

Techno-Futurism and the Knowledge Economy in New Zealand



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A thesis submitted in partial fulfilment of the requirements for the degree of Master of Arts
(Communication Studies), Auckland University of Technology, 2003.

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Certificate of Authorship:

“ I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of a university or other institutions of higher learning, except where due acknowledgement is made in the acknowledgements.”

Signed:

Acknowledgements.

The input of my supervisor, Dr. Wayne Hope, was central to this thesis. Wayne's patience, encouragement and discerning eye were essential. His insights did not cease to challenge and enlighten the process. He offered up the freedom for me to come upon my topic, and applied exacting rigour in roping the enthusiasm back in. Any gibberish remaining is entirely my own responsibility.

I should also wish to express my thanks to those who supported me through friendship and interrogation. To John Stephenson, Hamish Laurie and Peter Hoar, many thanks. Your advice, input and lubrication of the process were of crucial importance. I should also acknowledge Dr. Alan Cocker, for his assistance early in the process, and his patience through the ages. The encouragement and support of Rochelle Arnold and Donald Stuart also demands acknowledgement.

Finally, I would like to acknowledge the support of my family. John Boy, Andrew, Anna, Bronwen and Glen. To my grandparents, James and Margaret Mason, I offer sincere gratitude. The love I have for learning was ensconced at a young age, thanks to their tutelage and treasured visits to the Auckland domain.

Abstract

This thesis analyses the material and ideological dimensions of the knowledge economy with particular reference to New Zealand.

The emergence of the new information and communication technologies (ICTs) in the context of transnational capitalism precipitates the commodification of information, communication and knowledge. This process is obscured by the ideological construction of techno-futurism. Techno-futurism is a combination of technological determinism and futurism that appropriates notions of progress. In the pages which follow, historical analyses of this ideology inform the subsequent critique of knowledge economy discourse.

In New Zealand knowledge economy discourse contained techno-futurist elements and deflected attention from the global absorption of national capitalism. In this context the Catching the Knowledge Wave Conference (KWC), held in Auckland in the first days of August 2001, is examined. I argue that the instigators and organisers of the conference were enmeshed within the business culture of finance capital and ICTs. Textual analysis of keynote addresses reveal the ideological dimensions to knowledge wave and knowledge economy talk. These dimensions are; entrepreneurialism, knowledge as (economic) progress, and globalism.

Introduction.

*The knowledge race has begun', declared Tony Blair, at the 1995 Labour Party Conference, 'Knowledge is power. Information is opportunity. And Technology can make it happen....'*¹

Talk of transformative power accompanied the rise of the new information and communication technologies. There is no doubt that the proliferation of new information and communication technologies fundamentally influences economic, social, and cultural life. Although endowed with the symbolic power to drive change, technology is also shaped and promoted by particular interests.

This thesis critically analyses the knowledge economy. This phrase assumes that knowledge is the driver of economic growth. The transfer, storage, access and creation of information and knowledge have become increasingly central to economic activity. The organisation and operation of the global economic system shifted markedly after the 1970s. The new ICTs have been integral to this shift. Information and knowledge have become systematised for the purposes of finance and productive capital.

The proposition that knowledge now drives economic activity represents an ideological redefinition of knowledge and relies upon certain assumptions about economic growth. Thus, the emergence of new ICTs has been accompanied by talk about the economic centrality of information and knowledge. The notion of a post-industrial society for example assumes that a certain threshold of information and knowledge will transcend industrial forms of socio-economic development.

Can such change be understood as a natural, inexorable progression? The second half of the twentieth century was littered with such assumptions; the microchip

¹ Robins, K. and Webster, F. Times of the Technoculture : From the Information Society to the Virtual Life, London, Routledge, 1999 , p.44.

revolution, the information age, and the information superhighway. Such discourses operate to marginalise alternative visions of the future. There is nothing new about ideological determinations of the future. However, when the means of knowing becomes central to the very processes of capital accumulation then it seems that something distinctively new is occurring.

Chapter one examines developments associated with digital convergence and hypercapitalism. A critical political economy approach is drawn upon to map the vested interests underpinning the emergence and operations of ICTs. In this context the concepts of Neo-Fordism and flexibility are examined. This enables consideration of the changes to production on both a global and micro-level. At the same time it is important to examine why finance capital has emerged as the dominant sector in the global economy. These developments underlie talk of the knowledge economy.

Chapter two deals with the ideological formation of techno-futurism and develops a historical analysis of knowledge economy rhetoric. This account draws upon the key sub themes of techno-futurism; technological determinism and futurism.

Technology, while a material component of such assumptions², materially informs the relationship between knowledge and economics. Yet it also functions as a mediating component and reproducer of knowledge economy rhetoric. That is, the combination of technological determinism, and futurism, embodies an ideology that serves distinct power relations, or “material interests”. This obscures underlying social struggles that are historically, culturally, and socially situated. Institutions of ‘knowledge economy’ promotion are then analysed. These are; tertiary institutions, mass media and organisations of supranational governance.

² Hillis, K. *Towards the Light ‘Within’: Optical Technologies, Spatial Metaphors and Changing Subjectivities*, in M. Crang, P. Crang and J. May (eds), Virtual Geographies : Bodies, Spaces and Relations, Routledge, London, 1999, p.29.

Chapter three outlines the material and ideological constructions of the knowledge economy in New Zealand. Initially, a specific local case of techno-futurism will be examined that is associated with the ‘tyranny of distance’. This is the backdrop to the eventual emergence of the knowledge economy discourse in New Zealand. The new right restructuring of New Zealand capitalism during the 1980s and 1990s will be outlined, along with the corresponding shifts in how the economy was officially understood. Particular emphasis will be placed upon the global absorption of New Zealand capitalism. This was underscored by the arrival of ICTs, and attendant changes to the education and communication systems.

Chapter Four will examine the Catching the Knowledge Wave Conference, as an encapsulation of the Knowledge Economy in New Zealand. The KWC will be analysed from a critical political economic perspective. Organisation and promotion of the conference was driven by the corporate sponsors. They were representative of a new global elite centred upon the sectors of finance and ICTs.

Importantly, I will also show that the KWC reflects the withdrawal of the state from an active role in determining the parameters of a national economy. Here, the vested interests of the financial sectors and IT is evident, as is the ideological notion that New Zealand must reactively respond to global forces. The role of the NZ Herald in promoting the conference will also be outlined.

The fifth chapter critically analyses various sub discourses of the knowledge economy. To this end textual analyses of conference addresses will be examined. The key themes here are entrepreneurialism, knowledge as (economic) progress, and globalism.

Overall, I will argue that ‘Knowledge Economy’ discourses obfuscate capitalist relations of power by promoting particular conceptions of progress and economic rationality. The New Zealand experience is distinctive in this regard because of the extent to which New Zealand capitalism has been absorbed by the global economy.

The Political Economy of the New Information and Communication Technologies.

The emergence of the new information and communication technologies (ICTs) has generated a distinctively new political economy from which the discourses of the knowledge economy arise. I say 'distinctly new' based on a number of arguments centred around the ideas of convergence and hypercapitalism³. Firstly, I refer to the strategies behind the trend of convergence across various technologies and organisations. The integration of telecommunications and computing signify a shift in the means by which information transfer and communication take place.

Secondly, the growing centrality of ICT's exists within a speeded up and expanding form of capitalism. The speed and mobility of capital is unprecedented. The proliferation of global information flows, transnational financial transactions, and the globalisation of capital labour relationships exemplify this.

1.1 Technological Convergences.

Technological convergence concerns the way in which the digital forms of communication break the prevailing technical barriers between and within the information and communication industries⁴. Digitalisation enables "sound, image, words and graphics to be stored or transferred via the same digital code.

Telecommunications, computers and broadcasting are beginning to overlap."⁵ A digitalised binary system of representation can be transferred between different forms of communication infrastructure, thus incorporating computer technology into

³ Graham, P. 'Critical Systems Theory: A Political Economy of Language, Thought and Technology', in, Communication Research, Vol 26, No.4, Sage Publications, August, 1999, p.499.

⁴ Garnham, N. 'Constraints on multimedia convergence', Garnham, N. 'Constraints on multimedia convergence', in, Dutton, W. (ed), Information and Communication Technologies: Visions and Realities, Oxford, Oxford University Press, 1996, p.104.

⁵ Hope, W. 'Mass Media, Information Technology and Reconstruction' in M. Peters, W. Hope, J. Marshall and S. Webster (eds.), Critical Theory, Post-structuralism and the Social Context, Palmerston North, Dunmore Press, 1996, p.65.

text, photography, sound and cinema⁶. These innovations, often referred to as heralding the 'information age', alter structures of communication and access to information. New applications of ICTs have shaped the functioning of the broadcasting, information technology and telecommunications industries⁷. New media allow many access points to information and enable many different ways of accessing; one on one, one on many and many on many, alongside two way communication⁸.

Digital television for example entails the use of digital frequencies for signal transmission. The use of set top boxes or specifically manufactured television sets access both high definition television signals, while enabling new levels of interactivity via the television set⁹. In most markets infrastructure and broadcast standards are yet to be decided upon. However, the future of interactivity via the television set has been widely heralded¹⁰. New uses include internet capability, increased audience targeting by advertisers, individual programming beyond established pay per view options, and the use of the television as a home computer. For example, Time Inc. carried out restricted experimentation in Queens New York USA as early as 1995, with the use of set top boxes, using fibre optic and copper, delivering games, shopping, movies on demand, telephone and interactive information¹¹. Much of this was made possible by digital switching, which accommodates both video and telephone signals¹².

⁶ Lunenfeld, P. 'Introduction, Screen Grabs: The Digital Dialectic and New Media Theory', in, Lunenfeld, P. (ed.) *The Digital Dialectic*, Cambridge, Massachusetts, MIT Press, 1999.

⁷ Hope, W. 'Mass Media, Information Technology and Reconstruction', p.66.

⁸ Dutton, W. *Society on line : Information Politics in the Digital Age*, Oxford, University Press, 1999, p.258.

⁹ Owen, B. *The Internet Challenge to Television*, Massachusetts, Harvard University Press, 1999.

¹⁰ *ibid.*

¹¹ Haywood, T. *Info Rich, Info Poor: Access and exchange in the Global information society*, London, Bowker Sauer, 1995, p.186.

¹² *ibid.*

There are five types of present and future television. These are conventional, cable, interactive and internet,¹³ and satellite. Conventional refers to network television and free to air national stations. Cable offers pay per view and specialised programming and the interactive offers two way scheduling of programming and internet enabled television offers video communication via the internet¹⁴. Satellite television refers to orbiting communications technologies designed to transmit vast amounts of data across vast distances, thus accessing large audiences. There are a number of market opportunities and technological options. Most decisions will rest on financial viability and available market share¹⁵. For example, it is unlikely that internet television will ever ‘take off’ without the introduction of viewer payments for internet images. Besides that, planning decisions will be based on bandwidth capacity and the ability to make a return on the capital investment required for each system¹⁶. That is, the technological convergence of broadcasting, telecommunications and computing infrastructures ultimately depends upon commercial imperatives.

Furthermore, beyond the home based entertainment and information systems (often referred to as ‘new media’), other applications are being developed, such as the use of cell phone numbers in place of credit cards or cash, as a form of payment. Indeed, some vending machines and services now accept cell phone numbers as payment¹⁷. This is another example of how converged technology enables the introduction of new services. Such services are built on systems that rely on the convergence of telecommunications and computing. Communication technology and technology

¹³ Owen, B. The Internet Challenge to Television, p.7.

¹⁴ Organisation for Economic Co-operation and Development, Information Computer Communications Policy (ICCP), Information Technology Standards: The Economic Dimension, Paris, OECD, 1991.

¹⁵ Brown, A. ‘*Media Ownership in the Digital Age: An Economic Perspective*’, in, O’Regan, T & Cunningham, S. (eds) Media International Australia, Culture and Policy, No. 95, May, 2000, Australian Key Centre for Cultural and Media Policy, p49-61.

¹⁶ Organisation for Economic Co-operation and Development, Information Computer Communications Policy (ICCP), Information Technology Standards: The Economic Dimension.

¹⁷ Haywood, T. Only Connect: Shaping Networks and Knowledge for the New Millennium, London, Bowker Sauer, 1999, p.129.

used for data processing have become synonymous. Internet banking systems, ATM machines and phone banking are commonplace outcomes of such integration. Perhaps the largest market for converged technology presently is in information systems for corporate data processing as well as communication networks, for industrial manufacture and global finance.

1.2 Ownership Convergence.

As media audiences fragment and new technological access points proliferate further capital investment is required to configure particular audiences. William Dutton relates this to industry convergence and consolidation by noting that, “Advances in ICTs have made it easier for broadcasters, cable operators, and on-line service providers to reach global scale – one to millions, and more difficult for any community, nation, or region to retain a captive audience”¹⁸. The economies of scale required to reach the larger, fragmented audiences are a barrier to entry and operation. That is, the size of the company and number of distribution outlets and production companies within the corporation provide economies of scale and market access which are unattainable for smaller companies¹⁹.

*The best way of looking at this model is as a wheel . At the hub lies content creation. The spokes that spread out from it are the many different ways of exploiting the resulting brands: the movie studio, the television networks, the music, the publishing, the merchandising, the theme parks and the internet sites*²⁰

NewsCorp’s twentieth century Fox may produce a movie (content) with the television rights being on sold to the Fox Television Networks and other NewsCorp owned television channels such as BskyB in Britain. Newscorp may then promote a book upon which the movie is based, via a subsidiary publisher such as HarperCollins. Associated CDs will contain the movie sound track under the Fox

¹⁸ Dutton, W. Society on line : Information Politics in the Digital Age, p.266.

¹⁹ *ibid.* p.267.

²⁰ ‘A Survey of Technology and Entertainment: Wheel of Fortune’, in, The Economist, 21st November 1998, p.8.

music label, and the film will be merchandised via Fox Licensing and Merchandising²¹. Such a trend in commercial mass media provides a number of advantages for larger firms. For example, “technologically, operationally, and financially, the scale and complexity of launching and sustaining satellite programming ventures creates major barriers to entering business with multimedia giants such as Rupert Murdoch’s News Corp, Germany’s Bertelsmann, the Kirch Group, and Canal Plus and suppliers like Hughes Electronics corporation”²². These economies of scale create an uneven playing field across media markets²³. The myriad of distribution and access points for content generates barriers of scale and scope.²⁴

Organisations such as Newscorp, can access capital markets in order to increase expenditure on branding and marketing for global audiences. This results in barriers to competition. For example, the decline of foreign films in the US box office from ten percent in the mid 1970s to point five of a percent in the late 1990s is attributable to the high cost of marketing.²⁵ This is also true for other forms of communication. On the internet web sites linked to large capital markets gain more visibility and thus more commercial success²⁶. The tendency is reflected in the large marketing and advertising expenditures of e-commerce firms such as Amazon.com. They plan for long term profit and competitive advantage at the expense of current returns.

Comparatively, content is more expensive than distribution. Due to innovations in ICTs distribution costs for media transnationals are low in relation to audience size. Such economies of scale enable transnationals to reach greater audiences and thus

²¹ *ibid*

²² Dutton, W. *Society on line : Information Politics in the Digital Age*, p.266.

²³ (‘AOL TIME Warner, The Net Gets Real’, *The Economist*, 15th January, 2000, p.20-25) & (Cocker, A. *The Deregulation of Broadcasting in New Zealand*, University of Auckland, Doctoral Thesis, 1996, p.310).

²⁴ Brown, A. ‘*Media Ownership in the Digital Age: An Economic Perspective*’, p.54.

²⁵ McChesney, R. *Rich Media, Poor Democracy: Communications Politics in Dubious Times*, Illinois, University of Illinois press, 1999.

²⁶ Brown, A. ‘*Media Ownership in the Digital Age: An Economic Perspective*’, p.55.

reduce the relative cost of content²⁷. This is because the cost of production is fixed and does not increase with rising consumption (transmission cost comes under the cost of delivery, not production). These circumstances favour established operators. Thus, already established newspapers on-line have journalists, editors and specialists involved in creating content. Pre-existing print copy is simply applied to another information source, in this case the Internet.

As noted earlier, established firms can use established infrastructure to provide more services, thus using price and economies of scale to limit competition. Such is evident with the monopoly of Telecom in New Zealand's telecommunications market. This has enabled subsequent control of Internet access and diversification into other forms of ICTs. For example, Telecom New Zealand has sought to diversify into content by buying shares in Independent Newspapers Limited (INL)²⁸ and pay television provider Sky Television Network. The number of distribution outlets and production companies within the corporation provide large economies of scale and access to markets unattainable for companies without their own means of distribution²⁹. Consequently smaller companies struggle to compete with the growing infrastructural reach of corporate giants. Organisations utilise new ICTs to obtain competitive efficiencies. The drive for new information and communication technologies and their adoption is linked to the search for new points of exploitation. The so-called cyber economy is seen by many proponents as a "Darwinian e-volution"³⁰ within capitalism; providing a fall in marginal costs at a faster rate than real prices. The utilisation of new ICTs has also effected a transition toward new markets and products, along with the extension of efficiencies via new forms of communication and streamlined supply³¹.

²⁷ 'AOL TIME Warner, The Net Gets Real', The Economist.

²⁸ Anderson, F. 'Netizens Snuggle up to the Media' in, The Independent Business Weekly, 5 April, 2000, p.24.

²⁹ Dutton, W. Society on line : Information Politics in the Digital Age, p.267.

³⁰ Roche, D. 'Cyber economy should fear only the Euro state', in, Euromoney, May, 2000, <http://proquest.umi.com>

³¹ (Roche, D. 'Cyber economy should fear only the Euro state', in, Euromoney, May 2000, <http://proquest.umi.com>) & (Boje, D. and Winsor, R. "The resurrection of Taylorism: Total Quality Management's Hidden Agenda", in Journal of Organisational Change Management,

Telecommunications, computing and broadcasting were once discrete industries. However, the alterations to operating structures combined with technological convergence has allowed cable companies to become involved in telecommunications. Meanwhile Internet Service Providers (ISPs) have become involved in broadcasting and content creation as computer hardware and software firms enter broadcasting. Microsoft, for example, has a minor share holding in telecommunications corporation AT&T, and cable companies Comcast and Cox³², as well as owning its own cable television operation, Web TV.³³ It is important to note, with regard to convergence, that related changes are not technologically determined, but rather technologically facilitated. That is, organisational and operational convergence creates or utilises new ICTs. For example, the Internet portal service Excite was purchased by @Home, a US high speed internet service via cable television. The rationale was that @Home could add the 20 million Excite users to their current customer base. This was a move backed by AT&T, a major telecommunications corporation, which owns %40 of @Home³⁴. In addition, as noted earlier, IT behemoth Microsoft, is a minor shareholder in AT&T (with a \$US 5 billion stake³⁵). AT&T's rivals in the cable market, Comcast and Cox also contain Microsoft holdings. In addition, Microsoft is in partnership with NBC, owning top rated news cable channel, MSNBC.³⁶ Meanwhile, Microsoft control a large percentage of the web browsing and data market. Such expansion into new areas of operation is a strategic exploitation of investment return. In the United States corporate mergers during 1998 totalled over US\$1.6 Trillion. Much of this figure can

Volume 6 No. 4, 1994,) & (Winsor, R. "Talking the post-Fordist Talk, ...but walking the post-industrial walk", in *Journal of Organisational Change Management*, Volume 5 No. 2, 1992.)

³² Scheisel, S. & Sorkin, A. 'AT&T Finds Cable TV Bids Unacceptable', in NY Times online, December 10, 2001, <http://www.nytimes.com/12/10/business.html>

³³ ITEMS, 'International Global Forum', 2000, p.1, <http://www.items.fr/GlobalForum/99.htm>

³⁴ Haywood, T. *Only Connect: Shaping Networks and Knowledge for the New Millennium*, p.160.

³⁵ ITEMS, 'International Global Forum', 2000, p.1.

³⁶ Rutenberg, J, & Carter, B. 'NBC Ponders its Options: Grow or Else', NY Times online, May 14, 2001, <http://www.nytimes.com/2001/05/14/business/14NBC.html>

be attributed to the supercession of distinct ICTs industries by commercially driven technological convergence³⁷.

Consequently, former industries are amalgamating rapidly³⁸. Such trends can be seen in the merger of AOL and Time Warner. A year prior to the merger President of Time-Warner, Dick Parsons, declared that “When power is moving between different bits of the value chain you need to own the whole chain”³⁹. A recent bid, so far unsuccessful, for the cable interests of AT&T⁴⁰ is an example of AOL Time Warner seeking to “own the whole chain”. Benjamin Barber describes this process as monopolisation.

*The concept which drives the new media merger frenzy carries the fashionable name ‘synergy’, which describes what is supposed to be the cultural creativity and economic productivity that arise out of conglomerating disparate industries that once, quite separately, controlled all three segments of the infotainment telesector: the software programming, the conduits and pipes that distribute it, and the hardware on which it is displayed. The Production Companies turning out product, the phone and cable and satellite companies, and the companies manufacturing or controlling television sets and computers and multiplexes all, in McWorld’s ideal economy, belong in the hands of one global company. Synergy turns out to be a polite way of saying monopoly.*⁴¹

Synergy refers to the combination of technological and organisational convergence. These convergences may be utilised to obtain strategic commercial advantage. Such synergies in information production and distribution provide a “golden commodity”⁴² or captive audiences for those who can employ such practices. For example, information technology has moved into content creation and entertainment delivery as a business strategy to create and therefore control future markets. This

³⁷ Haywood, T. Only Connect: Shaping Networks and Knowledge for the New Millennium, p.160.

³⁸ Hope, ‘*Mass Media, Information Technology and Reconstruction*’, p.65.

³⁹ ‘*A Survey of Technology and Entertainment: Wheel of Fortune*’, p.8.

⁴⁰ Scheisel, S. & Sorkin, A. ‘*AT&T Finds Cable TV Bids Unacceptable*’.

⁴¹ Barber, B. Jihad Vs McWorld: How Globalism and Tribalism are Reshaping the World, Ballantine Books, New York, 1996, p.137.

⁴² Bagdikian, B. Media Monopoly, Beacon Press, Boston, 1983.

pre-emptive growth strategy is not without historical precedent. The development of the Telegraph in the United States provides an early example of structural convergence. Telegraphy developed in conjunction with the railroad, or, more precisely in correspondence with the technological and economic structures of the railway system⁴³. Thus, telegraph companies were often partners with or subsidiaries of railway companies⁴⁴. This is an example of market dominance by means of business structure and technological innovation. It is also a forward looking strategy designed to take maximum advantage from the 'rebound' growth effects.⁴⁵

Consolidation and convergence has been supported by sector based concentration, which in turn has led to a broader operational convergence across the sectors of Telecommunications, IT and broadcasting. Of particular interest is the part played by the Telecommunications Industry. The increased integration between telecommunications and other areas of the new ICTs has developed new areas of growth and accelerated ownership concentration. The importance of this sector derives from the established infrastructures of traditional telecommunications corporations. Jan van Cuilenberg and Paul Slaa⁴⁶ noted this in 1993 when they proposed national information infrastructure policies which would give equal consideration to both content and carrier. This recommendation was in response to the growing interrelationship between the telecommunications and broadcasting industries. The traditional separation between the regulatory philosophies of each industry was becoming anachronistic.

A number of mergers within the telecommunications market result from profit making and cost-efficiency opportunities exploited by companies with infrastructure

⁴³ Lenert, E. 'A Communication Theory Perspective on Telecommunications Policy, in, The Journal of Communication, Autumn, 1998, Vol. 48, No. 4, p.14-15.

⁴⁴ Organisation for Economic Co-operation and Development, Information Computer Communications Policy (ICCP), Information Technology Standards: The Economic Dimension, p.17.

⁴⁵ Smith, A. The Geopolitics of Information: How Western Culture Dominates the World, Oxford University Press, New York, 1980, p.74.

designed for data traffic⁴⁷. Data traffic has swiftly become larger in quantity than voice traffic as a result of technological convergence. Traditional telecommunication operators have sought to buy up or merge with established Internet providers in order to access new systems⁴⁸. Furthermore, the established cabling infrastructures have been utilised in order to access television markets, and to open up areas such as mobile telecommunications and e-commerce⁴⁹ (especially in regard to business to business communications).

In the United States mergers and acquisitions involving telecommunications peaked in 1998. World Com merged with major domestic and international telecommunications firm MCI (formerly Microwave Communications Incorporated), AT&T acquired major United States cable operator Tele-Communications Incorporated (TCI, renamed AT&T Broadband) and Bell Atlantic combined with General Telephone and Electronics (GTE) to control a third of the US Market⁵⁰. Such moves were a response to increased availability of bandwidth and data traffic. In addition, initial capital investment required to establish a competitor was seen as prohibitive in many markets. The cost of purchasing established infrastructure was less expensive. Such corporate activity continued through 1999. For example, the newly formed MCI WorldCom attempted to takeover the long distance telephony operator Sprint. This was later blocked by opposition from both United States and European Union regulators.

Such trends are not confined to the United States. Harris⁵¹ notes the same pattern existing in Asia and South America. He cites the example of Hong Kong's dominant

⁴⁶ Cuilenberg, P. & Slaa, J. '*Media Policy towards a National Communication Policy: Broadening the Scope*', in *European Journal of Communication*, Volume 8, London, Sage, 1993.

⁴⁷ Schiller, D. *Digital Capitalism : Networking the Global System*, MIT Press, Massachusetts, 1999, p.26.

⁴⁸ ITEMS, '*International, Global Forum*,' p.1.

⁴⁹ *ibid*, p.2.

⁵⁰ Haywood, T. '*Only Connect: Shaping Networks and Knowledge for the New Millennium*', p.102.

⁵¹ Harris, J. '*Information Technology and the Global Ruling Class*', in, *Race & Class*, 42, No.2, Institute of Race Relations, 2001, p.42.

phone company Cable and Wireless HKT being bought by an internet access company for \$US 38 billion dollars. Similarly, Spain's Telefonica SA purchased numerous telecommunications firms throughout South America⁵². In Europe, the recent development of telecommunications has taken a slightly different trajectory due to traditional state involvement. That is, the concentration of operations was a state enforced trend, and this has shaped a number of markets since the regional deregulation of telecommunications, and the weakening of cross border limitations by the European Union (EU)⁵³. For example, in 1996 Germany's state telecommunications company Deutsche Telekom (DT) 'went public' with an Initial Public Offering (IPO) as part of an EU wide legislated trend toward privatisation of telecommunications suppliers. However, DT maintained monopoly rents and the EU commission was 'forced' to step in and regulate the market in order to maintain levels of competition⁵⁴. However, the same general trend of market concentration has been noted. The purchase of Mannesman in Germany by Vodafone, a British telecommunications operator, for \$US 138 billion is a case in point.⁵⁵ The result of these mergers has been global consolidation of telecommunications corporations. The world market is now dominated by ten corporations with a total market share of 86 per cent.⁵⁶ This reflects the ownership concentrations across major industrial and manufacturing firms in the first half of the twentieth century. Now, however, the trend repeats itself on a transnational level.

Telecommunications may now be included in the broadly defined IT sector. This includes companies dealing with software, hardware, infrastructure and further aspects of delivery, as well as aligned services⁵⁷. The IT sector is now a key

⁵² *ibid.*

⁵³ Whitlock-Kaitazi, S. 'Pluralism and Media Concentration in Europe: Media Policy as Industrial Policy', in, *European Journal of Communication*, Vol. 11, No.4, December, 1996.

⁵⁴ Haywood, T. *Only Connect: Shaping Networks and Knowledge for the New Millennium*, p.105.

⁵⁵ (Harris, J. 'Information Technology and the Global Ruling Class', p.43), &, (ITEMS International, Global Forum, 2000, p.2, <http://www.items.fr/GlobalForum99.htm>)

⁵⁶ Harris, J. 'Information Technology and the Global Ruling Class', p.42. This figure was based on the 1999 list of the Fortune Magazine's Global 500, which calculates a company's position on the list by way of revenue.

⁵⁷ Harris, J. 'Information Technology and the Global Ruling Class'.

component to the global economy. The profits of this sector were higher than any other in 1999, ranking third in the world with revenues totalling \$U.S 1,339,671 million⁵⁸. Rapid growth in this sector was built upon an almost unprecedented demand for products and services from various fractions of capital. By 1997 software was the United States “third largest manufacturing industry”.⁵⁹ The corporate spend on IT rose exponentially, especially in banking and finance. For example, Merrill Lynch spent \$800 million on IT in 1993, and \$1.5 billion in the year of 1997.⁶⁰ By 1999 IT in the U.S was first in sector profit returns and second in revenues (behind the financial sector)⁶¹.

The expansion of Internet use to 4 million users in the United States by 1992 created a growing market for entrepreneurial capitalists⁶²; the so-called ‘dot-coms’ began to proliferate. There have been recent set backs in this area, due largely to a fragile, speculative financial market and a lack of up take in the area of e-commerce. However, the consistent upgrades ‘required’ for IT products has sustained the burgeoning industry. Dan Schiller cites that a 1996 study of IT investment in the United States which found that, “fully 42 percent of corporate information technology initiatives are abandoned prior to completion”⁶³.

Growth was also been assisted by millennium associated hype. For example, Y2K compliance costs for corporate United States was estimated at US\$50 billion⁶⁴. In general, the capital investment in information technology is astounding. For example IT venture capital investment in the U.S amounted to U.S \$50.72 billion in 1999⁶⁵. Yet International Data Corp noted that only 2500 of the 6.5 million small business in

⁵⁸ *ibid.*

⁵⁹ Schiller, D., Digital Capitalism : Networking the Global System, p.15.

⁶⁰ *ibid.*, p13.

⁶¹ Harris, J. ‘*Information Technology and the Global Ruling Class*’. It is important to place a caveat here. The IT sector, as described by Harris, includes such areas as Telecommunications. The financial performance of Telecommunications companies has declined dramatically since 2001.

⁶² Schiller, D., Digital Capitalism : Networking the Global System, p.12.

⁶³ *ibid.*

⁶⁴ Schiller, D., Digital Capitalism : Networking the Global System, p.25.

⁶⁵ Harris, J. ‘*Information Technology and the Global Ruling Class*’.

the United States were venture capital funded dot-coms⁶⁶. This figure has certainly been reduced by the dramatic falls in new technology stocks in 2000; major corporations are now consolidating their position in the sector.

As in the telecommunications industry, those corporations involved in software and hardware have maintained dominant positions by exploiting established technological advantages. Harris identifies the most important players in hardware as “Intel, Cisco, Hewlett Packard, Sun Microsystems, Compaq and Dell”⁶⁷. This concentration may be further consolidated by the pending merger between Hewlett Packard and Compaq. The software industry is dominated by such corporations as Intuit, Microsoft, Oracle and Novell⁶⁸. In particular, Microsoft and Oracle, received revenues from software sales of US\$ 19747 million and US\$ 8827 million respectively at the end of 1999.⁶⁹ Microsoft has used their pre-eminence within the computer industry to forge a competitive advantage in the marketing of IT software⁷⁰. This is evident in the dispute between Netscape’s Navigator software and Microsoft’s Internet Explorer. By placing the Explorer system in windows, a dominant operating system, the use of Microsoft’s browser went from two point nine percent of the US market in 1995 to forty nine percent by August 1998⁷¹. The monopoly over the operating system was used to create a monopoly in ‘web’ browsing. This was an Internet browser that operated like a railroad⁷² to Internet destinations. The Microsoft strategy is but one example of creating technological and operational barriers to entry as a risk limiting strategy⁷³.

⁶⁶ Hewitt, J. ‘Who Owns E-commerce?: An Industry Report’, <http://www.osi-group.com/articles/small.html>

⁶⁷ Harris, J. ‘*Information Technology and the Global Ruling Class*’, p.36.

⁶⁸ *ibid.*

⁶⁹ United Nations Conference on Trade and Development (UNCTAD), Changing Dynamics of Global Computer Software and Services Industry: Implications for Developing Countries, United Nations Commission on Science and Education For Development, 2001, http://www.unctad.org/en/docy/ecn16_01m5.en.pdf p.9.

⁷⁰ Fallows, J. ‘*The Computer Wars*’, in, New York Review of Books, March, 1994, p.34-41.

⁷¹ Haywood, T. Only Connect: Shaping Networks and Knowledge for the New Millennium, p.150.

⁷² Dutton, W. Society on line : Information Politics in the Digital Age.

⁷³ McChesney, R. Rich Media, Poor Democracy: Communications Politics in Dubious Times.

Thus, technological innovation and convergence is determined by the imperatives of capitalism, rather than by any particular invention stumbled upon in a laboratory. The driving force is one of competition on a global level among a select group of players. The strategy is to control or erect barriers to competition through technological innovation⁷⁴, in the service of mergers and acquisitions. The general result has been a dramatic increase in ICTs related innovation, and the “greatest merger wave in capitalist history.”⁷⁵

1.3. Hypercapitalism and globalisation.

As used here the term hypercapitalism refers to the speeded up and expanding nature of capital. This process is closely associated with the rise of ICTs. As will be explained the term hypercapitalism is linked to the concepts of globalisation, neo-fordism, flexibility and finance capital. This is because the latter terms reflect the new speed and mobility of capital. Globalisation, as it will be used here concerns the expansion of communication and information networks, which enable “a global command and control structure for transnationals”⁷⁶. Thus, globalisation denotes a starting point from which to conceptualise the link between the rise of information and communication technologies and hypercapitalism. This link begins with the understanding that information flows are globally configured. Information and communication technologies have contributed to the development of a globalising centrally co-ordinated world system.

⁷⁴ Hinkinson, J. ‘*Postmodern Economy : Self Formation, Value and Intellectual Practice*’, in *Theory Culture and Society*, No. 1, 1993, p.30.

⁷⁵ Foster, J. cited in Harris, J. ‘*Information Technology and the Global Ruling Class*’ p.42.

⁷⁶ Harris, J. ‘*Information Technology and the Global Ruling Class*’.p.35.

In the context of the globalisation of capital there is a crucial definitional nuance concerning the global. As Robertson⁷⁷ notes the term is often interchanged with the international. The latter entails flow and movement between countries, whereas the global refers to the interdependence of such movements⁷⁸. Understandings of the global interdependence of capital flows have developed out of world system theory⁷⁹.

This approach emphasises that unequal power relations operate within the interdependency of global markets⁸⁰. Historically, the expansion of capitalism by means of imperialism and colonialism is said to have created three positionings within the world system; the core, semi-periphery and periphery. The core controls resources and the disbursement and utilisation of those resources⁸¹. It may be argued that the categories utilised are inherently connected to the structural bias they seek to critique⁸². That is, the view of the world as a whole is often derived from a westernised world-view⁸³. As Majorie Ferguson⁸⁴ puts it “one world, global society is contingent on changing value orientations”. Globalisation is a north-north not north-south dialogue⁸⁵. Yet, a generalised level of commentary is required in order to reflect on “increasing levels of differentiation of the world into interwoven patterns of centre and peripheries that defy simple spatial boundaries”⁸⁶. That is, the global may indeed be a western phenomenon, but this should not rule out considerations of

⁷⁷ Robertson, R. ‘*Mapping the Global Condition: Globalisation as the central concept*’, in, Featherstone, M. (ed), *Global Culture: Nationalism, Globalisation and Modernity*, London, Sage, 1990.

⁷⁸ Tomlinson, J. *Cultural Imperialism*, Baltimore, Johns Hopkins University Press, 1991, p.175.

⁷⁹ Barnett, G. Salisbury, J. Kim, CW. Langhorne, A. ‘*Globalisation and International Communication: An examination of monetary, telecommunications and trade networks*’, in, *Journal of International Communication*, 6:2 December 1999, p.8.

⁸⁰ *Ibid.*

⁸¹ Wallerstein I. *The Modern World System*, New York, Academic Press, 1974.

⁸² Poster, M. *The Mode of Information: Poststructuralism and Social Context*, Chicago, University of Chicago Press, 1990, p.190.

⁸³ Mosco, V. *The Political Economy of Communication*, London, Sage, 1996, p.126.

⁸⁴ Ferguson, M. *The Myth about Globalisation*, in, *European Journal of Communication*, Volume 7, 1992, p.70.

⁸⁵ *ibid.*, p.73

structural shifts at a global level⁸⁷. Or, as Bergesen⁸⁸ notes, capitalism is a “world-wide phenomenon, not [an] intra-societal process”.

The early expansion of the ‘modern’ world order required the establishment of particular information and communication infrastructures, which enabled the expansion of empires. This development is encapsulated in the expansion of world-scale media throughout the 19th and 20th centuries. The compression of time and space as a result of the telephone and telegraph in the 19th century⁸⁹ effectively globalised communication and information. And, the telegraph extended the speed by which various types of information could be sent across geo-political boundaries (in the most part for the ends of commerce)⁹⁰. Furthermore, these new forms of communication were linked to the rise of press agencies and the speedy transmission of news between countries⁹¹. This enabled faster and more influential creations of national images other than ones own⁹². News is a mediated and commodified form of information that constructs national identity domestically, between nations⁹³ and, increasingly, within a transnational media system.

*“The communication network which grew up in the nineteenth century was one outcome of the imperial system, by which competing capitalist powers fought for more of the world in which to operate a privileged trading system; at the same time, the information network was a fundamental support for the development of international capitalism itself – it was, that is, both the cause and the result of capitalism”.*⁹⁴

⁸⁶ Tehranian, M. *Communication and Development*, in Crowley, D. & Mitchell, D. (eds) *Communication Today*, Stanford University Press, California, 1994, p.270.

⁸⁷ Bergesen, A. *Turning World System Theory on its Head*, in, Featherstone, M. (ed), *Global Culture: Nationalism, Globalisation and Modernity*, London, Sage, 1990.p.80.

⁸⁸ (Bergesen, A. *Turning World System Theory on its Head*, pp69), & (Ferguson, M. *The Myth about Globalisation*, p.71).

⁸⁹ Hachten, W. *The World News Prism: Changing media and International Communication*, Iowa State University Press, Iowa, 1996, p.42.

⁹⁰ Smith, A. *The Geopolitics of Information: How Western Culture Dominates the World*, p.74.

⁹¹ *ibid.*, p.75.

⁹² Boyd-Barrett, O. and Rantanen, T. ‘Introduction’, in, *The Globalisation of News*, London, Sage, 1998, p.5.

⁹³ *ibid.*, p.2.

⁹⁴ Smith, A. *The Geopolitics of Information: How Western Culture Dominates the World*, p.74.

Boyd-Barrett and Rantanen⁹⁵ note that news agencies are connected to “national formation and globalization” in a “more profound andmore substantial history than has been recognized up to this point in time”. The system of news agencies, now dominated by three organisations, has its nineteenth century origins in the power relations between the coloniser and the colonised⁹⁶. Boyd Barrett⁹⁷ notes that the proliferation of news flows, principally controlled by news agencies, were dominated by Anglo-Saxon traditions of commercial media development. The news flows were controlled by North American and Western European agencies such as Havas, Wolff, Reuters, and later AP⁹⁸. In the second half of the nineteenth century through to the late nineteen thirties, the world was divided up among this cartel of news makers⁹⁹ who were exploiting new information technologies such as the telegraph to dominate the market for news¹⁰⁰. This system also involved the creation of alliances with domestic press agencies, thus creating monopolies internationally and within nations and the domestic news market¹⁰¹.

