DISTRIBUTED GLOBALISATION:
IDENTITY, VIRTUALITY AND ADJACENCY

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This chapter examines those processes of globalization in the world economy which are impacting on the choices facing individuals, organisations and communities seeking a role and an identity within a complex global system. While the global economy is not an entirely new phenomenon, the speed of communications and transactions, and the increasingly seamless nature of the emerging media are unique. The key role of information and communication technologies (ICTs) in globalisation creates new forms of locational and functional differentiation. These result in new inequities as communities in both "under" and "over" developed economies are opened to direct competition from across national and cultural boundaries. The pressure on local communities also operates at the level of region and national state. Appropriate information and communication infrastructure is becoming as significant as physical location in accessing the global economy. The

In examining "strong globalisation" arguments the chapter draws attention to the Technocrat Movement of thirties North America. In exploring the relationship between place, space, community and technology, the chapter makes use of Melvin Webber's definitions of "non-place urban realm" from 1964. The aim is to identify issues of relevance to the emergent situation which have already been addressed by observers and critics of earlier change and to ensure that the genuinely unique features of current trends are appreciated.

Technology in a Global Context

> The conjunction of an immense military establishment and a huge arms industry is new in the American experience. The total influence - economic, political, and even spiritual - is felt in every city, every state house, and every office of the federal government . . . In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex.
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> President Dwight D. Eisenhower
> Farewell Address to the Nation
> January 17, 1961

In the final quarter of the twentieth century following the end of the Cold War, and of what Ohmae (1995) terms the "bi-polar discipline" which constrained relationships between ideological blocs, global economic integration grew rapidly.

This accelerating change had its roots in conditions at the outset of the Cold War. J.K. Galbraith articulated Eisenhower's concerns in his book "The New Industrial State" by defining the emergence of the "technostructure" of the industrial state as the necessary consequence of a change in the locus of power from land via capital to knowledge and technique (Galbraith, 1967). The technical experts delivering the calculative rationality necessary to the industrial state becomes the new locus of knowledge and power.

Internationalisation of trade can be traced deep into history, back beyond the Silk Route. The western mercantile tradition developed around a set of technologies which Hirst and Thompson (1996) argue reached a functional plateau with the reliability and regularity of the steamship and electric telegraph. While pre-First World War international trade shares characteristics with later forms of trans-national commerce, the new organisational forms created by the merging of computer and communication technologies (ICTs) have provided the potential for new forms of networked organisation and "virtual workplace" unlike anything previously possible. The electronic mobility now available to the formal and informal labour force creates a two-way street, with electronic access to and from the home re-defining a sphere of both production and consumption. This coalescence of domestic and working space recalls the pre-industrial household which was a locus of production. In regions where the shift away from household and family centred production has not occurred, however, the globalisation process entails disruption of family networks, as in the use of Export Processing Zones to filter out local practices described by Klein (2000).

The top-down "strong globalisation" view of global production and consumption reflects experience of a series of complementary flows of materials from periphery to centre and products from centre to periphery. These were followed by the development of multi-domestic production close to the peripheral markets (Dicken 1998). This centripetal model still holds sway but the subsequent driver of globalisation has been the reduction of transaction costs achieved through ICTs. Globalisation in its current form can be seen as a consequence of the rapid development of ICTs during the Cold War period and this chapter argues that this informational shift implies a new distributed paradigm for globalisation. The strong globalisation argument that globalisation is disseminating a single mode of production from a coherent centre to an increasingly uniform periphery is no longer viable.

The initial development of both electronic computers and associated network technologies was driven by military requirements some of which remained secret for three decades[1]. One consequence of this secrecy was the concealment of the true sequence of innovation, to the detriment of the U.K. in particular. More importantly, the central role of state intervention and the generous provision of public resources has been edited form the history peddled by exponents of a technology driven view of development.

