precedent. These are far from democratic ideals of justice, with closed proceedings and unpublicised judicial reasonings. The applicability of the laws of developing countries to the activities of TNCs within their borders has been a source of tension for many years. Allowing corporations to declare that their contract was made in cyberspace and

that US law, or another as yet unknown system, applies, has the potential to drastically reduce the ability of national governments to democratically oversee the actions of corporations. It may be that TNCs deciding where to invest could use adherence to a principle such as this as a bargaining chip in negotiations.

Interim Conclusions

These concrete areas demonstrates that quite intense strategic action is being undertaken. The central aim of the E-commerce Agenda appears to be realising the commodity forms outlined in Chapter Two, establishing market exchange in cyberspace. This puts the continual justifying gesture to market forces in a strange position. In one part of the Agenda the market is driving, and in another a market is being built. The technological determinist line outlined in Chapter One is looking a little weak, as it does not acknowledge a need for strategic action to create market relations. Market relations are critical to the argument but they are simply assumed to exist.

What has been achieved so far? Strategic action aimed at the establishment of certain social relations was established as an appropriate methodology for understanding cyberspace. Chapter Two argued that three commodity forms can be seen to be motivating corporate strategies. These commodity forms need to draw on state action in particular ways. This chapter has gone further, examining the concrete E-commerce Agenda, interpreting it as trying to realise the abstract commodity forms. It is becoming obvious that there are significant tensions in this, supposedly spontaneous, realisation process.

Thus the easy, determinate historical change which characterises the technically determinist explanation appears in fact to be a far more difficult process. This Chapter has identified three main types of tension. Firstly tensions arise in realisation between the different commodity forms especially information as an object and as a relationship. Tensions also arise between countries pursuing national interests and between capital in general and specific corporations. In this last context a fourth tension should be identified. The US state is pursuing Microsoft through an enormous anti-trust suit[22] . This case is often referred to as setting the rules for the information economy. While this appears as a tension between the state and a corporation, it could be seen as the state acting to discipline a dominant corporation, to avoid this company from stifling innovation and growth. While the motivations of the US State may well be complex the effects of this suit could see the state mediating between capitals in a way which promotes the interests of capital in general.

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[22] See CNNs up-to-the-minute coverage of this case. Target Microsoft URL : *http://www-cgi.cnn.com/SPECIALS/1997/microsoft/*

The next chapter goes on to consider another major source of tension in the process of Building the Information Economy (NOIE, 1998a). As was pointed out in Chapter One, if it is not assumed that market relations are natural and spontaneous then the possibility that other relations might arise in cyberspace must be dealt with. Tensions and difficulties might arise if these relations are not conducive to the strategic aims of the E-commerce Agenda.

Chapter Four : *A Capitalist Colonisation of Cyberspace ?*

In the first three chapters this paper has broken the automatic linear relationship between new technologies and status quo market relations, by highlighting the range of intentional action designed and needed to create these relations. This analysis has hinted at the possibility that part of the difficulty which this process is facing is that it is coming into conflict with alternative emergent forms of social practice which have grown-up around these new technologies. ... the Internet represents very starkly those choices and contradictions that are at the heart of any political moment . (Goldsworthy, 1996 : 76) It is a time of choice in cyberspace. In Chapters Two and Three we have seen that the E-commerce agenda is an agenda which seeks to introduce capitalist social relations to cyberspace. But if this is what is being chosen, what is being rejected and how?

As we saw in Chapter One, Marvin urges us to examine technology through the ...social practices through which we have become *socially acquainted* with these technologies... (1988 : 1472). There are indeed practices through which people have become acquainted with cyberspace. These practices are quite different from those envisaged in the E-commerce Agenda. Cyberspace is not an empty canvas on which to write market but, as with any time people interact in new ways, new practices have emerged. This Chapter will refer to these as emergent social relations , emphasising their novelty, but also their possible transience.

This chapter employs the metaphor of colonisation to gain insight into the possibility of tensions in the E-commerce Agenda. It develops the proposition that;

> *Cyberspace has given rise to emergent non capitalist social relations but this space is being colonised by capitalist social relations which have all but extinguished the emergent relations.*

But what does it mean to say that emergent social relations are being colonised by those relations designed to serve capitalist imperatives? What is meant by this metaphor of violence? Bob Jessop writes; ... capitalist relations always exist in articulation with other relations ... and, at most, they occupy a position of relative dominance ... (1990b : 188). Which is to say that no set of relations which define and structure interaction is ever complete, nor perhaps could it be. Rather some, over time and through strategic struggle, come to occupy a dominant position in certain types of interaction; such as in cyberspace. Speaking of the structuring of relations through commodification, Radin (1996) urges an understanding which sees

the existence of commodity relationships as incomplete, a necessarily partial process. This chapters understanding of colonisation invokes this picture of incomplete domination, allowing analysis to focus on moments of tension, finding here possibilities for progressive action.

Time and TCP : coordinating systems and the state

State involvement in developing the Internet protocols can be seen as analogous to state action during periods of geographical colonisation in that it provides that crucial bottom line coordinating infrastructure for a system of capitalist production.

One historical feature of the colonisation of new spaces is the structuring of a universal system of measurable time. Mitchell (1988) discusses the colonisation of Egypt in the 18th century. He argues that the introduction of strict timetables within the army and schools colonised and undermined the cultural, and seasonal, understanding of the passing of time. Such acts of order [by the colonial government] all worked to create the appearance of a structure, a framework which seemed to exist apart from, and prior to, the particular individuals or actions it enframed. Such a framework would appear, in other words, as order itself, conceived in no other terms than the order of what was orderless, the coordination of what was discontinuous. (1988 : 203).

Lewis Mumford (1934) wrote that The clock is not merely a means of keeping track of the hours, but of synchronising the actions of men What is distinctive about time under capitalism is that it is held to be the great objective, a framework which is established quite apart from the interactions it governs. The structuring of time in this fashion is vital to the *coordinated* nature of capitalist competition, which was identified as important in Chapter Two. Capitalist production has always relied on ways to co-ordinate competition. The involvement of the state in specifying time is required to certify this measurement as objective and universal.

The Internet Protocol (TCP/IP), the common language of the Net, functions similarly in cyberspace. The TCP/IP protocol is what allows the coordination of the data on the Internet, replacing disorder (analogue discontinuity) with order (digital interoperability). Thus elaboration of a framework of time, across geographical distance, occupational tradition and cultural difference, can be seen as analogous to the emergence of a universal and commercially neutral communications standard. This digital glue is the source of the ability to *coordinate*, which is the essential

flipside of capitalist competition, just as the establishment of common measures of time and price have allowed the complex coordination of capitalist production, exchange and consumption. This co-ordination is vital to an ability to use communication as a source of value through competitive control of the production process.

Moral Panic about cyberspace

Much of the mainstream apprehension of cyberspace has seen this place as dangerous and wild, full of undesirable social ills. If these accounts are to be believed, what is in cyberspace now is right wing hate groups, crime (especially hacking), disease (viruses) and pornography.

In the September 1997 Netizen editorial in *Wired* (Netizen, 1997), the editors catalogue articles written about the Internet over two years in the New York Times, arguing that Since *The New York Times* woke up to the Internet as a news story, the grey lady has been doing its damnedest to blame cyberspace for the evils that roam the earth ... . They cite 14 negative feature articles, ranging from drug culture, to exam cheating, through hacking and pornography, arguing that this biased coverage is similar to the moral panic demonisation of rock-and-roll in the paper in the 1950s. Similarly, in Australia, the stories which tend to get most airtime are the sensational, The Internet stole my wife and bomb-recipe available. Sure enough, just in time for the Australian 1998 HSC, Australians have again been warned by all TV news channels that cheating on the net is rampant sanctimoniously telling of the moral evils of downloading pre-written essays.

Ziauddin Sardar (1995) has interprets this as a process of constituting an other, which is analogous to what the west has done during colonisation over and over again. He writes, Cyberspace is turning out to be the new Other of western civilisation which is projecting all its colonial prejudices, and the images of sex and violence in which it framed non-Western cultures, on to cyberspace. (1995 : 777). He sees this as a process of constructing a frontier discourse, a prelude to taming a space. There is no doubt that these elements exist in cyberspace, perhaps more obviously than in real space (where they also exist), but only wilful misrepresentation could see this description as exhaustive of the relations which have grown up around these technologies.

This chapter presents three identifiable clusters of emergent relations in cyberspace which can be seen as progressive in that they have profound implications for democracy. Furthermore it is these progressive relations, rather than the melange of moral 'nasties' in cyberspace, which are being targeted by the E-commerce agenda, as outlined in Chapter Two and Three. This chapter identifies these as emergent social relations; they are by no means universal, nor are they firmly established, but they have been lived. As we shall see they offer tantalising glimpses of the progressive potential of these new technologies.