Herbert Schiller's¹⁰² research into the development of information and communication infrastructures explains major developments prior to the digital era. Though the earlier systems set a global context centred upon particular configurations of imperial power an important shift occurred after 1945. The proliferation of advertising and mass media institutions coincided with widespread economic growth across all developed countries. Aggregate demand was extended

⁹⁵ Boyd-Barrett, O. and Rantanen, T. *Introduction*, p.1.

⁹⁶ (Hatchen, W. The World News Prism: Changing media and International Communication, p.42), & (Smith, A. The Geopolitics of Information: How Western Culture Dominates the World, p.15).

⁹⁷ Boyd-Barrett, O. 'Global News Agencies', in Boyd-Barrett, O. and Rantanen, T., (eds), The Globalisation of News, Sage, London, 1998, p.19.

⁹⁸ (Hatchen, W. The World News Prism: Changing media and International Communication, p.42-43), & (Boyd-Barrett, O. 'Global News Agencies', p.20).

⁹⁹ Rantanen, T. 'The Struggle for control of domestic newsmarkets', in Boyd-Barrett, O. and Rantanen, T., (eds), The Globalisation of News, Sage, London, 1998, p.35.

¹⁰⁰ *ibid.*

¹⁰¹ *ibid.* p.36-37.

¹⁰² (Tehrani, M. 'Communication and Development',

and maintained, in part by media generated cultures of consumption. Schiller outlines the post war economic world order, and emphasises the importance of information flows. Here, Schiller identifies a central infrastructure concept, that of the US Military industrial complex¹⁰³. He links the growth of American industrial power, (often associated with the expansion of fordism), with the rise of military power. In this context ICTs played a pivotal role. As Schiller explains, “The vast military shopping list, underwritten by unstinting congressional appropriations, meant that aircraft, shipbuilding, electrical equipment and automotive, and, most consequently for the long term, the new information industries, had a ready buyer: the Pentagon”¹⁰⁴. Schiller relates these massively financed systems of production and consumption to the post war growth of the culture industry. This eventually led to the “super-aggregation of resources in the cultural-informational sphere.”¹⁰⁵

Schiller’s *Mass Communication and American Empire*¹⁰⁶ describes the way in which information and communication infrastructures support the expansion of global capitalism (under the guidance of American imperialism). Majid Tehranian refers to the process as ‘informatic imperialism’. American power was co-ordinated by new forms of information storage and processing.¹⁰⁷

Schiller’s early analysis outlines the emergence of contemporary globalised capitalism, characterised by the pivotal importance of information and communications. Subsequently he explained how information and communication systems facilitated the global restructuring of capitalism¹⁰⁸.

p.275), and Schiller, H. *Culture Inc.: The Corporate Take-over of Public Expression*, Oxford University Press, New York, 1989.

¹⁰³ Schiller, H. *Culture Inc.: The Corporate Take-over of Public Expression*

¹⁰⁴ *ibid.* p.16.

¹⁰⁵ *ibid.*

¹⁰⁶ Schiller, H. *Mass Communication and American Empire*, AMK, New York, 1969.

¹⁰⁷ Tehranian, M. *Global Communication and World Politics: Domination, Development and Discourse*, USA, Lynne Rienner Publishers, 1999, p.22.

¹⁰⁸ (Schiller, H. *Culture Inc.: The Corporate Take-over of Public Expression*, p.113), & (Winseck, D. *Wired Cities and Transnational Communications: New Forms of Governance for Telecommunications and New Media*, IAMCR Conference, Singapore, 2000).

Such development has continued. For example, although new ICTs have the capability to decentralise work, many of the informational centres or hubs are centrally located within major cities¹⁰⁹. This pattern of development has shaped decisions concerning national macroeconomic policy, particularly in areas such as India and the region of Bangalore¹¹⁰, Singapore, South Korea, Taiwan and Hong Kong¹¹¹. These nations have sought to construct information infrastructures and ICT industries in order to compete 'globally', as well as seeking to attract the direct investment required for such development. However such moves have not succeeded in breaking the dominance of corporations linked to nations such as the United States Canada, Japan, France, Germany and the United Kingdom. Such corporates still control 90 percent of the computer and information technologies markets, maintaining a dualistic structure spanning ICT production and infrastructure¹¹². For example, work carried in India to develop new software for the ICTs systems of the London Underground were facilitated by global networks and satellite infrastructure. The work could be carried out in India, and this allowed their software industry to compete with those of developed countries. However, the key function of such ICTs infrastructure is to allow corporations to access low cost software development¹¹³. That is, many corporations are utilising information and communication infrastructures to access lower cost labour in peripheral nations. Corporates facilitate this process further by offering conditions suitable to Foreign Direct Investment (FDI), often at the expense of local development priorities. The expansion of global capitalism continues to be co-ordinated by new forms of information storage and processing

¹⁰⁹ Jackson, S. & Mosco, V., '*The Political Economy of Technological Spaces: Malaysia's Multimedia Super Corridor*', in, Journal of International Communication, Vol 6. No.1, June 1999.

¹¹⁰ United Nations Conference on Trade and Development (UNCTAD), Changing Dynamics of Global Computer Software and Services Industry: Implications for Developing Countries.

¹¹¹ Jussawalla, M. '*The impact of IT convergence on development in the Asian region*', in, Telecommunications Policy, Volume 23, N0. 3-4, April 1999, p.5, <http://www.asiamedia.ucla.edu.htm>

¹¹² United Nations Conference on Trade and Development (UNCTAD), Changing Dynamics of Global Computer Software and Services Industry: Implications for Developing Countries. p.11.

¹¹³ *ibid*, p.15.

Furthermore, the infrastructures are developing such that centralisation is made easier, with major investment in ICTs infrastructure occurring in and around major centres and regions. Consequently, Africa and Latin America are almost absent from the development of ICT networks¹¹⁴. Winseck notes that the development of much of the ICT infrastructures in developing countries is restricted to the largest cities, and in particular the affluent areas of those cities¹¹⁵.

Further to this, the expansion of such sophisticated communication structures enables the expansion of informational commodities such as entertainment and brands (the culture industry). Barber¹¹⁶ calls this the development of the McWorld. The creation of a global culture where symbols and practices are based around western stylised consumption (for example Versace, Mercedes, Casio). The Schwarzenegger blockbuster and the Baywatch serial are as identifiable in popular culture in Scotland as kilts are in local culture¹¹⁷. This form of popular culture results from an image machine created for the reproduction of consumption¹¹⁸. The global information and communication system is a sector of the global economy¹¹⁹. It is a globalising extension of Adorno's 'Culture Industry'¹²⁰. The new ICTs operate as an effective and integral aspect of the global economy, maintaining a global market place for the culture industry. Mosco¹²¹ calls this the "transnationalisation of consumption". The structures required to service the created demand are also global¹²². Thus the culture of various peoples and locales may be influenced and controlled via global

¹¹⁴ Winseck, D. Wired Cities and Transnational Communications: New Forms of Governance for Telecommunications and New Media, p.19.

¹¹⁵ *ibid*, p.21.

¹¹⁶ Barber, B. Jihad Vs McWorld: How Globalism and Tribalism are shaping the world, p.4.

¹¹⁷ *ibid*

¹¹⁸ (Barber, B. Jihad Vs McWorld: How Globalism and Tribalism are shaping the world, p.8), & (Schiller, H. Culture Inc. The Corporate Takeover of Public Expression).

¹¹⁹ Herman, E. & McChesney, R. The Global Media: The New Missionaries of Global Capitalism London, Cassel, 1997.

¹²⁰ Schiller, H. Culture Inc. The Corporate Takeover of Public Expression

¹²¹ Mosco, V. Political Economy of Communication, p.124.

¹²² *ibid* p.152.

information and communication infrastructures that are centrally located in privileged centres of global information flows.

Dan Schiller quotes a former United States deputy under secretary of commerce to show that United States IT policy is formulated in terms of informational imperialism. "For the United States, a central objective of an information age foreign policy must be to win the battle of the world's information flows, dominating the airwaves as Great Britain once ruled the seas."¹²³ Thus far the objectives appear attainable, with 23 of the 47 major corporations which constitute the international IT sector being described as United States based corporations¹²⁴.

1.4 Flexibility, Neo-Fordism and Post-Fordism.

From the 1970s global information infrastructures were deployed for the purpose of restructuring capital labour relationships. In this regard I will consider the development and mutation of Fordism. The term itself refers to the interlinkages between mass production and mass consumption (for the purpose of sustained capital accumulation)¹²⁵. Fordism may be broadened to include the internal and external relations, networks and institutions, which regulate and determine growth¹²⁶. Of particular significance is the role of the state in co-ordinating the supply and demand sides of the capitalist macro-economy¹²⁷. According to Michel Aglietta "Capitalism is a commodity economy given specific features by the wage relation"¹²⁸. In this context Fordism constitutes a new way of life, balancing out the "two departments of

¹²³ Schiller, D. Digital Capitalism : Networking the Global System, p.81.

¹²⁴ Harris, J. 'Information Technology and the Global Ruling Class'.

¹²⁵ Allen, J. 'Post-Industrialism and Post-Fordism', Hall, S. Held, D. and McGrew, T. (eds) Modernity and its Futures, London, Open University Press, 1992, p.186.

¹²⁶ Jessop, B. 'Conservative Regimes and the Transition to Post-Fordism: The Cases of Great Britain and West Germany' in Gottdiener and Kominos (eds), Capitalist Development and Crisis Theory, London, Macmillan, 1989, p.262.

¹²⁷ (Austrin, T. 'Work', in P Spoonley, D Pearson & Ian Shirley (eds), New Zealand Society, Palmerston North, Dunmore Press, 1994, p.240), & (Bagguley, P. 'Post-Fordism and Enterprise Culture: Flexibility, Autonomy and Changes', in Abercrombie, N. and Keath R.(eds), Enterprise Culture, London, Routledge, 1991, p.157).

production”¹²⁹ (labour and capital), while creating consumption norms¹³⁰ enabling the circulation and provision of commodities¹³¹. Thus, it is not sufficient to simply link industrialised mass production and mass consumption.

Fordism was a regime of capital accumulation which sought to incorporate everyday life into the operations of capital. To understand this, one must look to Gramsci, whom first coined the term ‘Fordism’¹³². In his view the emergence of ‘Fordist man’ encapsulated a new set of social relations. Gramsci first coined Fordism when discussing American ‘hegemony’ in relation to its factory system¹³³. He was referring not only to the deskilling of labour but also to the rise of mass consumption. The latter process linked labour directly to its own subordination under capital¹³⁴. Thus, the ‘new man’, as identified by Gramsci in the context of urbanisation and suburbanisation, exemplifies a new way of life. Fordism appears to separate work from the private life, while simultaneously linking them together. Fordist accumulation required the effective maintenance of the wage-relation¹³⁵. This was ensured by the regulation of credit and financial flows, and the institutionalisation of industrial relations and welfare provision¹³⁶. Where modern capitalist economies displayed less developed signs of Fordist manufacture there were extant forms of regulation, largely maintained by the state.

¹²⁸ Aglietta, A. A Theory of Capitalist Regulation: The US Experience, London, NLD, 1979, p.328.

¹²⁹ *ibid.* p.382.

¹³⁰ *ibid.* p.82.

¹³¹ ¹³¹ Jessop, “‘Conservative Regimes and the Transition to Post-Fordism: The Cases of Great Britain and West Germany’ p.265.

¹³² Allen, J. ‘Post-Industrialism and Post-Fordism’, p.185.

¹³³ Clarke, S. ‘New Utopias for Old: Fordist Dreams and Post Fordist Fantasies’, in Capital and Class Vol. 42, p.153.

¹³⁴ *ibid.*

¹³⁵ Andreff, W. ‘Centralisation and Internationalisation of Capital’, in Capital and Class, Vol.22, 1984, p.70.

¹³⁶ (Jessop, B. ‘Conservative Regimes and the Transition to Post-Fordism: The Cases of Great Britain and West Germany’ p.262), & (Lipietz, A. Mirages and Miracles: The Crisis of Global Fordism Norfolk, Thetford Press, 1997, p.15) and (Aglietta, A. A Theory of Capitalist Regulation: The US Experience p.382 - 383).

The so-called demise of Fordism has been traced back to the 1970s economic crisis¹³⁷. At the beginning of the decade the US dollar declined relative to other currencies. At the same time the energy crisis within Western capitalist economies revealed the limits to American global dominance¹³⁸. On a global scale, new information and communication technologies facilitated an ever-expanding money and credit market with internationalised corporate takeovers and sharemarket speculation¹³⁹. The regulatory barriers to such money flows were also disappearing¹⁴⁰. The Fordist regime of accumulation across and within national economies was becoming dysfunctional¹⁴¹.

The capacity of American capitalism to underwrite international money markets was brought into question. This was reflected in the rise of the Eurodollar markets and in the increasing amounts of US currency avoiding regulation in offshore banks throughout the 1960s. This was exacerbated by the sudden jump in oil prices in the 1970s. This poured money into the Eurodollar markets and also placed greater pressure on US regulation of the International monetary system. The continued fiscal deficits in the US were contributed to by the ongoing cost of the Vietnam War. Eventually the Bretton Woods currency system collapsed. A system of fixed exchange rates designed to regulate and stabilise international capitalism gave way to a more volatile system.

The oil price rises of the early 1970s and the growing financial leverage of creditors in the global economy placed a lot of pressure on the ability of nations to continue with Keynesian policies. The continued rise of Japan and West Germany as major productive forces in the international economy also began to reduce the previously

¹³⁷ Harvey, D. *The Condition of Postmodernity*, Oxford, Blackwell, 1993, p.124.

¹³⁸ Foster, J. 'The Uncoupling of the World Order: A Survey of Global Crisis Theories' in Gottdiener and Kominos (eds), *Capitalist Development and Crisis Theory*, London, Macmillan, 1989, p.115.

¹³⁹ Harvey, *The Condition of Postmodernity*, p.161.

¹⁴⁰ Allen, R. *Financial Crises and the Recession in the Global Economy*, 2nd ed., London, Edward Elgar, 1999, p.3.

¹⁴¹ De Vroey, M. 'A Regulation Approach to Contemporary Crisis', in, *Capital & Class*, Vol. 23, 1984.

well established advantage of US firms, and consequently, the rates of return experienced by US capital. The American hegemony within the global political economy had declined.

A new 'flexible' regime of accumulation began to emerge; re-organising, and utilising technology¹⁴². Major changes to the Fordist regime of accumulation were seen in the labour process, labour markets, manufactured products and patterns of consumption.¹⁴³ The rigidity of Fordist labour markets eroded with the proliferation of part time and contract work, and declining union density across workplaces. A new and more sophisticated application of Taylorist principles occurred in production, via flexible specialisation, and management techniques such as total quality management (TQM). New techniques were developed in order to create flexible production, allowing a greater level of control over labour and the labour process¹⁴⁴. This included such techniques as Just in time (JITs) production processes, which were designed to react more quickly to changes in demand and reduce stock requirements.

These changes were facilitated by new ICTs¹⁴⁵. The ability of new information technologies to process data contributed to the management and control of the labour process by enabling faster analyses of productivity.¹⁴⁶ This integrated new ICTs into a regime of accumulation that required faster response times to shifts in demand.¹⁴⁷ The process was particularly evident in areas such as manufacturing. For example, the automobile industry began utilising ICTs to manage production systems, including aspects of design management, from centralised sources. This assisted in

¹⁴² Bagguley, "Post-Fordism and Enterprise Culture: Flexibility, Autonomy and Changes", p.151.

¹⁴³ Smith, T. 'Flexible Production and the Capital /Wage Labour Relation in Manufacturing', in *Capital & Class*, Vol 53, 1994, p.39-64.

¹⁴⁴ (Boje D. and Winsor, R. 'The resurrection of Taylorism: Total Quality Management's Hidden Agenda'), & (Winsor, R. 'Talking the post-Fordist Talk, ...but walking the post-industrial walk').

¹⁴⁵ Allen, J. 'Post Industrialism and Post Fordism', p.210.

¹⁴⁶ Nyland C. 'Scientific Management and Planning', in *Capital and Class*, Vol 33, p.58.

¹⁴⁷ Smith, T. 'Flexible production and the capital wage labour relation in manufacturing', p.40.

the shift of major plants to areas with lower wage costs (such as the shift made by Ford to the Northern areas of Mexico). The use of robotics in the automobile industry is also well established. According to a study carried out by the Organisation for Economic Cooperation and Development (OECD) on the use of ICTs in the 30 member countries of the organisation, “the use of ICTs in the workplace increased from less than a quarter of workers in the mid-1980s to between 40 to 56 percent of workers by the mid-1990s”.¹⁴⁸ The utilisation of such technologies in the labour process creates greater scope for surveillance of workers.¹⁴⁹ Ongoing issues include surveillance of personal use of e-mail communication, and the introduction of specialised software which monitors task performance on an increasingly pervasive scale.

An alternative formulation to Neo-fordism is that of Post-Fordism¹⁵⁰. This term heralds the introduction of technology which will remove the conflict between capital and labour¹⁵¹. In short, Fordist rigidity will be superseded by flexibility¹⁵². However, this is a one-sided approach to economic expansion, emphasising gains in competitiveness and efficiency, and ignoring normative considerations¹⁵³. The relationship between capitalist restructuring and new ICTs requires a more sophisticated consideration of the interests at stake. The work of Castells is perhaps most useful here. He refers to the interrelationship between technology, information, and knowledge for the purposes of capital accumulation. This requires an extension of capitalist social relations, and consequent reworking of such relations. Such reinforcement and restructuring is a process best summed up by Castells in regards to the interrelationship between the centrality of information and knowledge, and the use of technology. “It follows the close relationship between the social processes of

¹⁴⁸ OECD, 1998, cited in, Graham, P. ‘*Critical Systems Theory: A Political Economy of Language, Thought and Technology*’, p.486.

¹⁴⁹ Smith, T. ‘*Flexible production and the capital wage labour relation in manufacturing*’, p.40.

¹⁵⁰ Allen, J. ‘*Post-Industrialism and Post-Fordism*’, p.188.

¹⁵¹ Smith, T. “*Flexible Production and the Capital/Labour Wage Relation in Manufacturing*”, p.39.

¹⁵² Allen, J. “*Post-Industrialism and Post-Fordism*”, p.191.

creating and manipulating symbols (the culture of society) and the capacity to produce and distribute goods and services (the productive forces).”¹⁵⁴ The relationship is both complex and intimate. Consideration of the activity of consumption offers the most vivid description of what is occurring.

Consumption has become increasingly embedded in the process of regulating productive forces. Consumption is very important as it is not about the individual but about a cycle of social relations transformed¹⁵⁵. Flexibility in production is paralleled by the fragmentation of patterns of consumption. Twenty four hour supermarket shopping offers greater choice in consumption patterns and greater work flexibility. However, worker choice and autonomy is undermined. As Baudrillard has noted, consumption is a defining aspect within social relations¹⁵⁶. It should be noted that in context here this is a situationist approach, interpreting late-capitalism and its new forms of dominance within the marxist understanding of commodity production, and thus not wholly the view of Baudrillard¹⁵⁷. This is a continuation, though somewhat more sophisticated, of the essential theme of Fordism, the link between production and consumption as it regulates society and the individual.¹⁵⁸ The unity of this process remains. New ICTs and global media systems have implications for the use of leisure time. The consumption of symbols through increasingly sophisticated methods of niche marketing and market research underpin the market fragmentation of post-fordist consumption. That is, increased consumption of lifestyle, which suggests a commodification of leisure. Such a process also has implications for political movements.

¹⁵³ Gough, J. “Where’s the Value in Post-Fordism” in N Gilbert, R Burrows and A Pollert (eds) *Fordism and Flexibility: Divisions and Change* London, Macmillan Press, 1992, p.43.

¹⁵⁴ Castells, M. *The Information Age, Economy, Society and Culture: Volume One, The Rise of the Network Society* Massachusetts, Blackwell, 1996, p.32.

¹⁵⁵ Aglietta, A. *A Theory of Capitalist Regulation: The US Experience* p.155.

¹⁵⁶ Gottdiener, M. “*The System of Objects and the Commodification of Everyday Life: The Early Baudrillard*”, in Kellner, (ed) *Baudrillard: A Critical Reader*, Oxford, Blackwell, 1994, p.37.

¹⁵⁷ Best, S. “*The commodification of Reality and the Reality of Commodification: Baudrillard, Debord, and Postmodern Theory*”, in Kellner, (ed) *Baudrillard: A Critical Reader*, Oxford, Blackwell, 1994, p.47.

¹⁵⁸ Lipietz, A. *Mirages and Miracles: The Crisis of Global Fordism* p.14.

The term Post-Fordism emphasises the fragmentation of markets, and the aspects of flexibility evident in changes to both productive and consumptive processes. Neo-Fordism does not dispute such notions, but rather offers a normative response. The term Neo-Fordism relies upon the essential theme of Fordism. However, Post-Fordism appears to ignore the central element related to the regulation of the intimate relationship between production and consumption. Claims of increased individual autonomy under flexible labour practices ignore relations of power. The process of fragmentation is exaggerated, given the proliferation of global brands. What one has is the extended sophistication of fordism, and the increasingly pervasive 'Fordist man' in response to the dysfunction evident in the previous mode of regulation.

1.5 Finance Capital.

The proliferation of ICTs contributes to the growing centrality of finance as a wealth generating sector in the global economy. Converging technologies have increased the speed and quantity of data transfer; extended the geographic and social reach of finance capital. The lightening fast transmission of financial data is also linked to the centrality of the computer, networked convergence, and the internet. For example, over the counter (OTC) share trading via digital networks now rivals traditional and organised financial trading centres¹⁵⁹. Furthermore, innovations in communications technology have enabled markets to be accessed globally. Thus facilitating the growth of transnational transactions.

Since the early 1970s there has been a fundamental shift in the configuration of western capitalist economies. The growth and stability, which characterised the post-war years, was succeeded by volatile share markets, the rolling back of the Keynesian welfare state and the creation of a global credit and money market¹⁶⁰.

¹⁵⁹ Saporito, B. 'How the Economy Became Hot News in the 20th Century', in, Columbia Journalism Review, <http://www.cjr.org/year/99/2/business.html>

¹⁶⁰ McGrew, A. 'A Global Society', in, Hall, S, Held D, and McGrew, T. Modernity and its Futures, Oxford, Polity Press, p.67.

Neo-liberal 'reforms' and the associated proliferation of finance capital have been well documented. Under the 1944 Bretton Woods agreement national currencies were linked to the American greenback, which was underwritten by gold reserves¹⁶¹. This system effectively placed nations of the world at the mercy of United States monetary policy¹⁶². The objectives of monetary policy were to encourage international trade and commerce, and stabilise currency movements¹⁶³. This was reinforced by the creation of the International Monetary Fund and the World Bank, which exercised control over international finance markets¹⁶⁴. However, the Bretton Woods system started to collapse when Nixon closed the gold window in 1971. He was responding to the flight of gold from American reserves as states cashed in the volatile greenback for its linked equivalent¹⁶⁵. The slowing of American economic growth, fiscal shortfalls, and the rise in imports in the context of an energy crisis compelled Nixon to close the link between gold and the greenback. He devalued the American dollar and paved the way for national governments to begin floating their national currencies¹⁶⁶. This move led to financial instability.

*George Soros*¹⁶⁷ notes that the true emergence of global capitalism, spearheaded by finance capital, came in the 1970s, when the Organisation of the Petroleum Exporting Countries (OPEC) raised the price of oil. High-energy prices forced the United States to obtain finance for the purchase of oil. OPEC raised the price per barrel, first by almost eight dollars in 1973 and later from \$12.70 to \$28.76 in 1979¹⁶⁸. While exporters of oil had large amounts of surplus, the cost of oil as an integral energy source led to an increase in debt throughout the world. Meanwhile

¹⁶¹ Strange, S. *'From Bretton Woods to the Casino Economy'*, in, Thrift, N. Martin, R. and Corbridge, S. *Money, Power and Space*, Oxford, Blackwell, 1994, p.55.

¹⁶² Henwood, D. *Wall Street: How it works and for whom*, London, Verso, 1997, p.43.

¹⁶³ *ibid*

¹⁶⁴ (Strange, S. *'From Bretton Woods to the Casino Economy'*), & (Soros, G. *The Crisis of Global Capitalism: Open Society Endangered*, London, Little Brown Co. 1998, p.119).

¹⁶⁵ (Strange, S. *'From Bretton Woods to the Casino Economy'*, p.55-57), &, (Henwood, D. *Wall Street: How it works and for whom*, p.43-44).

¹⁶⁶ (Henwood, D. *Wall Street: How it works and for whom*), &, (Soros, G. *The Crisis of Global Capitalism: Open Society Endangered*, p.119).

¹⁶⁷ Soros, G. *The Crisis of Global Capitalism*, p.108.

¹⁶⁸ *ibid*.

the surplus was, in part, reinvested in supranational currencies such as the Eurodollar. Credit was required to buy oil, and that credit needed to be obtained from financial institutions. Tax concessions and changes to the lending environment were needed in order to access international lending markets. And, OPEC nations reinvested burgeoning oil returns, in major banks, nascent currency markets, and new financial instruments.

Two fundamental structural changes had occurred. Firstly, there was the mobility of finance capital; it could move inside and between economies without regulatory constraints. *Soros*¹⁶⁹ notes that such mobility accords finance capital a privileged position in the capitalist economy. Secondly, the deregulation of capital flows and the floating of currencies, facilitated by the new ICTs, created financial risk and uncertainty. Speculative finance capitalists predominated, with a greater ability for finance capital to generate wealth by exploiting short-term fluctuations in price or value¹⁷⁰.

The relation between information technology and finance capital began when the telegraph first conjoined New York and London Stock Exchanges. The more quickly information regarding stock prices could be accessed, the faster decisions could be made. The arrival of computers, the microprocessor, and later digital technology, facilitated the transfer of information in real time. This has led to a burgeoning of financial instruments, for the creation of speculative wealth. Bond swaps, futures and derivatives, for example, utilises present contractual agreements based on future price movements, enabling returns in the short term. Innovations in information and communication technologies have made possible the lightening fast movement of capital in global credit and money markets¹⁷¹. For example, currency markets now account for one hundred times more value than trade in tangible goods¹⁷². Such

¹⁶⁹ *ibid.* p.106.

¹⁷⁰ Strange, S. 'From Bretton Woods to the Casino Economy', p.57-58.

¹⁷¹ Harvey, D. *The Condition of Postmodernity*, p.161.

¹⁷² Graham, P. 'Critical Systems Theory: A Political Economy of Language, Thought and Technology', p.491.

capital flows are outside the boundaries of the nation state, operating across rather than between countries, bringing with it a global level of macro-economic influence.

There are four types of actor networks in the international financial system, the nation state, the media, money capitalists and machines¹⁷³. The state based controls of old, existed prior to the collapse of the Bretton Woods system. At that time there was a fundamental shift in the structure of regulation, namely from state to market forces. This shift precipitated and expanded neo-liberal discourse on the supposed need to deregulate. At the same time IT corporations were able to operate transnationally. For example, the high levels of capital required to facilitate developments in telecommunications infrastructure are increasingly generated via strategic investment and alliance with global telecommunications operators¹⁷⁴.

Capital investment within the IT sector has contributed significantly to both the development of new ICTs and the accumulation of finance capital. Before the 2001-2002 recession, rises in internet stocks were unprecedented in financial history. They may have been linked to the promise of increased productivity as a result of new technology as was the case during the industrialising, Taylorist and post 1945 periods. Pollin¹⁷⁵ cites Henwood as noting that “ At it’s highs in early April [1999] the market capitalization of Priceline.com, which sells airline tickets on the web and has microscopic revenues, was twice that of United Airlines and just a hair under American Airlines. America Online was worth nearly as much as Disney and Time Warner combined, and more than General Motors and Ford combined.” Henwood notes that such new technology companies as Yahoo and Ebay had price/earnings ratios of 1,468:1 and 9,571:1 respectively. To place this in perspective, earlier technologies related ventures such as the successful RCA (P/E 73 in 1929) and Apple (P/E 150 in 1980) never reached such valuations in the United States. Indeed, current transnational corporations such as AOL Time Warner are now struggling to effectively value their operations as “overall valuations are often skewed by the

¹⁷³ Thrift, N. *Spatial Formations*, London, Sage, 1996, p.221-227.

¹⁷⁴ Schiller, D. *Digital Capitalism : Networking the Global System*, p.66.

¹⁷⁵ Pollin, R. ‘*Clintonomics*’, in, *New Left Review*, 3, 2nd series, May/June, 2000,

faddish appeal of one piece of a business”¹⁷⁶. For example, on December 9th 2001 AOL Time Warner was priced at 28 times its estimated profits¹⁷⁷, suggesting capital investment was outstripping the likely investor return¹⁷⁸.

Despite a recent downturn in the performance of faddish technologies, the hype has remained and the effects are expressing themselves in the ‘old world’. As Economist Paul Krugman has argued, the current recession in the United States, where the Technology listing Nasdaq operates, was precipitated by a continual optimism toward high tech stocks. This averts investment away from areas offering long term returns¹⁷⁹. This is an example of the way in which the priorities of finance capital, information commodities and ICTs investment are circularly reinforcing. In this environment money becomes the “object against which all else is measured, reducing everything to its own form of abstraction”¹⁸⁰. Allen and Pryke¹⁸¹ note that random distant occurrences in present and future are being calculated statistically, confusing the virtual and the ‘real’. Previously such confusion was solved via the stabilising functions of the state. But, perhaps, not within hypercapitalism. The use of high-speed information technology in handling the dynamic and incalculable variations of commodity exchange, speeds the process of economic decision making beyond the realms of human controllability. Such decisions impact upon social relations from a remote vantage point¹⁸².

¹⁷⁶ Morgenson, G. ‘AOL Time Warner and the Sorcerer’s Stock’, in Market Watch, NY Times, December 9, 2001, <http://www.nytimes.com/2001/12/09/business/marketwatch.html>

¹⁷⁷ *ibid.*

¹⁷⁸ It is important to note the decline of AOL Time Warner since 2000, with multi-billion dollar losses reported in 2002. In particular, the halving of advertising revenue through AOL, leading to speculation regarding likely divestiture and criticism of over valuation and suspect accounting practices.

¹⁷⁹ Krugman, P. ‘Reckonings; Fuzzy Math Returns’, NY Times, Late Edition October 7, 2001, Section 4, p.13.

¹⁸⁰ Roberts, S. ‘Fictitious Capital, Fictitious Spaces: the Geography of offshore financial flows’, in, Thrift, N. Martin, R. and Corbridge, S. Money, Power and Space, Oxford, Blackwell, 1994, p.91.

¹⁸¹ Allen, J. & Pryke, M. ‘Monetized Time-Space: derivatives - money’s new imaginary’, in, Economy and Society, Volume 29, No. 2, May 2000, p.280.

¹⁸² *ibid.*, p.270-71.

Contemporary finance capital, impacts upon everyday experience. The debtors and creditors spoken of in the functioning of economies, global or national, are not statistical units, but rather, human beings. As Allen and Pryke note¹⁸³, a change in monetary circumstances changes the circumstances and pace of life. This may occur as a result of the withdrawal of investment from countries perceived as unstable, or from currency speculation leading to a drop in the value of a given currency. This in turn may affect various price mechanisms in a national economy. In this regard it is important to realise that ratings agencies such as Moody's and Standard and Poors set the terms by which states and commercial organisations access global finance capital. However, as Michael Kunczik¹⁸⁴ notes, much of the ratings process and evaluation is based on perception or image. As such, states may seek to market themselves via the global media in order to create perceptions of value. This could, perhaps, be described as monetizing the national identity of countries. Susan Roberts also discusses the monetizing of physical spaces via the high-speed cyberspace transfers of finance capital, in a work titled '*Fictitious Capital, Fictitious Spaces*'¹⁸⁵. She describes the establishment of offshore financial centres, free from current state enforced regulations. One example given is of the Cayman Islands. This location is promoted as a destination for transnational finance capital based on perceptions of social stability, beauty and tourism. The functions of the financial services are secondary to the perception of corporate portfolio managers that the island is one of "solidity, substance and good reputation"¹⁸⁶. This perception is based on seeking out the 'solid', in stark contrast "to the remarkably insubstantial nature of the financial sector itself"¹⁸⁷.

¹⁸³ *ibid.*

¹⁸⁴ Kunczik, M. Globalization: News Media, images of nations and the flow of international capital with special reference to the role of rating agencies, IAMCR Conference, Singapore, 2000.

¹⁸⁵ Roberts, S. '*Fictitious Capital, Fictitious Spaces: the Geography of offshore financial flows*'.

¹⁸⁶ *ibid.* p.106.

¹⁸⁷ *ibid.*

Allen and Pryke¹⁸⁸ note that the speeding up of financial transfers reallocates risk throughout ‘real’ time and space. This derives from the fact that high speed information processing seeks to transform the random into the calculable. Allen and Pryke offer the example of Orange County in California, where the investment of over \$7 billion in tax receipts was supplemented by the borrowing of a further \$12 billion. The subsequent loss of a large portion of this investment resulted in an otherwise wealthy region being placed in severe financial difficulty in the funding of education, roading, and other public goods. The gambling of taxpayer funds took place within the derivatives market. This market speculates on the future, often with negative repercussions in the present. For example, pensioners may be affected through loss of income based on such future speculation involving a pension fund. Those reliant upon interest earnings from such investments can be directly affected by sharp fluctuations in value.

*Fredric Jameson*¹⁸⁹ notes that such speculative operations are also affecting the spaces within which we live. Financially driven real estate speculation shapes the very nature of urban development. The conversion of equity into concrete spaces facilitates the circulation of money capital. That is, speculative finance capital, operating within the space of high-speed data flows of information networks, determines the development of physical space. The difficulty is that the “rule of money, whose tyranny is sometimes hard to see”¹⁹⁰, is still connected to social relations of production and capital. Yet the nature of hypercapitalism is such that it operates in a domain that seems disconnected from the material world.

However, the perception and uses of the money commodity, is only part of a wider capitalist process. Henwood¹⁹¹ gives the example of how those operating in the options market for wheat, devise contracts to have the option to buy or sell at speculated future times at particular prices. This requires no more than the

¹⁸⁸ Allen, J. & Pryke, M. ‘*Monetized Time-Space: derivatives - money’s new imaginary*’.

¹⁸⁹ Jameson, F. ‘*The Brick and the Balloon: Architecture, Idealism and Land Speculation*’ in, *New Left Review*, #228, March/April, 1998.

¹⁹⁰ Harvey, D. *The Limits to Capital*, p.321.

‘credibility’ or the illusion of value, not a trainload of wheat. Such separation from the physical commodity may have repercussions in the real. A crash or crisis in finance capital is often related to a drop in confidence. And, while this initially only effects the money commodity, such crises eventually generate retrenchments in real capitalist production.

Conclusion.

Digital forms of communication have blurred the boundaries between formerly discrete information and communication industries. The process of convergence situates new ICTs within global rhythms of capital accumulation. While converged technologies may contain the promise of broader, inclusive flows of information and effective communication, such a promise is yet to be delivered. Instead, the political economy of the new ICTs is underpinned by a long history of unequal development. World scale patterns of information and communication flow have arisen out of the expansion of imperialist, capitalist empires. More recently, patterns of informational inequality have been reinforced by contemporary manifestation of capitalist globalisation.

Global capitalist expansion has been facilitated by innovations in ICTs largely driven by transnational corporations, the wealthiest nations, and supranational institutions such as the World Trade Organisation. State sector deregulation and privatisation, particularly in the areas of finance and telecommunications, has furthered the interests of conglomerates operating in the IT, finance and media sectors. At the same time the operating patterns of finance capital have become increasingly disconnected from the ‘real’ economy, as the wealth within this sector has grown exponentially. This has heightened instability within the ‘real’ economy. The globalised flows of finance enabled by ICTs have exacerbated speculative and unstable tendencies in various sectors of the macroeconomy (for example, stock and real estate investment).

¹⁹¹ Henwood, D. Wall Street: How it works and for whom.

In the context of global capitalism new ICTs have been applied to an increasing number of occupations and workplaces, enabling increased surveillance, and the undermining of job security. Labour markets have become increasingly flexible, and occupations de-skilled. Furthermore, ICTs have developed within areas of leisure, travel and domestic life. This is in part a result of transportable technology and decentralised labour processes, which integrate leisure with work, and incorporate the individual into self constructed lifestyles of consumption.

The political economy of new ICTs is underscored by a wider process; these technologies precipitate the commodification of information, communication and knowledge. However, ICTs such as advanced telecommunications, satellites, and the internet, are also domains of capital accumulation.

The Ideology of Techno-Futurism.

2.1 Ideology and Technofuturism.

I will use the term ideology to analyse the values and beliefs that serve to legitimate a dominant group. More specifically I will deploy the Marxian understanding of ideology as that which functions to reproduce the material and social conditions necessary for the ruling class¹⁹². In this regard, I wish to make several points regarding the construction and operation of ideology. Firstly capital should be understood not simply as a material structure, but as a broad, pervasive system of social relations.

Similarly ideology is a complex and pervasive relation of power. As Mephram¹⁹³ notes, ideas are no more the product of the bourgeoisie, than dreams are the product of sleep.

Secondly, my understanding of how ideology operates draws from a Gramscian perspective. As Michèle Barrett has observed, Gramsci “was interested in the ways in which popular culture developed in such a way as to secure the participation of the masses in the project of the ruling block.”¹⁹⁴ This entails consideration of how ideology engineers consent at given points in history. A ruling ideology is a sociological construction built into the networks of information and communication that construct the social life world for subordinate groups or classes¹⁹⁵. Such a conception emphasises how ideology infuses prevailing modes of communication. From this perspective the central questions are these; what are the dominant symbols, discourses and frameworks of representation? How are they utilised by dominant elites or classes? In this context Gerald Sussman argues as follows:

¹⁹² Pierson, C. (ed) The Marx Reader, Cambridge, Polity Press, 1997, p.109-111.

¹⁹³ Mephram, J. ‘*The Theory of Ideology in Capital*’, in, Jessop, B. (ed), Karl Marx’s Social and Political Thought: Critical Assessments, Vol. 4, London, Routledge, 1990, p.182.

¹⁹⁴ Barrett, M. ‘*Ideology, Politics, Hegemony: From Gramsci to Laclau and Mouffe*’, in, Žižek, S. (ed) Mapping Ideology, London, Verso, 1994, p.238.

¹⁹⁵ Thrift, N. Spatial Formations, p.127.

The preservation of power (the means to influence or control the outlook, behaviour, and welfare of others) has among its requirements the need to influence the mode of discourse – to infuse language practices with concepts that protect the legitimacy of the existing organisation of control and the particular institutions within it.¹⁹⁶

It is also important to note the various purposes of ideology; legitimisation, mystification, fetishism, and ‘common sense’. Legitimation refers to the engineering of consent, by determining ‘appropriate’ forms of power. This may occur in the framing of certain individuals, organisations or knowledges as being in authority or ‘expert’, or by framing anything outside of accepted constructions as the ‘other’. Mystification may be explained by reference to Eagleton’s analysis. He describes mystification within ideology as the “imaginary resolution of real contradictions.”¹⁹⁷ Fetishism relates to the reduction of human qualities or experience to that of a property of things. This operates as a form of reification. Finally, the construction of ‘common sense’, positions certain beliefs and values as self evidently true. That which seems natural is beyond question.