Proponents of the "strong globalisation" thesis, typified by Kenichi Ohmae, suggest that there is a coherent and irresistible logic of globalisation (Ohmae, 1990). For Ohmae, globalisation is dominated by a core "triad" of economic regions: North America, Western Europe and North East Asia, predominantly Japan which share the bulk of international trade. As attention shifted from flows of material to flows of information and knowledge, disparate national and regional cultures became increasingly interlinked within networked and globalised organisations. Production and consumption of goods and services take place in an increasingly complex web, where both sophisticated and commodified products may be produced and consumed at centre and periphery. However, this complexity is far removed from the bland, uniform global culture that is often assumed to be the consequence of top-down globalisation. Any erosion of difference and identity is countered by the reverse colonisation of the information infrastructures by the periphery. This chapter touches on this tension later but first it examines the contestation between two paradigms

Shifting Paradigms

Most descriptions of the emergent "information society" place a strong emphasis on the uniqueness of the present situation, and suggest seamless, integrated technical change, leading to a globalization of social life and economic opportunity. However, by the last quarter of the twentieth century massive investment in technology and its production had produced significant changes in the dominant model of the trans-national corporation. By the seventies, multinational corporations were prominent in the economic landscape, and being identified as significant

[1] Winterbotham (1974) revealed the massive British World War II code-breaking system which at its peak employed 8,000 workers, using state-of-the-art business technology and the specially designed Colossus computer. By this time, however, much of the early history of computing had already been framed around the requirements of the post-Manhattan project nuclear weapons programme of the

investors in and exploiters of knowledge e(.g. Galbraith 1967, Tugendhat, 1971; Vernon, 1971) but subsequent developments were poorly anticipated. Tugendhat, for example, does not examine the Third World, arguing that its problems are separate and distinct from those of the developed economies. Thirty years ago Asian involvement in the multinational arena was minimal, Tugendhat's data for 1969 shows that Japanese investment in the USA was smaller than that from Belgium and Luxembourg. Understandably, a centripetal model of international flows is unable to account for the intensely networked and distributed global system which had emerged by the turn of the century. The vertically integrated multinational corporation, under unified ownership, has been superseded by networks of externalised relationships between associated but often autonomous firms. Following a variety of state sanctioned developments, East Asia has become an integral part of this global network, a source of markets and resources, and a contributor of innovations in both products and processes. A network of distributed resources has replaced the vertical integration of the earlier phase of economic internationalisation.

This paradigm shift is encapsulated in Saxenian's comparison between Route 128 around Boston and its associated high technology industries and Silicon Valley in Northern California (Saxenian 1994). The East Coast paradigm relied upon established companies and a new relationship with universities and central government, the core of Eisenhower's "military–industrial complex" (the phrase was modified from "military-industrial-congressional complex," in a late draft). This geographical and organisational shift in the US economy was also reflected in a shift in the nature of transnational economic activity.

The closed nature of these large, individual organisations contrasts with the densely networked environment of the more dynamic West Coast firms. Silicon Valley is dominated by companies which grew up with the new technologies they promote. Manuel Castells (1989) describes the complex web of relationships necessary to sustain this level of multi-disciplinary knowledge creation as a 'creative milieu'. Such a milieu extends beyond the boundaries of the high-tech firms themselves into a hinterland of rich knowledge resources, involving universities, sympathetic financial institutions and a highly sophisticated labour market

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U.S.A.. The von Neumann architecture which specified the relationship of computer hardware and program was formulated with weapons calculations in mind.

Silicon Valley start-up companies can secure both finance and personnel from their environment and draw upon a highly skilled and mobile workforce. However, the highly specialised labour market was originally created by an outflow of personnel from the larger, established companies and from Universities, particularly Stanford. These older companies provided a form of internal quarantine, with unstructured and dynamic knowledge creation taking place in customised research laboratories, carefully separated from the routine production of their stable products and services. Such separation was both overt, as with the Bell Laboratories, and covert, as with the Lockheed Skunkworks, where cutting-edge military products were pursued in conditions close to the fabled Silicon Valley "garage start-up" (see Rich & Janos, 1995). The Silicon Valley model has become an almost subconscious archetype for innovation. although today established Silicon Valley firms are as likely to innovate though the acquisition of promising start-up companies as through internal development.