However, let me be quite be clear. The early net is no utopia. Rather it is an elite, wealthy community of actors, most of whom occupy positions in military and academic institutions. Indeed the technologies themselves, as we have seen, arise in social relations which could hardly be described as progressive: typically military in nature, or designed with control and surveillance in mind. Yet whenever people interact in new ways, the potential for unexpected and impromptu relations exists. In creating the political myth of the cyborg, Donna Haraway wrote, The main trouble with cyborgs, of course, is that they are the illegitimate offspring of militarism and patriarchal capitalism, not to mention state socialism. But illegitimate offspring are often exceedingly unfaithful to their origins. (Haraway, 1985 : 151) This chapter returns to the elite nature of the inhabitants when we proceed to a critique of this notion of colonisation as a mode of understanding what is happening in cyberspace.

What emergent relations?

The three clusters of relations which will be considered in the way outlined above are: information anarchism, anonymity and autonomy. For each of these the emergent relations are described, their potential progressive content specified and it is argued that the implementation of the E-commerce agenda will colonise and undermine these emergent relations.

Information wants to be free : a cluster of emergent social relations

The catch cry, Information wants to be free has served as the rallying point for a radical reassessment of the notion of intellectual property. These information anarchists and cyberpunks posit a view of information that sees it not as a commodity, but more akin to culture, a shared communal resource. A seminal expression of this can be found in John Perry Barlows think piece Economy of Mind on the Global Net (Barlow, circa 1993)[23] . He begins by quoting Thomas Jefferson;
If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking called an idea ... [24]. He continues: Digital technology is detaching information from the physical plane, where property law of all sorts has always found definition. , arguing that the digitalisation of information breaks down the ways of arranging information as property. It brings together disparate types of information, which have been controlled through their distribution forms. It makes these replicable across the network at zero cost.

Information anarchists argue that information is alienated experience (Jaron Lanier in Brockman, 1996 : 260) It is developed in community, usually from numerous sources and interactions. Owning, controlling and excluding people from information is unjustly appropriating a common and shared resource. Perhaps those who are part of the problem will simply quarantine themselves in court [fighting patent and copyright battles] while those who are part of the solution will create a new society based, at first, on piracy and freebooting. (Barlow, circa 1993)

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[23] I have used the date reference (circa 1993) intentionally - this document develops and has mutated, as in an oral culture. There is no definitive version and specifying one would be against the spirit of Barlows intentions. Searching on the web will find many copies of this document. This oral nature of information is part of the emergent social relations of information anarchism. I have tried to use the earliest version I could find.

[24] This text comes from URL : *http://mirrors.ids.it/sol/Library/Extropia/intellectual_property.html*

In this context the practice of hacking, the unauthorised breaching of secure systems, can be read as political action designed to breakdown illegitimate property and control barriers. Doing it because it is possible is a justification common to hackers, but rather than senseless vandalism, hacking can be seen as a social practice which responds to the potential for costless sharing of information across digital technologies. Software piracy, still prominent on the web today although under constant attack, continues this practice of liberating information[25].

This radical attack on intellectual property often appears to be far from progressive socially minded action but the potential exists for the capacities of digital technology and its challenge to intellectual property to be utilised in fundamentally progressive ways. Project Gutenberg (1998) is a web based direct action project which quite simply aims to reproduce electronically as many books as it is possible to do. The stated aim is to put these irretrievably in the public domain, beyond the reach of copyright and thus control by the rich. They argue that whenever a technology puts copying within the reach of the masses, copyright laws are extended, preventing the potential for cheap reproduction from interfering with the property rights inscribed in copyright laws. They point to the extension of US copyright in this century alone, from 14 years to 45 years, linking these extensions to new technologies. The advent of networked storage of literature and other commodities anchored in copyright, has driven a push for the further extension of copyright, this time to 95 years. (Project Gutenberg, 1998).

Aside from rushing as many books irretrievably into the public domain (even if that means access only to those with the means to own a computer), Project Gutenberg also aims to organise political action around the world against copyright laws.

Information is free - so what?

The democratic implications of the emergent relations of information anarchism turn upon the role of information, discussion and communication in systems of self-rule. Verstrafen (1996) argues that Habermas develops the notion of the public sphere as a forum that is accessible to as many people as possible and where a

[25]See The Greatest Warez Sites on the Internet!. at URL : *http://www.pnx.com/kbs/warez/warez.htm* Warez means copyright software that has been cracked. But be careful - these sites are often watched by the software companies:-) The real underground piracy occurs on the less populated UseNet and on sites protected by strong encryption technologies with pass words which are gained thorugh contributing cracked software. Usually a cracked version of a piece of software appears before the software is intially released.

large variety of social experiences can be expressed and exchanged ... arguments and views and confronted through rational discussion ... [offering] a clear insight into the possible alternatives from which one can choose. (Verstrafen, 1996 : 348) There is potential for democratic discussion across digitally linked networks, which draws on freely available information. The anti-hierarchy and anarchic nature of the emergent relations and technology, is such that this discussion and interchange can occur across real-world discourse boundaries, overcoming the limiting structures apparent in the real world.

Hirschkop observes; There are certainly information elites, and they may well crumble from time to time, but they are not identical with political or economic elites (1998 : 216). These social relations in no way remove the need for concrete social action and struggle for change: nothing is inherent in these technologies, rather it demonstrates the need for this struggle and its use in confronting political and economic elites.

If the E-commerce agenda were to be implemented it would colonise cyberspace, undermining the emergent relations of information anarchism. The E-commerce Agenda aims to secure intellectual property rights and build a commodity form in cyberspace. Barlow writes;

> People who think that there is a useful reason to stick with the intellectual - property model from the physical world need to think about an environment where there is no discernible difference between the principal article of commerce and speech. As long as you assume you need to contain that article of commerce in a property model, there is no way you can adhere to that model without diminishing freedom of expression.
>
> (Barlow, 1996a : 13)

Encryption and Intranets, which, as we saw in Chapter Two and Three, build borders in cyberspace. These structures of exclusion or conditional access, come into conflict the emergent relations of information anarchism. The educational function of the E-commerce discourse should be recalled: Tang writes that, Joe Citizen users need to be instilled with a sense of *noblesse oblige* with respect to intellectual property rights as much as they will need to be convinced that intellectual property laws are implemented for the benefit of society. (Tang 1997 : 204). The practices of hacking, piracy, and Project Gutenberg style copying have created expected

relations in cyberspace. The E-commerce agenda will override these by bringing commercial and commodity types of social practice to cyberspace.

Anonymity

The second cluster of emergent social relations are those which have arisen through anonymity. Anonymity is the rule rather than the exception in cyberspace. Access points are usually designated at most by institution or ISP, and server numbers known as TCP addresses. These are the numbers through which the network distinguishes machines. Email addresses can be issued over the web through organisations such as *hotmail.com*, with no need to produce real-world identity. Furthermore communications can be made untraceable, for all practical purposes, through the use of anonymous remailers. These are servers (or chains of servers) which accept messages, strip them of originating details which are discarded, and forward them to the destination, where they appear to have come only from the remailer[26] . There are also numerous chat-sites in which identity is only what the speaker claims. An earlier and more elaborate example of the potential of anonymity is in MUDs (Multi-User Dimensions). These virtual worlds allow users to create characters, often known as avatars, which can interact in various ways with other citizens of the MUD. The worlds are often totally freeform, existing continually but changing as people log in and out.[27]

This norm of anonymity has been fundamental to shaping relations in cyberspace. It has been a crucial element in activities such as hacking, but has also given rise to experiments in identity, saliently by those interested in the construction of a gendered identity. Cyber-feminism, occupying a predominantly male space, has pointed to MUDs and anonymous interaction as opportunities to experiment with other genders, and to observe how gender is constructed in discourse.

Understandings of the importance of identity are central to post-modernist discourses, which emphasise subversive notions of subjectivism by which identity is indeterminate or perpetually contingent... (Venturelli, 1998). Here anonymity and expression allow meaningful experimentation, allowing individuals

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[26] See What Is...a remailer (a definition) at URL : *http://www.whatis.com/remailer.htm* Until it was recently closed, the best-known remailer was the Finland-based *anon.penet.fi* It reportedly handled about 10,000 messages a day and had almost 700,000 registered users. For some current remailers, see Yahoo's List of Anonymous Mailers. at URL : *http://www.yahoo.com/Computers_and_Internet/Security_and_Encryption/Anonymous_Mailers*

[27] See The Future of MUD at URL : *http://rep.mudservices.com/future.htm*

understandings about how their identities are constructed, and potentially more control over how they are represented in cyberspace.