Techno-Futurism is an ideology which works to obscure the rise of specific power relations. In order to explain the concept it is important, in keeping with the concept of ideology outlined above, to look beyond the first tier of analysis, where broad notions of power are considered. That is, the focus will be on the manifestations and operation of ideology. This process is comprised of legitimisation, mystification, reified fetishism and various forms of common sense. Techno-futurism results from narratives of history and progress. These narratives are underpinned by the assumption that history and progress are driven by technology. If one is to locate futurism as a belief in the future as an ideal, one can trace this notion as far back as humans have been aware of mortality. For my purposes however the term is best understood as deriving from the formations of modernity. The ‘essence’ of modernity stems from the principles of enlightenment. This refers to the emergence of a reasoned and scientific worldview leading to a socially and technologically

¹⁹⁶ Sussman, G. Communication, Technology and Politics in the Information Age, London, Sage, 1997, p.4.

¹⁹⁷ Terry Eagleton, Ideology - An Introduction, London: Verso, 1991, p.5-6.

progressive path onwards¹⁹⁸. The concept of futurism I will seek to construct will go beyond that based upon the rise of reason and belief in science. This is because futurism as it shall be understood here explores the ways in which reason and science operate ideologically.

In this context techno-futurism comprises a set of guiding beliefs. These are; firstly, a linear, rational world view. Secondly, the belief in progress in terms of capital accumulation and a commodity economy; thirdly, a belief that technology will offer up such a future. The distinction between the first and second guiding beliefs is essential. Woods¹⁹⁹ argues that capitalism and the Enlightenment ought to be separated out, that “the Enlightenment project belongs to a distinctly non-capitalist society, not just a pre-capitalist but non-capitalist.” Enlightenment principles “belong to a social form that is not just a transitional point on the way to capitalism but an alternative route out of feudalism.”²⁰⁰

The first concept, that of the linear, rational worldview encompasses two major perspectives. Firstly, Christianity and secondly, the Enlightenment. Christianity was a widespread belief system supportive of the rationale of expanding mercantilism²⁰¹. In this sense Christianity was informed by a greater worldly purpose, plotted as a temporal course. The Enlightenment, a major occurrence within western thought, began in France in the mid 1700s with philosophers such as Rousseau. The premise of the movement was that of rationalism, a logic and belief in science as an emancipatory force for man. There was a consequent reduction in the authority accorded to spiritual power as secular principles of governance took centre stage.

¹⁹⁸ Schwarzmantel, J. The Age of Ideology: Political Ideologies from the American Revolution to Post-Modern Times, London, MacMillan Press, 1998, p.18-20.

¹⁹⁹ Wood, E. ‘*Modernity, Postmodernity, or Capitalism*’ in, McChesney, R. Wood, E. & Foster, J. (eds), Capitalism and the Information Age : The Political Economy of the Global Communication Revolution, Monthly Review Press, New York, 1998, p.33

²⁰⁰ *ibid.*

²⁰¹ (Weibe, D. ‘*Modernism*’, in, Brown, W. & McCutcheon, R. (eds) Guide to the Study of Religion London, Cassell, 2000, p.351-362), & (Chidester, D. ‘*Colonialism*’, in, Brown, W. & McCutcheon, R. (eds) Guide to the Study of Religion London, Cassell, 2000.)

The Classical worldview, that is, the belief system which underpinned greek philosophy, held the universe as ordered and pre-determined²⁰². This pre-determined view of the universe as held by classical tradition was not openly challenged until the 16th Century by the likes of Copernicus and Bruno.²⁰³ Brome²⁰⁴ notes that Voltaire's popularised 'Candide' in 1758 bought with it the concept of "the recognition of intellectual freedom as a generally accepted fact, not a benevolent exception", a view which underscores the modern concept of individualism. One may also trace back secularised views of the 'natural order', beginning with meteorology which was linked to the expansion of reason²⁰⁵. With a secularised rationalism came analysis of the social by the likes of Comte and Fourier. In the Nineteenth Century Darwin's 'Origin of Species' signalled a contextualised physical realm in terms of the scientific view of evolution or biological progress²⁰⁶. This melded well with emergent views of social progress²⁰⁷.

As noted, these conceptions of progress as antecedents to the concept of futurism, were expressions not only of modernity but of *capitalist* modernity. That is, futurism became underscored not only by the belief in rational, secular control over nature. It was assumed that such control would be in the service of capitalist expansion. Schwarzmentel's largely hegemonic understanding of modernity citing the Communist Manifesto is an example of this:

*The need of a constantly expanding market for its products chases the bourgeoisie over the whole surface of the globe. It must nestle everywhere, settle everywhere, establish connections everywhere*²⁰⁸.

²⁰² Brome, V. The Problem of Progress, Cassell, London, 1963, pp4.

²⁰³ *ibid.*

²⁰⁴ *ibid.*, p.6.

²⁰⁵ Applebaum, W. (ed) Encyclopedia of the Scientific Revolution: From Copernicus to Newton, London, Garland, 2000.

²⁰⁶ Benton, T. 'Louis Althusser', in, Stone, R. (ed), Key Sociological Thinkers, London, MacMillan, 1998, p.193.

²⁰⁷ Brome, V. The Problem of Progress, p.11.

²⁰⁸ Schwarzmentel, J. The Age of Ideology: Political Ideologies from the American Revolution to Post-Modern Times, p.20.

Here, one has a sense of history and progress as the relentless expansion of capital accumulation. Progress thus becomes reliant on the inevitability of economic development.

Progress was further integrated with capital accumulation during the industrial revolution. This era saw the acceptance of science and technology as absolute (naturalised truths)²⁰⁹. The underlying belief in the future as an object of linear and rational progress was altered. Progress toward the future became synonymous with “an inexorable process of economic growth.”²¹⁰ The early development of techno-futurism occurred when “the means of production were radically altered by the accumulation of capital, the freedom of trade, the invention of machines, the philosophy of materialism, the discoveries of science.”²¹¹

Oppositional voices against this worldview have been historically recorded and such voices now resound as anti-technology, anti-progress clichés. Here I refer to the Luddites, a movement against the restructuring of the workplace and means of production to the detriment of the craftsman.²¹² The Luddite, as a pejorative label, emerges from technologised discourses of economic progress, which operated to extinguish opposition. However, by constructing opposition in terms of such ‘technophobia’, the larger issues are excluded from analysis. For example, structural unemployment is not just the direct result of the adoption and application of information and communication technologies. The values and imperatives with which the technologies are endowed also leads to such unemployment.

The Luddites challenged an imaginary and a ‘progressive’ logic that was inherently value driven, and not simply automatic²¹³. Beyond the opposition to particular productive relations and working conditions was the refusal to believe in a

²⁰⁹ Robins K. and Webster, K. Times of the Technoculture : From the Information Society to the Virtual Life, p.23.

²¹⁰ Smart, B. Modern Conditions, Postmodern Controversies, London, Routledge, 1992, p.63

²¹¹ Robins K. and Webster, K. Times of the Technoculture : From the Information Society to the Virtual Life p.29.

²¹² *ibid.* p.49.

²¹³ Harvie, C. Martin, G. & Scharf, A., Industrialisation and Culture, 1830-1914, London, Open University Press, 1970, p.56.

technological internal logic. Of course, the severe reaction to the Luddites was as much a result of the traditional social mores of English class structure, as it was the result of a rising economic doctrine which sought to legitimate a new structure of power. However, the statements made against the Luddite organisations display a clear technologised discourse of economic progress. While sentencing machine breakers in 19th Century Britain a judge remarked “ It is to the excellence of our machinery that the existence probably, certainly the excellence and flourishing state of our manufacturers is owing. Whatever diminishes expense, increases consumption, and the demand for the article both in the home and foreign market.”²¹⁴

It is important here to consider another ideological assumption existing within techno-futurism, that of technological determinism. This concerns “a view of capitalist development that combines technological determinism with commercial inevitability.”²¹⁵

The values and beliefs of technological determinism have a long tradition. While Technological Determinism is a contested concept, the definition here is, simply, the belief that technology is progress. That is, the notion that technology is a primary progressive social force. There are of course numerous variations concerning the definition of both technological determinism and technology. Heilbroner²¹⁶ argues that technology reflects the socio-economic forces of particular historical contexts, at the same time as it imposes “certain social and political characteristics”. His depiction of medieval technology as bringing about feudalism implies an historical shift in society brought on by technology and therefore without consideration of the developing political economy from which such technology arose. The view is therefore put forward that “technological progress is itself a social activity”²¹⁷ rather

²¹⁴ Robins K. & Webster, K. Times of the Technoculture : From the Information Society to the Virtual Life p.42.

²¹⁵ Wood, E. ‘*Modernity, Postmodernity, or Capitalism*’, p.39.

²¹⁶ Heilbroner, R. ‘*Do Machines Make History?*’, in, Marx, L. & Smith, M. (eds), Does Technology Drive History?: The Dilemma of Technological Determinism. Cambridge , MIT Press, 1994, p.54.

²¹⁷ *ibid*, p.62.

than a manifestation of it. Such a sequential view of technological change within social change appears deterministic in that there is an assumption of logical, predictable evolution of technology as a force impacting upon historical change.

There are those who describe Marx as a technological determinist on account of his assertions regarding the impact of the economic upon the superstructure. However, Marx was not a technological determinist, rather he saw technology as “no more than one kind of important and efficient fuel for history’s human engine”²¹⁸. Marx certainly identified causal linkages regarding the material conditions of existence, however his views did not exclude social context. It is important here to avoid the dangers of excluding the ideas of determination completely. As Raymond Williams has observed, “[I]t is a kind of madness’ if we are simply determined not to be deterministic”²¹⁹. Discussion regarding ‘hard’ and ‘soft’ technological determinism will not be elaborated upon here. My general point is that within the ideology of techno-futurism, technological determinism relates to the assertion of technological progress as a normative ideal, beneficial for everybody.

From a critical perspective, technology originates from particular power relations and is informed by official discourses. Here the technologised, economic rationality of progress is not informed by the forms that technology takes, but rather the reverse. Technological forms are an effect of the economic rationality of progress. The role of the critical theorist is not to analyse the technology but rather the social, cultural, historical and economic processes by which technology is legitimised or challenged. For example, it is incorrect to assume that the digital convergences will axiomatically lead to one dominant form of commodified home entertainment and a loss of community (within mass mediated environments). Such an outcome has emerged from a particular set of institutional and organisational networks. These networks are informed by distinct ideological perspectives and objectives.

²¹⁸ Bimber, B. ‘*Three Faces of Technological Determinism*’ in , Marx, L. & Smith, M. (eds), Does Technology Drive History?: The Dilemma of Technological Determinism. Cambridge, MIT Press, 1994.

²¹⁹ Williams, R. cited in, Chandler, D. Technological or Media Determinism, www.aber.ac.uk/media/Documents/tecdet/tDET13.html. p.101-102.

Forms of rhetoric associated with official views of technology exclude context and project neutrality. Neutral technology in turn projects a form of decontextualised social progress, which likewise bypasses “human agency, power configurations or organised interests”.²²⁰ Sussman cites Weizenbaum to point out the ultimate consequence of the ‘technology as neutral’ assumption;

*It finally leads to the proposition that man is, after all, impotent to struggle with powerful impersonal agencies of his own making over which he has lost control, and that he is therefore justified in abdicating his responsibilities for the consequences of his acts.*²²¹

If technology is the driving force of history, and if the progress of history is represented by values belonging to capitalist modernity, then one can argue that an unqualified belief in technology furthers the ideological requirements of capital. In societal terms this belief process operates as a form of fetishism or mystification.

So far I have dealt briefly with the origins and principle values of techno-futurism. Futurism derives from the enlightenment and industrial revolution, and is informed by a notion of progress synonymous with capital accumulation. Futurism also involves the development of technological determinism as a form of shared rationality. I will now return to the concept of progress. It is important to further discuss the origins and implications of progress when identifying techno-futurism as ideological. As Robins and Webster observe,

*This mythology of ‘progress’ draws some of its appeal from conflating the concepts of change, development and progress. While ‘change’ is indeterminate and open-ended, ‘development’ implies a positive direction (as opposed to simply dissolution or chaos) and ‘progress’ even more strongly, implies an ‘enlightened’ way forward.*²²²

²²⁰ Sussman, G. ‘*The Information Society : Discourses, Fetishes and Discontents*’, in, The Journal of International Communication, Volume 6, No.1, June 1999, p.13.

²²¹ *ibid.* p.15.

²²² Robins K. & Webster, K. Times of the Technoculture : From the Information Society to the Virtual Life p.48.

The conception of progress or movement forward, is a “distinctive feature of modern western civilisation”²²³ in terms of linearity. The social narrative that favours technology as an icon of progress is also related to the substantive forms taken by technology throughout history. Technology offers a physical evidence of progress²²⁴; from the telegraph to the radio to the television, inventions are easily described and drawn in a ‘rational’ sequence. And while it is not difficult to locate critical aspects of progress the concept as a cultural construct may also contribute to considered development. In terms of technological change, one can argue that placing technology within a conception of progress can offer access to critical perspectives of development. As Smith notes, “One of the social effects of technological change is that it prompts cultures to wonder where they are heading.”²²⁵

Nevertheless, constructions of the concept of progress maintain values and beliefs, which defuse conflict, or obfuscate the potential for meaningful contestation. For example, the ecological movement offers points of opposition to official discourses and readily obtains media visibility. However, ecologism is belittled as providing a simplistic negative evaluation of technology²²⁶. Official ideology often depicts so-called Green movements as universally nostalgic and simplistic, with a stereotyped of preference toward a utopian cottage nostalgia.

Technological determinism appropriates the progressive dimension of futurism by way of fetishisation. Sussman²²⁷ cites Mattelart’s (1978) observation that, “[The] communicative fetish hides the repressive and manipulative character of the dominant technological power of the diffusion of information (a veritable productive force) and presents it to those dominated by it as a force of liberation and goodwill.” In this sense the newness of technology is regularly fetishised. Technological

²²³ Smart, B. *Modern Conditions, Postmodern Controversies*, p.62.

²²⁴ Misa, T. *The compelling Tangle of Modernity and Technology*, http://www.iit.edu/departments/humanities/impact/colloquium/Misa_2-2.pdf, p.12.

²²⁵ Smith, M. ‘*Recourse of Empire : Landscapes of Progress in Technological America*’, in, Marx, L. & Smith, M. (eds) *Does Technology Drive History?: The Dilemma of Technological Determinism*. Cambridge, MIT Press, 1994, p.38.

²²⁶ Robins K. & Webster, K. *Times of the Technoculture : From the Information Society to the Virtual Life*, p.61.

iconography and myth lauds innovation over all else, it is a place where “anything that exists is already an artifact of past wonders.”²²⁸

With every new form of information or communication technology have come predictions of massive social change ranging from dystopian doom to technophile optimism. These predictions take the form of techno-futurist narratives. Such predictions have become more pervasive as a result of digital convergence across previously distinct sectors of information and communication. The overlapping of computers, broadcasting and telecommunications has generated predictions of; mass media disappearance, unprecedented democratic freedom, and the arrival of new areas of economic growth²²⁹. The task here is to investigate where such hype originates and how it operates.

The term narrative is deployed to indicate historically based representations of techno-futurism. Such may be found in the development of narratives such as post-industrialism, the information society, the information superhighway, cyberculture and the knowledge economy. Each of these narratives has arisen from particular social and economic conditions and each narrative produces identifiable forms of discourse. However, the arrival of each narrative also builds upon what has gone before.

2.2 Post-Industrialism.

This perspective argues that there has been a transformation in the production process, whereby technology and information are utilised to markedly increase productivity. This insight stems from the understanding that there are three periods of development, the pre-industrial, industrial and post-industrial. This underpins Daniel

²²⁷ Sussman, G. *Communication, Technology and Politics in the Information Age*, p.27.

²²⁸ Smith, M. ‘*Recourse of Empire : Landscapes of Progress in Technological America*’, p.48.

²²⁹ European Commission, *Green Paper on the Regulatory Implications: Green Paper on the convergence of the telecommunications, media and information technology sectors, and the implications for regulation towards an information society approach*, <http://www.ispo.cec.be/convergencegp/97623.html>

Bell's notion of an emerging Post-industrial Society²³⁰; (it should be noted that the concept was further developed by Touraine and Porat at the time²³¹). In the early 1970s, surrounded by maturing (declining) industrial economies, and talk of technocracy and social upheaval, Bell formulated a new perspective of social change. The tertiary sector and institutional knowledge workers were deemed pivotal to the 'Coming of a Post-Industrial Society'²³². The importance of Bell's views here rest on what might be described as the elevation of knowledge to a position as the "axial principle in society"²³³. While his work described the increasing importance of knowledge in all spheres of life, essentially Bell was focussing upon societal structure. He defined an era where technocrats, knowledge workers and those in control of information infrastructures would 'drive' society. The insight, while largely theoretical, helps to explain shifts in the dominant ideology among Western Policy elites between 1962 and 1974. This was a period of technocratic planning preceding the development of neo-liberal discourse and the championing of the free market and digital technology²³⁴. Bell noted that "Knowledge has replaced labour as the source of value which yields future profits"²³⁵. It should be remembered that such assertions were also informed by the dramatic emergence of the microelectronics industry.²³⁶

The ideal of a fundamental shift in the 'axial principles' of society ignores the context of prevailing social relations of capital. It was a shift in the prevailing social

²³⁰ Bell, D. 'The Coming of a Post-Industrial Society: a venture in social forecasting' Middlesex, Penguin Books, 1973.

²³¹ (Tremblay, G. 'The Information Society: From Fordism to Gatesism', in, Canadian Journal of Communication, Vol. 20, No. 4, 1995, p.5), &, (Castells, M. The Information Age: Economy, Society and Culture, Volume One, The Rise of the Network Society, p.14).

²³² Bell, D. 'The Coming of a Post-Industrial Society: a venture in social forecasting'
²³³ *ibid.*

²³⁴ Bell, D. 'The Social Framework of the information Society', in, Forester, T. (ed), The Microelectronics Revolution: the complete guide to the new technology and its impact on society, Oxford, Blackwell, 1980, p.518-531.

²³⁵ *ibid.*, p.77.

²³⁶ Bell updated his work on post-industrial society during the 1980s. Other important writers considering the significance of information and knowledge within the context of new ICTs include Schiller, D. 'The Information Commodity: A Preliminary View', in, Davis, J. Hirschl, T. and Stack, M. (eds) Cutting Edge: Technology, Information, Capitalism and Social Revolution, Verso, London, 1997. &, Castells, M. The Information Age: Economy, Society and Culture, Volume One, The Rise of the Network Society.

relations of capital that resulted in concepts such as Bells' post-industrialism. Bell's view of knowledge as an axial principle, and emerging views of information and technology as facilitating this²³⁷, arose directly out of a period of structural crisis within capitalism²³⁸. The state management of recurring macroeconomic crises had resulted in exhaustion and the collapse of formations crucial to the regulation of sustained growth²³⁹. This was apparent in the decline in rates of profit related to the regime of accumulation centred around fordist mass production and mass consumption. The Post-Industrial argument fails to examine the possibility of continuity in relation to the regulation of production and consumption. Attention to those who benefit from such change is not considered, which serves to construct such social change as automatic and autonomous.

Post-Industrial arguments depend upon the assumption of technologically determined progress. That is, technology facilitates development via increased efficiency and rationalisation (as ascertained by various measures of productivity). The other side to this ideal is the misnomer that increased productivity relates to more jobs and the arrival of a new sector²⁴⁰ characterised by increasing reliance on information and knowledge.

It can be argued, however, that there hadn't been a historically significant shift in sectoral employment patterns generated by the new technological efficiencies. Bell relies upon an account of shifting employment patterns to explain the post-industrial society. The perceived shift from primary to secondary and then tertiary as the dominant sector of employment. This view was developed throughout the 1960s, by economists to explain sectoral employment changes in developed countries. The proposition is that emergent tertiary sector employment relies upon information

²³⁷ Bell, D, 'Communications Technology – For Better or for Worse', in, Harvard Business Review, Boston, May/June, 1979.

²³⁸ Allen, J. 'Power/Economic Knowledge: Symbolic and Spatial Formations', in, Bryson, J. Daniels, P. Henry, N. Pollard, J. (eds) Knowledge, Space, Economy, London, Routledge, 2000, p.16.

²³⁹ Bell, D, 'Communications Technology – For Better or for Worse' p.51-63.

handling and specialised knowledge. But this does not necessarily constitute the emergence of a new post-industrial society. New technological efficiencies can be seen as an extension of scientific management. These principles and techniques as designed by Frederick Taylor were adopted by Fordist production systems and assembly lines. The contemporary notion of flexibility entails the use of Taylorist techniques to reorganise the labour process (through the utilisation of new production technologies and management systems²⁴¹). And, the antagonistic relations between capital and labour remain.

The rhetoric of post-industrialism is informed by an understanding of progress as synonymous with economic growth and development. Economic growth is also indicated by increased leisure time (consumptive time)²⁴² as well as the emancipation or release from manual labour. This reflects a fundamental break from the past and a commitment toward a newer, future oriented present. The future is heralded as the place to head for, as though one may reach such an end point or conclusion simply in terms of projected development. That is, change, though indeterminate and thus difficult to challenge, is set within the linearity of time. The technologically informed sense of advancement is furthered by the integration of knowledge in development. That is, knowledge is incorporated into technique. Knowledge is seen to be integral to economic development and the adjusting of production. One important sociological category within this worldview is that of the “symbolic analyst”²⁴³ as described by Robert Reich. This term describes those who maintain relationships globally, who communicate, trade and innovate or at least facilitate such activity globally. A massive 20 percent of the world workforce, who are specialists in information and knowledge²⁴⁴, orchestrate, the productive lives of the rest. This is a prequel to the Knowledge Economy; the regeneration of economic growth by way of attaining knowledge leads to a new form of growth.

²⁴⁰ Hirschl, T. ‘*Structural Unemployment and the Qualitative Transformation of Capitalism*’, in, Davis, J. Hirschl, T. and Stack, M. (eds) Cutting Edge: Technology, Information, Capitalism and Social Revolution, Verso, London, 1997, p.160.

²⁴¹ Clarke, S. ‘*New Utopias for Old: Fordist Dreams and Post Fordist Fantasies*’, p.153.

²⁴² Miles, S. Consumerism as a way of life, London, Sage, 1998, p.7.

²⁴³ ibid, p.76.

²⁴⁴ ibid.

2.3 The Information Society.

Computerisation and information technology underpinned the narrative of the information society. I refer here to the arrival of semiconductor computers during the late 1970s and early 1980s. Predictions and assertions concerning the information revolution and computer age “represent contemporary manifestations of a view which constitutes one prominent element of the enlightenment legacy.”²⁴⁵ That is, technological rationality and information are seen to be progressive. A central theme here concerns the ‘revolutionary’ nature of information; it is the governing feature of a ‘new’ look world²⁴⁶. Furthermore, it is largely technologically informed; as information is idealised so too are the means or methods of transfer. The proliferation of information is consequent upon the technology required to create and carry information. And, this proliferation is imbued with a sense of historical departure.

The concept of an information society emerged from post-industrialism. And, the political rhetoric surrounding the information society occurred during a period of socio-economic crisis. In Western Europe the development of a regional policy framework concerning the impending information society was carried out at a time when unemployment was high and discussion was centred upon this issue²⁴⁷. However, the origins of information society discourse does not only originate in the political rhetoric. There was also a fundamental shift in the perception of information. Theodore Roszak²⁴⁸ refers to the way information became perceived as measurable and transferable, rather than in terms of social transmission and

²⁴⁵ Smart, B. *Modern Conditions, Postmodern Controversies*, p.62.

²⁴⁶ Robins, K. ‘*Cyberspace and the world we live in*’, in, Featherstone, M. and Burrows, R. (eds) *Cyberspace, Cybodies, Cyberpunk*., *Cultures of Technological Embodiment*, London, Sage, 1995, p.153.

²⁴⁷ Miranda, A. & Kristiansen, M. *Technological Determinism and Ideology: The European Union and the Information Society*, Paper to Policy Agendas for Sustainable Technological Innovation, 3rd POSTI International Conference, London, 1-3 December, 2000, <http://www.esst.uio.no/posti/workshops/miranda.pdf>, p.6.

receipt²⁴⁹. This gave credence to the information society discourse in the sense that the growing transfer of information was assumed to be progressive.

The construction of a quantitative, objective view of information fitted with “economism”²⁵⁰. The cultural and political dimensions of information were downgraded. The technologisation and quantification of information facilitated its commodification. That is, the reforming of information so that structures of information ownership may be established, in particular, the development of scarcity. Yet, this contradicts the understanding of information as progressive. A major tenet of the information society is one of information as inherently progressive. This relates back to the modern ideal of scientific rationality, and more knowledge as being better knowledge. But, when the content, or parts, of forms of communication are technologised, the progressive sense that the information society relies on is signified by the technology, rather than the social acquisition of knowledge. Consequently the notion of the information society has technologically deterministic elements.

With the early development of consumer focussed technology came the promotion of the future in terms of cars and refrigerators, and other household appliances. The promotion of IT goods and services soon followed. This shift was associated with a technologised sense of evolution. Roszak observes that “many machines – refrigerators, automobiles, vacuum cleaners, - also undergo progressive improvements as they pass from model to model. We do not ordinarily speak of this as evolution.”²⁵¹ Such a sense of technological evolution is deterministic and serves to reinforce the uncritical uptake of technology. While access to increasing amounts of information is the empirical measure of progress in this new look world, what is

²⁴⁸ Roszak, T. The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking, Berkeley, University of California Press, 1994, p.41.

²⁴⁹ Stack, M. & Davis, J. ‘*The Digital Advantage*’, in, Davis, J. Hirschl, T. Stack, M. (eds) Cutting Edge: technology, information capitalism and social revolution London, Verso, 1997, p.123.

²⁵⁰ Schiller, D. ‘*The Information Commodity: A Preliminary View*’, p.107.

actually being provided are utopian visions associated with the promotion of cable, satellite, computing, and other forms of technology²⁵².

In the late 1970s and early 1980s the proponents of the information society drew upon the tradition of romanticism²⁵³. Certainly the promotion of information generating technologies depended on notions of newness and progress, leaving the past behind. However, nostalgia for the past is often inherent within constructions of electronic utopia. Such is evident in Alvin Toffler's discussion of the electronic cottage and telecommuting.²⁵⁴ Information is objectified, yet the technologies upon which such objectified information relies, are given an animated form, and are purported to offer simultaneously a return to the days of craftsmanship, and the promise of a future "Golden Age".²⁵⁵ Such endorsements rarely consider the effects of information and communication technology on labour. The commercial imperatives of convergence can result in technological restructuring and "severe dislocations"²⁵⁶ in areas of the labour market. However, official information society discourse offers a shield of hype. Smart²⁵⁷ refers to the assumption of necessary technological redundancy in the promotion of efficiency and growth as "technophilia". This is an "infatuation with technological innovation" as a solution to problems that are not technological. In terms of the workplace, the promotion of information and communication technologies furthers the purpose of de-

²⁵¹ Roszak, T. The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking, p.41.

²⁵² Tremblay, G. 'The Information Society: From Fordism to Gatesism', p.4.

²⁵³ Coyne, R. TechnoRomanticism : Digital Narrative, Holism, and the Romance of the Real, Massachusetts, MIT Press, p.19.

²⁵⁴ Robins K. & Webster, K. Times of the Technoculture : From the Information Society to the Virtual Life, p.70.

²⁵⁵ Garret, J, and, Wright, G. 'Micro is Beautiful', in, Forester T. (ed) The Microelectronics revolution : the complete guide to the new technology and its impact on society Oxford, Blackwell, 1980, p.495.

²⁵⁶ Hulten, C. 'The Macro Policy Environment of Information Society Investments', in, Dumort, A. and Dryden, J. (eds) The Economics of the Information Society, Luxembourg, Office for Official Publications for the European Communities, 1997, p.49.

²⁵⁷ Smart, B. Modern Conditions, Postmodern Controversies, p.63.

unionisation²⁵⁸. That is, the ideological precepts of individualism inform official promotions of information and communication technologies.

The Information Society is a powerful narrative of techno-futurism because the general notion of change can be utilised as a powerful legitimating force. Any construction of so-called epochal change, or in this case, the birth of a new society, is difficult to dispute because of the all pervasive nature of the supposed transformation. Both complexity and ambiguity inhibit meaningful conceptualisation. A research programme designed to chart and map the information society in Britain, referred to as PICT (Programme on Information and Communication Technology), has been unable to offer a definitive framework after more than a decade of study.²⁵⁹ Nicholas Garnham observes that, “The Information Society is a concept with no objective co-relative in the real world. Used as an ideological mantra it merely and dangerously distracts – as is often intended- from the real issues.”²⁶⁰

The information society holds that technologised information is neutral and progressive. However, such ideals ignore the qualitative nature of information, and the origins of the technology which has been incorporated within it. Such is evident in the development of policies concerning the information society in developing countries. Leo van Audenhove notes that “Africa’s information society [is] a term used to refer to the pervasive benefits to all Africans of proactive policies on information and communication technologies”.²⁶¹ In the case of South Africa ICTs are set out as the harbinger of social change. Yet there are no definitive policy strategies or official documents aimed at constructing such such an ‘information society’.²⁶² A form of guiding ethos is evident, but with no correlative in actions,

²⁵⁸ Roszak, T. The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking, p.29.

²⁵⁹ Webster, F. Theories of The Information Society, London, Routledge, p.8.

²⁶⁰ Garnham, N. ‘*Information Society as Theory or Ideology: A critical perspective on Technology, Education and Employment in the information age*’, in, iCS, Vol. 3, Summer, 2000, <http://infosoc.co.uk/00110/feature.htm>, p.11.

²⁶¹ Audenhove, L.v. ‘*South Africa’s Information Society Policy: An Overview*’, in, Communicato, 25, (1&2) UNISA Press Online Journals, <http://www.unisa.ac.za/dept/press/comca/251/vandenho.html>

²⁶² ibid, p.11.

planned or taken. While developed countries assume the revolutionary impact of technologies that facilitate transfer of information, the underlying social structures differ markedly from those of developing countries. The social change is not technologically facilitated. Yet the proponents of the information society herald technological solutions.

The information society has become a powerful rhetoric, in developing and developed countries, as well as on an international level, such as the United Nations. Belief in an information society holds that technologised information is neutral and progressive, a view which lacks sociological reflection regarding the nature of information and technology. For example, organisations such as the World Bank and the United Nations advocate the building of ICTs infrastructures in order to aid development. Indeed, this is often a precondition for the receipt of development aid. Such belief in the progressive potential of information excludes consideration of the fact that wealthy western nations already have well resourced economic systems, universal schooling, and welfare provision.

ICTs infrastructures, in developing countries, are designed to facilitate the expansion of Western capitalism. That is, increased ability to transfer information and data concerning and regulating finance as well as various production systems. Part of this process also includes continued liberalisation or privatisation of infrastructures. This was set out by Joseph Stiglitz, in his analysis of the International Monetary Fund and their construction of the 'Washington Consensus' (fiscal austerity, market liberalisation, and privatisation) in countries such as Kenya and Nigeria²⁶³. Finally, in developed countries, there is a lack of consideration, not only of such vested interests, but the increasing duality of access to information, determined by technological cost and availability, economic status, and social and cultural background.

²⁶³ Stiglitz, J. Globalisation and Its Discontents, Penguin Press, London, 2002.

2.4 The Information Super Highway.

The concept of the information Superhighway is based around technological connectivity. The information superhighway manifests the ideals of post-industrialism and the information society. For example, the information superhighway idealises (fetishises) information and regards its development as integral to socio-economic development. It is an extension of the post-industrialist emphasis upon networked information transfer. As a narrative of techno-futurism the information superhighway embodies manifest destiny, technologically facilitated liberty, and technological progress. The term emerges at the beginning of the Clinton administration with the launch of the National Information Infrastructure Policy. This was replicated on a supranational level by way of the Global Information Infrastructure policy developed for the G-7 countries, Italy, Germany, Britain, United States, Japan, Canada and France ²⁶⁴.

The National Information Infrastructure Policy has been described as a vision destined to be tomorrow's cliché.²⁶⁵ The associated rhetoric was designed to camouflage socio-economic reality and create a sense of "consensus and cohesion".²⁶⁶ The 'substance' of the superhighway policy was not evident until the introduction of the Telecommunications Bill to the United States congress in 1996. The Bill was designed to alleviate market restrictions for major ICTs corporations. Corporations such as Disney, General Electric and Microsoft encouraged the Bill, as it enabled the development of opportunities by way of convergence, in terms of ownership and technology. For example, the wiring of schools and hospitals,

²⁶⁴ Kahin, B. 'Information Infrastructure as a National and Global Policy Initiative'. and, Wilson, E. 'A Framework for Comparison'. Nezu, R. 'OECD's Analysis of National Information Infrastructure Initiatives', in, National and International Initiatives for Information Infrastructure: Overview, January 25-27, 1996. www.ksg.harvard.edu/iip/GIIconf/gii1note.html

²⁶⁵ Dutton, W. Blumler, J. Garnham, N. Mansell, R. Cornford, J. & Peltu, M. 'The Politics of Information and Communication Policy : The Information Superhighway', in, Dutton, W. (ed), Information and Communication Technologies: Visions and Realities, Oxford, Oxford University Press, 1996, p.388.

²⁶⁶ Robins K. & Webster, K. Times of the Technoculture : From the Information Society to the Virtual Life, p.228.

stipulated under the Bill, has offered a platform of technological infrastructure for development of new media content and software markets.

The use of information superhighway rhetoric was not a politically partisan affair. Former speaker Newt Gingrich, one of the first to actively utilise the glamour and confidence offered by narratives of informational connectivity²⁶⁷. Roszak describes his advocacy as the “right wing equivalent to the Roosevelt New Deal.”²⁶⁸ Internationally, politicians of all persuasions have been quick to mirror the futurist rhetoric successfully utilised by Gingrich.

The rhetoric of the connected online future was complemented by promises of market driven growth for e-commerce applications and online services (for example, Law and accounting). The push for online services implies a logic of selectivity. Schiller questions a conception of progress in which on-line consultation by a cyber doctor supersedes the traditional service.²⁶⁹

The proliferation of new markets for on-line products and services projects the notion of technological manifest destiny. The venture capital boom of the late 1990s rested on the notion of small ventures forming, and moving out into the cyber frontier²⁷⁰. Relatively low start up cost, and high levels of attainable investment, would generate rags to riches scenarios. Thus, one observes the synthesis of laissez faire precepts with the promise of a technologically facilitated virtual community.²⁷¹ The invisible hand is posited as a spontaneous process, and is linked with simplistic social Darwinism; the survival of the (economically) fittest in a free world.²⁷² This is coupled with the notion that the superhighway is somehow free from the constraints of the ‘real’ world. Within the dreams of super highways and connectivity lies the

²⁶⁷ Roszak, T. The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking, p.10.

²⁶⁸ ibid, p.26.

²⁶⁹ Schiller, H. Information Inequality : The deepening social crises in America, New York, Routledge, 1996, p.79.

²⁷⁰ Dyson, E. Release 2.1: A Design for living in the Digital Age, London, Penguin, 1998.

²⁷¹ Ibid, p.4.

²⁷² ibid.

belief that information will set us free. Yet, information, “even when it moves at the speed of light, is no more than it has ever been, discrete little bundles of fact, sometimes useful, sometimes trivial, and never the substance of thought.”²⁷³ Such belief in the potential freedoms of networked information stems from the libertarian ideology inherent within information superhighway rhetoric.²⁷⁴

The promotion of e-commerce utilises the ideological symbiosis between the free market and free society, (underpinned by the utopian ideal of perfect competition). Thus, former Microsoft CEO Bill Gates makes reference to “Friction Free Capitalism”²⁷⁵. The world of Internet communications offers unlimited set-up opportunities for small enterprises, as well as avenues to create new markets. This in turn will see competition proliferate at the expense of inefficient monopolies. In reality, the operation of e-commerce is largely confined to transactional and supply chain functions.²⁷⁶

The promises of the information superhighway and connected forms of access to information and communication obscure wider issues. For example, while one might extol the virtues of a twelve year old being able to shop safely from home rather than going to the mall, one might conversely ask, why is the mall unsafe²⁷⁷. The networked wonderland develops in conjunction with socio-economic polarisation both between countries and within²⁷⁸. Access to the superhighway is limited in poor regions, where the cost of infrastructure is too high or levels of disposable income too low. Furthermore, the utopic ideal of work in ‘cyberspace’ actually offers further

²⁷³ Roszak, T. The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking, p.87.

²⁷⁴ Dahlberg, L. ‘*Democracy via Cyberspace: Mapping the rhetorics and practices of three prominent camps*,’ in, New Media and Society, Vol 3, No. 2, London, Sage, 2001, p.157-163.

²⁷⁵ Dawson, M. and Foster, J. ‘*Virtual Capitalism and the Information Highway*’, in, McChesney, R. Wood, E. and Foster, J. (eds), Capitalism and the Information Age: The Political Economy of the Global Communication Revolution, New York, Monthly Review Press, 1998, p.51.

²⁷⁶ Garnham, N. *Information Society as Theory or Ideology: A critical perspective on technology. Education and Employment in the information age*, p.4.

²⁷⁷ Birdsall, W. The Internet and the Ideology of Information, Canada, Dalhousie University, 1996, http://www.crim.ca/inet96/papers/e3/e3_2.html p.3.

integration between leisure and work.²⁷⁹ Working from home, facilitated by the technologies of the superhighway, offers a reduction in the cost of labour and associated risk, while placing the exploitation of the worker within their private life. The barriers between work and home become blurred.

2.5 Cyber Culture.

The phantasmic concept of the ‘cyber’ was originally explored by William Gibson²⁸⁰. It has arisen as the adjective for a new domain constituted by the digitalised space between and within computers and telecommunications networks. The paradigm of Cyberculture is that of an idealised mediated space, related to fringe and niche culture, cyber democracy and manifest destiny.

Popular visions of the future shaped by new technologies have also been painted by the likes of Toffler, Negraponte and Naisbitt. Heralded as visionary and insightful, Toffler was anointed by popular media as a Jules Verne of the late Twentieth century. The critical eye has tended to evaluate such works as “futurology, an ungainly hybrid of potted social science, Sunday supplement journalism, and soothsaying.”²⁸¹ Like many forms of literary utopia, the essentials of the projected life were often ignored. This is a rhetoric where “there are no longer any fields to till, any ores to mine, any heavy industrial goods to manufacture”.²⁸² The rise of such narratives hinged upon an emerging ICT political economy underwritten by the United States military industrial complex. For example, Sohng refers to the “cybernetic post-industrialism that fascinated early space age America in the 1960s.”²⁸³ Along with such fascination for technological projection has arisen the

²⁷⁸ Schiller, D. Digital Capitalism : Networking the Global System, p.54.

²⁷⁹ Lewis, A. ‘*Glimpses of Heaven, Visions of Hell*’, in, Intermedia, June/July, Vol. 23, No.3, 1995.

²⁸⁰ Gibson, W. Neuromancer, London, Grafton, 1986.

²⁸¹ Roszak, T. The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking, p.21.

²⁸² ibid, p.22.