Silicon Valley is the only place on Earth not trying to figure out how to become Silicon Valley.

Robert Metcalfe, InfoWorld, March 2, 1998

Castells and Hall (1994), in their extensive analysis of numerous attempts to replicate the dynamics of Silicon Valley, through science parks or science cities catalogue mixed results, both within the original Anglo-Saxon business culture and beyond. Massey, Quintas and Wield (1992) argue that many such attempts fail to take account of the particular historical circumstances of Silicon Valley, and rely instead on simplistic notions of innovative activity in relation to space, and divisions of labour science parks and cities, This is unsurprising, given that the fundamental conditions which gave rise to the phenomenon are not well understood, even by some of the key participants whose anti-statist, free enterprise rhetoric ignores this key ingredient of the recipe. Despite its free-wheeling entrepreneurial milieu, Silicon Valley was as dependent upon public sector, defence related expenditure for its genesis as Route 128 had been a decade earlier. The Internet was derived from the ARPANet, named after the Advanced Research Projects Agency of the US Department of Defense. The intention was to share expensive research resources efficiently, and in a cold-war frame, to ensure the survivability of a fragmented or degraded network under physical attack. The World Wide Web originated with a project to share documentation and other materials seamlessly among the staff

involved in basic science at CERN, the European Centre for Nuclear Research. The NCSA, the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign contributed the Mosaic browser that underpinned its commercial counterparts from Netscape and Microsoft. The Silicon Valley paradox is that much of the robustness and ease of use of Internet based applications, a key to their rapid commercial dissemination in the run up to the millennium, can be traced to the requirements of large public sector institutions. This was a lesson better learned by the developmental nation states of East Asia, Singapore, Taiwan and Korea in particular (see Thorpe & Little, 2001).

However, even informed and sincere imitators of Silicon Valley face the problems of reproducing an adequate or equivalent set of conditions as described by Castells and Hall (1994). Regional and national disparities in access to resources and capabilities still present real problems, as in the case of Malaysia's bold attempt at the creation of a Multi-Media Super-Corridor to connect the country to global high technology production (Wilkinson et al, 2001). The move from high quality but relatively low value routine production to cutting-edge innovation is one that requires both technical and cultural re-orientation and a shift in perception by both actors and observers. The Malaysian government itself is ambivalent about the impact on national identity and cohesion of the level of Internet access expected by potential inward investors. Little Holmes and Greico (forthcoming) describe some of the social and political impacts on Malaysia's social and political economy.

In order to understand the degree of autonomy possible for countries such as Malaysia which wish to benefit from participation in the global and informational economy, it is necessary to examine the underpinning ideology of the two contesting paradigms of globalisation.

Technocracy as a Global Form

In the United States during the 1930's, and in the political flux immediately before the implementation of the Roosevelt administration's "New Deal" programme, the Technocrat Movement rose to short-lived national prominence on a programme of technical rationality. It claimed that the economy would prosper in the hands of engineers, further developing Veblen's (1904) conception of the role of technical workers. Ultimately, according to Akin (1977), the movement withered precisely

because its narrow technicism precluded the formulation of a programme of political action. However, the notion of the power of technical rationality to deal with almost any economic or social problem has proved an enduring one, linking F.W. Taylor (1911) to former Technocrats like Richard Buckminster Fuller, still active at the end of the sixties. It received reinforcement through the comparative success of the New Deal policies and the successful application of new management techniques during the Second World War. The rapid advances in military and other technologies ensured a continuing acceptance of such views in the post-war period. The career of Robert MacNamara, as narrated by Halberstam (1971), offers a paradigm of this post-war flowering of technocratic consciousness. Hughes and Hughes (2000) provide evidence of its extensive influence, via the systems paradigm, which in both management and engineering underpinned the drive to globalisation from World War II onwards.

The Technocrat Movement adopted energy consumption as a single unifying metric through which the rational management of economy and society could be achieved (Akin; 1977). Inappropriate definitions of performance, stemming from the narrowness of the technocratic view lead to the assumption that a single, valid metric can be found for any system under consideration, and to the denial of any discourse on the framework necessary to account for conflicting views.