Anonymity as a rule clearly cuts both ways, allowing positive experimentation, while simultaneously allowing irresponsibility to emerge as a problem. Attempts to deal with this have elaborated often quite complicated systems of netiquette, ethical guidelines for those involved in anonymous interaction on the net. They have been systematised and newbies (new net users) are quickly made aware of their existence. [28] As in the real-world these do not always suffice, but do demonstrate the commitment of those involved to the value of anonymity as a way of relating.

In Chapter Two, verifiable identities were demonstrated to be vital to the realisation of commodity forms in information and, as seen in Chapter Three part of the concrete E-commerce Agendas.

Anonymity is a major obstacle to the elaboration of commodity, exchange and capitalist relations in cyberspace. Chapter Three discussed the attempts to introduce digital signatures and identities solid enough to allow contract law to operate. The social practice of anonymity is threatened as Internet service providers (ISPs) are urged, often by law (as was attempted in the US Communications Decency Act of 1996), to be responsible for the communications they carry, and for the actions of their subscribers, forcing them to closely monitor the actions of their subscribers. This can also be seen in Germany where Compuserve (a large ISP) was forced to withdraw access to particular newsgroups and accounts by the German Government, which was investigating the Church of Scientology under the German constitution[29] .

The ethos of anonymity is also undermined by the realisation that individual demographic data is a potentially valuable resource for advertisers. This commodification of information as a relationship as discussed in Chapter Two. Ira Magaziner identifies this practice as one of the highest growth areas on the Internet, seeing affinity groups [as] a good pool for advertising (Magaziner, 1998). The value of specific demographic information has led to the tracking of users, through the use of cookies. These are small files which reside on a users computer and can

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[28] See Yahoo!s list at URL :
http://www.yahoo.com/Computers_and_Internet/Internet/Information_and_Documentation/Beginner_s_Guides/Netiquette/

[29] See 1996 Net Year in review at URL : *http://www.kkc.net/toronto-star/1996/ts1226.htm*

report back over the Internet to the site which set the cookie (or any other site) the path that the user has followed across the web. This makes anonymous conduct on the web increasingly a thing of the past.

The search for autonomy

The third cluster of emergent social relations involves the anti-state and anti-commercial mood of the early net. In discussing anonymous conversation we touched on the notion of cyber-etiqeutte. The early net also developed what some have called a cyber-ethiquette, an ethics of cyberspace (Clarke, 1998). This ethic could be summed up in the exclamation dont tread on me in a romantic reference to the words on the first anti-British flag in America. The net and its netizens (net citizens) fiercely defended their territory against incursion. Barlow, speaking of the Electronic Freedom Foundation, a group begun by hackers in the mid 1980s which has been at the centre of net-centric political action; The EFF defends the borders of cyberspace against hegemonic incursions by various power sources of the industrial world. The problem is that most of the major foci of power in the terrestrial world are artifacts of the Industrial Revolution. (Barlow, 1996a : 13). This position was echoed in the seminal (and intentionally bombastic) Declaration of the Independence of Cyberspace, issued in response to the draconian (and later unconstitutional) US Telecommunications Decency Act of 1996:

> You [terrestrial governments] have not engaged in our great and gathering conversation, nor did you create the wealth of our marketplaces. You do not know our culture, our ethics, or the unwritten codes that already provide our society more order than could be obtained by any of your impositions.
>
> ...
>
> We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth. We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are based on matter, there is no matter here.
>
> (Barlow, 1996b)

This desire for autonomy, rhetorically overstated in homage to the US declaration of independence, can be seen in concrete social action. As was mentioned in the Introduction, the Internet existed before and consists of more than just the world

wide web (WWW). Much of the interaction on the net occurreds through e-mail lists and newsgroups. These act like distributed notice boards, with different threads pertaining to different topics. The users of these developed a specific consensual prohibition on the use of this medium for commercial purposes. However this went beyond mere lamentation, and gave rise to direct action in cyberspace. The defence of this non-commercial space was accomplished by mail-bombing, which basically involves utilising software in such a way as to flood the address of the infringer with email, forcing the shutdown of this address, usually by the astonished owner of the server, or the service provider. One famous example from 1994 invloved the greencard lawyers, Canter and Siegel. They spammed (bulk emailed) Usenet with advertisements. The subsequent mail bombs forced their service provider to shut down their account and legal proceedings were initiated. Many more examples can be found on sites dedicated to the anti commercial ethos of the Internet such as the Blacklist of Internet Advertisers (1998).

The desire for an autonomous space can also be seen in the EFFs enormous Blue Ribbon campaign to oppose state censorship. There are also numerous proposals to establish Cyber-courts to consider cases where both parties subscribe to cyber-ethiquette. This can be seen in operation in projects such as The Virtual Magistrate (VMag, 1998).

Seeking autonomy to develop alternative ways of living is a recurrent political project. This can be seen in groups such as the Amish, Owens radical socialists, the Australian radical socialists in Paraguay and the Chiapas anti-globalisation movement against Mexico in the 1990s. What is similar and important here is the desire of the natives of cyberspace to see their ways of doing things, of being social, respected by the sources of power in the so-called real world.

But how long could this desire for autonomy survive in the face of a dominant social system organising to bring E-commerce to cyberspace, and thus open up the network as a space for accumulation? Colonisation and control of the social interaction in this space can be seen in attempts to censor the Internet, from the US Communications Decency Act of 1996, which, although portions were declared unconstitutional, operates today, and to the Singaporean governments Sysiphean effort to force all Internet use through proxy servers, which have government mandated black-outs on certain sites.

It can also be seen in the effort to bring real-world power structures to cyberspace, such as joining the established system of trademark and company names with the Internet Domain Name system. Domain Names have functioned as an addressing system, which are used to navigate to web sites (such as *www.coke.com* or *www.oecd.org*). As commercial usage has escalated these have become valuable property[30]. True to the irreverent spirit of the early net, many trademarks have already been claimed by people with no real world connection to the corporate identity. The E-commerce agenda mentions this as a problem but offers little in the way of action. As discussed in Chapter Two, the US plans to privatise their dominant domain name system. It is too early to be sure but it seems likely that this issue will be left to be resolved through costly (and probably ultimately ineffective) legal action.

Most devastatingly, however, this notion of autonomy has been undermined through a cultural shift which has occurred in the users of the Internet. As corporations began to look to the Internet those with expertise, those most at home in cyberspace, are presented with opportunities for making enormous amounts of money. Share market flotations of companies like Netscape and Search Engines and Indexes such as Yahoo! have earnt their netizen creators a fortune. This cultural shift in the user base can be seen in the editorial policy of the self-appointed cybercultural magazine of record *Wired* Journal. From a magazine devoted to cyberculture, concentrating on charting the course of these new ways of being, *Wired* has developed into an Internet Business Journal, full of multi-page advertorials.

John Markoff, the journalist most responsible for bringing notice of this community on the net to the mainstream press said of this cultural shift; A small anarchic community of wireheads and hackers made the mistake of giving fire to the masses. Nobody is going to give it back. It is paradise lost. This wonderful community is not a community anymore. Its a society. It is a city on the Net, and in the back alleys of this electronic city, people are getting rolled. (Markoff, 1996 : 193)

The normalisation of cyberspace

[30] There is a bizarre, but fascinating, example of the value of a domain name. The tiny island nation of Tuvalu has an internet domain assigned to it, as do all countries (and most territories). Tuvalus happens to be .tv The Tuvalvan government has started a bidding process to sell the rights to utilise this domain, so valuable because Television is the next big thing on the Intenet and .tv is so distinct from the common .com. This bidding war could bring Tuvalu over USD$150 million over the next decade. Similarly the country code for Turkmenistan is .tm (trademark) and there are suggestions that this should be assigned to an international trademarks organisation.

But is there room for these emergent relations to exist along the colonising social relations of capitalism? Ira Magaziner (1998) believes there is. With this new internet environment, well have almost unlimited bandwidth... . But is unlimited bandwidth enough? Today only 1545 sites account for 95% of clicks on the Net (SMH IT, 1998), and as the large sites consolidate, and real-world trusted identities such as CNN move online in large numbers, the chance for these emergent relations to grow is decreased.

It may come down to the question: what do you expect when you log on? A different way of relating, or more of the same? The ways in which we interact create expectations which are backed up by offers of material wealth and real-world status. By replacing the special relations of cyberspace these capitalist relations eliminate the alternative expectations and thus the potential for these emergent and potentially progressive relations to develop. As cyberspace is normalised, *made safe for capitalism*, these emergent relations are all but extinguished.