²⁸³ Sohng, S. ‘Participatory research and community organising. A Working Paper Presented at the New Social Movement and Community Organising Conference, University of Washington, Seattle, November 1-3, 1995.

idea of a new kind of culture. William Birdsall notes that Toffler and others established “cyberspace and the American Dream”, as “the magna carta for the knowledge age”.²⁸⁴ Barbrook and Cameron refer to these ideals as; “a loose alliance of writers, hackers, capitalists and artists from the West Coast of the USA [who] have succeeded in defining a heterogeneous orthodoxy for the coming information age: the Californian Ideology.”²⁸⁵ They see this perspective as “a contradictory mix of technological determinism and libertarian individualism”.²⁸⁶ This mix of values mirrors the sense of manifest destiny particularly apparent in late Nineteenth century United States. It was in such areas that the technological developments of the ‘computer revolution’ took place. Barbrook and Cameron note that much of the West Coast IT community adhered to the principles of Jeffersonian democracy and the visions of Marshall McLuhan.²⁸⁷

One might also observe the prominence of the rags to riches story and the promotion of cyberculture lifestyles. This is perhaps best summed up by Forester²⁸⁸, in an excited article describing a 1980 visit to Silicon Valley, the idealised physical space of virtuality.

people are talking about electronic superstars, people who can earn in excess of \$80,000 a year. Above them are the silicon millionaires. Nobody knows how many of them exist, but there must be quite a few. And those who succeeded tend to do so at a young age. Like Gerry Sanders, aged 37, boss of advanced micro devices and driver of a new rolls royce... .. Many of them live in nearby Los Altos Hills, where the three-acre wooded lots and a large pool are de rigueur.

However, such rhetoric was not simply informed by popular visions of technology. As Cotton and Oliver explain, “The vocabulary of cyberspace is drawn from the world of big multinational corporations and prestigious research institutes, who drive

²⁸⁴ Birdsall, W. ‘*The Internet and the Ideology of Information*’, p.2.

²⁸⁵ Barbrook R. and Cameron, A. *The Californian Ideology* p.2-3, University of Westminster, London, <http://www.cci.wmin.ac.uk/HRC/ci/calif5.html> 1995.

²⁸⁶ *ibid*

²⁸⁷ *ibid*

forward the revolution in hypermedia and cyberspace technology, in an attempt to develop new markets.”²⁸⁹. References to the computer age were associated with visions of the paperless office, decentralised commerce and networked communities. An informatic ideal based around the work place was also established. Robins and Webster posit that the “co-existence of a radical techno-rhetoric with a social and communitarian political vision....represents the attempt to reconcile political idealism with the corporate reality principle.”²⁹⁰ However, the realities of such a project were also evident. As hype surrounding the computer revolution and the ideal future was promoted, opposition was swiftly silenced. One such example of this can be seen in the rhetoric utilised by the Thatcherite government in Britain to undermine the union movement. Rhetoric concerning a Luddite threat to productive Britain was constructed. Such rhetoric in part underpinned political discourse serving to legitimate action taken by the state against workers during this period²⁹¹. This occurred during the coal miners strikes of the mid 1980s.

From its earliest manifestations, the development of consumer orientated computer technologies were promoted via corporate sales and marketing strategies. The associated rhetoric reflected the particular cultural and economic objectives of a particular class. The popularised Californian mythology of Jeffersonian idealists inventing in garages was far removed from the realities of IT development. Organisationally such endeavours required large capital investment. And, such investment was realised by large consortiums. Such was the case in 3DOs development of computer entertainment²⁹² and IBM and Microsoft launch of MS-DOS, the first widely established personal computer operating system.

²⁸⁸ Forester, T. ‘*The Jelly Bean People of Silicon Valley*’, in, Forester, T. (ed), The Microelectronics Revolution: the complete guide to the new technology and its impact on society, Oxford, Blackwell, 1980, p.70.

²⁸⁹ Cotton, B. & Oliver, R. The Cyber Lexicon: An Illustrated Dictionary of Terms From Multimedia to Virtual Reality, London, Phaidon Press Ltd, 1994, p.70.

²⁹⁰ Robins K. & Webster, K. Times of the Technoculture : From the Information Society to the Virtual Life p.223.

²⁹¹ ibid, p.42.

²⁹² Cotton, B. & Oliver, R. The Cyber Lexicon: An Illustrated Dictionary of Terms From Multimedia to Virtual Reality p.13.

In 1993, 3DO founder Trip Hawkins' was heralded as an IT and entrepreneurial genius. Yet the list of investors and backers involved included such corporations as content giant Time Warner, Infrastructure giant AT&T, and electronics companies such as Sega, Philips and Commodore²⁹³. The aim was to obtain a world standard in gaming technology. The plan was to create a console that utilised particular specifications. The right to manufacture the console could be purchased for a fee. While the 3DO venture was rapidly surpassed by Sony and Nintendo, who now develop games for these brands, this example indicates corporate control of both the technology and the invention.

Technology outside the control of corporates was also purchased and placed under control of media corporations of the 'old order. Thus, computer game company Atari was bought by Time in 1976²⁹⁴. This is an example of 'old media' seeking to future proof by way of commercial acquisition. Established operators simply seek to purchase both potential competitors and new markets. This strategy was contradictory to the heralded free market ideal trumpeted by 'high technology' supporters.²⁹⁵ The popularised vision of computer technology offering an undeveloped frontier, free to those willing to 'blaze the trails' is illusory.

Possibly the ICT sector most involved in popularising the images of cyberculture is telecommunications.²⁹⁶ The two most prominent graphic advertising strategies are to apply human qualities to the technology, and to make particular technological projections seem imperative.²⁹⁷ An often used form of the humanistic approach imbues technology with a form of classical artistic endeavour. Jerry Salvaggio²⁹⁸ offers an example of the use of such powerful traditions and images. That is, the use of Leonardo Da Vinci, with the caption "Technology is not an end in itself but, like

²⁹³ *ibid*, p.14.

²⁹⁴ Bob Cotton, B. & Oliver, R. The Cyber Lexicon: An Illustrated Dictionary of Terms From Multimedia to Virtual Reality, p.20.

²⁹⁵ McChesney, R. Rich Media, Poor Democracy: Communication Politics in Dubious Times, p.179-180

²⁹⁶ Salvaggio, J. 'Projecting a positive Image of the Information Society', in, J.D. Slack and F. Fejes, (eds), The Ideology of the Information Age, New Jersey, Ablex, 1987, p.148.

²⁹⁷ *ibid*, p.150.

art, a way of enriching our lives.” The advertised images of the invisible network, superhighway, or fibre optic connectivity point to a universal, uncontested future.

Cyberculture hype endows techno-futurism with a heightened sense of presence, which devalues older communities and place based social interaction. For example, the attraction of ‘cyber relations’, or on-line communications, may be found in the search for “reality substitution”²⁹⁹. This refers to the wish to emancipate oneself from place based constraints. Furthermore, the belief that the future is embodied by information technology, regardless of place, implies that geographic communities are anachronistic.

2.6 The Knowledge Economy.

The Knowledge Economy, (also referred to in the socially inclusive terms of the knowledge society, which proponents argue is a requisite for a knowledge economy) is signified by a particular concept of knowledge. At it’s most fundamental one can trace the concept back to Fontenelle, who developed the conception of knowledge accumulation in the 17th Century.³⁰⁰ What was notable about Fontenelle’s concept was the view that knowledge could be both stored, found and invented. It is the first established recognition of knowledge as something that may be accumulated, and developed.

In the contemporary context such a process has intensified, as knowledge is incorporated increasingly into the understandings of capital. The concept of the Knowledge Economy in this sense is, in part, a result of the popularisation of New Growth Theory. This has its origins in the work of those such as Solow³⁰¹ and

²⁹⁸ *ibid.*

²⁹⁹ Robins, K. & Webster, F. *Times of the Technoculture : From the Information Society to the Virtual Life*, p.245.

³⁰⁰ Brome, V. *The Problem of Progress*, p.5.

³⁰¹ Merris, D. ‘*Post-Automation Society*’, in, *The Journal of the Institute for Socio-economic Studies*, Institute for Socio-economic Studies, White Plains, Summer, 1985.

Machlup³⁰². They were interested in the development of ‘knowledge’ based industries and the structural shift in the employment of labour from industry to tertiary or service sectors. That is, the study of economic growth, in the most part focussing upon exogenous factors. However, recent developments in new growth theory have sought to include the endogenous factors of production into the neo-classical model in an attempt to assert an understanding of the determinants of long term economic growth. The accumulation of knowledge is *the* driving force behind economic growth, and knowledge is understood as human capital. The first general assertion of this development was post-industrialism. The focus was upon knowledge specialisation as a way of understanding some of the determinants of technological progress. New Growth Theory serves to conflate knowledge with capital accumulation, and technological development with progress.

As Robins and Webster note, “The hegemonic position of capital has depended on its ability to impose its values on the nature of change (and, at the same time to deny that alternative values could have any rational validity).”³⁰³ This may be interpreted simply as a statement concerning the ideological requirements of capital. However, the statement also helps us to understand the link between the origins of the knowledge economy in new growth theory, and other techno-futurist narratives. Such a link is encapsulated in the claim that information is neutral and progressive. Knowledge economy discourse concerning the need for education to operate primarily as a means of skills transfer in new growth theory is an example of this. This includes increased efficiencies in producing such skills transfers, and in inducing economic growth through the resulting accumulation of human capital. That is, education is set as pivotal in the formation of knowledge required for economic growth.

The discourse of a Knowledge Economy can also be traced back to the rise in economic growth rates throughout the nations of East Asia. This posed an interesting

³⁰² Sohng, S. Participatory research and community organising, A Working Paper Presented at the New Social Movement and Community Organising Conference.

question for economists regarding the nature of growth. Endogenous growth analysis became particularly useful in this regard. That is, it was assumed that the ‘Asian Miracle’ was an exemplification of new growth theory.³⁰⁴ This view stressed the combined importance of entrepreneurialism, technology, education and exports.³⁰⁵ These factors of growth were seen as essential to national prosperity, and required co-ordination by the state.

The proposition that new ICTs, and the broader shift in knowledge accumulation, offers a progressive and inclusive economy and society is also supported by a sense of newness. Much of the present economic theory concerning the significance of intellectual capital and knowledge derives from the early Chicago school theories of classical economics, most recently manifested in terms of development and free trade economic theorists³⁰⁶. These recent approaches have been underpinned by theories of ‘public choice’ and ‘new growth’.³⁰⁷ Michael Peters notes the importance of Joseph Stiglitz’s view that “knowledge is fundamentally different from other commodities.”³⁰⁸ However, the rhetoric of the knowledge economy serves to obscure the commodification of knowledge, and the problematic nature of such a process. The knowledge economy narrative holds that more knowledge is progressive, and that knowledge accumulation is inclusive and accessible. This relates to the assumption that knowledge is a universal resource. However, the functioning of

³⁰³ Robins, K. & Webster, F. Times of the Technoculture : From the Information Society to the Virtual Life p.49.

³⁰⁴ Howard, P. The Asian Miracle and Modern Growth Theory, University of Pennsylvania, The World Bank, 1997.

³⁰⁵ ibid.

³⁰⁶ During the 1960s classical economic theory was expanded upon. The classical presumptions relating to behaviour of individuals, and the primacy of individual exchanges in economic theory remained. However, the economic flaws of state regulation of national economies were expanded upon. The resulting neo-classical approaches emphasised a monetarist approach. Monetarism emphasises supply side factors in the regulation of the economy. The Chicago School theorists, so-called due to the relationship with Chicago University, were particularly critical of heavy state regulation by way of interventionist monetary policy. Such theories have been applied to a number of areas, most recently, trade and development policies. Neo-classical economic theory suggests mutual or reciprocal benefit in international trading, so long as such trading is free of regulation. Such an assumption ignores various developmental disparities in the world economic system.

³⁰⁷ Peters, M. The Knowledge Economy, MacMillan Brown Lecture Series, Lecture 3, University of Auckland, 2001, p.3.

knowledge as a commodity requires control over knowledge by those seeking to obtain value from such knowledge. Thus, there exists a tension between knowledge as a commodity and knowledge as a public good.

Because of the tension between knowledge as a commodity and knowledge as a public good many theorists and economists would argue that knowledge is an impure public good³⁰⁹. However, such a proposition often presumes that the resolution of such tensions can be accomplished by governing bodies. This would tend to centralise controls over the formulation and transmission of knowledge, as may be witnessed in the claims of the World Bank as *the* Knowledge Bank. Thus, the promotion of knowledge as inclusive and inherently progressive, reminiscent of the informationalism of the super highway, operates to obscure normative concerns about the centralisation of knowledge, control over what is legitimate knowledge, and the construction of knowledge as a commodity.

An explicit conception of the Knowledge Economy first emerged in the mid 1990s. Organisations such as the World Bank and the Organisation for Economic Co-operation and Development (OECD) were the first major organisations to start referring specifically to knowledge-driven or knowledge-based economies. The term 'Knowledge Bank' was introduced to the annual meetings of the World Bank by its president Wolfensohn in 1996, signifying the idea that economies are knowledge driven. The concept of a 'Knowledge Bank' reflects how the World Bank sees its role in the facilitation of growth and reduction of poverty. Knowledge is seen as integral to development and sustained growth. By the late 1990s many nations began presenting strategies and policies to attain a place in this new knowledge economy³¹⁰.

³⁰⁸ *ibid.*, p.5.

³⁰⁹ The neo-classical tradition seek to explain away the non-rival conceptions of knowledge and the problems this causes for notions of perfect competition by referring to knowledge as human capital.

³¹⁰ This was prior to the full emergence of the East Asian crisis. This is important, as much of the economic theory surrounding knowledge economics received a boost in legitimacy from studies of the prosperity of many of the economies suffering from the financial crisis.

In considering early manifestations of knowledge economy promotion, it is important to briefly elaborate on the political phenomenon directly associated with the proclamations of the knowledge economy; that of the Third Way³¹¹. The third way is a form of political management rather than political philosophy³¹². In this context the knowledge economy is the macro-economic rhetoric of the third way. That is, the rhetoric of the knowledge economy has gained popularity through its promotion in third way politics. While the origins of 'third way' politics may be found in the United States, and the Clinton administration, the most vocal proponent has been British Prime Minister Tony Blair.

On the 16th of December 1998, the British Department of Trade and Industry³¹³ presented "The 1998 Competitiveness White Paper". The paper advocated the construction of a 'Knowledge Driven Economy'. This would facilitate enterprise, cooperation and thus competitive advantage for the country's businesses. Businesses needed to collaborate with tertiary institutions and the research and development sector.

The Blair government accords central importance to the knowledge economy. In this context there is an overlap between the knowledge economy as a techno-futurist narrative and aspects of third way economic policy. Central to the connection between third way politics and the knowledge economy are techno-futurist conceptions of information and knowledge.

³¹¹ The advocates of the third way, such as Tony Blair and advisor Anthony Giddens, claim the failure of 'free-market' capitalism and state controls. Here lies the third way, a middle ground in which both systems are controlled. It is argued that the state impedes freedom, and the markets impede welfare. For more on this, see Eichbaum, C. *The Politics and Economics of the Third Way*, in, Eichbaum et al. *The New Politics: a Third Way for New Zealand*, Dunmore Press, Palmerston North, 1999, p.35.

³¹² Kelsey, J, *At the Cross Roads: Three Essays*, Bridget Williams Books, Wellington, 2002.

³¹³ The white paper was drafted by Charles Leadbeater (corporate adviser, often advising to Tony Blair, part of independent think Tank, Demos. He has advised such companies as accenture, BT, Ericsson, and various internet start-ups.)

The centrality of information (and thus ICTs) is based around what Petras³¹⁴ refers to as the meritocratic nature of third way's promotion of friendlier capitalism. This involves the apparent demise of socialism and the subsequent rise of an 'appropriate' way of describing inequality as a result of gaps in information, (also referred to as skills and knowledge). It is proposed that information is neutral and also central to economic and social development. Therefore, the proposition goes, access to information will readdress inequalities. Part of such a belief in meritocracy relies on the perceived inclusive nature of information and knowledge, facilitated by ICTs.

In a speech to the British Department of Trade and Industry in 1999, World Bank Chief Economist, and key proponent of knowledge economics, Joseph Stiglitz³¹⁵ stated that "We now see economic development as less like the construction business and more like education in the broad and comprehensive sense that covers knowledge institutions and culture." In particular Stiglitz stressed institutional and cultural change. Processes whereby the operation of global capital may be accommodated, rather than addressed, by individuals and nations. The subtleties of inculcation are noted, and it is argued that the universal approach must give way to a more systematic form of inculcation.

Nationally constituted policy is underscored by the imperatives of globally configured economic flows, and the creation and control of new knowledge³¹⁶, in a way which seeks to subvert potential conflict between the local and the global. In this context the third way provides a public face for the naturalisation of neo-liberal reforms and economic globalisation.

The process of naturalising the operation of global capital includes the rise of managerialism. Michael Peters³¹⁷ notes management theory as a discourse of the

³¹⁴ Petras, J. *The Third Way, Myth and Reality*, in, *Monthly Review*, Volume 51, #10, March, 2000, <http://www.monthlyreview.org/300petras.htm>.

³¹⁵ Stiglitz, J, *Public Policy For a Knowledge Economy*, London, Department for Trade and Industry and Center for Economic Policy Research, The World Bank, January 27th 1999.

³¹⁶ By 'new knowledge' I refer also to technology. Such new knowledge is mostly confined to those knowledges that may be commercialised.

³¹⁷ Peters, M. *The Knowledge Economy*, MacMillan Brown Lecture Series p.3.

Knowledge Economy. This includes the extension and sophistication of Taylorist principles via flexible specialisation, 'just in time' total quality management techniques, and flexible production. Taken together these developments allow a greater level of control over labour and the labour process³¹⁸. Of particular importance here is the way in which the belief in progress is linked to the social controls within the production process. More recent examples of this include the rhetoric of skills based education as an imperative (as part of human capital investment) and the rhetoric of life-long learning. Skills based education seeks, in part, to shift the cost of labour in production further toward the public sector, while life-long learning serves to remove worker expectations of life long employment, making labour more flexible (disposable). That is, management theory operates to re-organise production in keeping with the requirements of capital.

Coinciding with increases in an emphasis on education has come a decrease in the skills required of the average worker.³¹⁹ Yet education is becoming increasingly skills focused. Thus one may conclude that the emphasis is simply orientated towards a social factory, in which workers acquire the skills and beliefs needed to take up employment, while businesses avoid training costs. Here it is important to question the conception that knowledge has distinctive properties. Can the idea of knowledge or intellectual (human) capital be critically described as mental labour? If capitalist relations of production still exist, then the worker has no more control over their intellectual capital than they would over their labour. Intellectual knowledge is a form of input, which is transformed into a commodity, when applied to the production process, and when it is exchanged for other units of labour. The commodification of intellectual labour is always to the benefit of the capitalist.

Another dimension of the knowledge economy is the rhetoric referred to here as Globalism.

³¹⁸ (Boje, D. and Winsor, R. "*The resurrection of Taylorism: Total Quality Management's Hidden Agenda*"), & (R. Winsor, "*Talking the post-Fordist Talk, ...but walking the post-industrial walk*").

The construction of the global is not the same as the construction of the international. One example of the search to separate globalisation from its founders is a statement made by Giddens on his website. “Globalisation for me is a much more profound set of institutional changes transforming societies through the world. It's driven primarily by the communications revolution rather than by financial markets or the global marketplace.”³²⁰ This claim is flawed. As noted in Chapter one, the ‘institutional’ changes that are often argued to be trends of globalisation, cannot be separated into information technology and financial flows. The complex system of restructuring binds the two processes together. For example, the technologising of information and communication and the consequent monetising of such systems falls within the boundaries and requirements of finance capital flows. This is not a shift toward a knowledge driven equitable meritocracy.

There is a fundamental contradiction in what Giddens is seeking to propose, the separation of the social democratic nation state from the construction of globalisation. It is indeed the ‘responses’ of the nation state that facilitates certain aspects of globalisation. Of course this relies on the view of globalisation as being fundamentally linked with economic flows and in particular finance capital flows (constructed in conjunction with information and communication technologies).

Globalism is the tying together of the global and the local. Knowledge Economy rhetoric constructs this process as determined by technology. Global flows of information and communication are both unavoidable and progressive. Icons such as the Internet and global satellite systems, are positioned as symbolic of progress. Globalising flows of finance, trade and travel, are set out as unavoidable evidence of change. This is related to the presumption of an increasingly pervasive information society. Knowledge and information are said to constitute a pervasive global force.

³¹⁹ Henwood, D. ‘*Information Fetishism*’, in, Brook, J. and Boal, I. (eds), Resisting the Virtual Life: The Culture and Politics of Information, San Francisco, City Lights, 1994, p.169.

³²⁰ Giddens, A. ‘*The Third Way Debate*’, Lecture, Annual Conference of the Society for Socio-Economics, London School of Economics and Political Science, July 14, 2000, <http://www.fathom.com/feature/121949>.

This obscures reflection upon the capitalist functions of ICTs and the unequal access to information and communication.

The embrace of these processes is constructed as imperative, given the threat of exclusion. Those absent from the global will experience the economic and social degradation that this entails. Thus, the rhetoric of the knowledge economy has globalism at its heart. In addition, the rhetoric of globalisation obscures the history of the process, in a way that denies the inequalities it represents. A key example of this is the discourse calling for national rebirth, which follows on from the threat of exclusion, and operates to support reorganisation toward the so-called knowledge economy. That is, the myth of newness and rebirth surrounding technology is replicated within the knowledge economy rhetoric as a techno-futurist paradigm. We need a 'new' economy based around a new concept of the accumulation of knowledge if we are to avoid 'missing out'. This will require the accommodation of global capital at a local level. One example is the need to develop or attract innovators and skilled workers that increase a nation's profile in the global economy.

Knowledge economy rhetoric emphasises the increasing returns and added value built upon knowledge. This assumes that knowledge is an abundant good. However the process of commodification precludes abundance, by restricting the movement of knowledge and by prioritising certain types of knowledge. For example, there is a tension between the increased ability to access, store and move information and knowledge, and the barriers to the securing of such knowledge for some. Such legal structures, such as copyright (for example, the recording industry) or intellectual property (such as engineering or design) create barriers for those seeking to obtain knowledge or information. Furthermore, knowledge is hardly a resource for competition among businesses³²¹ As Schiller notes, "the entire PC industry could be seen as little more than a value-added reseller for Intel and Microsoft."³²² Yet so-called high-tech firms are lauded as exemplars of competitive success in the knowledge economy.

³²¹ *ibid.*

³²² Schiller, D. *Digital Capitalism : Networking the Global System*, p.91.

It is here that one must turn to two key concepts within the knowledge economy narrative. That of innovation and entrepreneurialism. Entrepreneurialism refers here to the ability to take risks as a learned behaviour. This presumes the fundamentally pure nature of the market, and the rational activity of actors within such markets. Thus, the declaration of enterprise as progressive behaviour obscures the relations of production and processes of exploitation within capitalism. Entrepreneurialism proclaims the uncritical acceptance of individual (consumer) choice. Furthermore, the emphasis on learned behaviour relates to the culture of social institutions. Thus, cultural change is deemed a requirement of the knowledge economy. Specifically, the knowledge economy calls for a risk or enterprise culture, characterised by the practices of innovation.

By innovation I refer to the development of new ideas or processes. In particular, innovation has come to refer to the commercial application of ideas or processes not yet used by others in the marketplace. The term has been popularised by the proponents of New Growth Theory, who have sought to emphasise the importance of knowledge (and technology) in determining economic growth. The coinciding emphasis on research and design in relation to the knowledge economy overlooks global disparities in wealth. That is, innovation is often derived from privileged corporate funding systems³²³, this in part reflects the desire of governments to obtain foreign direct investment. Research and development is also supported by established systems of higher education, in which particular forms of knowledge have been sufficiently developed, controlled (and valorised)³²⁴. The relations of power that constitute the production and utilisation of knowledge are in part hidden by the rhetoric of globalism and globalisation.

³²³ Ganguly, A. Business-driven Research and Development: Managing to Create Wealth, London, MacMillan Press, 1999, p.83-87.

³²⁴ (Jessop, B. 'The state and the contradictions of the knowledge-driven economy', p.68-72) & (Byrkjeflot, H. What kind of knowledge society: the prospects for democratic governance of knowledge, Norwegian Research Centre in Management and Organisation, University of Bergen, <http://www.los.uib.no/losforsk/PDF/2001/Notat/N0110.pdf>).

The knowledge economy is distinct from previous techno-futurist narratives on several counts. Firstly, the scale and intensity of its promotion is unprecedented. The wide-ranging set of meanings, and incorporation of varying views provide an appearance of consensus. Thus, the discourse was adopted by numerous organisations. Supranational organizations such as the World Trade Organisation (W.T.O) were early adopters of the discourse. The United Nations was also an early adopter, with proposals such as Vision 2010, which had the objective of turning Mongolia into a knowledge economy and society. Internationally, national governments have espoused the importance of social and economic transformation. Examples include policy papers such as ‘Scotland Towards a Knowledge Economy’³²⁵ and ‘Digital Scotland’, Canada’s Industry Canada policy on ‘Winning in the Knowledge Economy’ and ‘Towards a Society Built on Knowledge’. The discourse is evident in educational organizations, for example, International University Network *Universitas 21*. Dr. Mukesh Aghi³²⁶, Chief Executive Officer of Universitas 21 Global, the organisation’s online venture, said,

E-learning will fast gain momentum in this region with the current shift towards an increasingly knowledge-based and -driven economy. Corporate professionals and students are under pressure to keep up and they sense the urgency to continually upgrade their skills to stay competitive and relevant in a changing world economy.

Health organizations, particularly in relation to biotechnology and research, refer in particular to rhetoric concerning innovation. Various trade unions as well as employer and manufacturer interest groups, also support the rhetoric of the knowledge economy. For example, the July 2000 paper titled “Rebuilding Australia: Manufacturing in the New Economy”, produced by the Australian Manufacturing Workers Union and designed to gauge whether or not a knowledge economy was being attained nationally.

³²⁵ Scotland: Towards the Knowledge Economy, The Scottish Office, April 12th, 1999.

³²⁶ Universitas 21 Global, Universitas 21 Global, World-Class E-University Opens for Student Registration, Hill & Knowlton Press Release, Wednesday, May 28, 2003.

Central to 'knowledge economy' rhetoric is the assumption that knowledge creation and transmission is central to the development of economy and society. This is similar to the progressive nature of information in the rhetoric of the information society. Underpinning this is the idea that knowledge is, by nature, inclusive. This serves to exclude the possibility that particular vested interests might benefit from the commodification of knowledge. There is also the assumption of meritocracy when the variations in knowledge availability are ignored. Thus, there are aspects of informationalism present (the assumption that information is neutral and progressive).

Signs and symbols (brands) are increasingly important for value-added products and differentiation. Additional value is gained along the commodity chain by adding knowledge and ideas in the form of signs and symbols in a way which also defers degrees of risk by avoiding long term commitments to immobile or fixed capital and labour. This is a form of productive flexibility referred to as a flexible regime of accumulation. The global contracting system of Nike corporation is an example of this. Furthermore, the forms of intellectual capital or human capital at work in order to create such signs and symbols are seen as supported by information technology. That is, the ability to store, manipulate and move information is the realm of both the worker and technology. Technology has become increasingly central, and the worker peripheral or dispensable. This may be seen in the lack of job security in occupations such as advertising, marketing and IT.

As Hardt and Negri³²⁷ note, "Today we increasingly think like computers, while communication technologies and their model of interaction are becoming more and more central to labouring activities." The discourse of knowledge facilitated growth is part of the neo-liberal discourse of technology, which seeks to remove the productive culture of labour, by subjecting it to corporate rationales of a technologised labour process.

³²⁷ Hardt, M. and Negri, A. *'Postmodernisation, or The Informatisation of Production'*, *Empire*, Cambridge, Massachusetts, Harvard University Press, 2001, p.10.

As Jessop³²⁸ notes;

Governments on different scales and of quite varied political complexions now take it as a mere fact of life (though a 'fact' produced in part by inter-governmental agreements) that all must bow to the emerging logic of a globalizing knowledge-driven economy. Responses to this emerging institutional and operational logic vary but their dominant, if not hegemonic, form in the anglophone world is neo-liberalism. This is a political project for the re-structuring and re-scaling of social relations in accord with the demands of an unrestrained global capitalism.

What is obscured in constructing the new and inclusive nature of a knowledge economy are the vested interests involved. This becomes increasingly important when one questions the notion of knowledge abundance. The converse notion of knowledge scarcity is contingent upon the social relations of capital³²⁹. The restructuring of social relations has a major impact upon the availability and hierarchies of knowledge. From this perspective knowledge economy rhetoric can be seen as resulting from the structural crisis of 1970s Fordism. Thus, the knowledge economy is underpinned by the assertions of the need to invest in human capital, network 'knowledge workers', and encourage technological innovation. Such calls for 'innovation' (obscuring the processes of commodification) are central to the 'requirements' of a knowledge economy.

2.7. Institutions of Promotion.

The reproduction of techno-futurism relies upon institutional promotion. Here I will refer to tertiary institutions, mass media and organisations of supranational governance. Education has been enlisted in the promotion, use and acceptance of forms of technology. This is both enduring and powerful when the 'vendors' of technology, and consequently (and the ideology embedded within such technology), are also "institutions of social reproduction".³³⁰ This process is one of mutual reinforcement and the elimination of opposition. As Christensen notes, education of

³²⁸ Jessop, B. cited in, Fairclough, N. *Representations of Change in Neo-liberal Discourse, Language and the New Capitalism*, <http://www.cddc.tv.edu/host/Inc/CA-15ega.doc>.

³²⁹ Jessop, B. 'The state and the contradictions of the knowledge-driven economy', p.64.

³³⁰ Schiller, D. *Digital Capitalism : Networking the Global System*, p.205.

technology and technology in education embeds that technology and its power within cultures, and often within opposing classes³³¹.

Education is the primary domain for the diffusion of the values required for the expansion of hypercapitalism. The inculcation of flexibility, for example, may be established via pedagogy. As Robins and Webster observe, “Education is a central agency, rivalled only by the family, of social regulation” and therefore a shift in the organisation and practices of education suggests change in forms of social control.³³²

Current shifts in education are creating disciplines, with related rhetoric, that amalgamate the teaching of skills required for employment with behavioural instruction related to broader social and cultural expectation.³³³ Such changes in education offer the facilitation of a trained labour pool for the IT sector, the nurturing of ICTs applications (funded largely by way of public purse and private initiatives) and the development of a ‘ready-made’ market of consumers for the related products.

Corporates have a vested interest in selling technology to schools.³³⁴ The reasons for this are clear. The education sector offers a priming ground for the future sales of Information and Communication Technology. Such an opportunity has not been lost on the IT industry, particularly computing. For example, one of the earliest personal computer manufacturers, Apple Computer, donated one of its machines to every school in California³³⁵. While computers offer a myriad of benefits in education, the

³³¹ Christensen, D. ‘*Danish Modernisation Strategies: from above and below*’, in, Christensen, D. (ed.) *European Historiography of Technology*, Denmark, Odense University Press, 1993, p.71.

³³² Robins, K & Webster, F. *Times of the Technoculture : From the Information Society to the Virtual Life*, London, Routledge, 1999, p.179.

³³³ *ibid* p.181., and, Edwards, R. & Nicoll, K. ‘*Researching the rhetoric of lifelong learning*’, in, *Journal of education policy*, Ball and Goodson, (eds), March-April, 2001, Vol 16, No. 2, Taylor and Francis, p.107.

This also relates to the argument by Hardt and Negri regarding the social factory.

³³⁴ Selwyn, N. ‘*Schooling the Information Society?: The place of the information superhighway in education*’, in, *Information Communication and Society*, Vol. 2, No.2, 1999, p.167.

³³⁵ Roszak, T. *The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking*, p.47.

extent to which they have been heralded as a panacea for all learning woes is startling. While the content may offer solutions, the machinery offers little more than technological efficiency in the delivery of content.

One consequence of the marketing campaign carried out by the computing industry during the 1980s was the increased requirement of property ownership for access to education³³⁶. That is, the increased emphasis on computer and software ownership. Tertiary education was the first area to show such signs, with universities assigning greater importance to computing technology. The continued increase of computing availability in higher education may indeed resolve some access issues by offering distance education. However, the perpetuation of social inequality has long remained an issue for university education, and the prospect of commercially driven distance learning does not alleviate this. In addition to this, the cultural and socioeconomic biases inherent in aspects of interface design and content are ignored by those instigating the use of information and communication technologies in education.

While the uses of ICTs advance the transmission of information, many of these advances are determinedly and often singularly financial. Roszak³³⁷ accords gullibility to those university administrators who fervently embrace information technology. “They are doing so because they have absorbed mindless clichés about ‘information’, its intellectual value and vocational urgency, that are little better than advertising copy.” Higher education is embracing new technology, just as the 1980s computer ‘revolution’ talked of the paperless office. In each case there is a prevailing mantra of productive efficiency. There appears to be unsubstantiated claims concerning the burgeoning access to informational resources for teachers, the interactive capabilities of the technology, and the inherent equality of the technology³³⁸. There is often an absence of consideration regarding the quality or type of education accessed via such means, or the link such technologies have within

³³⁶ Roszak, T. The Cult of Information : a neo-luddite treatise on high-tech, artificial intelligence, and the true art of thinking, p.58.

³³⁷ ibid., p.63.

³³⁸ Selwyn, N. ‘*Schooling the Information Society?: The place of the information superhighway in education*’, p.156.

a particular value system. Issues of quality, authenticity and utility are largely ignored³³⁹ particularly in relation to use of ICTs to enforce quantified and standardised units of assessment. The very presence of cyberspace and information technologies appears to offer sufficient answer to such questions. Yet the fragmentary nature of the internet undermines the interactivity which is often lauded as the most equitable and promising feature of the technology.³⁴⁰ In addition, within tertiary education the use of converged ICTs is contributing to a loss of tenured or full-time employment.³⁴¹

The promotion of technology as inherently beneficial is only one aspect of techno-futurism. Another is the way in which certain types of knowledge are promoted as more valuable than others. There has been a shift in the position of tertiary education in particular, as a result of global restructuring. Education is being trumpeted as a crucial “sub-sector” of a new globalised and increasingly service and information based economy.³⁴² Peters describes this as a transformation of higher education, “driven by corporate trainers, technozealots, university administrators, and the vendors of the network hardware, software, and ‘content’”.³⁴³ In particular, the transnational corporations of new ICTs have an interest in accessing a potentially large and lucrative market. Beyond this, the transformation of higher education embraces performance and efficiency in the monetised sense of investment, and the use of technologies in the limited sense of information transfer used within forms of business to business communication.³⁴⁴ Changes in higher education offer support to the expansion of hypercapitalism and the new ICTs. It may be argued that such

³³⁹ *ibid*, p.158-159.

³⁴⁰ *Ibid*, p.160.

³⁴¹ Schiller, H. *Information Inequality : The deepening social crises in America*, p.79.

³⁴² Peters, M. ‘*Education and the shift from knowledge to information : Virtual Classrooms or Automated diploma mills?*’, in, *Access: Critical Perspectives on cultural and policy studies in education*, Vol 17, No. 1, Auckland, Uniprint, 1998, p.67.

³⁴³ *ibid*, p.75.

³⁴⁴ Gibbs, P. ‘*Higher Education as a Market : A problem or a solution?*’, in , Tight, M. (ed), *Studies in Higher Education*, Society for Research in Higher Education, Volume 26, No. 1, 2001, p.85.

changes will continue to the point where one may more easily speak of “educational corporations”.³⁴⁵

There has been a growing emphasis on vocational education, with emphasis on skills and flexibility³⁴⁶. Particular importance is placed on the skills required to operate ICTs in the workplace. This rests upon a contradiction, when one notes the role ICTs in automating the service sector. That is, increases in emphasis placed on education parallel a decline in the skills required of the average worker. Such shifts are also associated with the increasing need to construct brands and points of difference in tertiary education markets, and the need to further utilise new ICTs in the reduction of costs. For example, the nature of employment in tertiary education is changing; increasingly flexible work practices, are contributing to the loss of independence and control for teachers.³⁴⁷

A reorganisation of the social relations of capital required to commodify knowledge requires institutions of social reproduction that disseminate the ideological base of such transformations. Education has been included as a key factor in the knowledge economy since Machlup first developed the concept. He did so when researching the output of what he saw to be knowledge producing industries in the US in the 1960s.³⁴⁸ Education is heralded as perhaps the most important factor of the knowledge economy, due largely to the facilitation of a labour force for the use and invention of new technologies. Emphasis on education is not for the purposes of social betterment or positive social change³⁴⁹. Rather education is designed to extend economic growth through increased human capital and the application of specialised knowledge to the development of new technologies and techniques. Such a view is informed by the class enforcing role of education. In particular, the emphasis upon

³⁴⁵ Kwiek, M. ‘*Globalization and Higher Education*’, in, Higher Education in Europe, Vol 26, No. 1, London, Carfax Publishing, 2001, p.29.

³⁴⁶ ibid.

³⁴⁷ Peters, M. ‘*Education and the shift from knowledge to information : Virtual Classrooms or Automated diploma mills?*’p.76.

³⁴⁸ Webster, F. Theories of the Information Society, p.11.

³⁴⁹ Henwood, D. ‘*Information Fetishism*’, p.167.

education as enabling the development of one's own human capital serves to privatise the process through which knowledge is acquired.

The mass media is also prominent in the promotion of techno-futurism. This occurs in two main ways. The first is the promotion of technology as synonymous with progress, simply by focusing on information technology as 'technology' (that is, as an autonomous agent). This is evident in print media sections devoted to 'information technology'. Coverage encompasses businesses that utilise IT systems, the IT labour market and entertainment markets. These diverse contexts may now be bought under the banner of 'information technology'. Previously mainstream publications are becoming increasingly devoted to information and communication technology themes. For example, TIME magazine has become fixated with new technologies. An example was the cover of the May 29th, 2000 issue 'Wireless Living: The Ultimate Breakthrough For the Information Age'³⁵⁰.

Techno-futurism is also promoted via the selling and dissemination of financial information. The reliance of the global finance sector on information flows has been reinforced by the proliferation of ICTs. Financial news has become big business, more so in the last decade than ever before³⁵¹. Doug Henwood suggests that there are no daily newspapers that do not have mutual fund listings³⁵². The connection between the rise in financial news and the finance market, in connection with convergence, is not as tenuous as it may initially appear. Information technologies have made transnational finance capital risk laden and wealth generating to the point of being newsworthy to the general population³⁵³. Such representations of economic activity within news, serve to promote the 'naturalness' of finance capital.

³⁵⁰ TIME, 'Wireless Living: The Ultimate Breakthrough For the Information Age'. May 29, 2000.

³⁵¹ Saporito, B. 'How the Economy Became Hot News in the 20th Century'.

³⁵² Henwood, D. Wall Street: How it works and for whom,

³⁵³ Reed, D. 'The Power of News: The History of Reuters', New York, Oxford University Press, 1992.

Thus, Hope argues that news networks are now a part of global flows of financial information.³⁵⁴ That is, finance and the previously established media networks are operating in a dynamic interrelationship, which serves to support hypercapital, mainly by representations of economic activity which “blur the distinction between information, noise and money.”³⁵⁵ Such representations also promote the illusions of market equilibrium and market optimism.

