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## *Abstract*

This paper describes a number of research projects carried out in the United Kingdom and elsewhere as part of a three-phase university research project on Master of Business Administration (MBA) teams. Building upon the earlier work, the aim of the later phase was to extend the offline into the online field of virtual teams. A number of techniques for eliciting tacit, as well as explicit, learning outcomes were piloted. Contrasting paradigms of learning and development are discussed and some issues and trends in terms of lifelong and lifewide learning are noted.



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# ***Using Transferable Techniques to Navigate the Weightless Economy and Anchor Intellectual Capital***

## ***Introduction***

### ***Charting a course***

I begin the paper by charting a brief course through the 'three Cs' of the global economy, with a focus on the 'weightless' services sector. The exponential growth of the emerging communication technology, the shortening of the shelf life of individuals' training and education, and global talent wars have led to a continuous drive to keep up with and get ahead of the latest knowledge and skills gaps (Seltzer & Bentley, 1999, p. 18; Medel-Añonuevo, Ohsako & Mauch, 2001, p. 32; Faris, 2004, August, p. 2; International Labour Office, 2006, p. 25). As at 1990, it took six years to go from concept to production in the car industry. Today that process takes two years. The number of patent applications is growing and more and more international and multiple applications are being filed. As the Organisation for Economic Co-operation and Development (OECD) reports, industrial countries filed 82,846 patent applications at the European Patent Office in 1997, a 37 per cent increase over 1990 (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2004, 25–28 October, p. 56). This is a part of the awareness raising and ongoing mainstreaming of the concept of lifelong and now lifewide education by UNESCO, the OECD and others (Rogers, 2004, January, p. 2; Faris, 2004, August, pp. 7–9). In this paper I review research carried out in the United Kingdom and New Zealand to suggest practical techniques for navigating uncertainty within a framework developed from the sciences of complexity. I aim to explore the potential in this framework by transferring already existing techniques, such as those used for capturing and managing intellectual capital while minimising the risk of anomie that accompanies technology-driven restructuring. Some of these techniques involve integrating the tacit intellectual capital and creativity of teams with organisational vision and external opportunities. I also outline how techniques that have been piloted

offline can be leveraged to assist the growth of cooperative virtual communities of practice, enabling professionals to better respond to uncertain e-business environments by anchoring reflexive social and intellectual capital in the performative team habitus.

Sociable forms of learning are more empowering than other paradigms often employed, such as the British Government-sponsored University for Industry (UFI) paradigm. That is based on a somewhat traditional form of distributed campus, with multiple hubs connecting individual purchaser-learners to various higher education providers. That paradigm is based on an isolating and less empowering conception, alienating the learning from the community. The alternative is a community-oriented paradigm (Cockburn, Treadwell & Cockburn-Wootten, 2001, p. 1). In contrast, the sociable paradigm networks learners to seamlessly build communities of action-researchers, sharing as well as redefining both explicit knowledge and tacit knowledge within a digitised environment. The second paradigm thus aims to socialise the learning in the community of practice. It seeks to facilitate a self-organising, stakeholder community, committed to anchoring social and intellectual capital in the team. The aim is to use simple techniques in everyday settings for teams of learner-workers that can be transferred from offline to online. Thus this conceptualisation extends the philosophy underpinning the European Union-funded Intelligent Information Interfaces (I3) project. The I3 project is a portfolio comprising a set of interconnected but discrete projects. I3 is the frame within which diverse project sets, such as *The Disappearing Computer* (Information Society Technologies, n.d.), are nested. That project was funded from 2001–2004. It included a range of interface and artefact or utilisation projects built around the notion of normalising ubiquitous computing in everyday lifestyles at home, at work and in the community at large. This paper, then, aims to draw on complexity theory to demonstrate practical techniques that have been field tested in university and corporate situations, and are based on an alternative, sociable team-learning model that works across virtual and face-to-face (F2F) environments. First, however, the paper needs to be located within the current globalised environment for working and learning.

### ***The three Cs and globalisation in the twenty-first century***

The discourse of lifelong learning has shifted as the processes of globalisation take root below the surface fabric of all levels of everyday life. Meanwhile, production and service workers in the developed nations continue to lose jobs to those in less well-developed countries at an increasing rate. Robust global economic growth of 4.3 per cent in 2005, equivalent to US\$2.5 trillion, is still

not delivering enough growth in new jobs to new entrants to the job market, according to the International Labour Office (ILO) (2006, p. 7). This is the fruit of the first of the three Cs of international trade — comparative advantage — which means that firms locate in nations where resources such as labour power are cheapest. Thus, such nations have a comparative advantage over others in terms of attracting jobs and investment. *The Wall Street Journal*, cited by Hollon (2006, p. 58), has pointed out the huge cost differential between India and the United States that is fuelling the current outsourcing boom. For example, a telephone operator makes less than US\$1 an hour in India and US\$12 an hour in the United States. A medical transcriptionist makes US\$2 an hour in India and about US\$14 an hour in the United States. An experienced systems analyst makes just US\$11,000 a year in India, compared with US\$53,000 a year in the United States.