Meanwhile back in the real world : critiquing the notion of colonisation

The approach elaborated above, that cyberspace is being colonised, has some substantial insights. Primarily it suggests that tensions and difficulties in realising capitalist commodity forms in cyberspace can be linked to the fact that alternative ways of relating have arisen here, which are (or have been) at least unsuited if not outrighly resistant to capitalism and commodity relationships. However there are substantial flaws in this approach.

Treating cyberspace as a separate place is a major error. The natives waxing lyrical are not sprites or avatars, but real people engaged with a real world. Furthermore the technology, the network itself, exists and was born in a specific style of real world institutions. Considering cyberspace as a separate place, misses the fact that this cyberculture has itself developed within a particular class relation. It is a predominantly male, educated, and wealthy social group, involved in and usually particularly gainfully employed by a fast growing capitalist industry: information technology. When this is taken into account a quest for autonomy, no matter how humanist the goals appear, can only be a revolt of the rich. Kroker and Wienstein call this the will to virtuality (1994), seeing it as a method of escape from real world responsibility. It is a way of avoiding responsibility for the de-humanising effects of a system which provides those seeking virtuality with a privileged class position.

Furthermore, the military and scientific source of the Internet technology cannot be discarded in favour of a sanitised cyberculture. Driving the invention of this technology are macro power relations which must figure in an adequate account of cyberspace if the argument is not to fall back into seeing technology as spontaneous. Of course the emergent relations described above are not negated by this fact. Rather it demonstrates the unplanned and entirely contingent nature of the emergence of a cyberculture. The macro power relations of military and the techno-scientific institutions which created the Internet are nevertheless important to an understanding of the phenomenon of cyberspace.

The account above fails to deal with the state as an institution except as one which impinges on their space, their culture. State involvement has been and is, as has been shown, much more complex than this. This caricature of state action must be rejected. A proper appreciation of state action cannot be incorporated in an approach that sees cyberspace as separate from the real-world.

The colonisation approach is also deficient in that it fails to adequately suggest a motivation for the capitalist colonisation of cyberspace. It can only be presented as a vague functionalist process. These emergent relations would have to be systematically threatening capitalism beyond the boundaries of cyberspace to prompt defensive colonisation, which they are manifestly not doing. Furthermore many of the colonising actions predate the Internet, such as intellectual property reform. As was argued in Chapters Two and Three, those seeking to structure cyberspace are doing so not out of a fear of alternative relations, rather they are trying to realise the commodity forms through which they can make money.

Interim Conclusions

The metaphor of colonisation in this chapter demonstrates that the process of constructing capitalism in cyberspace is about choosing which social relations will dominate in cyberspace. It is not a neutral facilitation process but a political choice (Goldsworthy, 1996). This chapter has shown more clearly what that choice is, but begs the vital questions : who is making these choices, why are they being made and how are these choices becoming reality?

The relations which have grown up around these new technologies which are no more natural or native to them than those the E-commerce agenda would create. The practices which give technology meaning are not predetermined in the 1s and 0s of code, they are created by the interaction of people. The emergence of practices surrounding the Internet which have profound democratic potential should be seen as contingent, perhaps even accidental. A moment which demonstrates that people interacting in new ways offers new potential to structure social relations. However, these relations could never survive without social struggle to pursue them. Unfortunately with most Netizens now intent on pursuing the almightily dollar, and those that perhaps need these relations most having no access to this rarefied, wealthy utopia, a social struggle against the capitalist colonisation of cyberspace seems most unlikely.

Chapter 5 : *Placing the E-commerce agenda in historical context*

This chapter seeks to draw together a better explanation for what is happening in cyberspace. Chapters Two and Three have discussed strategic action which seeks to bring capitalist social relations to cyberspace, a move which, it has been argued, will colonise the space, undermining emergent cybercultural social relations. This strategic action is not without its tensions and problems.

This chapter attempts to see the construction of capitalism in cyberspace, as expressed in concrete strategic action, as bound up in a broader hegemonic project centred on information. The E-commerce agenda is therefore placed in the context of the history of corporate strategic action with respect to information and communications. It is argued that the success of a number of different moments of corporate strategic action with regard to information is due to their dialectical interaction with the structures of the US state. This interaction developed into what can be referred to as a hegemonic project. This is the Information Superhighway discourse and the Global Information Infrastructure (GII) which emerges in the early 1990s. Importantly this vision is elaborated prior to the episode of strategic action this thesis is trying to explain, that action which is centred on the Internet. The vision of a Global Information Infrastructure faced some major problems. Its further development depended on overcoming these problems.

Within this broad context, the E-commerce agenda can be seen as a further moment of strategic action, designed to bring the Internet within this broader dialectic. For as we shall see, the Internet solves some of the problems in the GII vision, while throwing up new problems and tensions, not least of which are the emergent relations of cyberspace. It is highly remarkable that bringing the Internet into this broader hegemonic project is so difficult, as it seems to solve many of the problems facing the GII For the Internet derives from what would appear a highly complementary project: the military dominance of the US and the developed world.

Section One - The Global Information Infrastructure or GII

During the 1992 US election the team of Bill Clinton and Al Gore promised to build a bridge to the 21st century . A central element of this bridge, was articulated in the vision of the National Information Infrastructure : An agenda for action (NII, 1993). This was followed by a global counterpart the Global Information Infrastructure : an agenda for cooperation (GII, 1994). This vision reflects the need for a state project to replace the Cold War and give direction in the New World Order, and neatly combines this with an economic accumulation strategy based on information. Jessop (1990a : 208) defines a hegemonic project as involving:

> the mobilisation of support behind a concrete, national-popular program of action which asserts a general interest in the pursuit of objectives that explicitly or implicitly advance the long-term interests of the hegemonic class (fraction) and which also privilege particular economic-corporate interests compatible with this programme. Conversely, those particular interests which are inconsistent with the project are deemed immoral and / or irrational and, ... liable to sanction.
>
> (Jessop, 1990a : 208)

But how are these long-term interests of the hegemonic class to be understood, much less specified? Jessop argues that when we look at the concrete articulation of class interests, ... we find only different subjects whose activities are more or less coordinated, whose activities meet more or less resistance from other forces, and whose strategies are pursued within a structural context which is both constraining and facilitating. (1990b : 196). It is not legitimate nor adequate to dismiss this and introduce a transhistorical subject, whose global strategy is realised (1990b : 196). Instead the articulation of the general interests of capital can be understood in terms of accumulation strategies. These are concrete episodes of strategic action which seek to unite capital, possibly drawing on the state, behind ... a specific economic growth-model complete with its various extra-economic preconditions and also outline a general strategy appropriate to its realisation. (1990a : 198). The success of an accumulation strategy, and this is important, depends on how it relates to and interacts with the, structural context which is both constraining and facilitating (1990b : 196). Thus an accumulation strategy develops, becoming relevant to larger fractions of capital, through a dialectic between strategy and structure.

In Chapters Two and Three it was established that the state (both in the abstract and concretely) is required to realise the emergence of the information commodity forms

discussed in Chapter Two. Clearly the state is the relevant structure to which corporate strategic action pursuing an information based accumulation strategy must gain access.

The NII is clearly a national-popular program of action (Jessop, 1990b : 208). Its expression explicitly draws attention to the benefits to be derived for the whole country, focusing especially on labour:

> Information is one of the nation's most critical economic resources, for service industries as well as manufacturing, for economic as well as national security. By one estimate, two-thirds of U.S. workers are in information-related jobs, and the rest are in industries that rely heavily on information. In an era of global markets and global competition, the technologies to create, manipulate, manage and use information are of strategic importance for the United States. Those technologies will help U.S. businesses remain competitive and create challenging, high-paying jobs. They also will fuel economic growth which, in turn, will generate a steadily-increasing standard of living for all Americans.
>
> (NII, 1993)

As we saw in Chapter One, the report commences by selling the potential benefits for individual Americans.

> Imagine you had a device that combined a telephone, a TV, a camcorder, and a personal computer. No matter where you went or what time it was, your child could see you and talk to you, you could watch a replay of your team's last game, you could browse the latest additions to the library, or you could find the best prices in town on groceries, furniture, clothes -- whatever you needed. ... It can ameliorate the constraints of geography and economic status, and give all Americans a fair opportunity to go as far as their talents and ambitions will take them.
>
> (NII, 1993)

Yet the Action plan which the NII lays out, touches on very little of these promised potentials, expressing wistfully that the Administration hopes and expects that many of the best ideas ... will bubble up from the grassroots with little or no government involvement. (GII, 1994). Where concrete government action can and must be taken, however, is in pursuit of the extra-economic preconditions of the accumulation strategy, such as the need for an interoperable standard, telecommunications liberalisation and protection for intellectual property.