J.K. Galbraith’s formulation of "technostructure" may describe the apogee of the technocracy Galbraith (1967). According to Galbraith, with the onset of increased capitalisation and technical content there is a loss of flexibility, a growing demand for more specialised personnel, requiring in turn more specific organisation. Planning becomes a crucial function and the technostructure constitutes a group intellect capable of tackling the new scale of organisational problems. Both Veblen and Galbraith speak of a shift in the locus of power towards those with technical skills, although this is a debatable assumption, given the shifts in cost and accessibility of the relevant technologies over subsequent decades. Galbraith's assumption of economic dominance by large corporations through their superior planning facilities, has been challenged by the relative performance of smaller organisations better able to innovate and adopt emerging techniques. However, DeLamarter (1988) argues that market dominance is the prerogative of large and established corporations, and demonstrates the control IBM was once able to exercise over an emergent technology. The principal interest here is in the impact of the technocratic views of technical skills on those

exercising them. It brings an understanding of knowledge as explicit and commodified, it requires a reductions view which sits increasingly uncomfortably with the nature of the knowledge work entailed by ICTs and with the particular demands of a networked form of globalisation.

Place and Non-place in a World of Flows

In response to developments in organisational technologies, organisation theorists have produced a number of descriptions of the new organisational forms that have resulted. The rise of the Internet and e-commerce as facilitators of trans-national commerce has led to a range of formulations of " networked organisation". Castells has described such networks in his Informational City, a "space of flows", arguing that access to flows of information and resources is the key to participation in the wider economy (Castells; 1989). However, two decades earlier Webber proposed the "city as communications system", (Webber; 1964, p.84) in order to move from the physical bias of established planning conceptions. He switched the emphasis of urbanity from physical built form to the quality of interaction in cultural life through the exchange of information.

Webber formulates "non-place community" in terms of Interest-Communities. Accessibility, rather than the propinquity aspect of "place" being the necessary condition for this form of community (Webber; 1964). He argues that this definition implies that suburban and exurban dwellers enjoy a measure of urbanity not previously acknowledged: the traditional "place community" was in fact a special case of a larger genus of association. For Webber individuals are involved in an overlapping set of communities which involve different social and physical spaces.

Webber ends by suggesting that emerging institutional changes and technological developments coupled with ever increasing mobility and specialisation are likely to involve urban dwellers in increasingly wide area communications. Identity and community become a quality of networking activities.

The shifting balance between physical and electronic adjacency facilitated by information and communications technologies reflects Webber's formulation of "non-space realms". Webber adds that certain approaches to the classification of urban centres were more amenable to the consideration of the range of interactions which he

identifies, but that any reconsideration of definitions of centrality in the terms outlined by him would call into question the traditional notions of centre and hinterland.

Webber influenced and was influenced by an orientation towards non-physical aspects of community, and a participatory approach to design which emerged strongly during the seventies. The result of Webber's arguments is a relationship between urbanity, density and community radically at variance with that being advanced by Jacobs in her influential "Death and Life of Great American Cities" (Jacobs, 1961) at the same period. Webber pre-figured the celebration of Southern Californian urbanism by Banham (1971) and subsequent commentators yet although he anticipated the distributed social identity made possible by subsequent technical developments, he anticipated that this would be the province of a knowledge elite, rather than a more widely available mode.

Distributed Opportunities

The balance between the two pardigms derived from the thinking described above can be judged by responses to the opportunities provided by the technologies of globalisation. The Internet offers smaller players to access resources from and to compete within global networks, and there are examples of such successful interventions. Inoue (1998) describes a "virtual village" in which small enterprises are able to form and reform alliances in order to provide high technology services to larger companies. Their physical co-location across a number of inner suburbs of Tokyo is enhanced by electronic exchange. Such electronic adjacency is stretched further by the London-based supporters of Sohonet. A group of specialised media companies shares high capacity data links in order to participate in the creative milieu based around Hollywood and West Los Angeles. The high-speed digital exchange of film, video and sound enables post production operations to be carried out in London, in direct competition with Californian companies. The open networked nature of the entertainment industry of Southern California is a lower-tech version of the IT networks in Northern California which, through rapidly increasing use of technologies such as computer generated images (CGI) and the on-line promotion and delivery of content, is moving towards convergence with its northern neighbours.