One example of this is the way in which mainstream media representations obscure the conflicts and contradictions inherent in a globalising commodity economy. For example, those with a stake in globalising markets require stable policy environments while also requiring open national markets, which do not inhibit the use of risk reducing strategies such as monopolistic or oligopolistic control over markets of financial interest³⁵⁶. This is often in conflict with the role of the state in terms of the protection of the citizen, freedom of speech, issues of access and the protection of national interests³⁵⁷.

Such conflict is actually addressed at a supra or transnational level. For example, the power of the state has been diminished by institutions such as The World Trade Organisation, and by the expansion of transnational finance capital³⁵⁸. Many nationally appointed representatives involved in such processes of regulation however, find that such institutions are designed to simply carry out the policy objectives of transnational lobby groups on behalf of those central to the global

³⁵⁴ Hope, W. Conceptualising Media-Economy Dynamics: Finance Capital, Television News, And the Electoral Democracy in New Zealand, Paer presented at the IAMCR Conference, University of Strathclyde, Glasgow, July 26-30, 1998, p.5.

³⁵⁵ Wark, M. cited in, Hope, W. *Conceptualising Media-Economy Dynamics: Finance Capital, Television News, And the Electoral Democracy in New Zealand*, p.5., and, Wark, M. Virtual Geography, Indianapolis, Indiana University Press, 1994, p161 - 176.

³⁵⁶ McChesney, Rich Media, Poor Democracy: Communications Politics in Dubious Times.

³⁵⁷ (Tehrani, M. Global Communication and World Politics, pp74), &, (Braman, S. *‘Horizons of the State: Information Policy and Power’*, in, Journal of Communication, International Communication Association, Autumn, Vol. 45, No.4, 1995, p.20).

³⁵⁸ Wheelwright, T. *‘Adds up the Cost of Global Speculation’*, in Arena Magazine, Feb/March, 1994.

economy, such as the IT and finance sectors.³⁵⁹ Schiller refers to the WTO regulations on telecommunications as an “extraterritorial corporate charter”³⁶⁰.

Winseck³⁶¹ describes a new regime of governance for telecommunications and the new media, based on three pillars. These are the new nation state based regulatory organisations, organisations emanating out of private authority such as the private sector alliances within the International Telecommunications Union (ITU), and the World Trade Organisation (WTO). The implementation of policy strategies by the elite or core nations are reinforced by way of cooperative strategies planned during such gatherings as the G-7 industrialised nations group, WIPO (World Intellectual Property Organisation), or WTO³⁶². For example, the 1995 meeting of G7 nations devised a cooperative strategy to implement the broader “Global Information Infrastructure”³⁶³ or GII. The GII was designed to initiate the development and implementation of information infrastructures required by multinational IT corporations.³⁶⁴

Another example of supranational techno-futurist promotion is the policy that Internet access initiatives be a requirement for developing nations seeking United States financial aid. This occurred during the late 1990s³⁶⁵ and this has been further supported by international lobby organisations. The policy of the IMF has reflected these telecommunications policy agendas, in that the IMF, in response to the Asian Financial Crises and also the Mexican Financial crisis, required the facilitation of

³⁵⁹ Golding, P. ‘*Worldwide Wedge: Division and Contradiction in the global information infrastructure*’, in, Thussu, D. (ed), Electronic Empires: Global Media and Local Resistance, Arnold, Great Britain, 1998.

³⁶⁰ Schiller, D. Digital Capitalism : Networking the Global System, p.48.

³⁶¹ Winseck, D. ‘*Wired Cities and Transnational Communications: New Forms of Governance for Telecommunications and the New Media*’, IAMCR Conference, Singapore, 2000.

³⁶² Dutton, W. et al, ‘*The Politics of Information and Communication Policy : The Information Superhighway*’, p.396.

³⁶³ ibid.

³⁶⁴ Kahin, B. ‘*Information Infrastructure as a National and Global Policy Initiative*’, and, Wilson, E. ‘*A Framework for Comparison*’.

³⁶⁵ Schiller, D. Digital Capitalism : Networking the Global System, p.75.

telecommunications and internet company growth and infrastructure³⁶⁶. The implementation of such policies on a global level have far reaching effects due to the converged nature of the internet in terms of operation and infrastructure. That is, policy concerning the internet also affects telecommunications, software, hardware and content producers. The promotion of ICT structures for development extends to the development arm of the United Nations. However, such promotion relies on a faith in the progressive nature of such technologies. It is important to note that many countries in which ICT development plans are operating also require basic infrastructure such as housing and sanitation, and state social services. They may also find that the development of ICT infrastructures may be linked to the contingent liberalisation or privatisation of such services.

Part of the state facilitation of a transnationally led political economy of new ICTs and the constitutive sectors of IT and Finance, has come from the establishment of a new 'identity'³⁶⁷ in state and international policy discourses. The consumer has become synonymous with the public interest. Previously held values such as universal access have been replaced by the notion of protecting consumer rights. Such a change points to the establishment of infrastructures solely aimed at consumption, (or more euphemistically 'pleasure'.³⁶⁸)

Furthermore, the endorsement of policies favourable to established corporations utilising ICTs could be said to financially endorse those companies. For example, the contributions to political organisations by Internet and Computer corporations in the United States rose from over \$US 9 million to almost \$US 40 million between 1998 and 2000. This is extended further if one incorporates media and telecommunications contributions, (a total increase from \$US 29 million to \$US 85 million over the same

³⁶⁶ *ibid*, pp39.

³⁶⁷ Larner, W. 'Consumers or Workers?: Restructuring Telecommunications in Aotearoa / New Zealand', in , in, Crang, M., Crang, P. & May, J. (eds), Virtual Geographies : Bodies, Spaces and Relations, London, Routledge, 1999.

³⁶⁸ Tracey, M. 'A Civics Model or a circus model: which will prevail?', in, Intermedia, June/July, Vol. 22, No. 3, 1994, p.41.

period.³⁶⁹) The major ICT firms contributing were Microsoft, AOL, Cisco, Dell and Oracle³⁷⁰.

The promotion of new ICTs by such international and transnational institutions is linked closely to a key aspect of the knowledge economy. That is, the view that knowledge transfer, and the constitutive technologies, enables increased efficiencies, and a collapse of the tyranny of distance. Yet, the contradictions inherent in such narrow conceptions of the role of ICTs in contributing toward progress are not openly addressed.

Thus, the institutions of promotion focussed upon here are those of education, mass media and supranational governance. Such institutions promote the values of technology driven progress, the increased globalisation of economic activity, and the promotion of utilising knowledge as a type of commodity. This excludes oppositional ways of understanding the operation of technology, knowledge and power in society.

Conclusion.

The ideological antecedents of the knowledge economy may be found in the rhetorics of post-industrialism, the information society, the information superhighway and cyberculture. The development of the values which underscore techno-futurism have corresponded with the tendency for modern capitalism to appropriate principles of western rational thought. Both the danger and efficacy of techno-futurist manifestation stems from the colonisation of possibility, the integration of visions of the future within actual capitalist development. Such visions are often posited as emergent realities or imperatives. Each is based around technology, in terms of technique, the altering of social relations, and control of scientific applications. Furthermore, various institutions of education, mass

³⁶⁹ The Center For Responsive Politics, <http://opensecrets.org>

³⁷⁰ ibid.

communication and supranational governance offer sites of promotion that operate to reproduce techno-futurism.

The current paradigms of future orientation are; the centrality and technologisation of knowledge (information), the progressive and neutral rationality of knowledge (information), the progressive nature of technology as it is utilised for purposes of efficiency and as a carrier of infrastructure, and the symbolic character of technology as emblematic of progressive change.

The knowledge economy is a contemporary component narrative of techno-futurism, in that the concept of a knowledge economy relies upon linear, rational conceptions of a desirable future. But, such an idealised future relies upon a particular understanding of knowledge (as a commodity) which limits notions of progress. Furthermore, the development of new forms of knowledge as securing a new form of economy obscures history and the conditions of its making. Thus, knowledge rhetoric rests on the proposition that technology drives history. Such rhetoric also relies upon the notion that globalisation is inexorable and inescapable. Globalising flows of knowledge and information are set out as unavoidable evidence of change. A pervasive global force is illustrated by the Internet and global satellite systems. We need a 'new' economy based around a new concept of the accumulation of knowledge if we are to avoid 'missing out'. This will require the accommodation of global capital at a local level.

The Political Economy of Techno- Futurism in New Zealand : A Short History.

New Information and Communication Technologies have given rise to a globally configured political economy. This has facilitated a set of techno-futurist discourses underpinned by the assumption that capitalist development is synonymous with human progress. This assumption is obscured by the rhetoric of technological determinism. The questions addressed in the proceeding chapter are, firstly how has the political economy of new ICTs developed in New Zealand and secondly to what extent are such developments legitimised by techno-futurist discourses?

3.1 From Colony to Nation.

New Zealand's isolation and reliance on foreign markets has shaped economic development. Recently, however, techno-futurist assumptions have been used to reconstruct the New Zealand past. One illuminating contemporary example is the discourse promoted by the Minister for Information Technology (and Broadcasting) Maurice Williamson in 1998. In the foreword of a government document regarding 'e-commerce' (affectionately entitled, 'The Freezer Ship of the 21st Century') he states that,

Over a century ago, a breakthrough in technology brought increased wealth and prosperity to New Zealand, when the SS Dunedin transported the first shipment of frozen meat to our major market in Britain. This brought far-reaching improvements to our economy and standard of living. Today, digital communications technology has the same potential.³⁷¹

This nostalgic analogy shows how ICTs are promoted in New Zealand. It seems they have finally resolved a traditional obstacle; the 'tyranny of distance'. Just as refrigerated shipping enabled the national economy a degree of economic independence, the new ICTs allow New Zealand to join the outside world.

³⁷¹ Unattributed, Electronic Commerce: The Freezer ship of the 21st Century, Ministry of Commerce, November, 1998, p.5.

The first shipment of frozen meat took place in 1882, and by 1932 the cost of freight was half the per pound price it was when shipping originally began³⁷². New Zealand's exports shifted strongly towards dairy and meat as a result of refrigerated shipping. This trend developed in the context of a trade dependent British colony. The early establishment of the shipping industry revolved around British capital and New Zealand labour, sometimes resulting in conflict between the two sides³⁷³. The New Zealand ruling establishment sought to reduce conflict by appealing to popular feelings of devotion to Britain, and an illusion of "reciprocal benefits"³⁷⁴. Yet the shipping companies were part of imperial British capital. As Green notes, "The shipping companies deliberately cultivated their relationships with the New Zealand political and commercial elite, for example paying their fares to and from England. The overseas lines used these strategies to obscure some of the financial realities in the relationship."³⁷⁵

Keith Sinclair's³⁷⁶ 1986 book 'A Destiny Apart, New Zealand's Search for National Identity' explores the tensions between New Zealand as a nation and New Zealand as a colony. The epilogue attempts to place the search for national identity within a comparative formation of us and them. In this context Sinclair emphasises New Zealand's continuing vulnerability to the shifts of foreign capital and markets³⁷⁷. The popular imagery of a technologically determined national progress heralded by the freezer ships is an established narrative of New Zealand's history. The traditional idea of New Zealand taking on the world (that is, British markets) by utilising technology obscures the historic dependence upon foreign capital. This dependence shaped the class structure of rural life and the waterfront.

When refrigerated shipping arrived farming was dominated by a ruling oligarchy, and the shipping companies were largely British owned. Furthermore, the workers

³⁷² McLean, G. Captain's Log : New Zealand's Maritime History, Auckland, Hodder Moa Beckett, 2001, p.94-97.

³⁷³ Green, A. British Capital, Antipodean Labour: Working the New Zealand Waterfront, 1915-1951, Dunedin, University of Otago Press, 2000, p.9-10, and p.151.

³⁷⁴ ibid, p.10.

³⁷⁵ ibid.

³⁷⁶ Sinclair, K. A Destiny Apart, New Zealand's Search for National Identity, Wellington, Allen and Unwin, 1986.

³⁷⁷ ibid, p.260.

who loaded the frozen cargo were ill equipped to handle the cold conditions, such that, even when work was hard to come by such tasks remained unpopular, even unwanted.³⁷⁸ Thus, while the freezer ships may have enabled the expansion of a stagnant colonial economy, reliant largely on wool exports, the export of frozen meat and dairy products also enabled the exploitation of New Zealand by British merchants and financiers. Certainly the export of agricultural products gave a national dimension to the colonial economy. However, local financiers, and their counterparts in London, also profited from the Imperial-colonial trade circuit. The establishment of the freezer ships illuminates the social and economic histories of a trading nation, reliant on agricultural production, foreign capital and distant markets. Similarly, the spatial and temporal ‘realities’ of New Zealand history provides a reference point for assessing the arrival and impact of ICTs.

There are two important features of the New Zealand economy from the mid 1930s to the early 1970s. Firstly, a secure trading market (the United Kingdom) made possible an ongoing process of capital investment. Secondly, this was complemented by import substitution, and the role of the state in regulating the economy. The general strategy was informed by Keynesian methods of economic management related to the maintenance of full employment. From the election of the first Labour Government in 1935 the New Zealand government was active in economic and social planning.

Such state intervention in the economy extended to the provision of public services, such as health and housing.³⁷⁹ Under the influence of economists such as Bill Sutch the state also made provision in expenditure for the infrastructural requirements of economic growth³⁸⁰. This included, for example, significant investment in areas such as electricity generation, transportation and telecommunications throughout the late

³⁷⁸ Green, A. British Capital, Antipodean Labour: Working the New Zealand Waterfront, 1915-1951, p.45.

³⁷⁹ Armstrong, N., *State*, in, Spoonley, et. al, New Zealand Sociology, 2nd.edition, Dunmore Press, Palmerston North, 1994, p.118.

³⁸⁰ Easton cites Sutch’s comments on the matter during a conference in 1953. Easton, B. The Nation Builders, Auckland University Press, Auckland, 2001, p.217.

1940s and the 1950s³⁸¹. Brian Easton observed a long tradition of such national building, stretching back to the 1870s, and the founding of the public works department by such prominent historical figures as Julius Vogel³⁸². The late 1960s exposed the realities of New Zealand's economic position. The collapse of wool prices on the international market revealed the vulnerability of the national economy to price shifts across a small number of export commodities and markets. Consultative councils were arranged by the state in an effort to avert crisis through indicative planning. Led by the economist Bryan Philpott, a number of conferences bought various sectoral interests together.

From the early 1970s, until the election of the fourth Labour government in 1984, macro-economic policy developed the objective of full employment, and stressed the need to diversify export markets and economic production.³⁸³ In the former context New Zealand was forced to confront Britain's imminent membership of the European Economic Community (EEC) in 1973, during a time of broadening global recession.³⁸⁴

3.2 From National Economy to 'Free Market'.

The sustained growth and stability that characterised Western national economies during the post-war years gave way to the creation of a global credit and money

³⁸¹ McAloon, J. Fortress New Zealand? Towards a New History of the Postwar New Zealand Economy, XIII World Congress of Economic History, Buenos Aires, July 2002.

³⁸² Easton, B. Engineers and Nation Builders: Keynote Address to the 1997 "Engineering Our Nation's Future" Conference of the Institution of Professional Engineers of New Zealand, Wellington, February 5th, 1997. It is also important to note that Vogel had a vested interest in the formation of such a department. The department enabled the development of telegraphy, and a connection to Australia and consequently Britain. This proved useful to Vogel's press interests.

³⁸³ Easton depicts the period between the early 1970s through until 1984 as a clash between the pastoral political economy and a one that is diversifying. Easton, B. Towards a Political Economy of New Zealand: The Tectonics of History, 1994 Hocken Annual Lecture, Hocken Library, University of Otago, 1994.

³⁸⁴ Belich, J. Paradise Reforged: A History of New Zealanders from the 1880s to the year 2000, Allen Lane, Auckland, 2001, p.394-404.

market and the rolling back of the Keynesian welfare state³⁸⁵. Pressures largely associated with the change in financial markets and transnational flows of exchange did not reach New Zealand until the early 1980s³⁸⁶.

Structures of corporate ownership emerged as the prominent and dominant form of capitalist organisation in the 1980s. This was largely contributed to by the shift in the operation of the stock market, and the trend toward interlocking directorates.³⁸⁷ This included the rise of local corporates such as Fletcher Challenge, Brierleys and Goodman Fielder Wattie. This was facilitated by a shift in forms of capital accumulation and access to international flows of finance, which enabled increased concentration of capital³⁸⁸. Symbolically, the 1984 Labour led government heralded a historic turning point. The 'New Right' policy agenda coined 'Rogernomics' brought a paradigmatic shift in politics, economics and power³⁸⁹. Treasury and Reserve Bank economists drew upon the works of Hayek and Friedman to counter the perceived shortcomings of Keynesian economic management³⁹⁰. This was more than a shift in the intellectual and ideological climate. The rise to prominence of New Zealand corporations with transnational ambitions, commercial 'bottom line' imperatives began to inform all areas of public policy, including communication and information technology³⁹¹. The establishment and then privatisation of state owned assets such as Telecom corresponded with the abandonment of universalistic welfare

³⁸⁵ McGrew, A, *A Global Society*, in Hall, S, Held D, McGrew, T, (eds) Modernity and its Futures, Oxford, Polity Press, p.67.

³⁸⁶ Jesson, B. Only Their Purpose is Mad: The Money Men Takeover New Zealand, Palmerston North, Dunmore Press, 1999.

³⁸⁷ Hope, W. Conceptualising Media Economy Dynamics : Finance Capital, Television News, and Electoral Democracy in New Zealand, p.12.

³⁸⁸ ibid, p.13.

³⁸⁹ Mulgan, R. Politics in New Zealand, Auckland, Auckland University Press, 1994, p.295.

³⁹⁰ Shirley, I. *Social Policy*, in Spoonley, P, Pearson, D, and Shirley, I, (eds.), New Zealand Society, 2nd edition, Palmerston North, Dunmore Press, 1994, p.136. This was signified by 'liberalisation' in relation to global deregulation of financial markets, removal of import quotas, foreign exchange controls and the reduction of tariffs (Mulgan, Politics in New Zealand, pp297).

³⁹¹ Comrie, M. *Boxing On?: Deregulation and the Retreat from Public Service Television*, Working Paper Series 92/8, Palmerston North, Massey University, 1992, p.20

provision and progressive income tax. Ian Shirley noted a “consequential reduction of social policy to a residual role within the market economy”³⁹².

These changes meshed with the globalisation of information flows, financial transactions and capital labour relationships. As I have outlined, the emergence of the new ICTs is also embedded in these processes. Against this background New Zealand experienced the growing incursion of foreign ownership and investment. This entailed the privatisation and commercialisation of broadcast media, and telecommunications, and the corporatisation of the public sector. Furthermore, the rise of the finance sector brought with it the integration of the social life world into the experiential spaces and times of credit, and global finance.

Throughout the late 1980s overseas investment in New Zealand continued to increase, especially in the finance sector.³⁹³ At that stage much of the investment emanated from Australia, building on the Closer Economic Relations (CER) agreement. Meanwhile, the power structures that developed out of this reflected the rise to prominence of an elite whom increasingly gained favour in the political sphere. This is signified in particular by the interpersonal connections between the finance Minister of the fourth Labour government, Roger Douglas, and the New Zealand Business Roundtable. This lobby group of elite businessmen had vested interests in privatisation and corporatisation of the public sector. With such changes came a rhetoric that all freedom was market based. Associated with this belief was the construction of new right capitalism as inherently progressive. Prior to the stock market crash of October 1987 the wealth and culture of financial entrepreneurialism was openly celebrated. In a 1988 essay for *Metro Magazine* Bruce Jesson observed how media reports equated financial deal making with a national spirit of innovation and entrepreneurship.³⁹⁴ This new mood would supposedly help New Zealand “conquer the world”.³⁹⁵

³⁹² Shirley, I. *Social Policy*, p.137.

³⁹³ Legat, N. *Selling New Zealand* *Metro*, October 1990, p.120-133.

³⁹⁴ Jesson, B. *The Triumph of Venality*, *Metro*, June, 1988, p79-92.

³⁹⁵ *ibid*, p.81.

From a new right perspective innovation and entrepreneurship required a restructuring of the labour market. The popular history of relations between labour and capital was signified by the states' position as a mediator. As Bedggood notes, the Industrial Conciliation and Arbitration Act, which has informed much of the relations between labour and capital in New Zealand became "an impediment to capitalist accumulation"³⁹⁶. In this regard the introduction of the Employment Contracts Act (ECA) in 1991 was designed to remove supposed rigidities in the labour market³⁹⁷. Calls for labour market 'flexibility' emanated out of organisations such as the Employers Federation and Business Roundtable in the late 1980s.³⁹⁸ Flexibility was assumed to be synonymous with employee choice and individual freedom.

Such changes to the labour market were associated with certain perceptions about technological change. In 1984 a representative from the engineering fraternity called for the "urgent uptake of high technology" and the Ministry of Trade and Industry noted the importance of improved management practices and innovation in productive technologies.³⁹⁹ It is important to note that changes to tariffs, subsidies and financial deregulation were dramatic, and that this led to a downturn in manufacturing and other areas of secondary sector employment. For example, the reduction of staffing levels at Telecom New Zealand following both corporatisation and privatisation was often justified on the basis of technological progress and efficiency⁴⁰⁰. Increasing numbers of New Zealanders were employed in the tertiary sector, while the use of technology led to increased de-skilling and rationalisation. The computerisation of many occupations resulted in staff reductions and increased levels of part time and temporary (flexible) work, especially for women workers.⁴⁰¹ The introduction of microelectronics to New Zealand industry and service sector was

³⁹⁶ Bedggood, J. The Employment Contracts Bill: media coverage in two New Zealand newspapers, paper presented at SAA(NZ) Annual conference, Auckland, 1993, p.2.

³⁹⁷ Easton, B. In Stormy Seas: The Post-War New Zealand Economy, p.254.

³⁹⁸ Jesson, B. *We are Driven: The Story of the Nissan Strike*, Metro, July, 1988, p.117-131.

³⁹⁹ The Economic Summit Conference, Conference Papers, Volume Two, 1984, pp94-97, & pp233.

⁴⁰⁰ Larner, W. *Consumers or Workers?: Restructuring Telecommunications in Aotearoa / New Zealand*, p.53.

⁴⁰¹ Austrin, T, *Work*, p.240-250.

initially promoted in terms of automation and efficiency. In the early 1980s publications such as *Management New Zealand*, *Computer Scene* and *Office Automation*, confined discussion regarding information technology to the managerial efficiencies resulting from new forms of electronic office equipment.

During the 1990s new forms of labour force control such as total quality management and team work became ingrained in New Zealand corporate culture. These approaches prevailed in large industrial employers such as whiteware manufacturer Fisher and Paykel, or in the automobile factories of Nissan⁴⁰². However, tertiary sector employment was also reorganised in the same way. With the introduction of personal computers and computer networking middle management and clerical work were ‘downsized’ and devalued. Within organisations labour costs were reduced by collapsing various job descriptions into one role (with an assumed increase in worker autonomy.) For example, the introduction of information technology in the hospitality industry enabled the installation of individuated employee billing systems. Such systems gave individual waiters and waitresses increased billing and cash handling responsibilities. However, remuneration did not increase accordingly. In fact, real wages in the hospitality industry have declined over the last two decades.⁴⁰³

3.3 Technologising Communication.

The emergence of techno-futurism in New Zealand reflects shifts in the political economy of information and communication infrastructures. Of particular importance is the development of telecommunications and the national broadcasting system. The history of these systems provides an essential landscape for understanding their recent convergence. The establishment of such infrastructures began with the development of telegraphy in the 1860s. The importance of ICTs

⁴⁰² (Jesson, B. *We are Driven: The Story of the Nissan Strike*, *Metro*, July 1988,) &, (Lusk, P. *On the Job Share the Dream*, in, *Political Review*, Volume 5, No. 2, April/May 1996, p.19-24.)

⁴⁰³ Tolich, M. *Current Work Issues*, in, Bell, C. (ed), *Sociology of everyday life in New Zealand*, Palmerston North, Dunmore Press, 2001, p.115.

infrastructure to national development was recognized by the state with the Electric Telegraph Act in 1865⁴⁰⁴. This was initially tied to particular provincial areas of development. A national telegraphy system developed during the later part of the nineteenth century. Telephony emerged out of telegraphy infrastructures, and under the control of the state run Post Office.

The infrastructural development of telephony was ongoing, with significant capital investment taking place. This was informed by a utilitarian philosophy of service provision. The rugged national topography meant that telephony development was underscored by cost constraints⁴⁰⁵. Furthermore, there was an established commercial reliance on telecommunications, established during the expansion of telegraphy. The development of telegraphy in New Zealand was underscored by the needs of localised and provincial commerce. By the mid 1970s all peripheral telecommunications services, such as telex leased circuits, as well as most telegram traffic and half the telephone traffic were business related. Information and communication infrastructure was determined by issues of topography, commerce and public service provision. The public service provisions were driven by both social and economic objectives, in that the aims were universal access, and state led capital investment.

Development of information and communication systems eventually became associated with a national broadcasting system. Early New Zealand Broadcasting was characterised by maverick operators confronting state control of the airwaves. In 1932 State broadcasting began. However the regulation of radio waves had begun in 1923.

The development of television broadcasting was informed by the experience of radio. However, television from the outset was a measure of state control and dependence

⁴⁰⁴ Robinson, H., *A History of the Post Office in New Zealand*, Wellington, R.E. Owen, 1964, p.149.

⁴⁰⁵ As recently as the late 1970s a substantial amount of rural dwellings relied heavily on party-lines (multiple user lines) due to cost constraint. (Communications Commission,

on advertising. The costs related to serving a sparse population led to the use of advertising to help fund the expansion of the state broadcaster into television services⁴⁰⁶. The dual system of revenue and license fee was a relatively new one internationally. The state was not tied to policy adverse to the incorporation of alternative revenue streams associated with a commercial model of broadcasting. The proviso was the fulfillment of a national Television broadcasting infrastructure and service. This included the continuation of policy informed by the Reithian conceptions of broadcasting as an avenue through which to educate and inform. Though it should be noted that restrictions upon content were enforced by state appointed administrators, leaving the model vulnerable to the political assertions of the ruling party⁴⁰⁷.

The 1970s and early 1980s were marked by political controversies over the organisation and management of broadcasting. This was exemplified by the hostility between Prime Minister Robert Muldoon and the news media after 1975. Over this period television became more dependent on advertising as license fee revenue stagnated. However, the changes were not simply political. A report released by the Communications Commission in April 1977 discussed at length the advances in information and communication technology. Of particular importance is the consideration of broadcasting in relation to previously distinct ICTs, such as telecommunications and computers. Also emphasised were the growing technological capacities for data and information transfer. That is, the profit opportunities generated by technological and organisational convergence. As the report from the Communications Commission in 1977 notes, “The merging technologies of computer and telecommunications are giving rise to a new information sector”.⁴⁰⁸ A report by the Communications Advisory Council in August 1980 expressed similar views concerning television and “such additional activities as

⁴⁰⁶ ‘Telecommunications in New Zealand; Report of the Communications Commission, Wellington, E.C. Keating, 1977, p.114).

⁴⁰⁷ Horrocks, R. *Conflicts and Surprises in New Zealand Television*, in, *Continuum*, Vol 10, No. 1, 1996.

⁴⁰⁸ Cocker, A. *The Deregulation of Broadcasting in New Zealand*, p.110.

⁴⁰⁹ Communications Commission, ‘Telecommunications in New Zealand; Report of the Communications Commission.

ordering of goods and services, playing games, home computing, home education, education in schools, etc.”⁴⁰⁹ These prospective developments were based on the technology of videotext. They suggested a move beyond the traditional realms of communications policy. The Communications Advisory Council suggested a user pays rather than a public service system of dissemination⁴¹⁰. Opportunities opened up for cross media ownership⁴¹¹, and for converged media operations, using the additional telecommunications based services. This exemplifies the beginning of a trend whereby broadcasting was understood in terms of information transfer and the efficiencies associated with new technologies. This contrasts with the view that broadcasting should integrate new technologies within a discernable public service ethos.

The national broadcasting system was altered during the late 1980s and early 1990s. What occurred may be summed up as a state retreat from public service principles⁴¹². Purely commercial pressures were being brought to bear on broadcasting⁴¹³, and on other areas of information and communication policy. During 1988 and 1989 the state broadcaster was split in two; Radio New Zealand and Television New Zealand (TVNZ). These two commercial operations were required to operate competitively. In 1989, TVNZ faced competition with the introduction of private free to air channel TV3⁴¹⁴. Meanwhile the radio industry was deregulated and frequencies allocated by way of auction. By 1991 all restrictions on foreign media ownership were removed.

⁴⁰⁹ Communications Advisory Council, The Question of the provision of a viewdata type service in New Zealand: A report by the Communications Advisory Council, Wellington, August, 1980.

⁴¹⁰ Discussion concerning the means of extended accumulation first developed with the rise of computer technology and its integration with telecommunications. That is, in terms of the potentialities of digitalised information transfer, particularly in the areas of retail, banking and manufacturing. The emphasis on information and communication interactivity is backgrounded by the potentiality of cable television networks as noted in the United States. For example, claims to distance shopping, and electronic democracy. In New Zealand this took the form of predictions concerning the uses of videotext.

⁴¹¹ Such cross media ownership is not restricted to telecommunications and broadcasting, most notably, the press.

⁴¹² Hope, W. *A Short History of the Public Sphere in Aotearoa / New Zealand*, p.21.

⁴¹³ *ibid.*

⁴¹⁴ TV3 went into receivership within months, and once later purchased by Canwest. It is considered that this market failure prompted the removal of ownership restrictions in New Zealand mass media.

The process of commercialisation and privatisation was also evident in telecommunications. Telecom New Zealand was established after the banking, postal and telecommunications arms of the Post Office were separated out in 1987. Prior to this the Post Office was the biggest employer in New Zealand. A process of corporatisation began with considerable job losses experienced between 1987 and privatisation in late 1990⁴¹⁵. The sale of Telecom to Bell Atlantic, Ameritech and local corporates was not accompanied by a regulatory framework to ensure competition. There was however a ‘kiwi share’ agreement by which domestic local calls and line rentals, and rural and urban pricing, were controlled by a flexible price ceiling.

By the late 1990s New Zealand’s broadcasting and telecommunications landscape had changed dramatically. Offshore ownership of communication infrastructures became the norm. Free to air television is dominated by Canadian company Canwest (TV3 and TV4,) and State owned TVNZ, (TV1 and TV2.) Other larger competitors in television broadcasting include the Australian Network Prime, and pay television network, SKY, controlled by NewsCorp holdings. Canwest entrenched their position in the radio market, alongside the Australian Provincial Newspapers (APN) controlled TRN (The Radio Network). New Zealand’s press continues to be dominated by two companies, Independent News Limited⁴¹⁶ (INL) and Wilson and Horton⁴¹⁷. While Wilson and Horton holdings, the owners of New Zealand’s major metropolitan daily, are now part of Irish media conglomerate Independent News (IPN). IPN have a large stake in APN, the company that now owns Wilson and Horton and TRN. Overall, most of the mass media is controlled by a few offshore

⁴¹⁵ The major shareholders were two United States operators, Ameritech and Bell Atlantic. Telecom New Zealand Limited listed on the New Zealand, Australian and New York stock exchanges. The major shareholders, Ameritech and Bell Atlantic proceeded to sell “724.5 million ordinary shares in an international offering at \$2 per share” Telecom New Zealand Website, (Telecom New Zealand Website, <http://www.telecom.co.nz/content/0,2502,200633-1548,00.html>).

⁴¹⁶ Recently purchased by Australian newspaper company Fairfax.

⁴¹⁷ Both companies subsequently dominate domestic internet news sources.

interests⁴¹⁸. Of greatest significance is the growing strength of SKY in transmission services, challenging the Australasian dominance of broadcast transmission services by state owned company BCL. Telecom NZ Ltd maintained market dominance in telecommunications after privatisation. Telecom has attempted a content and Internet alliance with Microsofts' MSN (Microsoft Network), and EDS, as well as an alliance with transnational telecommunications firms in the construction of the southern cross cable link. The company has also displayed an interest in content, holding shares in SKY Television Network. So, Telecom has interests via holdings and alliances, with transnational IT firms, telecommunications firms, as well as pay- television. The only major competitor to telecom since privatisation was Clear Communications, backed by British Telecom. However, the infrastructural monopoly of Telecom has impeded competition. Meanwhile, Clear has been bought by Telstra, the dominant Australian telecommunications and cable operator.

The belief in market forces and consumer choice that underpin the construction of the media-communication landscape described above became linked to assumptions about the progressive nature of technological change. Furthermore, such views persist. For example, the marketplace model concerning the operation of radio broadcasting was integrated with promotion of the digital technologies developed for radio transmission. It was argued by the former Labour Minister of Broadcasting, Marion Hobbes⁴¹⁹, as well as the private sector, that digital technology would dramatically expand the radio spectrum, decrease costs, enhance station diversity and enable listener interactivity.⁴²⁰ Public policy discussions regarding the deregulation of television broadcasting had been associated with the arrival of international satellite television. The then Minister of Broadcasting, Richard Prebble, saw such change as 'inevitable'. More recently, in the foreword to a Ministry of Economic Development discussion document on digital television former Minister of

⁴¹⁸ For detailed description and analysis of contemporary media ownership in New Zealand see (Rosenberg, B. *News Media Ownership: How New Zealand is Foreign Dominated*, *Pacific Journalism Review*, No. 8, 2002, p.59 –95.)

⁴¹⁹ Marion Hobbes lost her ministerial portfolio to Labour MP Steve Maharey after the 2002 general election.

⁴²⁰ Zanker, R. *Radio in New Zealand in a Media age of Plenty*, in '*Continuum*', Volume 10, No. 1, 1996

Broadcasting, Marion Hobbes, and current Communications Minister, Paul Swain, stated that “All countries will be affected.”⁴²¹ Hobbes’ saw digital television as essential due to impending technological convergence.

Despite the various projections regarding the possibilities of convergence there has been little public policy consideration of ICTs systems such as digital radio and digital television. More specifically, the social and cultural dimensions of national communication systems have been ignored. This is evident in the allocation of radio spectrum by auction. This method of privatising the spectrum was instituted by way of the Radio Communications Act (1989). Previously, the spectrum was seen as a natural resource subject to administration (rather than a collection of tradable property rights.) The latter approach now impacts on other areas of information and communication transfer, such as mobile telephony and data services. It is assumed that a free market model will deliver the transmission services from which content will simply follow.

The telecommunications infrastructure was privatised at a time when it was becoming central to the national information and communication system of New Zealand. At present the investment in ICT infrastructure is concentrated in urban areas and is well below the OECD average. As Newman notes “Close to \$5 billion has been invested in the telecommunications market since deregulation but little has been done to decentralise the benefits. True competition for data services has not eventuated, unless you are a major corporate or operate in the CBD of Auckland Wellington or Christchurch.”⁴²² These shortcomings were glossed over in Telecom advertising campaigns.

As Hope notes;

corporate image advertising has reworked previous juxtapositions of the old and new economy. In July 1993, Saatchi and Saatchi’s promotion of Telecom

⁴²¹ Radio Spectrum and Broadcasting group, Resources and Networks branch, Ministry of Economic Development, Wellington, December 2001.

⁴²² Newman, K. *Choking on Broadband Hype*, New Zealand Business Times, July 10th, 2001.

*included a series of clips lampooning the demise of the public service and celebrating the birth of a new age enterprise culture driven by telecommunications.*⁴²³

The network system of computer-mediated communication and information transfer that we know as the Internet is now pervaded by commercial and entrepreneurial values. Californian style ‘garage startups’ were popularised by the mass media. For example, in July 1999 a New Zealand Herald article proclaimed the wealth of the founding partners of service provider ihug, noting that the two brothers were “young, famous, and ever so rich”⁴²⁴. Nick and Tim Wood, were quoted as saying, "It's really only been four years since we started the thing with \$8000 cash and a PC." The two brothers subsequently enjoyed a media profile as a result of their efforts to create alliances with businesses such as pay TV network Sky Television and entertainment company Force. Their persona was encapsulated by such statements as “Tim and Nick Wood began entrepreneurial life as four-year-olds selling fruit to neighbours in the Singapore apartment block where they were living”⁴²⁵. However, the following comment is a more accurate explanation of their business success, “They were just two amid a seemingly endless stream of previously unknown Internet entrepreneurs to make serious money from attracting big investors”⁴²⁶. This is an example of the rags to riches story, which conflates the entrepreneur with the inventor.

The promotion of the ideal market, where anyone can succeed financially obscures the reality of a market that relies on the networks, technologies and investments of large corporations. Telecom for example maintains a dominant presence in the internet service provider market, beginning with the first privately owned international gateway for data traffic⁴²⁷. Though the company, along with Clear, entered the market after a number of other operators were set up, both companies managed to establish themselves as dominant operators. Telecom achieved this by

⁴²³ Hope, W. Selling the Market Economy, Paper presented to the New Zealand Political Science Association Conference, August, 1994, Canterbury University, p.61.

⁴²⁴ Garner, T. *Young Famous and ever so rich*, New Zealand Herald, July 16th 1999, www.nzherald.co.nz.

⁴²⁵ Sheeran, G. *Ihug Brothers Started Early*, Sunday Star Times, 9th May 1999, pp.C1.

⁴²⁶ Riordan, D. *A little e made all the difference*, Sunday Star Times, 26th December 1999, p.C10.

⁴²⁷ Phelps, K. and Lipscombe, C. ‘Surf’s Up’: Internet New Zealand Style, Auckland, Reed, 1996, 2nd ed. pp133-134.

using its privileged position to engage in a price war while Clear focussed on the business high speed data and design / hosting services.⁴²⁸ There have been attempts to challenge Telecom's infrastructural advantage in the area of Internet service. This has largely come from Clear, who have pushed for the right to 'interconnect with the local loop for its own purposes and on behalf of other free internet service providers.

The utopian ideal of a 'wired' country overlooks the infrastructural priorities of corporate investment. Thus, certain areas such as rural areas are not catered for because of anticipated low investment returns. Clear has confined infrastructural investment to high density urban areas. Telecom has also confined concerted development to high-density areas⁴²⁹ and has maintained a level of infrastructural investment well below that of other OECD countries⁴³⁰. In 2001 Telecom New Zealand Ltd ran an advertisement via several media outlets promoting their high-speed communications services. The advertisement featured a person in Piha, West Auckland, utilising tele-conferencing via her lap top. The advertisement was objected to by Piha residents, whose services were compromised by an overloaded telephony system which often precluded the household installation of a second phone line⁴³¹.

Meanwhile, the establishment of new ICTs based forms of business to business communication are projected as essential and transformative. In addressing a government initiated summit on 'e-commerce' in November 2000, Prime Minister, Helen Clark, made the statement that, "in all likelihood, if we don't adapt our systems and processes to it, businesses may not just fail to thrive, but fail to survive. I believe that New Zealand business also knows that a vision for e-commerce fits

⁴²⁸ Hoar, P. and Hope, W. The Internet, The Public Sphere and the Digital Divide in New Zealand, IAMCR/ICA Symposium on the Digital Divide, University of Texas at Austin, November 15-17, 2001, p.8.

⁴²⁹ ibid.