Where does this hegemonic project come from?

The hegemonic project of the GII has emerged from a dialectic between corporate strategy and state structure increasingly giving rise to the sorts of accumulation possibilites understood as commodity forms in Chapter 2. The successful evolution of the notion of an information infrastructure, can be explained by considering the dialectic between the needs of capital with respect to information and the successful reform of the US state. It is never a one-to-one correlation - indeed the terms of access to state resources have at times frustrated this process, but the dialectical reform of the structures of the state has in the long-run allowed the process to move forward.

Jessop writes: ... the collective interests of capital are not wholly given and must be articulated in and through specific accumulation strategies which establish a contingent community of interest among particular capitals (1990a : 203). These strategies must be relevant to and capable of uniting large sections of capital. However, the success of these strategies depends upon their interaction with the structures, here the state, needed to give effect to the strategy. Edward Comor calls the US state in relation to the GII, a complex mediator (1997 : 357). He sees,

> ... the state as dialectically responsive to internal and external forces (however categorised) *in ways that often are largely determined by pre-existing structures.* ... Because the structural conditions in which the state undertakes these mediations are historically determined, these structures both affect what can be done here and now and, over time, can themselves become the subjects of reform. As such, the structural conditions through which states mediate capitalist history, because of the disjuncture between *what is* and *what is desired*, are out of the *direct* control of any particular agent of bloc of interests at any particular moment in time.
>
> (Comor, 1997 : 363)

This Chapter identifies three specific episodes of corporate strategic action seeking accumulation through the commodification of information, each of which succeeded in gaining access to the resources and structural position of the US state. This success is reflected in reform of the state apparatus. At the same time, each permutation of this dialectic widens the scope for information technology, providing opportunities for new information technologies to develop, and in turn spreading the relevance of information policies across a wider range of capitals. The aims of these episodes reflect different stages in the development of the commodity forms

outlined in Chapter Two. It should be stressed that this is a historical development. These commodity forms are not driving the dialectic acting through corporations. That would reintroduce a transhistorical object. Rather this Chapter develops the perspective that it is only through contingent articulation with state structures that these commodity forms have developed. It most definitely have been otherwise.

The corporate response to the threat of the NWICO in the OECD

The first episode of strategic action is bound up in struggles over the free-flow of information. The New World Information and Communication Order (NWICO) was an attempt by the Non-Aligned nations of the UNESCO to create in international law regarding information a recognition of national sovereignty, an understanding that each nation has the right to determine what information comes in and what goes out. (Schiller, H. 1989 : 297). The dominance of the western media was identified as a constraint on the south. The NWICO expressed the hope that all nations should have equal access to all sources of information and participate equally in the control over, and use of, international transmission channels. (Schiller, H. 1989 : 298). Thus the first episode of corporate strategic action is a campaign, lead by the privately owned western media, which saw the NWICO as a direct threat to their ability to report as they saw fit. MacBride[31] writes that, the organisation [UNESCO] was depicted as the greatest threat ever to freedom of the press and the free flow of information. He continues, The reality - objective challenges to western commercial oligopoly and control, however limited, was not discussed. (MacBride, 1989 : xvi). The US and the UK were persuaded to withdrawal from UNESCO, effectively ending this possible threat to the commercially useful and profitable free-flow of information, by changing the institutional forum in which it could be discussed.[32]

The push to incorporate information in the international trade agenda

Spero (1982) and Dan Schiller (1982)[33] describe the second moment of corporate strategic action to contribute to this dialectic. They describe a new corporate thrust

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[31] MacBride is the author of the original report which articulated some of the principles of the NWICO. This 1989 quote comes from his introduction to a book dealing with the period.

[32] The US and the UK withdrew from UNESCO in 1985. There is some overlap - but the US threatened to withdraw in 1982 effectively crippling the NWICO and UNESCO. Joan Spero was the US ambassador to UNESCO in 1980 and 1981. Her article was published in *Foreign Policy*.

[33] There are two Schillers, Herbert (1989) and Dan Schiller (1982).

towards bringing information into trade policy. Spero, US ambassador to UNESCO immediately prior to the US withdrawal and a senior executive of the American Express company, writes that the free flow of information is a principle without the leverage necessary to confront barriers to electronic data flows. (1982 : 150). And that, Washington must work to develop an international regime to preserve the free flow of information through agreed international trade rules. Otherwise, [information] protectionism will continue to grow, and US economic and political interests will suffer. (Spero, 1982 : 140). Dan Schiller describes the rise of corporately dominated telecommunications users groups, quoting a German one:
It is our members concern that [public telephony] does not realise the importance of telecommunication as an economic factor in modern business. (Schiller, D 1982 : 116). As we discussed in Chapter Two, the organisation of corporate interest through users groups was especially related to private leased lines and has continued to this day[34] . Edward Comor (1997) describes how during the 1980s the US states approach to information was reformed. He argues that these reforms,
...took shape in the context of the free flow of information policy being recast under a more general neo-liberal free trade strategy. It was this development that provided long-standing proponents of the free flow of information with the much needed leadership of the [Office of the US Trade Representative]. (Comor, 1997 : 361). It is this institutional reform which then allows the pursuit of information issues in the GATT forum. This has lead to the GATT Trade related Intellectual Property treaties (TRIPs).

The lead up to the GII : the third moment of corporate strategic action

The success of this permutation of the dialectic increased the ability for detailed corporate interaction to be achieved electronically, through what was then known as EDI (Electronic Data Interchange)[35] . This was especially important in supply-chain management and again widened the scope of corporate interests to which information policy was relevant. Developing this requires action which cannot be achieved through an international trade discourse and thus shifts the needed access to state resources. Comprehensive detailed actions are required, ranging from domestic telecommunication liberalisation, to international standards co-ordination and a resolution of jurisdictional issues.

[34] The International association of Telecomunications Users Groups (INTUG) was a co-author of the Business submission at 1998 OECD Ottawa conference. See BIAC (1998) and the appendix.
[35] This was discussed in Chapter Two. EDI systems were proprietary and suffered from a lack of interconnection.

These changed demands coincide with the independently developing need for a new state project, in the US following the proclamation of victory in the Cold war and a New World Order. The needs of capital with respect to information, are thus articulated as a hegemonic state project. This is the discourse of the Information Superhighway or National Information Infrastructure.

It would seem likely that similar dialectic has been at play in other developed nations. The US NII strategy was closely followed by comprehensive documents prepared in Canada, Japan, Australia and the EU[36] . Wisebrod (1995) describes these responsive documents as following the leader , looking to the US strategy and attempting to organise national strategies to fit in with this hegemonic strategy. Jessop writes, Where various national strategies are compatible with the global hegemonic strategy, the conditions will have been secured for accumulation on a world scale. (1990a : 201). Yet as we shall see, these national responses are the source of some of the problems in the realisation of the GII.

Elaborating the GII vision : success and problems

The GII vision as it was expressed in 1993 and 1994 faced some fairly steep challenges in its Agenda for Action and Agenda for Cooperation. It should be stressed that the Internet is barely mentioned in this strategy, except as a vague example of the demand for the services a still to be developed GII could offer. The first major problem, then, is the need for interoperable standards. As we observed in Chapter Two, interoperable standards are vital to an information infrastructure. They are the digital common language which makes the technical coordination required for interaction possible. One of the difficulties which the GII agenda faced was finding a way to elaborate standards which could be globally agreed upon, both amongst countries and, probably more importantly, among different corporations. The flip-side of this problem is to avoid biasing the basic languages of the GII by allowing a proprietary standard to emerge and dominate. This is the kind of tension

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[36] **Canada** produced *The Canadian Information Highway: Building Canada's Information and Communications Infrastructure.* (Industry Canada, 1994). The **EU** produced *Europe's Way to the Information Society: An Action Plan*. EU (1994). **Japan**, produced two reports MITI (1994) *A Program for Advanced Information Infrastructure.* and the Ministry of Posts and Telecommunications Telecommunications Council produced MPT (1994) *Reforms toward the Intellectually Creative Society of the 21st Century: Program for the Establishment of High-Performance Info-Communications Infrastructure.* **Australia** produced Keatings *Creative Nation* (Keating, 1994) and Howards *Investing for growth* (Howard, 1996). A relevant, albeit, technical report is ATSEC (1994).

expressed in the Microsoft anti-trust law suit. Very little progress was made in this area.