This is not a new phenomenon — it has been known about since the turn of the last century. The phenomenon has been growing since the 1980s (International Labour Office, 2006, p.23). One other current manifestation of it is as ‘Free Trade Zones’, involving almost 30 million workers in 70 countries, has been discussed by Klein (2001, pp. 202–205). Similarly, such factories or services can be shifted elsewhere should another region become more attractive. In 1999, 720,000 IT jobs were unfilled in the United States and there were predicted increases to over a million by 2003. However, there was a recession in the United States and growth was weak until 2004 (Srivastava & Theodore, 2006). There has been somewhat weak growth since then, at around 2–3% per annum, or an extra 89,000 jobs between February 2004 and February 2006 (Srivastava & Theodore, 2006), which may be partly explained by increased ‘offshoring’ of jobs in the sector. Firms are increasingly engaging in global sourcing, not only in the older industrial sectors, but for their IT and communications operations too. As Cearley, Fenn and Plummer (2005) suggest:

By 2015, 30 percent of traditional professional IT services jobs will be delivered by people who come from emerging markets. India will continue to play a significant role, but by 2008, the most likely source of additional labor will include China, Russia and Brazil. (p. 5)

In her 2006 Labour Day remarks, President Gloria Macapagal-Arroyo of the Philippines noted that call centre employment in the country had mushroomed from just 2000 workers in 2001 to more than 100,000 in 2006. She projected that the industry would eventually employ a million Filipinos by 2010 (Hansen, 2006, August 9). The trends outlined above have led to calls for increased domestic protectionism, particularly from developed nations (International Labour Office, 2006, p. 7).



While the industrial sector was declining between 1970 and 1990, the 'weightless' service sector accounted for 60–70 per cent of employment in the United States, Canada, Australia, Japan, France, Germany, Italy, the Netherlands, Sweden and the United Kingdom (Seltzer & Bentley, 1999, p. 14). During the 1994–1997 period the European Union's five biggest employment growth areas — business services, recreational activities, health care, education and the hospitality sector — produced more than 70 per cent of its economic growth (Seltzer & Bentley, 1999, p. 14). According to a 2006 International Labour Office report on labour trends, the services sector in general went up as a share of global employment from 34.4 per cent in 1995 to almost 39 per cent in 2005. That is close to the agricultural sector's 40 per cent global share of employment. In developed countries the share is 71.4 per cent, with business services being one of the fastest growth areas. The industrial sector has, in contrast, a 21 per cent share and the Asia-Pacific region has more than half the global share of employment (International Labour Office, 2006, p. 20). The intangibles of the 'weightless' economy, such as software and other forms of intellectual property encompassing tacit as well as explicit knowledge, are drivers of change across all sectors (Seltzer & Bentley, 1999, pp. 15, 18; Lewis and Cockburn, 2001, June 10–13, p. 173; Lank, 2002, pp. 46–49). That includes the industrial sector and increasingly necessitates changes to management processes, education and development as new organisational forms and practices emerge (Lank, 2002, pp. 46–49).

The second C of international trade is competitive advantage. According to Porter (1998, pp. 33–35), this is traditionally associated with firms competing against one another, rather than competition between nations. Thus industry, not country, is the base unit of analysis (Porter, 1998, pp. 33–35). However, the role of nations is paradoxically increased, rather than decreased, as a result (Porter, 1998, pp. 19, 30). In the increasingly mobile, digitally networked age of global mass transport, high-end skills and knowledge are not confined to metropolitan areas. If an image, text or sound cannot be sent, then a plane can get people to a face-to-face meeting, terrorist alerts notwithstanding. So, the second C has now also been embraced at national level, as nation states attempt to better position themselves in the global market for sourcing the high skills required in the knowledge economy of symbolic analysis (Reich, 1991, p. 220; Brown and Lauder, 1996, p. 7). Absolute and global — rather than relative and national — standards of excellence and skills are what count in this context. So those without current and continually updated credentials to compete in the global market face a steady decline in income and social or occupational mobility. The curriculum vitae, or 'brand you' (Peters, 1997, August, p. 24), is the ticket to enter the global marketplace. The higher education sector exists to provide the means to get a better ticket and improved position for 'brand you' in the age of the portfolio workers.