Such striking innovations appear to alter the relationship between organisational size and performance. However, the additional accessibility and

flexibility available to smaller players also allows larger firms to restructure into networks which can enter niche markets yet still draw on their wider resource base. Castells (1996) describes a form of "network enterprise" which is composed of components of larger corporations, collaborating in specific spatial and temporal circumstances, while the main companies are still pursuing global strategies of direct competition. Castells is describing a mechanism by which larger corporations can achieve some of the agility of smaller competitors. The larger firms are able to de-couple key business units better to target customers and markets traditionally served by much smaller firms. This sophisticated understanding of distributed opportunities by large corporations presents a formidable challenge to smaller and medium scale players.

The newer entrants to the global marketplace quickly became aware of the need to maintain value through a knowledge-intensive approach to the delivery and support of goods, and have themselves invested in the established economies. James and Howell (2001) show that Asian companies are establishing or acquiring research and development (R & D) facilities within the United Kingdom and the United States. There are two motives for this. Knowledge of regional markets can be obtained by the route of partnership or part ownership followed by acquisition, as with Fujitsu and ICL. It can also be captured through R & D focussed on local product development, informed by feedback from local customers and incorporated in regionally targeted products, such as the Nissan Primera, a model developed for the European market. At the same time, access to a broader intellectual capital base can be obtained though tapping into regional knowledge which might enhance home-based operations. Both Malaysian and Korean automotive companies have acquired British-based engineering and design companies to further develop their home capabilities. Silicon Valley itself has attracted not just North American but Asian and European entrepreneurs. The incomers' strategy is to create a point of presence for networks that reach back to their home locations in India, Taiwan or France. These previously disconnected networks can then access the core milieu.

Both the British government and the European Commission are encouraging companies to seek alliances and opportunities in the opposite direction, to the less developed economies of South East Asia. This is presented both as a means of accessing the market potential of these growing economies and as a means of

improving offshore manufacturing resources in relation to both home and export markets (EC/UNCTAD, 1996). In some instances complementary manufacturing takes place at both ends of such relationships. Overseas plants are increasingly selling to both local and home markets. Recently Japan has conceded the logic of serving at least the lower value end of the domestic consumer electronics markets from overseas plants initially developed to serve of-shore markets.

Modelling a Distributed System

Dicken (1998) uses a generic production chain to analyse the dynamics of the global economy by focussing on the globalisation of production. In common with Porter's representation of the value chain (Porter; 1990, Figures 2.3 & 2.4), a range of critical support activities is modelled at each stage of this generic model. Dicken separates these into flows of materials, personnel and information on the one hand and technology and research and development functions on the other. The centripetal model of the -flows and practice of global production reflect these essentially linear models. Vernon (1971) developed a model of increasing product maturity. Once processes become familiar and routine, production can be transferred from the centre, via overseas subsidiaries to less developed regions where in the final stages of product life, the output is sent back to the original source. However, the very success of such approaches to international production by established manufacturers stimulated a range of imitators. The globalisation of productive resources brings new competitors to the markets previously dominated by the most developed economies. Nor is the rate of diffusion any longer a prerogative of the centre. As the distributed form displaces the centripetal, trans-national companies have to make complex location decisions for each part of their production chain. Dunning presents a more complex model of the choices facing investors seeking to establish international production (Dunning, 1993). This identifies a variety of motives for seeking overseas location, ranging from investment directed at securing natural resources, at securing new markets or at securing synergy with existing assets or activities.