The GII vision could claim more success in international coordination with many countries seeking to follow the leader. It is this area, however, which causes one major problem. Issues which could be pursued through the established structures of the trade discourse were able to move ahead. Two WTO agreements, one on eliminating tariffs in Information Technology and the other on Telecommunications Liberalisation, were pursued in 1996 and 1997 respectively. These were no small achievements. However it is in this realm of international coordination that the GII vision encounters a major unresolved source of friction.

The notion of cultural exceptionism, a nations desire to protect its culture (and cultural industries) against international penetration, has been a problem since information policy was conceived of as concerning journalistic free-flow at the time of the The New World Information and Communication Order. Nor was it resolved in the trade discourse of the 1980s. Culture was one of few areas excluded from the US - Canada free trade area and was the major area of tension in the TRIPs negotiations. Speaking of the GII, Wisebrod (1995) considers cultural exceptionism to be a major difference between the US strategy and other nations. This is especially true of ... the Canadian recommendations [which] differ considerably from the American approach. Most apparent is the focus on cultural protection, which is clearly shaping up as the main issue of dispute among the countries trying to design the future. The idea that a state might wish to act to promote and protect a collective culture, is totally incompatible with the elaboration of a seamless global network , for it depends precisely on making national borders and identities mean something in cyberspace.[37] While cultural exceptionism is important for developed nations such as Canada and Australia, it is perhaps even more important for the more fragile cultures of developing nations, which have no national cultural industries to compete with those of the developed world.

Moving beyond these basic issues and into the minutiae of the vision is further hampered by the need to proceed in a broad spirit of cooperation. The forums in

[37] Wisebrod goes on to consider Australias position, focusing on Keatings (1994) Creative Nation National cultural policy. This mainly consisted of funding of national cultural industries, while simultaneously pushing ahead with a liberalisation and openness agenda. He speaks of this as a potential way out of the bind of cultural exceptionism. Since the election of the Howard government Creative Nation programmes have either been allowed to expire or stripped back, while aggressively pursuing openness in parallel CD importation. For a model policy it has not lasted well.

which this action would have needed to proceed, such as WIPO, WTO, the ITU and the UN, include many nations for whom the touted benefits of the Information society are far from relevant. The leverage of the US state in these forums, and thus the ability to carry this agenda forward, is reduced by the structural form of the venues for co-ordination. This should be seen as a moment of strategic action which is frustrated by the structural form with which it needs to articulate. Bearing in mind the successful permutations above the dialectic might be expected to continue, resulting in reform of the structures. However, this constraining is not the internal organisation of the US state, but rather the global inter-state system. The reform of this seems unlikely to say the least and the broad dialectical process appears to be at an impasse.

Enter the Internet and the E-commerce Agenda

Writers in the Regulation school, such as Jessop and Lipietz, have always seen the complex process by which the general needs of capital (both strategic and in systemic reproduction) are achieved, as unlikely, difficult and contingent.

This section argues that in the face of the impasse above, the emergence of the Internet is a contingent and unplanned event, yet it has allowed the dialectic to continue. The E-commerce agenda is the fourth moment of intentional corporate strategic action. It, like the GII vision before it is still firmly integrated with state structures, such as the Australian NOIE and the US Department of Commerce Secretariat for E-commerce. This time, however the task is more concerned to impose some coherence and direction on an already emergent structure than to bring it into existence. (Jessop, 1988 : 158). If the Internet can be made safe for capitalism, a place of confidence for business and consumers, the impasse can be resolved and the historical progression of the needs of capital with respect to information could continue. The analysis so far in this thesis so far suggests that this might be a difficult thing to do. Indeed this chapter does not mean to suggest that any permutation has been without its tensions. Quite the opposite - it is only the complex mediation of the state that has been able to overcome these tensions and allowed the historical dialectic to continue.

By turning strategy to the Internet the dialectic has once again found articulation in a way which has increased the capacity of the US state to lead the process. This is because the structures of the Internet were, to a large extent, developed within the US state. The critical issue here is that, as we touched upon in Chapter Two and

Three, the US state through its funding of the NSFNet high speed backbone, and the expansive deployment of the TCP/IP protocol in military and academic state structures, provided the critical mass which has seen the TCP/IP protocol emerge as a commercially neutral independent standard. The structural leverage is also increased by the existence of independent technical committees for managing the Internet, such as The Internet Society and the IETF. These are mainly staffed by engineers who, on the whole, are not interested in the political outcomes of their constructions[38]. Merely by stepping back from its management of the Internet, the US state has been able to provide what the Agenda for Cooperation in the GII discourse looked unlikely to ever achieve.

The E-commerce Agenda has been able to move onto the more complicated issues of the digital agenda, such as contract law, because it is dealing with an existing structure rather than trying to create a new one. This is reflected in the fact that at an international level, negotiations are proceeding in the OECD. This forum manages to avoid many of the developing world conflicts in the GII agenda, by restricting the field of nations involved to countries seeking to follow the leader and fit strategically within the hegemonic project. This is similar to the use of the OECD to pursue a high quality investment agreement, the Multilateral Agreement on Investment (MAI). This high quality agreement can then be presented as a *fait accompli* to the rest of the world. If the complexities of bringing capitalism to cyberspace can be resolved in smaller and more technical forums, these conditions can then occupy any GII that might emerge. As Ira Magaziner said in Australia early in 1998, ... were not interested in conducting this as a trade negotiation ... if the people of some countries arent there, it will be their problem, not the worlds problem (Magaziner, 1998). The elaboration of E-commerce, with the Internet as its subject, can be done without the time-consuming and irrelevant consideration of the opinions and interests of most of the world.

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[38] Bob Stein, a pioneer of multimedia CD Rom publishing in the 1980s, and one of the Digerati is also a self-professed Marxist. He writes of, ...the contradiction between technologists, who keep making and improving their technologies without thinking about their social implications, and the rest of us, who have to live with these technologies for the next hundred years. (1996 : 272) He asks the question of a group of technologists, would you invent the car ? Their response is two fold, firstly yes, for If I didnt someone else would . But what Bob Stein finds, ... more surprising is the hostility that comes from the audience when I ask, because they dont want to have to think about the question. They dont want the responsibility of something as fundamental as the creation of the automobile or, whats probably much more significant, the development of new communications technologies. (1996 : 273) He argues that What [these] people think are technical questions are really social questions. What society does with machines is up for grabs. (1996 : 274)

The ability, even for developed nations such as Canada, to pursue strategies of cultural exceptionism are undermined by the difficulty of making national borders matter in cyberspace. Policies which seek to pursue strategies of excluding foreign cultural production are virtually impossible if the Internet is to continue to function as it currently does. Wisebrod (1995) argues that the everywhere-but-nowhere nature of information is particularly apparent in the Internet model, and it will undoubtedly prove ... of much frustration to culturally-nurturing countries such as Canada, Australia, and some members of the European Union. This does not, of course, rule out state action to support national cultural industries which proceeds by means other than attempting to exclude foreign cultural content.

Indeed there can be little doubt that cultural concerns remain a very real source of tension in the global political economy. French refusal to apply policies of non-discrimination to US film products has ended the Multilateral Agreement on Investment discussion at the OECD. Yet this seems strangely out of step with Frances (and the EUs) acceptance of the Internet as a free trade zone. Undoubtably US film and video content will be delivered over a development of todays Internet. It appears that the sheer difficulty of applying tariffs in cyberspace could result in their de facto end for cultural production. This demonstrates the long-range implications of building the information economy on the existing structure of the Internet.

The source of much of the structural leverage which a shift in focus to the Internet brings stems from the fact that the Internet is largely a result of Cold War military competition. As described in Chapter Two, the packet-switched nature of the protocol, removing the need for central management, was designed to sustain the military command system through a nuclear attack. Thus we can say that the Internet is rooted in an earlier and broader hegemony, the military machine of the western world. This reflects a continuation of a process of cross-fertilisation between military and economic hegemony which was captured in the notion of the military-industrial complex. The Internet might be seen to be ready-made for the elaboration of a economic hegemonic project.

Interim conclusions

The approach adopted in this chapter allows us to place the discussion of the preceding chapters in context. The Internet seems to enable the broad dialectic described above to continue. Yet the extent of the strategic action of the E-commerce

agenda and the fact that important tensions exist in the concrete realisation of the commodity models developed in Chapter 2, demonstrates that this dialectic is far from the mainstream technical determinist models. Rather it is a contingent process which results from quite comprehensive strategic action.

Conclusions

Making the (cyber)world safe for capitalism : a difficult revolution

One might think that it would be easy to effect a revolution which draws on military technologies and is wholeheartedly supported by the worlds most powerful states as well as one of the most complete corporate consensuses ever assembled.[39] Predetermined even. Certainly, those undertaking the task of building the information economy, by adopting technically determinist language, suggest that they are merely part of the natural spontaneous playing out of historical change which is inherent in the technologies of the Internet.