⁴³⁰ Unattributed, Assessment of the New Zealand Telecommunications Regulatory Regime, 1989 – 1999, Outcome Limited, Todd Telecommunications Consortium, March, 2000, p.15-16.

⁴³¹ Newman, K. *Choking on Broadband Hype*.

into a larger vision for a society that is wired up, innovative, and accepts no limits on its potential. That's the society we all want to live in.”⁴³²

National broadcasting and telecommunications systems were substantially altered during the late 1980s and the 1990s. This resulted from the implementation of the New Right policy agenda, which assumed that technological advances per se mitigated the need for ICT regulation. Technological convergence was seen as not only emblematic of progress, but as a manifestation of market led progress. However, the lack of capital investment and a public policy related to service provision has produced gaps in the delivery of telecommunications and internet services. The broadcasting environment is dominated by highly commercialised, often offshore, interests. Over the last two decades the means and methods of information and communication transfer have been lauded. This has excluded substantive consideration of the national, cultural and social dimensions of information and communication networks.

3.4 ICTs and Education.

The relationship between educational institutions and the new ICTs may be seen in the rise of discourse concerning education as a technological investment.

The dominant educational philosophy of “equality and efficiency”⁴³³ that characterised the education system in New Zealand since 1935 was reconstructed during the 1990s. The ideal of equality was subordinated to efficiency and education was seen as a vehicle for work skills development in keeping with economic policy objectives. The 1991 Porter Report noted that the “educational system is not equipping people with the skills necessary to compete successfully in the global

⁴³² Clark, H. *Keynote Address to E-Commerce Summit*, Prime Ministerial Press Release, all-releases@executive.govt.nz Friday, 3 November, 2000.

⁴³³ Nash, R. *Education*, in *New Zealand Society*, in, Spoonley, P. Pearson, D. Shirley, I. (eds). Dunmore, Palmerston North, 1994 2nd ed, p.161-176.

economy”⁴³⁴. Such rhetoric resulted from the need to justify the existence of public education within an ideological climate which favoured macro-economic restructuring⁴³⁵.

In 1984 the Labour Government’s ‘Economic Summit’ conference, included three papers from education sector representatives. Each representative organisation addressed the theme of education as investment. They highlighted the economic importance of early childhood education, tertiary and secondary education. Representatives from the New Zealand Free Kindergarten Teachers Association and Early Childhood Workers Union emphasised expenditure on education as a means of investing in the economic and social growth of a nation. The New Zealand Post Primary Teachers Association (PPTA) argued, “The goal of our education investment in this context must be to produce capable, flexible and creative people who live in a dynamic and content society”⁴³⁶. They also observed that “Education is thus more than a public service – it is an important instrument of economic development.” The statements above regard education as contributing to the investment in human capital. The 1988 Picot Report resulted in Tomorrow’s schools, a reform of the compulsory education sector that further incorporated education into the structures of a competitive market place.⁴³⁷

From a range of political perspectives education is seen to offer solutions to social problems. Education may improve public knowledge, reduce racial and gender discrimination while raising productivity. The most recent manifestation of this is the proposition that education will produce efficient and competitive workers, flexible enough to retrain for places in the labour market as the need arises. Additionally,

⁴³⁴ Freeman-Moir, J. *State and Education across half a century*, in, Rudd, C. and Roper, B. (eds) *The Political Economy of New Zealand*, Auckland, Oxford University Press, 1997, p.216

⁴³⁵ The major proponents of such ‘reform’ were Treasury as well as the constitutive vanguards of the new right revolution such as Roger Douglas and the Business Round Table. For more on the specifics surrounding such changes to the administration of the sector, see, Butterworth, R. and N. Tarling, (1994) *A Shakeup Anyway: Government and the Universities in New Zealand in a Decade of Reform*. Auckland University Press: Auckland.

⁴³⁶ *The Economic Summit Conference, Conference Papers*, Volume Two, p.171.

technology has been seen as a creative, cost effective way to deliver education. A recent report by the Ministry of Education in 1997 stated that one of the three attributes of a 'quality' teacher, was "The ability to use information and communication technology effectively as an aid to learning."⁴³⁸

The new rhetoric reflected changes in the labour market. While the 1950s saw the workforce involved largely in agriculture and manufacturing, this changed rapidly, and by 1994 two-thirds of the work force were employed in the tertiary sector.⁴³⁹ This trend was held to signify the importance of information handling and information processing as a core skill. Thus, ICTs became increasingly central to discussions concerning the development of curriculum. Associated with this was the perceived need to redefine education in terms of career flexibility, and to challenge the expectation of life long employment. That is, education became considered as a form of investment in human capital, and increasingly, ones own human capital.

The promotion of ICT has been complemented by the increased involvement of the private sector in education. In 1981 the Minister of Education, Merv Wellington, released a report titled 'Consultative Report on Computers in Schools' which recommended the use of computers in education. This was the beginning of an ongoing conviction that ICTs would revolutionise education. This was followed by a report from the Computing education development unit in 1986 and recommendations from the Sallis Report on IT in Schools, in 1990.⁴⁴⁰ Since the early 1990s such reports have also emphasised the need for internet access and broadband capabilities in schools.

⁴³⁷ Kelsey, J. The New Zealand Experiment: A World Model for Structural Adjustment? , Auckland, Auckland University Press, 1997, p.220-223.

⁴³⁸ Brown, M. *The use of computers in New Zealand Schools, a critical review*, in, Computers in New Zealand Schools, Volume 10, No. 3, November 1998, Dunedin, Otago University Press, p.6.

⁴³⁹ Roper, B. *The Changing Class Structure*, in, Rudd, C. and Roper, B. (eds.), The Political Economy of New Zealand, Auckland, Oxford University Press, 1997, p.94.

⁴⁴⁰ Brown, M. *The use of computers in New Zealand Schools, a critical review*, p.4.

The early development of computing in schools was dominated by Apple. Despite less expensive, domestic options the supply of personal computers to New Zealand schools was 70 percent⁴⁴¹ controlled by Apple by 1986. The dominant Apple 11e model was an option which had numerous follow on effects related to compatibility. At that time such recommendations were informed by the commercial interests of the companies named.⁴⁴² The software and thus the uses of the computer were controlled by Californian versions of learning. Later, the decline of Apple computers lead to the impracticality of many systems in New Zealand schools. This required substantial reinvestment.

The report in 1981 had recommended five particular brands, including Apple and the domestic brand Poly. Later, the Ministry of Education began taking advice on the use of IT in schools from ITAG, a policy advice group with direct IT sector representation.⁴⁴³ Not surprisingly a report released by the group in 1998 stressed the urgency for \$78 million to be spent on training in IT areas for teachers across seven years⁴⁴⁴. Of particular significance here is the prospect of technology lock-in effects. The most recent example is the arrangement between the Ministry of Education and Microsoft whereby Microsoft software will be offered to every school. The growth of major Information Technology corporations has always hinged on the ability to lock-in users to their hardware or software. Such a partnership between learning institutions and the private/corporate IT sector offers commercial returns for Microsoft. Furthermore, the institutionalisation of their products promotes brand awareness.

The introduction of new technology is a status symbol, and is often as a synonym for effective schooling. As early as 1981, concerns were raised concerning the costs of

⁴⁴¹ Unattributed, *Changes at Apple Distributor*, in, New Zealand Computer Scene and Office Automation, No.2, Auckland, Clover, 1986, p.24.

⁴⁴² Brown, M. *'The use of computers in New Zealand Schools, a critical review*, p.4.

⁴⁴³ Felix B. Tan, Chapter Three, in F. Tan, P Corbett and Y. Wong (eds.), Information Technology Diffusion in the Asia Pacific: Perspectives on Policy, Electronic Commerce and Education, London, Idea Group, 1999.

⁴⁴⁴ Johnson, G. and Kennedy, M. *Making IT happen, What will IT take*, in, Computers in New Zealand Schools, Volume 10, No. 2 August 1998, Dunedin, Otago University Press, p.5-6.

computers in schools, and the implications this had for funding education.⁴⁴⁵ The ‘Tomorrows schools’ initiative furthered this concern by introducing market provision of services (marketisation) into primary and secondary education. This has been accentuated by the integration of corporate objectives with the promotion of computing in schools, as is evident in the promotions carried out by Telecom and IBM⁴⁴⁶. Meanwhile, some New Zealand schools have expressed concern that the cost of maintaining computers exceeds the funding allocated for such a task, and restricts spending in other areas⁴⁴⁷. The introduction of computers into schools in recent years has relied on the donation of second hand equipment. This may have adverse consequences for schools with older technology; the government’s alliance with Microsoft includes restrictions on the use of ‘out of date’ machines.

As the potential for distance learning and other forms of computer-mediated communication has grown the rhetoric of cyber utopias has undermined the perceived centrality of tertiary education. Jane Kelsey cites the Treasury Department as stating, “Historically universities may have acted as a key source of free information and discussion on political and other sensitive issues. In the information age this is no longer the case and the very multiplicity of information sources is itself a form of protection, as modern totalitarian states have found ”.⁴⁴⁸ The cyber-optimism fails to address the socio-economic realities of information technology use, and the political and economic origins of the technology. The view that ICTs will impact profoundly on institutions of knowledge dissemination such as universities reflects the post-industrialism view. Such a position serves to obfuscate the historical conditions and social relations within which technology is constructed and operates⁴⁴⁹.

⁴⁴⁵ Werry, B. Education, No. 3, 1981, Department of Education, Wellington, pp8.

⁴⁴⁶ Neshan, D. *Computers for Schools Scheme Needs Monitoring*, Infotech Weekly, 20th November, 1995, p.4.

⁴⁴⁷ Unattributed, *Computer scheme unfair – principals*, The Evening Post, March 9, 2001, www.stuff.co.nz.

⁴⁴⁸ Kelsey, J. The New Zealand Experiment: A World Model for Structural Adjustment? p.328.

⁴⁴⁹ Allen, J. *Post-Industrialism and Post-Fordism*, p.176.

The role of education in socialising techno-futurism in New Zealand may be seen in varying discourses. These include the rhetoric of flexibility and ICT facilitated efficiency in transferring knowledge. This is underscored by the acknowledgement of private sector and free market priorities in the regulation of educational resources. I refer to the rhetoric of ‘marketisation’ in secondary education and managerialism and corporatism in tertiary education. These different rhetorics, when placed together indicate a broad discourse of knowledge as an accumulated commodity, with exchange value in the labour market.

One might argue that what has occurred is the quantification and segmentation of learning through techniques and technologies. In this context the private sector determines the legitimate forms of knowledge and techniques to be transferred. This is how techno-futurism and post-industrial narratives are inculcated within society. Likewise, the reshaping of labour capital relationships via the 1991 Employment Contracts Act was justified not only in terms of the post-fordist rhetoric of flexibility, but in terms of flexibility as a response to new ICTs. ‘Progress’ as such became increasingly associated with the inevitability of ICTs utilisation.

Conclusion.

New Zealand’s economic and social history is tied to the realities of geographic isolation and reliance upon foreign markets. The development of ICTs and the rhetoric associated with them must be seen against this background. Initially ICTs in New Zealand were underscored by the process of national development, and nationally constituted notions of progress. These priorities were superseded during the 1980s and 1990s, as ‘free market’ rhetoric took precedence, in tandem with the expansion of ICTs systems.

While early ICTs development occurred in the context of nationally constituted information and communication systems, this changed dramatically through the 1980s and 1990s. The emergence of corporate ownership as the dominant form of capitalist organisation was facilitated by ICTs networks. Technological networks of

business to business communication predominated, in the service of privileged systems of production. This limited the potentialities for the development of alternative uses and policies concerning ICTs.

Telecommunications, IT and broadcasting structures converged against a background of ownership concentration, loss of national control and further mediation of the public sphere by transnational commercial interests⁴⁵⁰. These trends were facilitated by the new right policy agenda of successive governments.

The promotion of cyberculture, and the myth of rags to riches, and entrepreneurialism legitimises the deployment of new ICTs. This excludes criticism of the relationship between information and communication technologies and the global requirements of corporate capital accumulation (especially in the IT and finance sectors.) The rhetoric of entrepreneurialism and innovation were deployed in conjunction with the restructuring of the labour market. The promotion of the garage start-up and the wired utopia ignores the infrastructural priorities of corporate investment.

Furthermore, education has become increasingly visible as a site of ICTs promotion. This has coincided with the increasing marketisation of education, and emphasis upon education as a means of promoting a particular notion of economic progress. The rhetoric of flexibility and education defined as the production of skills required by the labour market is complimented by the increased involvement of the private sector in education, and the emphasis upon information handling and processing within curricula. ICTs are promoted as critical in this regard.

The idea that ICTs facilitate a global market exchange has bought with it the supposed elimination of distance and national boundaries. As a result, overcoming the “tyranny of distance”⁴⁵¹ has developed as a powerful discourse, a discourse that ignores the locus of human agency, which occurs within the ‘confines’ of

⁴⁵⁰ Hope, W. *A Short History of the Public Sphere in Aotearoa / New Zealand*, p.30.

geography.⁴⁵² This links New Zealand's sense of progress strongly with that of spatial integration, or, the ability to travel and trade despite distance. Such progress is signified by the expansion of global capitalism, and new ICTs.

British capital underpinned the control of labour relations on the wharves following the development of refrigerated shipping and subjected the workers to 'efficient' conditions, while repatriating much of the power and profits. Perhaps ICTs are indeed the Freezer ship of the twenty-first Century. The analogy provides a powerful backdrop to the relations of power evident in the expansion of ICTs. However, the fundamental difference lies in what is being carried by the technologies in question.

⁴⁵¹ Robins K. & Webster, F. Times of the Technoculture : From the Information Society to the Virtual Life, p.240.

⁴⁵² ibid, p.242.

From the Knowledge Economy to the Knowledge Wave.

The Catching the Knowledge Wave Conference in Auckland, New Zealand, began on the 1st of August 2001 and lasted for three days. The origins of the conference corresponded with the arrival of knowledge economy rhetoric in New Zealand. The Catching the Knowledge Wave conference must also be understood against the surrounding political economy. In this context I will outline the role and background of the organisers, sponsors and invited speakers. The New Zealand Herald's promotion of the conference and knowledge centred discourse will also be examined.

The concept of the Knowledge economy rests on a fundamental assumption; the axial position of knowledge within economic systems and processes. This assumption informed a project entitled 'The Foresight project', established by the Ministry of Research, Science and Technology, (MoRST) in 1998. The resulting document a 'Blueprint for the Future', aimed to construct efficient methods of investment within an increasingly commercialised research system, and to promote public private partnerships, all under the rubric of innovation.

During 1999 the 'Bright Futures' paper of the New Zealand National Coalition Government referred to a 'knowledge-based' economy'. The report that instigated the Bright Futures Policy was initially titled "New Zealand's Voyage into the Knowledge Economy" and was commissioned by the Information Technology Advisory Group (ITAG) and co-authored by Professor Howard Frederick,⁴⁵³. The membership of ITAG drew from ICTs corporations, and related areas of finance. Individuals included, Compaq New Zealand managing director Paul Blinkhorn, ITG Group managing director Elmar Gailits, Datacom Group chairman John Holdsworth, ASB Bank managing director Ralph Norris, Otago University computer science professor Phillip Sallis, Information Technology Association executive director Tony

⁴⁵³ Barton, C. *Report: New Zealand set to be laughing stock of IT*, New Zealand Herald, June 29th, 1999, p.C1.

Tait and Telecom business features and strategy management manager Laurence Zwimpfer.⁴⁵⁴

Under the Labour Coalition Government of 1999 the rhetoric of “New Zealand’s Voyage into the Knowledge Economy” continued. Immediately prior to the election, Labour leader Helen Clark had indicated her intentions concerning the knowledge economy. “It is towards the knowledge economy, the digital economy, the economy of advanced technologies that we must head.”⁴⁵⁵

4.1 The Antecedents of the Catching the Knowledge Wave Conference (1-3 August 2001).

The Catching the Knowledge Wave Conference (KWC) was held in Auckland at the Sheraton Hotel during the first three days of August 2001. This was a gathering of individuals and organisations primarily from the corporate sector committed to the precepts of knowledge economics and ICT advancement.

There had been National Development Conferences (NDCs) during the late 1960s and early 1970s, and an Economic Summit in August 1984. The former occasions were designed to reassess the planning and management of the national economy. They resulted from sectoral conferences concerning the ‘indicative planning’ of agriculture and manufacturing. The 1984 Summit Conference was framed by discussion about deregulation and restructuring of the New Zealand economy. This supervening policy agenda was not immediately apparent; the Summit included representatives from the public and private sectors, trade unions and community organizations. Significantly, however, the Minister of Finance, Roger Douglas, declared that the role of government was merely to set “the right economic climate” for growth⁴⁵⁶. And the conference chair, Ron Trotter, said that, “If the economic

⁴⁵⁴ Pamatatau, R. *Itag plans to resurrect IT awareness campaign*, The Dominion, 16th October 1995, p.2.

⁴⁵⁵ Unattributed, *Labour promises help for industry*, The Evening Post, 13th April, 1999, p.2.

⁴⁵⁶ New Zealand Government, *View from the Summit: a look at the 1984 Economic Summit Conference*, Wellington, August, 1984, p.12.

summit was to be of any significance it [therefore] had to set in motion a shift in attitudes and an acceptance of change”⁴⁵⁷.

The Economic Summit, then, was underpinned not by the objectives of nationally directed economic development, but by the precepts of economic restructuring and market ‘reforms’. In this sense the Economic Summit can be seen as the logical antecedent of the Catching the Knowledge Wave Conference. The latter gathering was also committed to the idea of a new path forward, in this case toward ‘the knowledge economy’. The broad themes were, the ideal of innovation as a driver of economic progress, (with an emphasis on ICTs and biotechnology), free trade, and the integration of tertiary institutions with the private sector. Encompassing all of these themes was a shared rhetoric about the inexorable process of globalisation. The Economic Summit was a nationally orchestrated media event. Television coverage could not be separated out from management of the conference itself. This served to legitimate the proceedings by positioning the mass audience as a ringside observer. However, whereas the Economic Summit Conference was broadcast live, free-to-air, by Television New Zealand, the KWC was broadcast by a corporate-owned subscription television network (SKY).

4.2 Catching the Knowledge Wave Conference: A Political Economy Perspective.

In contrast to 1984, the KWC was made up almost entirely of corporate interest groups, (comprising representatives from the finance and IT industries, and associated consultancy firms) along with tertiary education representatives. The conference committee included 13 representatives from the University of Auckland of which nine were involved at the administrative level. The total number of tertiary education representatives on the committee was 15, (with the inclusion of administrative representatives from University of Canterbury and Manukau Institute of Technology). The remainder of the 35 strong conference committee comprised eight corporate / private sector representatives, six from the public sector, with only

⁴⁵⁷ *ibid*, p.2.

one union representative (an economist from the Council of Trade Unions). While the KWC proceedings were framed in the terms of innovation, transformation and new beginnings, few delegates explicitly articulated national concerns or objectives.

The KWC originated when an informal private/tertiary sector working group gathered to develop strategies for economic development in New Zealand. The governing theme was that of the knowledge economy. A key instigator was University of Auckland's Vice Chancellor John Hood, a former divisional chief executive with one of New Zealand's largest corporations Fletcher Challenge. The group also included Hugh Fletcher, John Graham, the former headmaster of Auckland Boys Grammar School, Mick Brown, former judge and Auckland University Vice-Chancellor, Andrew Grant, principal of international consultancy firm McKinsey and Company, and Scott Perkins of Deutsche Bank⁴⁵⁸. Several participants, including Hood, Grant and Perkins, and also Chris Liddell (Chief Executive Officer of Australasia's largest forest products company, Carter Holt Harvey) and Stephen Tindall (founder of major retail company The Warehouse), were also involved in a new informal group of elite business leaders (distinct from the Business Round Table). They gained the ear of the new Labour Prime Minister Helen Clark from mid 2000.

On 24 October 2000, in response to continuing media coverage suggesting low levels of business confidence, the Labour Alliance Coalition government assembled a raft of corporate sector interests for a half-day 'forum'. This formation of 'private/public consensus' laid the groundwork for the Catching the Knowledge Wave conference (KWC) held the following year. The organisation of the KWC began within this group, comprised of corporate sector representatives with overlapping interests in the 'industries' of management consultancy, finance and education. When the forthcoming KWC conference was announced at a University of Auckland Alumni Dinner in February 2001, Dr John Hood was able to confirm three major sponsors; Carter Holt Harvey, McKinsey and Company, and Deutsche Bank.

⁴⁵⁸ Du Chateau C, '*Chris Liddell : innovative man is an impatient competitor*', *The New Zealand Herald*, 7 July, 2001, p.C1.

The KWC was touted as a partnership between the government and the University of Auckland. However, although the impetus certainly came from University of Auckland representatives, they were aligned more with the corporate sector than the state / public sectors. The organising group thus exemplified a new alliance between corporate and university elites. They developed “key initiatives” prior to the conference; a proposed bilateral trade agreement with North America, and the promotion of immigration policies designed to attract a “well-integrated, high talent population”. The group also emphasised the need for integration between business and education, and they endorsed the need for government to advance literacy and numeracy in education⁴⁵⁹. These ‘initiatives’ informed the guiding themes for conference proceedings. While the perceived need to improve literacy and numeracy is uncontroversial, other initiatives reflected vested interests. For example, a bilateral trade agreement would accelerate the trend towards global free trade arrangements which overrule domestic public policy. Furthermore, the push for immigration policies which will attract particular talents and skills serves to widen the gap between developing countries and the OECD.

In his opening address and concluding remarks, John Hood asserted the need for a bi-partisan conference, which would not fall victim to political point scoring. This view served to obscure the exclusivity of conference membership and the consequent framing of discussion. As the following table reveals, representatives on the conference committee primarily reflected tertiary and corporate interests, with a few public sector participants. As I have indicated thirteen of the 35 members of the conference committee were from the University of Auckland, with eight of those being Vice Chancellors and council members. The corporate sector interests (composing the subsectors of finance, industrial/corporate, law and economic consultancy) provided eight members. The remainder of the committee was comprised of three MPs, two public sector chief executives, some public sector representatives, and one each from the CTU, New Zealand Herald, Film Commission, Manukau Institute of Technology, University of Canterbury, Waitangi

Fisheries Commission, and the Pacific Foundation. Apart from Ministers, the public sector representation was confined mainly to those involved with the Ministry of Research, Science and Technology.

Table 1.

Conference Committee by Sectoral Interest
Finance
Ralph Norris, Managing Director, ASB Bank
Scott Perkins, Deutsche Bank
Industrial/Corporate
Kent Blumberg, Chief Information Officer (CIO), Carter Holt Harvey
Chris Liddell, Chief Executive Officer (CEO), Carter Holt Harvey (CHH)
Douglas Myers, Chairman, Lion Nathan
Tertiary Education
Marston Conder, Deputy Vice Chancellor : Research, University of Auckland
Raewyn Dalziel Deputy Vice Chancellor : Academic, University of Auckland
Hugh Fletcher, University of Auckland Council
Peter Gluckman, Dean, Medical School faculty, University of Auckland
John Hood, Vice Chancellor, University of Auckland (Conference Committee Chair)
Bryce Hool, Head of Department: Economics, University of Auckland
Peter Menzies, Chair, UniServices Ltd, University of Auckland
Dame Anne Salmond, Pro Vice Chancellor: Equal Opportunities, University of Auckland.
Graham Smith, Pro Vice Chancellor: Maori, University of Auckland
Christopher Tremewan, Pro Vice Chancellor: International, University of Auckland, (Chair of the University Knowledge Wave Project team)
Michael Walker, School of Biology, University of Auckland
Bridget Wickham, Chief Executive: Development University of Auckland
Daryl Le Grew, Vice Chancellor, University of Canterbury
Jack MacDonald, Chief Executive Officer (CEO), Manukau Institute of Technology (MIT)
Public Sector
Alan Bollard, Chief Executive, Treasury
James Buwalda, Chief Executive, Ministry of Research, Science and Technology (MoRST)
Rick Christie, Chair, Science and Innovation Advisory Council (SIAC)
David Cunliffe, Member of Parliament (Labour MP)
Pete Hodgson, Member of Parliament (Labour MP)
Maurice Williamson, Opposition Member of Parliament (Opposition National MP)
Shane Jones, Chair, Waitangi Fisheries Commission
Mary Anne Thompson, Department of Prime Minister and Cabinet (DPMC)

⁴⁵⁹ Read E, 'Intellectual Heavyweights gather for Knowledge Wave conference' New Zealand Herald, 23 July, 2001, p.D1.

Economic Management Consultancy
George Barker, Director, Law and Economics Consulting Group (LECG)
Andrew Grant, Principal, McKinsey & Co
Trade Unions and Advocacy
Lesley Max, Director, Pacific Foundation
Peter Conway, Economist, Council of Trade Unions (CTU)
Other
Tony Caughey, Chief Executive, Rudd Watts & Stone
Gavin Ellis, Editor in Chief, The New Zealand Herald
Ruth Harley, Chief Executive Officer (CEO), New Zealand Film Commission

The conference sponsors were also representative of those who had formulated the guiding themes and initiatives. Sponsorship was sourced early by the founding committee in order to meet conference costs and pay the key speakers. Private sector sponsorship totalled approximately \$750,000⁴⁶⁰. The New Zealand Government, as a ‘partner’ in the KWC, contributed \$633,868 towards expenses related to the conference speakers⁴⁶¹. The full cost of the conference was estimated to be \$1,954,000.

The sponsorship members who contributed to conference costs were differentiated into three status groups; ‘Gold partners’, ‘New Zealand Host’ and ‘Support’.

Table 2.

Sponsors		
Gold Partners	New Zealand Host	Support
Carter Holt Harvey	Rubicon	Merck Sharpe & Dohme
McKinsey & Company	Air New Zealand	Simpson Grierson
Sky Television	Trade New Zealand	Genesis
Telecom	Industry New Zealand	CollaborIT
Global Dairy Company	Oracle	Auckland City Council
Deutsche Bank	ASB Bank	
The New Zealand Herald	Television New Zealand	
The Tindall Foundation	Qantas	

The major (Gold) sponsors were key initiators of the conference. Apart from the Tindall Foundation and the Global Dairy Company all ‘Gold’ sponsors were either

⁴⁶⁰ Black J ‘*Knowledge Wave Guest Speakers Cost \$675,000*’, *The Evening Post*, 28 August, 2001, p.3.

⁴⁶¹ McLoughlin D, ‘*Knowledge Talks Cost Near \$2m*’, *The Dominion*, 6 February, 2002, p.2.

offshore transnational corporations (McKinsey & Company, Deutsche Bank) or transnational corporations with New Zealand subsidiaries or holdings. Telecom, Sky Television and the New Zealand Herald were controlled by offshore interests. Pulp and Paper conglomerate International Paper controlled Carter Holt Harvey. 'Gold Partner' sponsor, and transnational consultancy firm, McKinsey and Company, serves three of the world's five largest companies and two-thirds of the Fortune 1000. For the Knowledge Wave conference it provided a founding committee member (Andrew Grant) and two keynote speakers (Ian Narev and Richard Foster). The firm also provides governmental advice. It authored 'Making a Malaysian Miracle', a 1998 proposal for the Prime Minister and National Information Technology Council. This became the basis for the Malaysian Multimedia Supercorridor initiative⁴⁶². McKinsey has also done consultancy work for various neo-liberal governments. They advised the New Zealand government on the deregulation of broadcasting in the late 1980s.

'Gold partner' sponsor Deutsche Bank is the largest in the European monetary union, with activities ranging from investment banking, corporate and private banking to less traditional interests such as pubs. More than 3,000 of these were purchased from Whitbread, to sell futures bonds for the purchase of food and alcohol⁴⁶³. During the 1990s Deutsche Bank moved beyond core banking services into merchant banking and other financial services. Deutsche was ranked number two globally in the banking industry (in asset size), with assets totalling \$US 700 billion⁴⁶⁴. In that year the Bank was involved in the acquisition of Bankers Trust. This was part of a move toward investment banking and this initiated the arrival of the corporation in New Zealand. By 2001 Deutsche Bank's assets were estimated to total \$800 billion⁴⁶⁵.

⁴⁶² Harris R, An IFIPWG 9.4 Position Paper, Faculty of IT, University of Malaysia Sarawak, <http://is.lse.ac.uk/ifipwg94/pdfs/MalayMSC.pdf>, 1998.

⁴⁶³ Inner City Press, 'Inner City Press/Community on the Move', <http://www.innercitypress.org/dbbt.html>, 26 March, 2000.

⁴⁶⁴ Union Network International, 'Europa, The impact of Mergers and Acquisitions in the Banking and Insurance Sector' - [http://www.union-network.org/unifinance.nsf/eb9b2d71ea970654c12568930034d60b/9e39ad1e2a6f5f86c12569760049e6cc/\\$FILE/fin-merger-report-london-e.doc](http://www.union-network.org/unifinance.nsf/eb9b2d71ea970654c12568930034d60b/9e39ad1e2a6f5f86c12569760049e6cc/$FILE/fin-merger-report-london-e.doc), 2000.

⁴⁶⁵ Harris, J. 'Information Technology and The Global Ruling Class', *Race and Class*, Volume 42, No 4, April-June, 2001, p.52.

The company representatives at the conference included chief economist and professor Norman Walter, and Scott Perkins (another conference committee founder).

Gold Sponsor Carter Holt Harvey is Australasia's largest wood products company and is owned by the United States based transnational International Paper. The company has over 10,000 employees worldwide, and a sophisticated ICT structure with which to coordinate their operations. Elements include a data processing system, which allows Auckland to communicate with the parent company and local operations. It should also be noted that two of Carter Holt Harvey's Directors, John Maasland and Wilson Whineray, are also on the Board of Wilson and Horton, a subsidiary of Tony O'Reilly's Independent News Media Ltd.

The 'New Zealand Host' sponsors were representative of finance, information and communication technologies, airlines and public sector interests. The public sector was represented by industry development boards, which contained private sector representatives. Other than ICT company Oracle and airline Qantas (which have New Zealand interests, but are based off shore) the 'New Zealand Host' category is characterised by a strong national focus. Of crucial significance here, is the absence of industrial corporates, suggestive of the decline of nationally-based manufacturing. This trend is also evident in the 'Support' category. Here the IT and Biotechnology sectors were represented. The legal firm, Simpson and Grierson specialises in information technology related law. Indeed, across all sponsors, only Carter Holt Harvey may be considered representative of industrial corporations.

Oracle, the world's second largest independent software company, sells products to all Fortune 500 companies. It exemplifies a new global corporate sector built around IT products and services. As part of its rapid growth since the early 1980s, Oracle has provided information system software to banking, airlines and governments⁴⁶⁶. Put simply, Oracle helps to construct the 'nervous system' of global capitalism. It is

⁴⁶⁶ Maney, K. Megamedia Shakeout: The Inside Story of the Leaders and Losers in the Exploding Communications Industry, Toronto, Wiley and Sons, 1995, p.236.

a major supplier of business-to-business communications products (e-commerce), and a leading supplier of software for information management. Oracle's New Zealand operations have included work for Air New Zealand, New Zealand Post, The New Zealand Companies Office, New Zealand Dairy Board and Waitemata Health Board.

Rubicon is an offshoot of Fletcher Challenge (prior to divestiture of the company), and is majority owned by Global investment house AMP and a United States investor. Rubicon holds a stake in Fletcher Forests and in another 'support' sponsor, Genesis (a research and development biotechnology company). Rubicon is described on its website as "a business developer which works to commercialise selected emerging technologies that can capture high growth, high margin opportunities for shareholders." The company has a strategic alliance with International Paper, owner of Carter Holt Harvey. Rubicon directors include Merck Sharpe and Dohme employee Jilly Evans (a keynote conference speaker), and University of Auckland board member, Hugh Fletcher (conference committee member). Another New Zealand Host sponsor, ASB Bank, (owned by Commonwealth Bank of Australia) was an early user of electronic banking systems.

'Support' category sponsor, Merck Sharp & Dohme, ranked number two in the New Zealand pharmaceutical market, operates within the Pharmac regulatory system for access to pharmaceutical contracts. The company, which also specialises in clinical research and is a global industry brand, benefits from the Closer Economic Relations (CER) agreement between Australia and New Zealand (some operations have been relocated across the Tasman). One controversial research project concerns the mapping of the human genome. Merck Sharpe & Dohme's representative at the conference, keynote speaker Jilly Evans, is Director of Pharmacology at the research arm of the company's United States operation.

The preceding account of conference sponsorship points to the dominance of finance and ICT-related corporates. Most of them directly organised and/or participated in the conference. Equally, significant was the link between the tertiary and corporate

sectors. This was exemplified by the networking role of University of Auckland Vice Chancellor Dr John Hood. As an original conference organiser, committee member, chairman, and speaker he drew upon colleagues within the corporate cultures of Fletchers, ASB Bank and the executive tier of the University of Auckland. At the same time, Hood held directorships on the boards of ASB and the Global Dairy Company (now Fonterra).

4.3 The Knowledge Economy Experts.

The Catching the Knowledge Wave conference was addressed by the following array of speakers.

Table 3.

The Keynote Speakers	
Robin Batterham	Chief Scientist of Australia
Donald Brash	Governor of the Reserve Bank
Mick Brown	New Zealand Family Court Judge
John Seely Brown	Chief Scientist, Xerox Corporation
Dae Whan Chang	President and Publisher, Maeil Business News and TV
Rick Christie	Chair, Science and Innovation Advisory Council
Nitin Desai	United Nations Under Secretary General, Economic and Social Affairs
Sean Dorgan	Chief Executive, European Industrial Development Agency
Jilly Evans	Director of Pharmacology, Merck Sharpe & Dohme
Richard Foster	Senior Partner, McKinsey and Company
Paul Keating	Former Australian Prime Minister
Nehemia Levtzion	Chair, Planning and Budgeting, Israeli Council for Higher Education
Gurion Meltzer	Israeli Businessman and University Board Member
Dr Yuan T Lee	President, Academic Sinica Research Institute
Michael Porter	Professor, Harvard Business School
Jorma Routti	Chair at Helsinki Technical University, and Chair of Investment Fund
Sally Shelton Colby	Deputy Secretary General, Organisation of Economic Co-operation and Development (OECD)
Shih Choon Fong,	Vice Chancellor, National University of Singapore

David Teece	Director, Institute of Management, Innovation and Organisation, Berkeley University
Robert Wade	Professor, Political Economy, London School of Economics
Norbert Walter	Chief Economist, Deutsche Bank
George Yong-Boon Yeo,	Brigadier General, Minister of Trade and Industry, Singapore.
Other Speakers	
James Belich	History Department, University of Auckland
David Clarke	Westpac Banking Corporation
Peter Gluckman	Liggins Institute, University of Auckland
Michael Goldberg	Faculty of Commerce, University of British Columbia
Colin James	Political Journalist and Columnist, The New Zealand Herald
Joanne Kestra	Partner, L.E.K Consulting
John Hood	Vice Chancellor, University of Auckland
Helen Clarke	Labour Prime Minister of New Zealand
Lesley Max	Executive Director, Pacific Foundation
Ian Narev	Consultant, McKinsey & Company
Scott Perkins	Chief Executive, Deutsche Bank
Celebrity Speakers (Speeches not listed on Conference Proceedings)	
Horace Brock	Founder and President of Strategic Economic Decisions (SED)
Edward De Bono	Motivational Speaker and Creator of Lateral Thinking
Robert Winston	Chair of House of Lords Science and Education Committee, Fertility Expert and Television Personality

The names listed here are a mixture of overseas academics, researchers and consultants in the areas of technology, commerce and management. The only designated social policy expert was Nitin Desai, the United Nations Under Secretary for Economic and Social Affairs. This suggests little recognition of the socio-cultural context of knowledge creation and acquisition. Furthermore, there were no academic economists from within New Zealand invited to make keynote speeches. And, Tangata Whenua representation was miniscule. The social and cultural histories of Aotearoa/New Zealand were not deemed a relevant subject for conference discussion apart from Mick Brown's and James Belich's contributions.

The expertise offered by the speakers at the Catching the Knowledge Wave reflected vested interests. Twelve of the eighteen keynote speakers were associated either directly or indirectly with transnational corporations involved in the areas of information/communication technology or finance. Academic celebrity Dr Edward De Bono has advised such ICT transnationals as IBM and Ericsson. (It should be noted that while De Bono was advertised as a drawcard for the conference, he did not address the conference as a listed key speaker, but gave a ticketed 'public' address). De Bono and Harvard Business School Professor Michael Porter have both advised for Telecommunications Giant AT&T, while Porter also advises Credit Suisse First Boston, as does United States Economist Dr Horace Brock. He specialises in aspects of international credit, and advises finance companies such as Deutsche Bank, Merrill Lynch and Mercury Asset Management. Deputy Secretary General of the OECD, Sally Shelton- Colby, has a direct involvement with an investment company floated on the London stock exchange. She was once Vice President of Bankers Trust Co. and was involved in debt risk assessment for developing countries. These speakers all have a vested interest in the global expansion of ICTs and/or global financial flows.

The key speakers of the KWC all represented organisations who had benefited from recent manifestations of global capitalism. Many experts were involved with the promotion of information technology or biotechnology (by way of advice networks and contracts, publicly funded projects, or corporate positions and directorships). Others were committed to alliances between tertiary institutions and the corporate sector (for example, John Hood, Shih Choon Fong and David Teece). Industrial corporates were marginally represented. The major keynote speaker linkages here were Batterham's research and development position with the world's second largest mining company Rio Tinto, and Shelton-Colby's position as a director of a Fortune 500 oil and gas company, Valero Energy Corporation.

4.4 Selling the Knowledge Wave: The Role of the New Zealand Herald.

The political economy of the conference also incorporated the New Zealand Herald. In August 2001 the newspaper was owned by Independent News and Media Limited subsidiary Wilson and Horton. Since that time Wilson and Horton has been sold to Australian Provincial Newspapers (APN) for \$NZ 1.5 billion⁴⁶⁷. APN News and Media is 40 percent controlled by Independent News and Media. The sale was part of a wider strategic agenda. Irish Media Magnate Tony O'Reilly wanted to construct a major Australasian media company. A number Wilson and Hortons' directors held board positions in companies that sponsored the Catching the Knowledge Wave conference. They included Carter Holt Harvey Chairman Wilson Whineray.

The New Zealand Herald also orchestrated an information campaign to sell the conference⁴⁶⁸. One example was the weeklong editorial series, 'Our Turn', which ran from 30th June –6th July, 2001. The features corresponded to various conference themes. These included "Learning the Lessons" (Weekend Edition, 30 June), "Innovation and Research" (Monday, 2 July), "IT" (Tuesday, 3 July), Biotechnology (Wednesday, 4 July), Education (Thursday, 5 July), Employment (Friday, 6 July), and "Where does New Zealand go Next" (Weekend Edition, 7 July). A corresponding series of editorials foregrounded the themes of flexibility, human capital, enterprise culture, as well as the central importance of ICTs.

A feature article entitled 'Intellectual Heavyweights gather for Knowledge Wave conference' appeared a week prior to the opening⁴⁶⁹. The article began with the question, "What happens when 450 invited guests sit in a conference room for two

⁴⁶⁷ Boeyen, P. *Editorial*, *ShareChat Business News*, <http://www.sharechat.co.nz>, 31st October, 2001.