In a distributed system ICTs allow a two-way traffic between centre and erstwhile periphery. Locations selected from a centripetal perspective as suitable for off-shore low cost, relatively routine production have, transformed themselves into globally competitive players, as exemplified by Taiwan. The response from the

beleaguered centre has been to seek increased added value by moving towards the end of the production chain. Product differentiation and customer support can maintain demand for goods and services and maintain premium prices for them. Significantly, such a shift makes the distinction between products and services less meaningful. It also represents an intensification of knowledge requirements since a focus at end of the chain requires closer adjustment to cultural variation among users and customers. While the shift is intended to regain central control over the periphery, it simultaneously requires either an accommodation with or incorporation of the local. This paradoxically allows a reinforcement of local identity within the global network and stimulates the exchanges between erstwhile core and periphery described in the previous section.

ICL (International Computers Limited), now owned by Fujitsu provides an example of this effect. It has moved further from it original manufacturing hardware base to position itself as an information services provider that can support the specificities of a European business environment. The service end of the chain is more culturally variable and success reflects specific local or regional knowledge. ICL resulted from a series of mergers in the UK computer industry running from 1959 to 1968. These produced an integrated national champion and these European credentials allow a Japanese company to maintain a convincing presence in a key market and to deliver products and services tailored to regional practices and requirements

This “value chain” approach (Porter 1990) can be seen in a very different industry. In the production chain linking bulk and specialist chemicals to consumer packaged goods, both ICI and Unilever have been engaged in moving to the area of higher added value. In 1997 Unilever passed its specialist chemical division to ICI in order to concentrate on the delivery of differentiated brands based on these feedstocks. Unilever went on to concentrate on the management of a subset of its original portfolio of brands, via an extensive culling operation (BBC World Service, 2000). This aimed to reduce 1600 brands to 400 in order the increase the value of the retained brands. ICI off-loaded its bulk chemical business to firms content to compete primarily on price at the commodity end of this chain, while retaining its established brands, such as Dulux paint.

Distributed Contestation

Naomi Klein characterises focus on higher value activities by what were formerly manufacturing organisations as a shift from material production to a form of cultural production (Klein, 2000). She argues that the apparent global expansion of high profile brands is in fact accompanied by a downsizing or hollowing out in which all functions except the management and development of the brand itself are subcontracted. This represents the apotheosis of outsourcing facilitated by both a reduction of transaction costs and the alteration of the relative advantages and economies of size. Production of whatever artefact is chosen to re-embody the disembodied brand can be undertaken at the most cost advantageous location, remoter from its ultimate consumers. Ultimately brands may become the carrier of the core values and emotional capital of what were once physically extensive organisations that have been reduced to sets of networked relationships. The brand, commodified through franchise operations may represent the core resource of such a global network, the only means by which it can be readily recognised by the target consumer. The management of organisational values and brand equity and value are likely to become a central issue for the maintenance of communities of practice and coherence of networked organisations

The growing separation between cultural and physical production has a further consequence for core as well as peripheral economies. Lipietz (1992) argues that the ability to separate production from consumption in these systems signals the end of the “Fordist compromise” which underpinned the Keynsian social-democratic paradigm. Harvey (1990) points out that Ford significantly increased wages when he introduced his five-dollar, eight-hour day in 1914 in conjunction with his production line. He saw the workers as an integral part of a production and consumption process. Production workers remote from the destination market no longer need to be paid sufficiently well to consume the products of their own labour. The result of these changes is a complex layering of labour markets, both internal and external to the developed economies driving the globalisation process. Harvey regards this post-Fordist situation as a regime of flexible accumulation which is tightly organised through its geographical dispersal and flexible responses to labour markets, and which is even more reliant on the creation of scientific and technical knowledge.

A key issue in any consideration of distributed identity is the relationship between individual and the organisation. The nature of employment has been changed in both the established and the newly participating economies in the evolving global system. Castells (1996) characterises this as the replacement of *organisational man* with *flexible woman*, and Beck (2000) speaks of the "Brazilianisation of the West". Castells is arguing that the North American fifties stereotype of the white-collar worker with the western equivalent of life-time employment in a large corporation is being replaced by the short-term contract worker, often female, who may gain some advantage from flexible working hours, but who is inevitably on a lower level of remuneration and benefits. Beck goes further to argue that the patterns of employment, common to semi-industrialised countries typified by Brazil are the future for developed countries. He bases this judgement on the impact of the current neo-liberal economic policies which deny any developmental role for the national state, relying instead entirely on market mechanisms. Bond, for example, analyses the implications of adherence to such policies in post-apartheid South Africa (Bond, 2000). A minority of waged or salaried full time workers will coexist with a majority of multi-activity workers following a variety of discontinuous and unregulated sources of income. Such a scenario is far removed from the lifetime employment model of the major Japanese corporations, or even of recent western practice and assumptions.