Yet this thesis has demonstrated that the construction of capitalism in cyberspace is not easy, nor spontaneous nor predetermined. Cyberspace has been approached by examining the substantial strategic action aimed squarely at cyberspace which simply disappears in the mainstream approach. It has been found that this strategic action faces many sources of tension in pursuing its aims. These reflect the fact that there is no transhistorical subject to direct the revolution. Instead there are only the competitive and often contradictory strategies of corporations and companies, which are all pursued within real structural constraints. Chapter Five demonstrated that any success in overcoming these tensions and constraints has depended on an historical dialectic. This dialectic is far from determined, but neither is it somehow simply accidental : it results from the real strategies and intentions of powerful actors in the political economy.

This thesis has characterised the above process as a colonisation of cyberspace, making it safe to pursue accumulation in information. This process is not happening in a different dimension, a separate place. It is happening in the world of power and privilege in which we live.

A favoured buzz word of those promising the future is seamless . Well, perhaps cyberspace will be seamless with regard to national boundaries and borders. But is this enough for cyberspace to be truly seamless : an ultimate free-flow of human interaction? It seems not, for social relations which fundamentally endorse, and require exclusion seem set to structure cyberspace just as surely as they structure the

[39] See Chapter Two and the listing of corporate representation at the Oct 1998 Ottawa E-commerce conference (attached as Appendix).

world in which we live. There will undoubtedly be access and interactivity, but only on the terms of those with power.

This thesis began by pointing out that claims to know the future are about rallying people to a cause. Promising a future the same as today, with the same lived experience of power and exclusion is not likely to spur the people to action. Therefore, The future becomes a timezone in which the human condition is somehow transcended, politics evaporated, and a blessed stage of peace and democratic harmony achieved. (Quirk, 1989 : 179).

Little wonder, then, that the metaphors of choice for predicting the future effects of the Internet, both in business and cyberculture, are biological, depicting the Internet as a central nervous system for humanity or a collective natural home of mind (Barlow, 1990b). The biological is prior to the social, a language of natural harmony with no basis in lived experience.

If what is happening in cyberspace is about power it is also about speed. Kroker and Weinstein (1994) refer to this as a powered-up will to virtuality , and a desire for the economy to reach escape velocity . This is the promise of friction free (Gates, 1995) virtual capitalism, seeking to leave behind the morally repugnant, the environmental damage and the surplus flesh. The imagined economy and its effects shrinks to an executive with a laptop in an airport lounge. For in cyberspace one can choose what one see, what one finds. The wired class who inhabit this economy will never log on and find a homeless person asleep on the Intranet firewall, and will never see the real destruction as they sift through the data-smog. Uploading capitalism is about trying to escape the consequences of power and privilege, and the contradictions and tensions of the world in which we live.

At least making the (cyber)world safe for capitalism is not a predetermined certainty. Those who find no solace in this virtual future would do well to focus on and exploit the tensions in Building the Information Economy, the seamless global marketplace.

Bibliography

Please see A note on referencing from web sites on page iii of this thesis.

Alvater, E (1973) Some problems of state intervention in *Kapitalistate,* No. 1 pp 96-108 and continued in No. 2 pp 76-83.

Attorney-General's Department (1998) *Copyright reform and the Digital Agenda.* Attorney-General's Department and the Department of Communications, Arts and the information economy. AGPS Canberra URL : *http://law.gov.au/publications/digital.htm*

ATSEC (1994) *The Networked Nation* Australian Science and Technology Council. AGPS, Canberra.
URL : *http://www.dist.gov.au/science/astec/astec/netnatn/contents.html*

Baran (1998) The privatisation of telecommunications in McChesney, Wood and Foster (eds) *Capitalism and the Information Age*, Monthly Review Press ; New York. pp 123 - 134.

Barlow, John Perry. (1996a) The Coyote in Brockman, John *Digerati : Encounters with the Cyber Elite.* Orion Business Books, London.

_____ (1996b) A Declaration of the Independence of Cyberspace
URL :
http://www.eff.org/pub/Publications/John_Perry_Barlow/barlow_0296.declaration

_____ (circa 1993) Selling wine without Bottles : The Economy of Mind on the Global Net
URL : http://www.eff.org/pub/Publications/John_Perry_Barlow/

BIAC et al. (1998) *A Global Action plan for Electronic Ccommerce prepared by Business with recommendations from Governments* A Paper tabled at the October 1998 OECD Ottowa E-commerce Conference.
URL : *http://pdf.ottawaoecdconference.com/english/e_biac.pdf*
Part of this document is provided in the Appendix.

Blacklist of Internet Advertisers (1998)
URL : *http://www-math.uni-paderborn.de/~axel/BL/#list*

Brand, Stewart. (1977) *Cybernetic Frontiers*, Random House.

Brockman, John. (1996) *Digerati : Encounters with the cyber elite.* Orion Business Books, London.

Browning, John. (1997) I Encrypt, therefore I am in *Wired,* 5.11, November 1997. pp 65-72 and 262 - 263.

Clarke (1998) *Netethiquette Cases.*
http://www.anu.edu.au/people/Rodger.Clarke/II/netethiquettecases.html

Clinton, W. J. President. (1997a) Presidential Directive on Electronic Commerce, Washington D.C. July 1 1997.
URL : *http://www.ecommerce.gov/presiden.htm*

Clinton, W.J. & Gore, A. (1997) Framework for Global Electronic Commerce; Washington, D.C. July 1 1997.
URL : *http://www.ecommerce.gov/framewrk.htm*

Comor, Ed. (1997) The United States and the global information infrastructure : Orchestrator, Functionary, or Mediator? in *Prometheus* Vol. 15 No. 3. pp 357 - 367.

Davidson et al. (1993) The Promise and Peril of the Third Wave: Socialism and Democracy for the 21st Century in Cyrev Internet Journal # 1. Chicago Third Wave study group. May 1st 1993.
URL : *http://www.eff.org/pub/Publications/E-journals/CyRev/cyrev1.html#cybernetic*

EU (1998) *Draft Reply of the EU and its Member States to the US Green Paper on Internet Governance.*
URL : *http://www.ispo.cec.be/eif/dns/ip98184.html*

__ (1997a) *A European Initiative in Electronic Commerce* EU Ref : COM(97)157.
URL : *http://www.cordis.lu/esprit/src/ecomcom.htm*

__ (1994) *Europe's Way to the Information Society: An Action Plan*. Com (94) 347 by the The Commission of the European Communities. July 1994, Brussels.
URL : *http://www.echo.lu/eudocs/en/com-asc.html*

Foster, JB. and Dawson, M. (1998) Virtual capitalism in McChesney, Wood and Foster (eds) *Capitalism and the Information Age*, Monthly Review Press ; New York.

Gates, William (1995) *The Road Ahead.* Viking Press, New York.

Gibson, William (1984) *Neuromancer* Victor Gollancz, London.

GII (1994) The Global Information Infrastructure : An agenda for cooperation. This is the companion document to the NII (1993). It was prepared by Brown et al. from the US department of commerce.
URL : *http://www.iitf.nist.gov/documents/docs/gii/giiagend.html*

Goldsworthy (1996) World Wide Wedge : Division and contradiction in the Global Information Infrastructure in *Monthly Review* Vol. 48 No. 3. July - August 1996. pp 70 - 85.

Grey, Matthew. (1998) *Internet Growth Survey*. MIT Phd. project.
URL : *http://www.mit.edu/people/mkgray/net/web-growth-summary.html*

Keating, Paul. (1994) *Creative Nation* AGPS : Canberra.
URL : *http://www.nla.gov.au/creative.nation/contents.html*

Kroker, Arthur and Wienstein, Micheal A. (1994) *The Political Economy Of Virtual Reality: Pan-Capitalism, in Ctheory (15 March 94)*
URL : *http://www.ctheory.com/a-political_economy.html*

Haraway, Donna. (1985) A manifesto for cyborgs: science, technology and socialist feminism in the 1980s. *Socialist Review* Vol. 15. No. 2.

Henwood, Doug. (1995) Info Fetishism in Brook and Boal (eds) (1995) *Resisting the virtual life : the culture and politics of information*. City Lights Books: San Franciso. pp 163 - 171

Hirsch, J. (1984) Notes towards a reformulation of state theory, in S. Haenninen and L. Paldan (eds), *Rethinking Marx*, Berlin: Argument verlag, pp. 155-60.

_____ (1978) The state apparatus and Social Reproduction: Elements of a Theory of the Bourgeosis State in Holloway and Picotto (eds) (1978) *State and Capital : A Marxist Debate*. Edward Arnold, London. pp 57 - 107.