⁴⁶⁸ The term information campaign rather than coverage is an important distinction, Not only was the New Zealand Herald a sponsor of the conference (thus having a vested interest in its promotion) but, tellingly, coverage of the conference earned the Herald an award from the International Newspaper Marketing Association in May 2002. Their award category was public relations programmes and events. <http://www.inma.org/2002awards-winners.html> The New Zealand Herald actively and unashamedly assumed this role by way of what was called a form of public journalism (For a definition of Public or Civic Journalism, see Rosen, J. *Getting the Connections Right: Public Journalism and the Troubles in the Press*, New York, Twentieth Century Fund, 1996).

and a half days, talking to each other and listening to 30 national and international speakers?”

Another example of the New Zealand Herald's information campaign was an article by staff writer Carroll Du Chateau about conference organiser Chris Liddell, Carter Holt Harvey Chief Executive Officer. Under the headline 'Chris Liddell : innovative man is an impatient competitor' he was portrayed as a success story of entrepreneurialism and creativity. "Look carefully and you can see his prints on new ideas coming out of Auckland as a new breed of innovative businesspeople push to lift New Zealand out of the doldrums."⁴⁷⁰ Here, the New Zealand Herald serves as an enthusiastic promoter of knowledge economy rhetoric. In July 2001 the NZ Herald arranged the visit of former Canadian Prime Minister Brian Mulroney in conjunction with organisers of the conference. It should be noted that Mr Mulroney was on the International Advisory Board of Independent News and Media, the parent company of Herald Publisher Wilson and Horton. He had been directly involved in the establishment of the North America Free trade Agreement (NAFTA), and his Auckland address advocated a similar agreement for New Zealand. On the same day that Mulroney, was speaking on this topic in Auckland, Canadian journalist and free trade critic Naomi Klein was also heading a meeting. Coverage of Mulroney was prominent and positive whereas the latter was depicted as 'Naomi Klein - anti-globalisation's poster girl'⁴⁷¹. This solitary article made only one reference to Mulroney whom Klein had criticised in her book, 'No Logo'. While Mulroney was vocal about the need for Free Trade agreements, Klein provided a bleak analysis of their socio-economic consequences.

New Zealand Herald reportage centred upon key note speakers, but some were given more prominence than others. Coverage of the few dissenting views within the conference was minimal. For example, one keynote speaker, expatriate Professor

⁴⁶⁹ Read, E. 'Intellectual Heavyweights gather for Knowledge Wave conference.'

⁴⁷⁰ Du Chateau, C. 'Chris Liddell : innovative man is an impatient competitor'. The New Zealand Herald, July 7, 2001, pC1.

⁴⁷¹ Reid, G. 'Poster Girl's a Face of Protest', New Zealand Herald, 7 July, 2001, p.B5.

Robert Wade, challenged the neo-liberal assumptions of certain other contributors, such as Reserve Bank Governor Don Brash. However, these criticisms of other keynote speakers was played down. The New Zealand Herald instead focussed upon Wade's comments about the potential slide of New Zealand from the leading group of OECD countries. The only article that acknowledged Wade's differing and critical viewpoint was entitled 'Brash contribution restores dash of realism to conference hyperbole.'⁴⁷² The reporter, Herald columnist Fran O'Sullivan, wrote;

Where conference speakers differed from Wade was in the economic prescription to avert that disaster. Wade positioned himself as a "constructive dissenter", but with players from both sides of the economic debate trying to form a non-ideological platform on which to move forward, he was essentially a disruption.

Here Wade is framed as an obstacle to a general consensus, which is held to be non-ideological.

Overall the New Zealand Herald sought to construct a majoritarian view rather than facilitate public debate about the conference. Indeed, one feature writer explicitly stated that "The news media's role in building a change consensus will be apparent."⁴⁷³

Conclusion.

The formation of the KWC by the organising committee, key sponsors and invited speakers, reveals a conference enmeshed within the business culture of finance capital and the new ICTs. Their economic objectives serve to reinforce the global absorption of New Zealand capitalism. This is exemplified by the KWC in contradistinction to the National Development Conferences and the Economic Summit. Chronologically, the various conferences reflect the shift away from a

⁴⁷² O'Sullivan, F. 'Brash contribution restores dash of realism to conference hyperbole' New Zealand Herald 3 August, 2001, p.A9.

⁴⁷³ O'Sullivan, F. 'Change is a National Mission'.

nationally constituted economy. The rhetoric of the knowledge economy is the most recent manifestation of this process.

The KWC was dominated by particular sets of corporate interests. These were groups and individuals with an interest in the areas of finance, ICTs and management consultancy. Also important were the executive administrative layers of the University of Auckland, which had become increasingly corporatised over recent years. The government, while playing host, maintained a minor role in the conference. The percentage of public sector speakers was low, as was the number of representatives from local universities and interest groups. Participation was restricted, and debate was constrained. The role of the New Zealand Herald in promoting the conference narrowed public debate over conference issues.

The conference organisers were linked directly to the major corporates and key participants came from a privileged system of corporate networks. Furthermore most sponsorship funds derived from corporations with a vested interest in the expansion of transnational capital flows, the promotion of ICTs, as well as the installation of 'flexible' labour markets. Overall, the KWC was an elite gathering orchestrated by particular interests from within the finance, ICT and corporatised education sectors.

The Knowledge Economy and the Knowledge Wave: **Language and Ideology.**



Catching the Knowledge Wave Conference **1-3 August 2001**

The knowledge economy is a place to arrive at, and an emergent reality. The possibility of exclusion from a global knowledge economy is looming, and inclusion is imperative. These imperatives typify techno-futurist narratives of progress, and is best illustrated in the metaphor of the wave.

The title of the conference, Catching the Knowledge Wave, was framed by the metaphor of the wave. This represented an inexorable and natural force onward, a progression forwards, and a point of take off. Natural and animate imagery was deployed, with visual allusions to technology and the idea of connection. Finally, the wave metaphor is inclusive, in the sense that it moves in one direction and leaves the entire past behind.

The metaphor of the wave needs to be considered in relation to the purpose of the conference. The Catching the Knowledge Wave conference (KWC) was a gathering committed to the precepts of economic progress, set within the context of knowledge economics and ICT advancement. Next to the wave icon in the conference logo are images depicting the generation of ideas (with an 'up to date', energy efficient light bulb), the connection of people of varied gender and ethnicity, and connection by technological means (depicted in the graphed bump of a heart machine or stock market listing.) Finally the commonly held keyboard version of 'at' is associated with electronic mail. It would appear that the wave and its sunny sky are rolling

towards these symbols of economic progress, progressive ideas, connections and technology.

The key speeches made at the KWC will be analysed within the context knowledge economy talk in New Zealand. The texts will be analysed in relation to three key themes. These are; entrepreneurialism, knowledge as economic progress (and progress per se) and globalism⁴⁷⁴. Each speaker prioritised at least one or two of these themes. Particular themes were given different nuances depending on the speakers background.

Table 3.

The Keynote Speakers	
Robin Batterham	Chief Scientist of Australia
Donald Brash	Governor of the Reserve Bank
Mick Brown	Family Court Judge
John Seely Brown	Chief Scientist
Dae Whan Chang	President and Publisher, Maeil Business News and TV
Rick Christie	Chair, Science and Innovation Advisory Council
Nitin Desai	United Nations Under Secretary General, Economic and Social Affairs
Sean Dorgan	Chief Executive, European Industrial Development Agency
Jilly Evans	Director of Pharmacology, Merck Sharpe & Dohme
Richard Foster	Senior Partner, McKinsey and Company
Paul Keating	Former Australian Prime Minister
Nehemia Levtzion	Chair, Planning and Budgeting, Israeli Council for Higher Education
Gurion Meltzer	Israeli Businessman and University Board Member
Dr Yuan T Lee	President, Academic Sinica Research Institute
Michael Porter	Professor, Harvard Business School
Jorma Routti	Chair at Helsinki Technical University, and Chair of Investment Fund

⁴⁷⁴ Whilst such themes are not easily separated, such demarcation of the major themes has been necessary for ease of analysis.

Sally Shelton Colby	Deputy Secretary General, Organisation of Economic Co-operation and Development (OECD)
Shih Choon Fong,	Vice Chancellor, National University of Singapore
David Teece	Director, Institute of Management, Innovation and Organisation, Berkeley University
Robert Wade	Professor, Political Economy, London School of Economics
Norbert Walter	Chief Economist, Deutsche Bank
George Yong-Boon Yeo,	Brigadier General, Minister of Trade and Industry, Singapore.
<u>Other Speakers</u>	
James Belich	History Department, University of Auckland
David Clarke	Westpac Banking Corporation
Peter Gluckman	Liggins Institute, University of Auckland
Michael Goldberg	Faculty of Commerce, University of British Columbia
Colin James	Political Journalist and Columnist, The New Zealand Herald
Joanne Kestra	Partner, L.E.K Consulting
John Hood	Vice Chancellor, University of Auckland
Helen Clarke	Labour Prime Minister of New Zealand
Lesley Max	Executive Director, Pacific Foundation
Ian Narev	Consultant, McKinsey & Company
Scott Perkins	Chief Executive, Deutsche Bank
<u>Celebrity Speakers (Speeches not listed on Conference Proceedings)</u>	
Horace Brock	Founder and President of Strategic Economic Decisions (SED)
Edward De Bono	Motivational Speaker and Creator of Lateral Thinking
Robert Winston	Chair of House of Lords Science and Education Committee, Fertility Expert and Television Personality

The theme of entrepreneurialism incorporates the rhetoric surrounding risk culture and enterprise culture. Entrepreneurialism derives from the modern concepts of individualism, capitalist modernity and the accelerating nature of capital circulation. The processes of economic growth are set out as inexorable⁴⁷⁵ and the individual subservient to the logics of accumulation, save for the embrace of enterprise culture. Thus, the promotion of 'risk-taking' as a social disposition serves to legitimate hypercapitalism in the form of transnational finance capital. The determination of technology as inherently progressive is wrapped up with this sense of economic imperative⁴⁷⁶.

The theme of knowledge as economic progress is central to the overall discourse of the Knowledge economy. This theme depends on a particular understanding of what knowledge is. Some forms of knowledge are deemed legitimate, whereas other forms of knowledge are assumed to lack value. Here, it is important to consider the processes and institutions that regulate commodification and how this is obscured. Within conference speakers knowledge as a measure of economic progress is reflected the notions of education as investment (investment, that is, as understood within a specific economic rationality). Knowledge as progress is also a function of flexibility and innovation (as discourses). In the so-called knowledge economy, knowledge is not scarce, but is made to be so⁴⁷⁷. For example, knowledge, and the understanding of knowledge in terms of technologically facilitated transfer of information are markers of knowledge as a scarce commodity.

The third theme of the KWC analysis is 'Globalism'. This general notion, and the associated terminology of globalisation was evident in every speech. The shared assumption was of globalisation as a natural and inexorable force. In this context the promotion of free trade was a given. The promotion of the global economy and international trade were constructed as a race. To compete successfully New Zealand

⁴⁷⁵ Smart, B. *Modern Conditions, Post-modern Controversies*, p.63.

⁴⁷⁶ Wood, E. 'Modernity, Postmodernity, or Capitalism', p.39.

⁴⁷⁷ Jessop, B. *The State and the Contradictions of the Knowledge Driven Economy*. This differs slightly from proponents of the knowledge economy, such as Joseph Stiglitz, who view knowledge as an impure public good.

had to triumph over the ‘tyranny of distance’. This was deemed to require not just the export of goods, but the attraction of human capital.

5.1 Entrepreneurialism.

This theme will be introduced with an analysis of the address by David Teece. Teece is representative of the finance and ICT sectors, and he has business interests between New Zealand and Silicon Valley, as a venture capitalist, economist and consultant. The address by Teece typifies key aspects of entrepreneurialism.

Foundations for success in the knowledge economy: challenges and opportunities for New Zealand – David Teece.

While an economist by training, my perspective is that of scholar of innovation, resident at one of America’s great research universities, living with at least one hand in the business worlds of the U.S., Europe, Australia, and New Zealand. I’m active in the governance and strategy of three global businesses: one based in the U.S., and two based in New Zealand. I also live in Northern California, on the edge of “Silicon Valley” which has become the world’s preeminent geography for breeding new companies, commercializing new technologies, and creating wealth. There are important lessons from the Silicon Valley experience which need to be recognized..... The research institute I direct at the University of California through the Consortium on Competitive and Cooperation (CCC), has been at the nexus of research efforts in the U.S., Europe, and Japan directed at understanding innovation.⁴⁷⁸

The beginning of this address to the Catching the Knowledge Wave Conference is devoted to asserting the expertise of David Teece in relation to the subject matter. Teece establishes this legitimacy by referring to his experience in ‘innovation’, and his involvement in business on a ‘global’ level. He states “my perspective is that of scholar of innovation”. Teece remarks that he directs a research institute at the University of California, which “through the Consortium on Competitive [sic] and

⁴⁷⁸ Teece, D. *Foundations for success in the knowledge economy: challenges and opportunities for New Zealand*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.4.

Cooperation (CCC), has been at the nexus of research efforts in the United States, Europe, and Japan directed at understanding innovation.” This speech is informed by Teece’s involvement with a distinct, elite technocracy operating mainly in areas of Silicon Valley. The term innovation is positioned as part creativity, part commercialisation. Teece’s reference to the pre-eminence of Silicon Valley suggests that the processes of commercialisation are thus as much cultural as economic. However, the ‘breeding’ of companies in Silicon Valley has been driven by the United States military’s investment in electronics, and software. The relationship of Silicon Valley to prevailing power structures and the region’s subsequent position as an industry leader are largely ignored by Teece. Instead, the role of the entrepreneurial individual is foregrounded. This is coupled with the construction of enterprise leadership.

Teece seeks to explicate the ‘sources of industrial leadership’.

Even with the dot com bust, Silicon Valley stands out as a preeminent example of industrial success in the post-war period. Many successes elsewhere . . . be it Taiwan, Singapore, or Ireland . . . feed from it. Transformed from orchards to the world’s greatest high tech mecca, its success was not architected in Washington or Sacramento. Rather it was architected by entrepreneurs and engineers such as Bill Hewlett, David Packard, Frank Terman, Bob Noyce, Gordon Moore, Steve Jobs, Bob Swanson, and Scott McNealy. It flourished in a relatively stable business environment, accessed talent through an extremely open and flexible labor market, and attracted capital from a budding venture capital industry. Absolutely key was the availability of a skilled workforce, and an environment open to entrepreneurship. Government very much played a subsidiary role: the Defense Department was an early buyer for the output of some of the firms, but not from all. The presence of talent trained at Stanford, UC Berkeley, and UC San Francisco was critical. Government funding assisted these institutions. The presence of well-funded private research establishments like Xerox PARC was also critical. In biotech, funding from the National Institute of Health to the universities has also been significant. However, it is most important to recognize that success was crafted by private enterprise, and by institutions of learning. The legends of Silicon Valley are the engineers, scientists, entrepreneurs, and venture capitalists, not the government officials.⁴⁷⁹

⁴⁷⁹ibid., p.19-20.

Teece does not explicate the role played by the United States military industrial complex⁴⁸⁰. Statements regarding computing technology combine the mythology of the inventor with enterprise culture. Reiterating the ‘successes’ of the “world’s greatest high tech mecca” in the form of Silicon Valley, is a common element of the Californian ideology⁴⁸¹. This involves the incorporation of “libertarian individualism” with aspects of technological revolution⁴⁸². The ‘legends of Silicon Valley’ have driven the progress of the region from orchards to ‘high-tech mecca’. Such change was not orchestrated at a federal or state level. Instead Teece states that, “its success was not architected in Washington or Sacramento.....it was architected by entrepreneurs and engineers, such as Bill Hewlett, David Packard, Frank Terman, Bob Noyce, Gordon Moore, Steve Jobs, Bob Swanson, and Scott McNealy.” According to Teece, these are the legends of Silicon Valley. Success lies in the hands of the skilled individual, supported by a culture of private enterprise and academic institutions. These constructions of the inventor and the entrepreneur personify progress and the cultural superiority of enterprise culture. In this context progress is measured by contriving economic growth (to which the individual is beholden and paradoxically liberated.)

With regard to enterprise culture Teece maintains that competitive advantage is found, not within nation states, but within firms.⁴⁸³ He elaborates on the advantages that come out of the “organisational and financial capabilities of firms, and their supporting structures.”⁴⁸⁴ He argues this while obscuring the context by making references to the leader, the technocrat and the inventor later in the address;

⁴⁸⁰ For more on the role of the United States Military Industrial Complex in the development of information industries, see, Schiller, H. Culture Inc.: The Corporate Take-over of Public Expression. The broad trends within this power system, which goes beyond culture industries to those of broader information and communication infrastructures, including the constitutive technologies, are outlined in section 2.2 Globalisation, Chapter One, of this Thesis.

⁴⁸¹ Barbrook R. & Cameron, A. The Californian Ideology.

⁴⁸² ibid, pp2-3.

⁴⁸³ Teece, D. *Foundations for success in the knowledge economy: challenges and opportunities for New Zealand*, p.11.

⁴⁸⁴ ibid, p.12.

“managers in the United States, Britain and Germany built the organisations and took the risks of investment necessary to capture the economies of scale and scope opened up by the technological innovations of the second industrial revolution.”⁴⁸⁵

This is a particularly interesting statement. Teece places emphasis almost exclusively upon individual and corporate centred enterprise, as vehicles of commercial success. The role of the state appears to be not only minor, but potentially inhibiting to the prospect of growth and economic progress. Teece notes that competitive advantage lay with those who took the risks within “the United States, Britain and Germany” to ‘capture’ technological innovation. The idea that technological advance is captured and directed toward a progressive end foregrounds the individual role of the business leader, technocrat and the inventor. Technology as such is framed as autonomous or at very least spontaneous. The place of origin of the new technologies, that is, largely Britain, the United States, Japan, France and Germany, does not appear to feature.⁴⁸⁶ Teece implies that all countries have equal opportunity to access technological ‘revolution’ and competitive advantage. The idea of individual opportunity is transposed to the international level. This decontextualises the functioning of (and tension between) the national and global economy, as well as the interconnectedness between social relations and the ‘economy’⁴⁸⁷. In its place is the cultural imperative of entrepreneurial risk. It is important business and technological visionaries take “the risks of investment necessary”. Risk is deemed necessary to capture the benefits of animate and fast evolving technology. Without the culture of risk and investment, technological innovation will be lost. Teece does not offer evidence for these claims, but rather treats them as self evident. At the of the enterprise Teece asserts that “the success of national firms helps drive the fortunes of nations. The man-in-the street knows this; but it’s a hard one for some scholars to grasp.”⁴⁸⁸ Despite appealing to the “man-in-the street”, this viewpoint is designed for an audience with capital mobility. For example, Teece describes the networks created by a particular group of

⁴⁸⁵ *ibid.*

⁴⁸⁶ Excluding the lauding of Silicon Valley, which, as noted earlier, ignores the relations of power constructed by the United States Federal government.

⁴⁸⁷ The implications of such tensions are set out by Harvey in *The Condition of Postmodernity*.

migrant workers in the United States. “Chinese immigrants, for instance, are increasingly returning to Taiwan to take technical and managerial positions in pioneering businesses strongly linked to Silicon Valley.”⁴⁸⁹ These are privileged networks, symptomatic of the circularly reinforcing system of finance capital, informational commodities and ICTs investment. In this case the ends are the expansion of the dominant interests of Silicon Valley.

However, the common man takes a back seat to the need to develop networks of influence. Teece observes that “The new economy entrepreneur cannot afford to be a loner”⁴⁹⁰. In his studies of Silicon Valley such connectedness conflicts with the elite position of the ‘entrepreneur’. Furthermore, the networks of Bill Hewlett and David Packard are hardly open. This tension between the collusive requirements of capital and neo-liberal discourse about individual liberty and freedom is thus evident. Resolution of such tensions is ideologically accomplished through the conflation of entrepreneurialism and managerialism (often referred to as enterprise culture). Such a culture perceives information and knowledge as offering freedom and choice.

In his address, Teece refers to a form of productive knowledge as “entrepreneurial”.⁴⁹¹ According to Teece, knowledge must first be codified if it is to be used effectively. Teece’s understanding of productive knowledge is managerialist, and operates to limit other kinds of knowledge. Thus, the pioneering exploits of Chinese expatriots as set out by Teece need to be considered beyond simple economic growth, which Teece does not do. Rather, Teece goes on to enforce the importance of cultural lessons. Teece makes reference to the growth rates experienced in Japan and the faltering of the United States economy, in the 1970s. The role of training and education in managing and reorganising production effectively by targeting the increased efficiency of human capital. The privileged networks of Silicon Valley within which Teece works appear to have had a powerful effect on his views. Thus, Teece’s view is also centred around a network of information and knowledge that enables the entrepreneur. Knowledge creation

⁴⁸⁸ Teece, D. *Foundations for success in the knowledge economy: challenges and opportunities for New Zealand*, p.12.

⁴⁸⁹ *ibid*, p.16.

⁴⁹⁰ *ibid*, p.9.

appears as a by-product of economic growth, as well as driving such economic growth. Ways of understanding or reflecting upon alternative forms of economic organisation are excluded.

A number of KWC addresses linked the idea of technological progress with the risk culture associated with financial markets. This theme was stressed by those representing financial institutions, consultancy groups and investors. It is evident in the speech made by Ian Narev of McKinsey & Company. For Narev, those who “felt vindicated in their view that the hype over the Internet and information technology had been radically exaggerated” are incorrect in this assumption.⁴⁹² In his view “this sudden shift has led many people to believe that the knowledge wave is over. My experience, however, suggests that the real knowledge wave is just beginning.”⁴⁹³ Narev presented the knowledge ‘wave’ as a combination of venture capital and the so-called internet bubble. The speculative bubble in high-technology listed stocks which grew through the late 1990s and year 2000 resulted in a substantial market failure which destroyed the savings of many investors⁴⁹⁴.

This failure was not just about the failure of high technology stocks to sustain fast and high-level yields. It was also an indictment of the unstable systems associated with finance capital. Yet Narev does not recognise this. According to him the ‘inflation –free’ advances in productivity, heralded as a revolutionary aspect of ICTs, has simply gone through a corrective period of growth. There simply has not been the time to understand, adopt and “evolve” with the technology. However, overpriced Internet and IT stocks reflected the culture and organisation of the financial markets, particularly in the United States.

⁴⁹¹ *ibid.*, p.11.

⁴⁹² Narev, I. *Kiwi Perspectives From Abroad*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.2.

⁴⁹³ *ibid.*

⁴⁹⁴ Harvey, D. *The Limits to Capital*, p.304.

Scott Perkins from Deutsche Bank ⁴⁹⁵ emphasised the importance of venture capital or “knowledge capital markets”. This is a specific view of the utilisation of ‘knowledge’ capital by way of speculating on the risk of human capital allocation. Like Narev, Perkins referred to the venture capital bubble (often referred to as the speculative bubble preceding the dotcom crash) and its eventual collapse simply as a market correction. Perkins argues that criticism regarding the speculative boom during 1999 and 2000 is a result of a mentality which fails to understand that greed is unavoidable and has a plus side. He cites Linus Torvalds in stating that, “Its too easy to blame greed. Outrageous stock prices allowed people to do completely stupid stuff. Which is how you get creative. Too bad if 90% of it is stupid. That’s how creativity works.” Such creativity is perhaps less welcomed by those who experienced dramatic loss, including jobs and homes, because of the ‘correction’. Perkins regards market in some Darwinist terms. That is, ‘survival of the fittest’ is conflated with the operation of ‘the market’. Thus, he refers to a set of “Key survival principles”. These rely largely upon the axiom that “Good businesses get funded”, and consist of the “Three Ps Survival Guide. 1.Profitability 2. Pain Avoidance 3.Preparation.”

There was also a general call for risk culture to be institutionalised. For example, the speech made by Rick Christie, Chairman of the Ministry of Research Science and Technology (MRST). Christie echoes Teece’s calls for innovative culture to be embraced in education, in this case the secondary level of the compulsory sector. Christie states that “The Secondary system, for example, especially needs to give much more support to technology, entrepreneurialism, and wealth creation, along with improving and upskilling our maths and science resources. Some might say why?...I say why ever not?”⁴⁹⁶ One may critically evaluate the question of why not by referring to aspects of the political economy of new ICTs, and the social relations embedded within technology. In the former context education as a state institution

⁴⁹⁵ Perkins, S. “*Knowledge Capital Markets – What messages are they sending to innovators?*” Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, *Slide Show / Power Point Presentation.

⁴⁹⁶ Christie, R. *No Title*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.7.

serves to reduce labour costs for corporate interests. Emphasis on skills and technology in compulsory education allows corporates to offload the risk and costs associated with training skilled technicians and managers. Within Christie's statement broader considerations about the purpose of education are absent. Furthermore, he seems to abdicate any responsibility for furnishing a reasoned case for such education policy. That is, "Some might say why?...I say why ever not?"⁴⁹⁷ It would appear that the inculcation of enterprise culture is simply common sense. Accepting the necessity education of such values relies upon the neo-liberal assumptions that education ought to be a servant to enterprise culture. Thus, Christie states that;

*Along with this we will need to change prevailing attitudes about success and taking risks. This will mean a better understanding of how to manage risk, as opposed to simply being averse to it, particularly if we wish to achieve improved levels of investment. Other key parts of this challenge will be the need for a team to tackle and drive the process, a national communication plan centred around innovation and economic transformation, a rethink of some of our regulations and, lastly, a reaching out to all parts of the community to empower, train and encourage them to be more entrepreneurial and innovative.*⁴⁹⁸

Christie recommends a national communication plan. This appears to be a centrally configured campaign designed to market specific cultures and ideas, which will generate the required beliefs in "innovation and economic transformation". This is an example of how the state is called upon to inculcate the public with the beliefs and values required by capital. Christie's call to action mirrors the views of Teece noted earlier. 'We' require innovation and entrepreneurialism. These are the imperatives of economic reality.

The embrace of risk culture was also supported by reference to national resources of talent and competitiveness. Thus, the presentation made by Jilly Evans from pharmaceutical corporation Merck Sharpe & Dohme linked the idea of innovation and the myth of kiwi ingenuity to the supposed necessities of entrepreneurialism. She maintains that, "To harness the global knowledge wave, we in New Zealand need

⁴⁹⁷ ibid.

government and business strategies that support and encourage innovation and risk-taking”⁴⁹⁹. This approach will draw upon “one of our famous assets “Good old kiwi ingenuity”. The implications is that ‘risk-taking’ is a natural cultural trait.

In summary, those promoting enterprise culture, risk and natural market forces as ‘the way forward’ were representative of a finance culture most often associated with neo-liberalism. Entrepreneurialism framed knowledge, and technology education as an individual resource and as a quality of individualism (the ability to take risks.)

5.2 Knowledge and Economic Progress.

This theme will be introduced with analysis of a presentation made to the conference by Professor Peter Gluckman, Director of a University of Auckland research institute (Liggins Institute) that specialises in biomedical research. Speakers involved in education were prominent in promoting knowledge as necessarily progressive, offering up assumptions about progress and what is valuable knowledge. Gluckman exemplifies this, asserting as he does the need for the commercialisation of research output. Gluckman states;

Key to a knowledge economy is the capacity to innovate and to innovate in ways that bring economic and social reward to all NZ. We have a Kiwi mythology that we are an innovative people but if we look at the major international measure of transformational innovation: international patent filings, this is difficult to sustain. We have about the lowest rate in the OECD.

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Dr Peter Gluckman’s address to the conference utilised the evocative term ‘innovation’ from Knowledge Economy discourse. Innovation as the combination of

⁴⁹⁸ *ibid*, p.6.

⁴⁹⁹ Evans, J. *No Title*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001.

⁵⁰⁰ Gluckman, P. *People and Capability – The Key Elements in a Knowledge Primed Economy*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001.

A number of presentations were based on power point software. As such, the ability to analyse the content was limited. Bullet pointing was prevalent in such presentations, and as such any evidence provided was limited. However, Gluckman provided both the slides and the notation related to the delivery of his presentation.

creativity and commercialism. New ideas, techniques or products are ‘discovered’ and applied to a production process, designed for commercial objectives. The terms of reference for ‘innovation’ are set out above as ‘international patent filings’. Such an indicator relies on transnational commodity chains and the sanctioning of ideas by way of intellectual property. This may be considered contradictory to the ideals relating to freedoms of information transfer (but not the processes of legitimating the political economy of ICTs) Gluckman constructs transformational innovation as a key imperative for New Zealand. However, this is set within the requirements of globally rather than nationally configured growth.

The Knowledge economy is set as a future place at which to arrive. The ‘key’ or way to access the knowledge economy is to innovate. One key aspect of this is the term ‘transformational’. To create a technology (whether it be physical or intangible) we must transform, as this will create a future of economic and social reward. Such essential innovation is tied to a conception of knowledge as a resource for economic (capitalist) progress.

Gluckman states that there are one of four elements of the ‘knowledge primed economy’ is ideas flow.⁵⁰¹

*Ideas flow: At the heart of the knowledge primed economy is the need to generate NEW knowledge. Indeed I would argue that those economies that are net producers of knowledge will be wealthy and be members of the first world, economies that cannot compete in knowledge generation will, be relegated to the second world and its lower standard of living.*⁵⁰²

Gluckman refers to the newness of knowledge, which excludes the context of knowledge construction and dissemination. It seems therefore that knowledge is self evidently progressive. Alternative conceptions of knowledge are absent. The assumption is that creating a certain type of knowledge contributes to present and future national economic wellbeing regardless of context. The so-called ‘knowledge

⁵⁰¹ With the others being ideas transformation, deal and venture maintenance and socio-political policy alignment. Gluckman, P. *People and Capability – The Key Elements in a Knowledge Primed Economy*, 2001.

⁵⁰² *ibid*, p.2.

wealthy' nations have been developing over time and exist within a distinct and privileged political economy⁵⁰³. For Gluckman there is a threat of exclusion if an economy is not 'knowledge primed'. In this account Knowledge is both the cause and consequence of economic growth. While 'we may be relegated' if not knowledge primed, the types of knowledge required are those that may be commercialised. Thus, Gluckman remarks that "The transformation step is critical – how to transition ideas from the research laboratory or the creative genius of an individual to a practical and bankable product or industry."⁵⁰⁴

Gluckman states that the production of 'ideas' occurs within certain parameters. He emphasises that "Matters such as taxation rates, trans-national equity markets, infrastructure, human capital supply and regulatory framework all matter for the investor, for the trans-national partners, for enterprise retention."⁵⁰⁵ Here we have an example of usable 'knowledge as a function of macro-economic priorities. Gluckman goes on to state, in regards to socio-political policy alignment; "A knowledge informed economy is not possible unless its primacy is accepted as a core principle against which all government decisions must be [made]."⁵⁰⁶ Such an imperative relates to the acceptance of very specific values and beliefs concerning the ownership of knowledge and the rights of knowledge owners.

Conceiving a form of knowledge as new is a requirement of ownership. Newness of knowledge also serves to legitimate forms of intellectual property. "Key to the knowledge economy is being at the leading edge of technology. Intellectual property is about novel ideas in a novel setting. Bright young people only want to enter a sector if they can be at the cutting edge."⁵⁰⁷ The emphasis upon 'novel ideas' obscures the fact that the utilisation of technology is determined by existing systems of production and commodification. The phrases 'leading edge' and 'cutting edge' are doubly misleading. Firstly, they run counter to the actual relations of power in a

⁵⁰³ Schiller, H. Mass Communication and American Empire, and, Wallerstein I. The Modern World System.

⁵⁰⁴ Gluckman, P. *People and Capability – The Key Elements in a Knowledge Primed Economy*.

⁵⁰⁵ *ibid*, p.2.

⁵⁰⁶ *ibid*, p.2.

global system whereby New Zealand is increasingly on the periphery and the production of particular technologies and knowledges are at the core. Secondly, such phrases also allude to the prospect of a future generation ('bright young people') that will populate such an 'edge' of society. The political and economic context of this eventuality is never specified.

At times Gluckman's view of knowledge as a commercial marker of economic (capitalist) progress is stated explicitly.

*The central tradeable element in a new economy is intellectual property – it is what people invest in, it is what gives a knowledge industry its competitive protection. By definition intellectual property is based on novelty – that is something not obvious or developed by deduction.*⁵⁰⁸

The commodification of knowledge as a measure of progress is directly referred to here. Gluckman describes intellectual property as the "central tradeable element in a new (my emphasis) economy." The creation of knowledge is placed wholly within the framework of property rights. The association of new knowledges with intellectual property ignores the historical, social and cultural context of knowledge creation. 'Knowledge production' allows for economic progress through knowledge control (innovation and technique). Such progress excludes alternative conceptions of knowledge, and alternative conceptions of progress.

For Gluckman the imperative of economic growth can only be achieved through the commercialisation of knowledge, set in the terms of 'innovation' and led by an informed technocracy ('bright young people'). Knowledge and ideas are essential only when they pass the litmus test of commercial viability. Talk of knowledge innovations obfuscates the vested interests behind such developments. Technical knowledge is lauded uncritically. Future wellbeing hinges upon the capacity of a skilled technocratic elite to control ideas. It should be noted that Gluckman's role with the University of Auckland is focused on the commercialisation of medical

⁵⁰⁷ *ibid.*, p.5.

⁵⁰⁸ *ibid.*, p.6.

research outputs. He has been involved in legal disputes over intellectual property rights as a result of his research positions⁵⁰⁹.

The role of academic institutions in providing the knowledge outputs required for a knowledge economy is repeated throughout KWC speeches. Tertiary education was a feature of conference addresses, particularly with regard to the (perceived) need for institutional change. For example, Nehemia Levtzion⁵¹⁰, a Professor from Israel, drew a connection between the reform of education and the arrival of ‘new technologies’. He also acknowledged that earning capacity is increasingly polarised when access to education is focussed upon technology and skills.

*The growing demand for higher education is not only a result of demographic growth, but also, perhaps mainly, of a growing awareness that higher education is the key for social and economic mobility for the individual. New technologies require highly skilled manpower, which carries higher salaries to employees with academic degrees. Higher salaries are paid because such skills enhance productivity and quality.*⁵¹¹

Such a view relies on a determination that ‘new technology’ and greater skills based around such technologies are inherently beneficial (‘such enhance productivity and quality’). Levtzion goes on to claim that all new technology offers great opportunity. “Hence Governments must invest in higher education, which brings technological progress and economic prosperity for the society.”⁵¹² This is a deterministic statement of cause and effect. The preceding statement suggests a post-industrial ideal, given the emphasis upon specialised knowledge and technology, emanating out of higher education institutions. Furthermore, he notes that the uneducated poor are a liability thus investment in education is an investment in the economy; “this person will be more productive, and he and his family will never come back to the welfare services of the state.”⁵¹³

⁵⁰⁹ Collins, S. ‘Stakes Huge in Wrangle over Wonder Drug’, in, The New Zealand Herald, 25 May, 2002.

⁵¹⁰ Levtzion, N. *Higher Education in the Age of Knowledge as a Social and Economic Investment*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001.

⁵¹¹ ibid. p.1.

⁵¹² ibid. p.2.

⁵¹³ ibid.

Education as investment in the terms described by Levztion relies upon the assumption of knowledge as neutral. “Unlike other economic resources, knowledge is an economic resource that is not exhausted, but keeps growing and expanding to benefit more people in society.”⁵¹⁴ This statement idealises knowledge as a public good. However, the skills and technical knowledge Levztion claims as knowledge is accessible through educational institutions. The social, cultural and economic contexts that determine access are not considered. Vested interests in institutions that determine particular forms of knowledge is not considered either.

In her address to the conference, The Organisation for Economic Co-operation and Development (OECD) Deputy Secretary General Sally Shelton-Colby stated that “Government funding [of research] needs to focus on areas with high economic or social benefits, not vested interests. Public-private partnerships can help share costs and may increase the leverage of government funding.”⁵¹⁵ This assertion is informed by neo-liberal conceptions of the free market, and presumed need for commercialisation of research. The statement is contradictory in that it implies that private sector leverage over government funding somehow avoids control by vested interests. Shelton-Colby goes on to advocate the use of competition in determining research outputs in order to “improve the quality of research and focus on the areas of greatest value.”⁵¹⁶ The term value is used here in the sense of commercial success and exchange value.

Such commercialisation of the organisation and production of knowledge is reflected in the phrase “Enhancing Human Capital and Realising its Potential”⁵¹⁷. This was the title of one OECD’s set of policy recommendations set out by Shelton-Colby. It involves policies regarding education, the use of ICTs in education, efficiencies in the ‘education sector,’ and greater linkages between educational institutions and private capital. According to Shelton-Colby “Good functioning of innovation

⁵¹⁴ *ibid*, p.2.

⁵¹⁵ Shelton Colby, S. *No Title*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.6.

⁵¹⁶ *ibid*, p.6

⁵¹⁷ *ibid*, p.7.

systems requires a good integration and interaction of its subsystems. Basic research at the universities needs to be coupled by technology transfer to industrial companies and to the finance world for creation of new knowledge companies.”⁵¹⁸ The integration of the university system with the world of corporations is a techno-futurist theme within knowledge economy rhetoric. The reworking of knowledge to meet this end *is* economic progress. The nature of knowledge is thus limited in a way that mirrors Gluckman’s statements regarding intellectual property as the central tradeable element of the ‘new’ economy. In this context the processes of commercialisation are often referred to as part of an innovation process. Such commercialisation relies upon control over what constitutes knowledge, and over the systems of knowledge production. Rick Christie of the Ministry of Research Science and Technology (MRST) stated that;

*It is the key to prosperity and is the primary contributor to the innovation system. Our evaluation would suggest that parts of the education system are working quite well, but others are in need of repair and renewal. Some things are already happening, for example with the Tertiary Sector. We fully support those; but emphasise that parts of it must better embrace the needs of the business community.*⁵¹⁹

Calls for ‘repair and renewal’ are framed by the understanding of education as investment. This understanding assumes that the commercialisation of knowledge and the supplying of return to the private capital are crucially important. This may be seen in Christie’s advocacy of market competition for the services of the education sector. Christie went on to suggest that, “Many students put their career opportunities ahead of everything else.”⁵²⁰ Education, it would seem, will produce knowledge that allows for prosperity. Indeed, Christie appears to suggest that this is *the* function of education.

The compulsory education sector was a theme of some conference addresses. For example, the presentation made by Lesley Max.

⁵¹⁸ *ibid.* p.10.

⁵¹⁹ Christie, R. ‘Untitled’, p.6.

⁵²⁰ *ibid.*

The fourth challenge requires a massive shift in consciousness. The 'human services' community needs to open its eyes to economic reality, and stop demonising business. And business, which is belatedly learning to take women seriously, needs to perform an even more unnatural act. It has to stop trivialising the world of early childhood, to see the direct cause and effect link between children's early life experiences, and their competence ultimately to participate in the knowledge economy.⁵²¹

Here we have the assumption that economic rationality must inform the planning of early childhood education. This will enable participation in the 'Knowledge Economy'. The necessity of allocating resources toward education is set within the privatised world of business. The child is thus constructed as a commodity and a producer, consequently other functions of education are subordinated by economic imperatives. The child is an investment from the beginning, and knowledge is confined to rationales of economic growth. That is,

The business community needs to consider investment in evidence-based, high-yield social and educational development, as an economic imperative. One child in three or four lives in an environment which is likely to prevent him or her from full participation in the knowledge society.⁵²²

In this passage knowledge and education are vehicles of investment (that is, they are informed by the requirements of capital.) Knowledge is understood as directly resulting from initial capital investment; its viability is evaluated at the point of output. The output being a specific form of knowledge. The full process can be described as investment in human capital, however, the shift is not simply conceptual. Increased emphasis on educational delivery by way of new ICTs (often referred to as e-learning) has assisted in 'technologising' education. Ian Narev referred to the use of new ICTs in knowledge transfer in his address to the conference.