The demonstrations against the World Trade Organisation in Seattle, and subsequent events in Prague and Stockholm represent one set of reactions to these shifts in employment practices and the impact on communities which derive their identity from economic activities now under threat. Kanbur (2001) argues that they also reflect a perception that the activities of the Bretton-Woods institutions, the World Bank and International Monetary fund, are regarded as increasing rather than reducing global poverty and inequality. For Kanbur a Group A mentality on the part of the governments and international institutions clashes with a Group B view of the non-governmental opponents (NGOs). Conflicting views of the appropriate level of aggregation at which to gauge progress, of the appropriate time horizon that should be addressed, and of the nature of markets structures and power relationships ensure that agreement is impossible. NGOs stress the short term effects on actual communities of medium-term focussed policies, while environmentalists stress the much longer term

sustainability of policies. Both sides disagree open the nature and function of market mechanisms, with the NGOs perceiving substantial market power accruing to large scale established players. The Group A and B positions can be seen to correspond in part to centripetal and distributed understandings of global processes.

Distributed futures: identity

This chapter has described an assumption that a diffusion of innovation and technology from centre to periphery along the lines set out by Rogers (1983). However, the information and communication technologies that underpin the global system enabled a re-configuring or disaggregation of the production chain into a distributed network. Each activity can be located at its point of greatest comparative advantage, while a degree of oversight and control not previously possible can be maintained. For example, in the nineteen eighties North American automotive manufacturers elected to control production lines in their Canadian component plants through data links from the US side of the border. More significantly, and in line with Lipietz' (1992) arguments, in all but the highest technology undertakings, the divergent, creative activities which produce intellectual capital can be disaggregated from the convergent, focused and increasingly marginalised production process.

Despite the dependence on global information flows to achieve this disaggregation, work and employment must still take place in some physical space, however electronically connected that space may be. Increasingly, however, even in developed economies, that space is the household (Little, 2000). At the micro level consideration has been given to the physical requirements of creative work, as well as the social needs of group formation and interaction.

At the meso-level of space and location, the problems of physical absence for distance workers, and of the split between high and low value work into front and back office functions have been recognised for some time (e.g. Nelson, 1988), but at the macro level communications between front and back office can cross cultural and national boundaries.

The difficulty of achieving effective communities of practice across both spatial and cultural distance is already being identified in studies of attempts by western firms to capitalise on the resources of the Indian software industry (Nicholson, Sahay & Krishna, 2000). The centripetal view of seamless

interoperability between remote locations fell foul of the definitions and practices demanded of a local identity. There were significant changes in the Indian economy during the nineties, with a change in government policy towards participation in the world economy. Indian firms are successfully providing services in Europe and North America. However, these either have key staff in place in the client culture in order to ensure the alignment that ICL provides for Fujitsu, or operate via partnerships. One Indian software company approaches the North American market under the brand of its Swedish partner, confident of the quality of its own products, but aware of the image of Indian products and their perceived quality. In approaching the Japanese markets Indian firms are taking care to align with local practices (Nikkei, 2001)

Re-examination of both the Technocratic frame and Webber's understanding of place against the dynamics of current information technology offers insight into immediate issues of the redefinition of centre and periphery and the implications for identity in a distributed economy.ICTs offer a potential for participation in the "information economy" to peripheral areas. However, in the distributed context "periphery" is defined by access to these very technologies. There are disadvantaged regions and localities within developed economies as well as in the so-called "Third World" or between the European core and the so-called "accession states.