Hirschkop, Ken (1998) Democracy and the New Technologies in McChesney, Wood and Foster (eds) *Capitalism and the Information Age*, Monthly Review Press ; New York.

Holloway and Piciotto (1977) Capital, Class and the State in *Capital and Class*, 2, pp. 76-101.

Howard, John. (1996) Investing for growth An address to the National Press Club, Canberra. 8 December, 1997.
URL: *http://www.pm.gov.au/media/pressrel/1997/december/industry.htm*

Industry Canada, (1994) "The Canadian Information Highway: Building Canada's Information and Communications Infrastructure," Spectrum, Information Technologies and Telecommunications Sector, April 1994.
URL : *http://debra.dgbt.doc.ca/info-highway/rpt-fnl.txt*

Jessop, Bob. (1990a) Accumulation strategies, State forms and Hegemonic Projects in *State theory: Putting the capitalist states in their place.* University Park:Pennsylvania State University Press. pp 196 - 219.

_____ (1990b) Regulation Theories in retrospect and prospect. *Economy and Society*. Vol. 19 No. 2 May. pp 153 - 216.

_____ (1990c) Law, State and Relative Autonomy in *State theory: Putting the capitalist states in their place.* University Park:Pennsylvania State University Press. pp 24 - 47.

_____ (1988) Regulation theory, post-Fordism and the state: more than a reply to Werner Bonefield *Capital and Class* No. 34 Spring.

Johnson and Post (1997) The Rise of Law on the Global Network in Kahin and Nesson (eds) *Borders in cyberspace : information policy and the global information infrastructure* Cambridge, Mass. : MIT Press. 1997

Lipietz, Alain (1988) Reflections on a tale : The marxist foundations of the concepts of regulation and accumulation in *Studies in Political Economy* 26, Summer. pp 7 - 36.

Lowe (1998) Keys to the Kingdom *Sydney Morning Herald* , 22 September, 1998. p 6c (IT section)

MacBride, Sean (1989) Preface in in Preston, Herman and Schiller (eds) *Hope and Folly : The United States and Unesco 1945-1985*. University of Minnesota Press, Minneapolis. pp 285 - 312.

Magaziner, Ira (1998) Australia in Context Introductory Speech to the *Telstra Enabling Australia* Summit conference held by the National Office for the Information Economy. URL : *http://enablingaustralia.telstra.com.au/bkgrnd/trans/tsiram.htm*

Markoff, John (1996) The Scribe in Brockman, John. (1997) *Digerati : Encounters with the cyber elite*. Orion Business Books, London. pp 187 - 196.

Marvin, Carolyn (1988) *When Old Technologies Were New*. Oxford University Press, New York.

Marx, Karl (1847) *The Poverty of Philosophy*.
URL : *http://csf.colorado.edu/cgi-bin/mfs/24/csf/web/psn/marx/Archive/1847-Pov/2nd-Chapter/pp2-1.txt?233#mfs*
I have referenced this because it is part of an excellent searchable on-line archive of Marx and Engels writings.

McChesney, Wood and Foster (eds) *Capitalism and the Information Age*, Monthly Review Press ; New York.

Mitchell, T. (1988) *Colonising Europe.* Cambridge: Cambridge University Press.

MITI (1994) *A Program for Advanced Information Infrastructure.* May 1994. URL : *http://www.glocom.ac.jp/NEWS/MITI-doc.html*

MPT (1994) *Reforms toward the Intellectually Creative Society of the 21st Century: Program for the Establishment of High-Performance Info-Communications Infrastructure.* 22 July 1994, version 1, unofficial and tentative translation (of original report dated 31 May 1994). Japanese Ministry of Posts and Telecommunications, Telecommunications Council
URL : *http://www.mpt.go.jp:80/Report/Report1993No5/contents.html*

Mosco, Vincent. (1996) *The Political Economy of Communication*. Sage Press ; London.

Mulgan, G. J. (1991) *Communication and Control.* Polity Press, Cambridge.

Mumford, Lewis (1934) *Technics and civilisation.* New York, Harcourt, Brace and company

Netizen (1997) What has the NY Times been smoking? in *Wired* issue 5.09 September 1997. pp 53 - 56

NII (1993) National Information Infrastructure. Agenda for Action. US Department of Commerce.
URL : *http://sunsite.unc.edu/nii/NII-Agenda-for-Action.html*

NOIE (1998a) *Building the Information Economy : A progress report on the enabling legal and regulatory framework.* Ministerial Council for the Information Economy. June 1998.
URL : *http://www.noie.gov.au/reports/framework.html*

____ (1998b) National Authentication Authorities disscusion paper
URL : *http://www.noie.gov.au/reports/authenticate.html*

____ (1998c) *Towards an Australian Strategy for the information economy*. Ministerial Council for the information economy
URL : *http://www.noie.gov.au/nationalstrategy/document.html*

____ (1998d) Online Australia An educational project of the National Office for the Information Economy.
URL : *http://www.noie.gov.au/aware/*

OECD (1997) *Dismantling the Barriers to Global Electronic Commerce*.. This is the action agenda from the Turku E-commerce summit in 1997.
URL : *http://www.oecd.org/dsti/sti/it/ec/prod/dismantl.htm*

____ (1998) *A Borderless World: Realising The Potential of Global Electronic Commerce The OECD Action Plan for Electronic Commerce* OECD Ministerial Conference. Ottawa, Canada. October 7-9 1998.
URL : *http://pdf.ottawaoecdconference.com/english/e_actionoced.pdf*

Project Gutenberg (1998) "Information Age": For Whom?
URL : *http://www.gutenberg.net/cplea97/iage9710.html*

Quirk, J. J. (1989) The history of the future in Carey (ed)*Communication as Culture* Unwin Hyman, Boston. 1989.

Radin (1996)*Contested Commodities.* Harvard University Press: Cambridge.

Sacher (1997) *Electronic Commerce : Opportunities and Challenges for Government* (This is better known as The Sacher Report) OECD.
URL : *http://www.oecd.org//dsti/sti/it/ec/prod/sacher_e.pdf*

Sardar (1995) alt.civilization.faq : Cyberspace as the darker side of the west in *Futures* Vol. 27 No. 7.

Schiller, Herbert (1989) In there a United States Information Policy in Preston, Herman and Schiller (eds) *Hope and Folly : The United States and Unesco 1945-1985*. University of Minnesota Press, Minneapolis. pp 285 - 312.

Schiller, Dan (1982) Telematics and Government. Norwood, NJ: Ablex

SEC (1998) *The Emerging Digital Economy*. US Department of Commerce, Secretariat on Electronic Commerce.
URL : *http://www.ecommerce.gov/emerging.htm*

Sivanandan, A. (1997) Capitalism, globalization, and epochal shifts : An exchange (with Ellen Wood). in *Monthly Review*. 48, no. 9 (February, 1997) pp 19 - 32.

SMH IT (1998) Information Technology Section Editorial 28 April, 1998. p IT-4.

Spero, Joan (1982) Information: The policy void in *Foreign Policy* , 48, p 155.

Stein, Bob (1996) The Radical in Brockman, John.(ed) (1996) *Digerati : Encounters with the Cyber Elite*. Orion Business Books, London. pp 269 - 276.

Tang, P (1997) Multimedia Products and services in Loader, B (ed) *The governance of Cyberspace : politics, technology and global restructuring.* Routledge. 1997.

Toffler, Alvin (1970) *Future shock* Random House, New York.

_____ (1980) *The Third Wave* Morrow, New York

_____ (1990) *Powershift : knowledge, wealth, and violence at the edge of the 21st century.* Bantam Books. New York.

Thrift, N. (1996) New Urban Eras and Old Technological Fears: Reconfiguring the Goodwill of Electronic Things in *Urban Studies*, Vol. 33, No. 8. pp 1463 - 1493.

Venturelli, Shalini (1998) Cultural Rights and World Trade Agreements in the Information society in *Gazette* Vol. 60(1) : 47-76.

Verstrafen, Hans (1996) The media and the transformation of the Public Sphere in *European Journal of Communication* Vol. 11 (3) : 347-370.

VMag (1998) Virtual Magistrate . Operated by Cyberspace Law Institute.
URL : *http://vmag.vcilp.org/*

Williams (1998) Legal framework for Electronic Commerce July 1998.
URL : *http://law.gov.au/aghome/agnews/1998newsag/450_98.htm*

Wisebrod, Dov. (1995) Visions of the Future: Governments Wrestle with Information Technology Directed Research Project, University of Toronto.
URL : *http://www.catalaw.com/dov/docs/dw-govts.htm*