Thanks to the knowledge wave, specialist knowledge is picked up and delivered effortlessly throughout the world. The best ideas can have global impact. And

⁵²¹ Max, L. *Social Cohesion and Bridging the Knowledge Divide : The New Zealand Perspective*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.4.

⁵²² Max, L. *Social Cohesion and Bridging the Knowledge Divide : The New Zealand Perspective*, p.4.

*as these good ideas become more widely accessible, 'okay' ideas are becoming an endangered species.*⁵²³

Important here is the notion of knowledge being transferred technologically. The illusion of transporting or 'picking up' knowledge and delivering it across the world depends on the conflation of high speed digital communication with the transfer of knowledge. Perhaps most illuminating is that the passage above is referring to finance and global networking for commercial purposes. Narev could quite easily be referring to e-learning rather than e-commerce.

Professor Shih Fong, an academic administrator from Singapore, focussed upon the role of education and institutional reform in achieving the knowledge economy. Fong began the presentation to the knowledge wave conference with a power point slide projecting the two headings of 'Creativity and Innovation'⁵²⁴. Creativity was understood as the connecting of ideas, and innovation as the commodification of such ideas. Under the 'innovation' heading was the statement "Turning Ideas into products and services". Fong saw this process as an organised system of inputs and outputs. This is not simply a managerialist view of work. It is an ideal which frames the very nature of intellectual creativity and knowledge creation. This obscures the fact that turning ideas into products and services is a process of commodification. Furthermore, the labour inputs involved must be controlled for this purpose within capitalist relations of production. Innovation thus occurs as a by-product of exploitation in this way.

Constructing an imperative to 'innovate' implies a sense of newness. This places 'innovation' outside of the complex, historical processes which enable innovative ideas and practices. This includes, but is not limited to, the complex processes of knowledge creation by way of various social institutions, the historical cost of such 'innovation', and the interests involved in the construction of such innovative processes (including the culture, the institutions and the end results).

⁵²³ Narev, I. *Kiwi Perspectives From Abroad*, p.4.

⁵²⁴ Choon Fong, S. *Innovation and Creativity: State Universities in Knowledge-Driven Global Economy*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001.

The view that technology is essential for progress is informed by a specific rationality. While many technologies (both potential and actual) exist prior to ‘discovery’, discovery is framed as something completely new. This sense of newness (the basis of innovation) obscures the reality, that the context and implications of ‘discovery’ are shaped by capitalist interests. This insight can be related back to Roszak’s view of the quantification of communication at Bell Laboratories. Such technologising, or technical understanding of communication operates within a rationality of divisible and ownable units in a way not previously evident⁵²⁵. This perception of communication exists prior to the technical capacity for invention. The assumed rationality of innovation and discovery within technofuturism provides for the legitimate ownership of ‘units’ of information and knowledge. As such, ownership is technologically facilitated, but enabled ideologically.

The narrow rationality of innovation and discovery is also evident in the speech by Jilly Evans. Evans placed herself within the context of rural New Zealand in her address, and as a product of a free and equal education system.

*For me, growing up in rural New Zealand schools in Raupunga, Hawkes Bay, on Waiheke Island and Onewhero, west of Pukekohe, the curiosity and adventure in learning started young. I think the education I got for free was as good as anywhere in the world.*⁵²⁶

This is important to note in terms of Evans position with a transnational pharmaceutical firm. Her trajectory is constructed as the good old kiwi success story (country girl ‘makes’ good). Such constructions preclude considerations of the political economy in which Evans enjoyed her early education. The message in Evans’ address is, on a broader level, framed by the understandings of knowledge work and privileged systems of innovation. She says that, “We need more New Zealand high technology strategies and tax incentives for research and

⁵²⁵ It should be noted that this is an assessment which also relies on the critique of reproducibility as set out by the Frankfurt school.

⁵²⁶ Evans, J. *No Title*, p.1.

development.”⁵²⁷ (It should be noted that this priority is seen in terms of biotechnology). The link made between ‘high-tech’ ‘R&D’ and tax incentives can be related to the idea of clusters of innovation. Evans notes the possibility of linked industries developing (as clusters) around substantial investment by single companies. The example is given of Merck’s investment in the Montreal area in the 1980s. Evans notes that tax incentives and “strong intellectual property protection”⁵²⁸ were important there. Consideration of the vested interests is not evident, such as Merck’s acquisition of Montreal based company Charles E. Frosst & Co. in 1965. In the early 1980s the Frosst subsidiary was subsumed within Merck, and the Merck Frosst Research laboratory was developed. This was a case of aggressive expansion of a pharmaceuticals transnational.

Evans also regards the technological aspects of knowledge as important to the process of achieving innovation and innovation clusters. “The most dramatic change in knowledge transfer in the past 20 years has been the introduction of the personal computer and the Internet.”⁵²⁹ The assumption is one of knowledge transfer, which requires mediation by particular institutions. For example, such communication technologies assist the coordination of Merck’s global research operations. ICTs assist in increased control over information and knowledge, and the possibilities for return to private capital as a result of commercialising research outputs.

Claims about the economically progressive nature of knowledge are underlined by the notion of futurism. Judge Mick Brown cites the foresight project, a policy formulated within the Ministry of Research, Science and Technology (MRST), addressing issues of science and technology. This was part of the broad collection of knowledge economy papers produced around the times of the Bright Futures policy paper in 1999. (Brown places himself within that movement towards change by pointing out his involvement in the National government’s Foresight project, headed by the Ministry of Research Science and Technology (MRST).)⁵³⁰ Brown notes the

⁵²⁷ *ibid.*, p.5.

⁵²⁸ *ibid.*

⁵²⁹ *ibid.*, p.3.

⁵³⁰ Brown, M. *No title*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.4.

objectives of the project as “constructing a vision of a desirable future and then identifying strategies to take us there.”⁵³¹

Brown notes the requirement for “intelligent input”⁵³² if the vision is to eventuate. He raises the possibility of “massive attitudinal change”, and the need to include “decent members of our community” away from “the lunatic fringe.”⁵³³ Here one can see us verses them framing of potential criticisms against knowledge economy discourse. The knowledge economy objective will be informed by consensus, and an acceptance of rapid change. This will be technocratically steered through ‘intelligent input’.

In summary, it seems that economic growth can only be achieved through the commercialisation of knowledge, defined in the terms of ‘innovation’. This restricts the formation of knowledge, and predefines what may be considered legitimate forms of knowledge. The talk of flexibility, life long learning and innovation reinforce and legitimate the institutional processes whereby knowledge is defined, restricted, and commodified. This is partly accomplished by the implicit promotion of a new ‘post-industrial’ technocracy.

While entrepreneurialism was primarily evident in addresses by speakers from the finance sector, including areas of venture capital, knowledge as economic progress was dominated by those with backgrounds in the tertiary education sector, science and technology, research and development (R&D). This collection of university administrators, biotechnology specialists and other researchers exemplified the growing linkages between university and corporate elites.

5.3 Globalism.

The theme of Globalism is multi-faceted. The term refers to the economic imperatives arising from global connectedness, and the myth of globalisation as offering up choice and freedom. With regard to ICTs and the knowledge economy,

⁵³¹ *ibid.*, p.6.

⁵³² *ibid.*, p.7.

⁵³³ *ibid.*

some of the key ideological constructions within globalism are ‘the brain drain’, the ‘tyranny of distance’ and the global ‘race’. These are encapsulations of impending threats or problems which the knowledge economy measures will resolve.

In his keynote speech Singaporean Minister for Trade and Industry, George Yeo, situated Singapore as a knowledge economy, restructured and reshaped in response to the imperatives of globalisation. He noted that the preparation for the knowledge economy an intellectual and attitudinal process. “The principal limitation is the willingness of those who are affected to face up to the reality and to shift gear.”⁵³⁴

Such mental preparation is also described in terms of the iconic competitor. Yeo notes the “natural competitive spirit of Singaporean.”⁵³⁵ The theme of nationalistic sentiment set around an entrepreneurial mythology is a recurring one throughout the key addresses of the conference and represents a form of social Darwinism in a global setting.

This enables the national to be constructed in relation to outside forces. That is, the nation and state set firmly within a tide of globalisation. The imperative response obfuscates another, internal conflict. That is, between private capital and collective consciousness. It is here that the link may be made between the obfuscatory role of globalism. Thus we have calls for competitive spirit, such as Yeo noting the “natural competitive spirit of Singaporean”⁵³⁶ as a resource to deal with the impending changes which require initiatives such as, “international benchmarking, deregulation of services sector, IP protection, global talent sourcing and entrepreneurship.” For Yeo, globalisation is a “Logic”, a “historical process”, as “technology makes the end point quite inevitable.” Therefore, “The earlier we prepare ourselves for it the better.” Competition for global resources and human capital is set out as governing factors for the nation state, and only those who adapt to the logic of globalisation will win. Furthermore, such logics are situated as synonymous with new ICTs.

⁵³⁴ Yeo, G. *No title*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.3.

⁵³⁵ *ibid.*

⁵³⁶ *ibid.* p.7.

One of the major themes of former Australian Prime Minister Paul Keating's speech is that of globalisation.

*You can also add to the definition of globalisation, the revolution in the cost, speed and ease of distribution of information that made it possible: the new communications and digital technologies like the fax, the mobile telephone, the PC, the Internet and email and all the forces they unleashed. Then you need to look further at the interaction of these forces with geopolitics, which brought about the end of the bipolar international structure we'd lived with for half a century. Globalisation is a great glacier slowly, powerfully but inexorably reshaping the international economic and political landscape. And short of the calamitous prospect of global war it is not going to be stopped in its tracks.*⁵³⁷

This statement places new technologies outside of their context of origin. It also mystifies the technology by framing it as natural, and spontaneous. Subsequently, this mystification is furthered when Keating observed that "Globalisation is a great glacier slowly, powerfully but inexorably reshaping the international economic and political landscape." That is, globalisation is seen to be a technologically driven, natural process. Keating goes on to say that as imperative, but also as technological determinism; "The technologies that facilitate it [globalisation]— that is, digital technology and cheap communications – aren't going to disappear or slow down."⁵³⁸

In his conference address former family court judge, Mick Brown, also refers to the technological imperatives of globalisation.

*But the speed and potential impact of globalisation means, I think for this country, that we have to move both quickly and astutely. The phenomena of the information age is at least equivalent to the industrial revolution. The matter is complicated because there seems to be two immutable factors present. First, the hugely accelerated pace of change precludes undue delay or lengthy prognostication. Secondly, that it seems unlikely that any country will be able to opt out entirely without becoming economically irrelevant. Marooned in what Castells describes as 'the black holes of humanity'.*⁵³⁹

⁵³⁷ Keating, P. *The Future of Knowledge Societies*, p.2.

⁵³⁸ *ibid.* p.3.

⁵³⁹ Brown, M. *No title*, p.5.

Globalisation is inescapable. 'We' in 'this country' must go with the global. The alternative is to become 'economically irrelevant'. In addition, it would appear that 'information age' is an integral part of globalisation. One aspect of the global as imperative concerns the so-called brain drain. That is, the emigration of New Zealanders was seen as a loss of human capital.

Ian Narev, for example, stressed the "ability to scale intellectual capital globally". Failure to do so would have dire consequences. "The threat is the talent drain."⁵⁴⁰ The implication here is that global imperatives are stealing our young. He states that

*The easier interaction brought about by the knowledge wave is the ally of organisations on an international talent search. Countries like New Zealand, with a highly educated talent pool, and the entrepreneurial flair that flows from 'good old kiwi ingenuity', are prime targets.*⁵⁴¹

Here Narev's comments emphasise a sense of nationhood and the popular notion of the innovative kiwi. In this way the innovator is a naturally occurring individual rather than a requisite for expanding capital accumulation. The notion of being 'prime targets' sets up an us verses the outside world imperative. The means by which 'we' save 'ourselves' is through technological transfer. Thus, Narev says that "The flip side for New Zealand is that it's becoming easier for us to have global impact. Kiwis can absorb ideas from overseas and disseminate their own knowledge globally, all without leaving these shores."⁵⁴² This is an example of how the 'tyranny of distance' ⁵⁴³ can be overcome.

The role of government is to facilitate the transfer of technology and human capital (from the global to the national.) For example, Sally Shelton-Colby of the OECD, points to a brain drain induced by unfavourable taxation structures. "Additionally, we consider that the recent increase in the top marginal rate of tax will reduce incentives for highly skilled workers to remain in or migrate to New Zealand and may

⁵⁴⁰ Narev, I. *Kiwi Perspectives From Abroad*, p.4.

⁵⁴¹ *ibid.*

⁵⁴² *ibid.*, p.5.

⁵⁴³ Robins K. & Webster, F. Times of the Technoculture : From the Information Society to the Virtual Life, p.240.

exacerbate the “brain drain.”⁵⁴⁴ Such a policy imperative serves to entrench the sense of knowledge as a scarce commodity. Reductions in the net emigration of human capital will enable stocks of knowledge to facilitate economic growth. As Prime Minister Helen Clarke noted in a dinner address at the Conference, “If we can’t retain and attract back more of our talented people, our nation won’t enjoy the fruits of their success”⁵⁴⁵. Such rhetoric identifies the threat of pending exclusion from the global community. For example, Clark also observed that; “Everyone here is well aware of the speed of change in the world around us.” “We have moved forward slowly while others have raced ahead.”⁵⁴⁶ This is a construction of a global race, in which New Zealand is being left behind (due to a loss of human capital).

Paul Keating’s speech also constructed a sense of national peril;

*You are not alone in asking the sort of questions being raised here. A similar debate is going on in Australia. The answers will not be the same in each place but the questions are broadly similar. What they boil down to is this: in the information age, what is the future for countries like ours, on the edge of a globalising world, far from the world’s major markets? For New Zealand, as for Australia, globalisation challenges our international position and demands some fundamental rethinking about the way we do things. Our national image of ourselves – and our view of where we are entitled to sit in the international pecking order - was largely set in the nineteenth century and early twentieth centuries, at a time when a combination of British imperial power and the industrial revolution gave us a privileged international position as commodity producers with secure markets. That world has gone forever.*⁵⁴⁷

The threat to New Zealand is placed within the disadvantages of being far from the major world markets geographically. This is hardly new. However, in Keating’s address it appears as though the ‘globalising world’ is reinforcing these disadvantages. Conversely, however, the ‘globalising world’ reduces geographic barriers due to ICTs. The “intertwined forces of the information revolution and economic globalisation”, is in light of this, more accurately described as the

⁵⁴⁴ Shelton-Colby, *No Title*, p.11.

⁵⁴⁵ Clark, H. *Dinner Address to the Knowledge Wave Conference*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.2.

⁵⁴⁶ *ibid.*

⁵⁴⁷ Keating, P. *The Future of Knowledge Societies*, p.2.

prominent position of finance capital in the “world’s major markets.” The “way we do things” must change in Keating’s view, as a result of a “world that has gone forever” because of “intertwined forces” or the unavoidable threat and simultaneously advantage and opportunity of a revolution involving ICT and globalisation.

Other speeches constructed the link between ‘business’ as integral to New Zealand prosperity, set against the idea of a threat to prosperity by the forces of globalisation. For example, David Clarke from Westpac Banking Corporation entitled his speech, “*Theme 3 Sustainable Economic Strategies*”. He noted that New Zealand is dominated by “small and geographically remote businesses.”⁵⁴⁸ Clarke proposed that

*Most companies start out as geographic incumbents, relatively small with a relatively modest value. In the long run, this position is increasingly unsustainable for most industries due to the relentless breaking down of geographic barriers and the ease of cross-border activities. This hurts the small players in that they have increasingly unfavourable cost positions, cannot spend enough on R&D or branding, don’t have the capital to grow, lack access to distribution, or fail to attract the right talent.*⁵⁴⁹

What we have here is a contextualisation of global trade, supported by the popularised notion of the tyranny of distance. The natural tyrant of geography is posed as the threat, rather than unequal power, the history of the commodity market, and exploitation of New Zealand by foreign capital. That is, the history of the New Zealand capitalist economy is given little bearing upon the current position.

For Clarke one of the solutions to this imperative is the Internet, as a window to the world that will attract talent.⁵⁵⁰ Clarke states, “establishing contact with expatriate New Zealanders will be a key part of strategies for economic development.”⁵⁵¹ Perceptions about the impending loss of talented New Zealanders and the need to attract expatriates obscures the underlying capitalist logics involved. Information and communication technologies will enable the integration of ex-pat ‘kiwis’ with talent

⁵⁴⁸ Clarke, D. *Theme 3 Sustainable Economic Strategies*, p.2.

⁵⁴⁹ *ibid.*

⁵⁵⁰ *ibid.*, p.4.

into an exploitative commodity system. That is, they are required for their labour power.

University of Auckland Historian James Belich, was one of the only domestic academics to address the conference. His views also incorporated the notion of connectivity⁵⁵² with the global (in the context of an account of international relations and the construction of New Zealand identity.) For example, Belich described the overseas dispersal of New Zealanders as a potential “New Zealand world wide web, a well placed global network.” Such a construction assumes the neutrality of technology. Furthermore, the ‘ex-pat’ talent pool excludes the political economy from which such networks arise. That is, who are these ex-pats? Are they the New Zealanders who currently reside in Australia and have been railed against politically in recent times, in terms of the change in reciprocal rights to benefits? Or are we referring to the increased concentration of capital in tandem with the increased mobility of capital, thanks to new ICTs networks. Belich’s proposal of ‘a well placed global network’ is based on a selective class background.

Lee and Huang’s address covered issues of ‘brain drain’ or human capital transfer.

*The brain drain in the earlier period of KMT rule was a mixed blessing for Taiwan, On the one hand, the effort and responsibility for successful labor intensive manufacturing industries during that period had almost entirely to rely on native graduates from lower level polytechnic colleges, but not the university graduates. Without these hardworking people, there would be no solid foundation for the economic miracle in Taiwan. On the other hand, those Taiwanese who stayed in the United States and other countries in the developed world became the special reserved forces for Taiwan in developing the knowledge-based economy.*⁵⁵³

⁵⁵¹ *ibid.*, p.3.

⁵⁵² Connectivity refers to the requirement of using ICTs to construct privileged networks of ‘skilled workers’ which posits the use of ICTs within the management of labour, rather than as a form of communication. It is not considered that such a use of technology offers a form of exclusive sphere of communication. That is, connectivity refers to the use of ICTs in order to construct privileged systems for contact generation. In particular, social relations are technologised as networks.

Lee and Huang also noted that overseas institutions educated more Taiwanese graduates than did Taiwan in last 45 years.⁵⁵⁴ While such migratory flows of intellectual capital are suggested to be in part responsible for the development of the Taiwanese economy, this also shows the privileged nature of certain forms of knowledge, and the relations of power which produce the most valued forms of knowledge.

Lee and Huang also note that those moving back were attracted by a broader democracy and economic upturn, which enabled their return to contribute to building “Taiwan’s microelectronic and information technology industries.”⁵⁵⁵ That is, the technology is placed as central to the emergence of the Taiwanese economy, with factors that facilitated the ability to obtain access to those industries. This assumes technology, under the right conditions, to be determinant of growth, without considering the broader issues of market access, global trade, FDI, and the like.

Many speakers at the conference called for New Zealand to pay heed to the lessons of their nations experiences, in order to respond to global forces. This general view was articulated by representatives from Taiwan, Singapore, Finland, Ireland, Germany, Great Britain, Australia and Korea. Chief Executive Officer of the Irish Industrial Development Agency, Sean Dorgan, discusses the Social Partnership agreement (Programme for National Recovery) in Ireland as a path forward. This response to global imperatives is symptomatic of the calls for change. Furthermore, Dorgan’s views are interesting given the New Zealand governments previous fascination with the ‘Celtic Tiger’. The rapid growth in GDP in Ireland, and levels of foreign direct investment (FDI) through the 1990s caused international interest. This included the New Zealand government.

Dorgan stressed the notion of ICTs and the ‘hightech’ industries as a vehicle for transformation. In particular, he referred to rebirth via industry and state

⁵⁵³ Lee, Y. & Huang, W. *Innovation and Learning Transformation, Taiwan Perspective*, Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001, p.2.

⁵⁵⁴ *ibid.* p.3.

⁵⁵⁵ *ibid.*

amalgamation, in service of private capital (underscored by national education strategy.) The transformation Dorgan speaks of hinges upon a planned restructuring of the labour market, (such as the so-called social contract to control wage increases). Identifying key industries and adjusting education priorities is a means of developing suitable labour inputs for certain industries. This is underscored by tax cuts for foreign direct investment. Shaping the supply of labour through educational changes is designed to facilitate labour inputs for such investment. Importantly, the support of the European Union enabled the increased regulation of the labour market from outside of nationally based labour provisions such as collective bargaining. In other words the so-called transformation of Ireland rests on the creation of a so-called flexible labour market.

Dorgan's⁵⁵⁶ reference to the 'Knowledge Industries' mainly involves the industries of information technology and pharmaceuticals. Their development is seen to depend upon the precepts of free trade and tax cuts (along with the more esoteric prescriptions of flexibility and openness to change.) It is also emphasised that the knowledge industries require appropriate investment in education.

The key theme here is knowledge economics prescription from a 'third way' perspective. Dorgan considers the importance of the Social Partnership agreement (Programme for National Recovery). As I have indicated, this was concerned with, among other things, the control of labour cost, conflated with the views on supporting FDI and is linked with ICTs. For example,

*The value of Ireland's young and growing workforce was increased by investment in education and by focussed training in selected knowledge-intensive and high-growth industries, such as I.T., pharmaceuticals and healthcare, and internationally traded services.*⁵⁵⁷

⁵⁵⁶ Dorgan, S. 'Transition to a knowledge economy: The Irish Experience', Published Record of Conference Address to The Catching the Knowledge Wave Conference, Auckland University, Auckland, August 1st-3rd, 2001.

⁵⁵⁷ *ibid.* p.3.

The third way perspective emphasises the revitalisation of social democracy, by adapting social democracy to the requirements of globalisation. Knowledge economy rhetoric positions the state as the facilitator of this.

In her opening address to the conference Prime Minister Helen Clark stated “The reasons are obvious. While others have been transforming their economies and societies through the application of knowledge and innovation, we haven’t kept up with them.”⁵⁵⁸ Threat of exclusion from the global economy is placed in terms of free trade and market competition by PM Clark. In her closing address to the conference held at the Sheraton hotel, Clark stated;

*Globalisation has to be embraced, and we can be winners from it. A world without borders is made for a trading economy like New Zealand’s. A world with the means of instant communication, irrespective of geographical distance, is made for countries like ours. We have to make globalisation work for us, not sulk and let it work against us. That’s up to us. Building a strong sense of national identity is more important than ever in a globalised world.*⁵⁵⁹

Here globalisation is both a race and an imperative without internal relations of power. Furthermore, one can not ‘sulk’ as it is ‘us’ who may make globalisation work for ‘us’, so that we are all ‘winners’.

Thus, globalism operates at the point of intersection between the local and the global, the national, international and transnational. Such formulations are increasingly based within language, where the talk of such processes is ideological. The so called inexorable forces of globalisation demand response. The requirements of the national must be shaped to fit the requirements of global capital flows. At the KWC pre-existing inequality, rights of national determination, and the failures of global governance are absent from globalisation talk.

⁵⁵⁸ Clarke, D. *Theme 3 Sustainable Economic Strategies*, p.8.

⁵⁵⁹ Clark, H. *Closing Address to the Knowledge Wave Conference*, p.6.

Conclusion.

The Catching the Knowledge Wave conference exemplifies the elements of techno-futurism, which operate within knowledge economy discourse. My analysis of the addresses has aimed to expose the relations of power obscured by such discourse. The obfuscation of transnational capitalist interests is accomplished by rhetoric which assumes the technologisation of communication, values of cyberlibertarianism, neo-liberalism and the naturalisation of the (capitalist) economy. The promotion of technology as a transformative force is both ambiguous and empirically bereft. However, such promotions can be traced back to those with a vested interest in the increased commodification of knowledge and the regulation of its transfer via property rights.

Each of the themes identified from the keynote addresses offers insight into how the ideology of techno-futurism operates. The aim of locating such themes is to show how they frame reality, in order to provoke the construction of alternative discourses.

Entrepreneurialism, the first theme, was a manifestation of neo-liberal discourse. The use of the term entrepreneurialism concerns the development of enterprise and risk culture, underpinned by the precepts of neo-liberal individualism. These notions are tied together to serve a number of purposes. Firstly, this discourse has a political agenda (neo-liberal policy implementation). Secondly, the finance sector utilises such discourse to construct the equilibrium and equality of the market system (despite major inconsistencies in the operation of deregulated global financial markets.) In this context entrepreneurialism concerns the freedom to trade, which is conflated with democracy.

The keynote speeches to the conference emphasised notions of risk taking in relation to expanding opportunities for capital accumulation. Particular mention was made to speculation on human capital allocation, and the opportunities offered by new ICTs. Social and cultural organisation was also referred to. Particular cultural traits and economic precepts were promoted as both natural and self evident.

Knowledge as economic (capitalist) progress relies upon talk that legitimates the processes and institutions which commodify knowledge. This requires definitional limits upon the meaning of knowledge. In this way there is a mutual reinforcement between the means of knowing and the means of producing. If what we know is determined by the needs of the production system, then our conception of knowledge is subsumed within the needs of capital wholesale. This ideological process is linked to the technologising of communication. This perspective assumes that communication is first and foremost a form of access to information, which is best commanded by the free play of market forces. Communication in this sense is made up of divisible and calculable units of data transfer. This undermines the nature and origins of communications content. The forms of communication accessed by the Internet user are increasingly commodified, and the hype of interactive communication belies this reality. Corporate structures require specific, technologised forms of communication. In the case of the Internet in schools technology is assumed to be an autonomous force. Knowledge and the constituting process of knowledge (communication) appears to be fixed and without connection to the prevailing relations of power. The avoidance of such political economy issues within knowledge economy rhetoric limits what knowledge can be. Education is an integral institution in such a process.

Ideologically, the theme of globalism works to hide the socio-economic conditions and inequalities of the world. Inclusion in a 'global' world requires acceptance of the parameters of corporate capital and supranational governance upon which discourses of the global are based. Thus the 'globalisation' is painted as a natural progression, as inherently positive, and in terms of a need to compete internationally (in the 'global market'.)

Most KWC speeches constructed the global as a technologically determined imperative, which was a source of threat and opportunity for nations. The development of branch economy status in New Zealand as an example of the

problematic nature of the global bares no mention. Rather, the emphasis was upon the notion that globalisation and the new ICTs were synonymous.

The call for consensus in the conference addresses was both explicit and implicit. Keywords were utilised such as transformation, newness and distance (the tyranny of). This was often mixed in with the sense of a networked world. Connectivity, was largely about technologising. This was not only evident in the general sense of networked computer communications. Connectivity was also about the technologised aspects of managerial culture, where workers are technologically positioned within the processes of exploitation. Ideologically the process is inherent within the keyword vocabularies of clusters, networks, and innovation. New Zealand is faced with geographic isolation, and possible exclusion from such networks. The imperative to connect or be isolated was strong.

In New Zealand knowledge economy talk is underscored by the spatial and temporal 'realities' of geographic isolation. From the freezer ships to 'e-commerce'. ICTs are positioned as revolutionary, in the sense that spatial and temporal barriers may be overcome. Furthermore, information and knowledge are assumed to be both neutral and progressive. The ability to transfer knowledge is informed by rationales of individuated exchange, free market imperatives and the technological means of transfer. The vision of a knowledge economy is posited as an emergent reality. This reality requires a flexible and technologically equipped workforce. This requires efficient investment in human capital, and for tertiary education to produce skills portfolios toward economic growth. The purported function of knowledge as a spur to progress reflects the global absorption of New Zealand capitalism.

Conclusion.

Talk of a Knowledge Economy both legitimates and obfuscates the complex process of global capitalist expansion. This process is characterised by the redefining of knowledge as a form of capital and a signifier of progress. But, this process is not purely definitional. Materially, it refers to the rise of ICTs, in the context of convergence and hypercapitalism. It also refers to certain institutions which promote ideologies of techno-futurism. Such institutions include the state, mass media, telecommunication firms, the education sector, and organisations of supranational governance.

There are discernable ideological antecedents to ‘the knowledge economy’. These are, The Post-Industrial Society, The Information Age, The Information Superhighway, and Cyberculture. These are narratives of progress which together constitute techno-futurism. Modern conceptions of progress were informed by rational, secular control over nature. However, such conceptions became conflated with the expansion and advancement of capitalism. This conflation is encapsulated in the notion that technology drives progress (and history).

Knowledge economy rhetoric assumes the accumulation of knowledge to be the central driving force of economic growth. This incorporates neo-classical views of knowledge as human capital, and the central positioning of knowledge within New Growth Theory. Knowledge is thus conflated with capital accumulation, and the future is framed by the economic rationality of (capitalist) progress. Technology is assumed to be central to such progress. This is informed by the technical efficiencies of post-industrialism, the progressive nature of information transfer set out by the information society, and the freedoms of cyberculture. Knowledge is conflated with the technological means of information transfer. Also, knowledge and technology are assumed to be neutral. This ignores the material conditions of their emergence.

With the extension of ICT infrastructures, the content of communication (information and knowledge) is available and ‘ownable’ globally⁵⁶⁰. Economies of scale and scope restrict competition, and drive innovation. Furthermore, the accumulation of certain forms of information and knowledge is extended. This may occur through the extension of systems of information and communication, or through institutions such as education that facilitate the reproduction of certain knowledges. These factors assist the integration of information and knowledge within the operation of capital.

As such, new ICTs effectively embody the expansion of capital into the realms of communication and knowledge, such that knowledge becomes quantified and more easily commodified. In addition, the new ICTs and global media systems facilitate the increased consumption of symbols driven by sophisticated marketing. This represents the increased commodification of social relations within the sphere of everyday life.

New Zealand’s own experience fits the processes described. The key features include; the recent dominance of corporate capitalism, the new-right policy agenda, and the enmeshing of New Zealand within global financial transactions and information flows. As I have argued, the new ICTs are embedded in such processes. This is exemplified by the reshaping of workplaces through the introduction of ICTs, and the development of real time trading on the New Zealand stock exchange.

The history of New Zealand’s economic development has been shaped by geography and reliance upon foreign markets. The use of technology to overcome such isolation is a central narrative of national accomplishment. Economic development was also shaped by the state’s regulation of the national economy. Nationally focussed economic and social planning dominated much of the twentieth century. This included the nation’s communication system and education. These structures were dramatically restructured during the 1980s and 1990s.

⁵⁶⁰ This is historical, as evidenced by the development of telegraphy, and information flows associated with patterns of imperialist expansion.

The structure and nature of communication has dramatically changed since the mid 1980s. The internet, telecommunications and mass media have converged in operation, structure and ownership. In New Zealand this was signified by the privatisation and corporatisation of public institutions. For local consumers with disposable income the new ICTs offered access to previously inaccessible technological capacities, markets and products. Examples include, pay television, digitalised telecommunications infrastructure and the internet. The general notion of individuated market choice was promoted by the new right policy agenda. Barriers to offshore ownership and investment in the mass media and telecommunications sectors were removed. With this new globally driven political economy came a shift in perception. Communication content came to be seen as an undifferentiated commodity without any discernable public service function.

At the same time education in New Zealand was altered through processes of marketisation. This was supported by official discourses suggesting that education was an investment in the development of skills, and human capital. Education was assumed to be a driver of economic growth. This has been accompanied by the promotion of IT use in schools. In conjunction with corporate promotions, the introduction of technology has become a synonym for good teaching. At tertiary level it is assumed that the transfer of information and the proliferation of access points to knowledge is synonymous with learning. However, this ignores the social, cultural and economic barriers to knowledge. Learning is not reducible to the delivery of information units. However, students are sold the proposition that such knowledge accumulation is imperative because it equates to exchange value in the labour market.

The Catching the Knowledge Wave Conference (KWC) exemplified the ideology and interests embedded in talk of a Knowledge Economy. Historically the conference was preceded by other gatherings designed to formulate visions about the economic future of New Zealand. However, unlike its predecessors, the KWC was primarily instigated by a set of elite corporate interests. Furthermore, the state was only a bit player, while the University of Auckland, headed by Vice Chancellor John Hood,

supervised the proceedings. Representatives from the sectors of finance, ICTs, management consultancy, and tertiary education, dominated the organisation of the conference and selected the themes of discussion. These included calls for the attraction of particular skill sets to be endorsed through immigration policy, and a prospective bilateral trade agreement with North America.

The arrangements for the conference, and the major interested parties, reflected New Zealand's shift toward a peripheral branch position within the global capitalist economy. Sponsors were categorised 'Gold Partners', 'New Zealand Host' and 'Support'. The Gold Partners included offshore transnational corporations and transnationals with New Zealand subsidiaries or holdings. This group were the dominant initiators of the conference. The 'New Zealand Hosts' were made up of sponsors from finance, ICTS, airlines and public sector interests. The 'Support' category represented such interests as transnational pharmaceutical corporation Merck Sharpe and Dohme. Placed together, the sponsors indicate the dominance of corporates related to finance and ICTs (for example, Deutsche Bank and Telecom to Oracle and Rubicon.) Sponsorship by industrial corporates was largely absent.

The choice of speakers also reflected New Zealand's branch status. Overseas speakers dominated the keynote addresses. Particularly glaring was the absence of a New Zealand based academic economist from the list of keynote speakers. There was also a lack of representation from iwi and community groups. Discussion about the New Zealand economy was limited. While the idea of transformation was apparent, few delegates linked this to national concerns or objectives. The role of the government was that of facilitator, and little substantive contribution was offered.

The role played by the executive administrative layers of the University of Auckland is of particular significance. This represents one of the fundamental shifts in the determinants of knowledge. The role of tertiary education is increasingly defined in relation to investment in the production of human capital, and the commercialisation of research outputs. The speakers never questioned these priorities.

The language of the keynote addresses reflected the interests behind the conference and the ideology of techno-futurism which informs the knowledge economy. Three themes were clearly evident in the textual analysis of the key note addresses; Entrepreneurialism, Knowledge and economic progress, and Globalism. These themes corresponded with the notions of progress and technological determinism that underpin the broader discourse of a knowledge economy.

Entrepreneurialism refers to individualism and risk culture, which promotes free market ideals and has a politically informed agenda (neo-liberalism.) This is a continuation of the assumptions that underpinned the restructuring of New Zealand throughout the 1980s and 1990s. Knowledge economics has emerged out of New Growth Theory. The neo-classical view dismisses the inexact forms of reference for knowledge, preferring to consider knowledge as a form of capital, human capital. This subsumes all forms of knowledge within the logics of capital, and to the market equilibrium assumptions of the neo-classicist. Investment in the tertiary sector is increasingly understood as either a way to develop human capital (toward economic growth), or as a means to develop commercially viable research outputs. This is one of the most significant institutional changes, underpinning the emergence of the knowledge economy in New Zealand. The knowledge economy precludes the possibility that important ideas may not be amenable to commercialisation. The assumed rationality of innovation and discovery within techno-futurism also assumes that ‘units’ of information and knowledge should be commercially exchanged.

Speeches made by those with interests in the financial sector reflected notions of individualism and risk culture. Knowledge was positioned as the ‘way forward’ and as an individual capacity. Such knowledge would enable the efficient allocation of human capital by market forces. Notions of power, or alternative forms of economic organisation, were absent. Furthermore, technology was referred to as inherently progressive, due to the proposition that technology produces economic and business efficiencies.

Certain determinations regarding knowledge were also reflected in the theme of knowledge as (economic) progress. This theme was evident in speeches by those with backgrounds in the tertiary education sector, science and technology, research and development (R&D). Knowledge was set out as crucial to a particular (capitalist) form of economic growth. This marginalised alternative forms of knowledge, and restricted the notion of progress to capitalist notions of progress. The proposition that knowledge drives economic progress appropriates the very notion of progress. Furthermore, the process whereby knowledge derives value through processes of commercialisation is technologically facilitated. Here ICTs are seen to assist in the increased control over information and knowledge, and in enhancing the possibilities for a return to private capital as a result of commercialising research outputs.

The most prominent theme in the KWC was that of Globalism. This notion served to obscure capitalist relations of power. Keynote speakers assumed that the processes of economic globalisation were naturally progressive and positive. This obscures reflection upon the historical conditions from which globalisation emerges, and the associated vested interests of global economic expansion. The speeches emphasised the imperative to globalise, and the supposed freedoms that came from globalisation. The notion of globalism also assumed that such imperatives were synonymous with the new ICTS. The idea that new ICTs will progressively overcome spatial and temporal barriers in a neutral fashion, or the notion that being able to connect to people all around the world is inherently beneficial obscures prevailing relations of power.

Acceptance of the imperatives of globalism by the nation state was deemed imperative if one was to avoid 'losing' the global race. The loss of skilled labour may only be resolved through the embrace of the knowledge economy. Conversely, the importance of knowledge in the global economy was argued to bring about the flight of skilled human capital from the national economy. The rhetoric of the global economy as a 'connected' place exhibits tension between knowledge as integral to national prosperity, and a threat to national prosperity. Thus, central to the global

race is the formulation of the national in relation to outside forces. These forces were assumed to be technologically facilitated and inexorable.

New ICTs operate ideologically. They have come to embody the expansion of capital into the realms of communication and knowledge, such that knowledge becomes quantified and more easily commodified. Speakers emphasised the processes that enable the restructuring of the workplace. New ICTs were situated as central, both to the transfer of requisite knowledge for human capital, and the 'required' and 'inevitable' processes of globalisation. However, focussing on new ICTs in relation to securing a 'new' form of economy obscures history and the conditions of its making.

The knowledge economy suggests knowledge is inexhaustible, and operates as a universal public good. This creates a tension between the need to control knowledge in order to commodify it, and the (supposedly) freely accessible nature of knowledge. Vested interests within the political economy of new ICTs seek to resolve this tension through the deployment and promotion of new ICTS. Techno-futurism operates in support of this. However, this obscures the relationship between knowledge and power. In my view the emergence of the knowledge economy must be understood in relation to the context of its emergence. Knowledge has been shaped and controlled for particular purposes, while excluding others. Analysis of the political economy of the new ICTs reveals the interests behind this process. In the case of New Zealand such interests are dominated by the interests of offshore capital, and a globally mobile corporate elite that continues the political agenda of neo-liberalism. This is underscored by the commercialisation of education, the technologisation of communication, and by techno-futurist visions of progress that serve to colonise the future.

Emergence of a knowledge economy in Aotearoa / New Zealand represents the global subsumption of New Zealand capitalism. As I have argued, this is both material and ideological. The task here has been three fold; to map a set of vested interests, identify an ideology that serves to legitimate and obscure certain relations

of power, and to suggest the need for versions of progress beyond the logics of capital.

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