Applying of Webber's work to our current situation offers insight into broad issues such as globalisation and consequent re-definitions of centre and periphery and the implications for existing urban infrastructures. While the work offers a framework against which to assess the many claims made for IT as a panacea for marginalised or peripheral groups, its predominantly North American framework must be opened out to accommodate the multicultural nature of a global economy

Castells has described "informational politics in action" (Castells 1997 p.333). He is concerned that one aspect of globalisation, the reliance on simplified mass communication, inevitably reduces the complexity of political discourse. However, in the same volume he describes very different and complex forms of electronically mediated communication by dissident minorities: Zapatista rebels in Mexico and Militia groups in the U.S.A. In both cases movements premised on the championing of the local and specific and a rejection of the global economy are achieving a presence and a voice in a global arena through the appropriation of the technologies of globalisation. The key technologies of the Internet and World Wide Web do offer

opportunities for voices and visions voices from geographically disparate locations to enter the world of global communication. . These can build a dynamic between traditional cultural practices, modern communication forms to provide an enrichment of global symbolic life.There is a symbiosis between the use of the Internet for e-commerce purposes and the maintenance of living and differentiated cultures, a pattern which is already evident in Canada, Africa and Indonesia (Little, Holmes & Grieco, 2000).

Many discussions of the impact of the Internet and the globalisation of communication on local culture and material practice focus on the 'Macdonaldisation' of symbolic life (Ritzer, 2000). Global communication is seen as flattening the cultural terrain in the direction of the dominance of the modes and material practices of the global economic leaders, most particularly the United States. The US ownership of the strategic components of global communication technology, most particularly the dominance of Microsoft, is seen as an important element in this flattening of the terrain. Equally important in this doomsday scenario of the destruction of a rich and varied cultural and symbolic life is the emergence of English as a global language. Whilst it would be foolhardy to deny the validity of this scenario as a potential state of the future world of global communications, it ignores many of the new cultural capacities of new forms of global communication. Just as Crystal (1997) argues that the global English language is no longer under the control of its original native speakers, so are the technologies of globalisation appropriated by users at the margins.

In this context, the rise of the portal metaphor as an organiser of web access has allowed countries such as Estonia, to provide public access in its own Finno-Ugric language (Abbate, 2000). The use of "front-end" translation software can now overcome the language barrier. The portal is a home page which provides structured links into resources appropriate to its users. As an organising device it can reduce search time for newer users. The World Bank recognised the role of knowledge in the 1998-99 "World Development Report" (World Bank, 1998) and is currently re-branding as the Knowledge Bank. Stephen Denning, as Director of Knowledge Management for the Bank has presented this as a necessary dialogue between all parties concerned with development process (Denning and Grieco, 2000). A component of this realignment is the development of a web portal for Global

Development Knowledge. The Bank has opened a web-based debate with non-governmental organisations which has inevitably raised the issue of power relationships. These can be seen in the framing of access pathways by the resource rich on behalf of the resource poor.

The emerging global system is far from complete and far from determined, but it has already had a profound impact on social and working life in the regions included within and excluded from it. Information and communication technologies are driving the distributed processes of globalisation. By providing new forms of adjacency they are also providing avenues of entry for excluded constituencies and the means to refine and develop the management of the knowledge which has been foregrounded by the new relationships.

The speed of change in markets, competition and technology means that there is a socio-institutional lag as the new techno-economic paradigm emerges (Perez, 1983). For example, e-commerce is already mutating into m-commerce: mobile delivery of services. Despite the relative inadequacy of current WAP (Wireless Application Protocol) mobile telephony, the combination of low earth orbit (LEO) satellites with Global Positioning Systems (GPS) in proposed systems such as the European Galileo GPS will allow location-sensitive services to be delivered to individuals and groups on the move (Taplin, 2000). New forms of community of practice may arise, together with a reassessment of the spatial dynamics of knowledge creation and application. With LEO direct satellite systems, the network coverage will of necessity be equally dense and universal across the majority of the planet's surface beneath the hundreds of orbiting satellites.

Whether these and other opportunities lead to robust and effective communication between adherents of centripetal views and proponents of distributed strategies or the reintegration or redefinition of core and periphery will only be discovered though emerging practice.

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