The third C, collaboration, continues to pose problems in a world of unevenly distributed power and resources. Major corporations have formed global strategic alliances of various kinds over the years. During the 1990s there was a boom in such alliances (Kotler, 2000, pp. 81–84). Major universities are also now actively forming consortia to deliver global programmes (Bourdin, 2000, September 21–22, p. 1; Elias-Smith, 2000, September 21–22, p. 2). Hence, the General Agreement on Trade in Services (GATS), a part of the current World Trade Organization (WTO) negotiations, will, if adopted into the WTO, have a significant impact on higher education, particularly in developing countries. Countries signing up to GATS will be required to open their higher education markets to institutions from abroad. Flows of students across borders, the international market for academic talent, the advent of twinning arrangements among universities in different countries, and the franchising of academic programmes are simply some of the issues that could potentially present problems. Some have seen ‘McDonaldisation’ in this process and others ‘reverse colonialism’ (Middlehurst, 2000, September 21–22, p. 11). In the digital age virtualisation is a key element in the globalisation process. Although not without some problems, we have seen the rise of various community networks, involving a variety of strategic alliances between government, the education sector, non-governmental organisations, corporations and local communities, with many proposed benefits (Cardiff, 2000, September 21–22; Middlehurst, 2000, September 21–22, p. 11; Cordell and Romanow, 2005, p. 1; Gerencser, Napolitano & Van Lee 2006, pp. 8–10).

## ***The context: Virtual organisations and technological intoxication?***

Despite difficulties inherent in a poorly defined set of base characteristics in an emergent field, much has been written on how to create a virtual organisation and community of practice (Davidow & Malone, 1992; Mowshowitz 1997; Cordell & Romanow, 2005, pp. 1–3). This paper will argue that these authors paint a simplistically positivist picture of the inevitability of virtual organisations as a dominant model and therefore a natural outcome of improving technology (Byrne, Brandt & Port, 1993). That privileged position ignores the problems associated with management interventions to create and maintain virtual organisations and communities of practice, and to anchor social capital (Cook & Brown, 2002, pp. 96–97; Cordell & Romanow, 2005, pp. 14–15). Such problems — most notably the development of trust, and the ownership and protection of, and reward for, intellectual property — cannot be dismissed as unproblematic functions that will vanish through natural

evolution. They are issues that need to be addressed practically and strategically, and in a creative fashion, as new forms of organisation continue to emerge.

To address these issues effectively, knowledge managers have to intervene significantly at both online and offline customer interfaces to build trust, reliability and confidence. In another context, the United Kingdom research project described later in this paper has piloted cognitive techniques for improving the customer interface in telephony-based or digital environments, to build collaborative learning, assist project execution, and reduce anomie in teams. The project facilitated teams' navigation of the strategic knowledge and promoted integrated and coherent corporate vision. This paper will explore how adapting emergent technologies to assist the growth of virtual communities of practice can leverage work and anchor the formation of 'weightless' social and intellectual capital.

As part of this plan to transfer offline skills to online situations, I mobilise scenario-planning techniques to foster a 'creative knowledge cooperative'. The cooperative will be forged through generating, and developing, multiple shared scenario visions. That process synthesises narratives, images, data, organisational forms and specialist knowledge into a plurality of possible future pathways. It can accommodate slower technological progress, as well as preparing for the time when, in Martin's somewhat technologically intoxicated discourse, 'cybereconomy goes Main Street'. From Martin's perspective, there will then be a need to address research into new breeds of online customer and a 'wired workforce', as virtual work communities lead to new workplace dynamics, and 'open-book corporations emerge', as boundaries between inside and outside blur or disappear and power shifts to the recipients of products, information, and services (Martin, 1999, p. 5). While facilitating a state of readiness for such a future, scenarios help to avoid the trap of accepting simplistic and often ethnocentric assumptions and linear thinking that there is one dominant model and one path to the future.

Even among the technological optimists there are significant differences. It is hard not to see contemporary relevance in aspects of Martin's *Net Future: The 7 Cyberrends That Will Drive Your Business, Create New Wealth, and Define Your Future* (1999). After setting out his seven debatable cyberrends, for instance, Martin, less controversially, identifies the top three key adjustments as: 'capturing the hearts and minds of consumers'; 'changing corporate culture and authority'; and 'integrating personal and work lives' (p. 5). However, Martin neglects the emphasis *The Cluetrain Manifesto: The End of Business as Usual* places on the possibilities for public and private sector organisations of leadership and team relations in e-business (Levine, Locke, Searis & Weinberger, 2000).

Similarly, the importance for public and private organisations of the social capital formation and exchange within community networks is underestimated or missing altogether (Cordell & Romanow, 2005, p. 2). Accordingly, the development of techniques capable of engaging with a more cosmopolitan plurality of future visions is particularly relevant at a time when there is not even a consistent definition of the nature and meaning of virtual businesses or organisations (Kraut, Steinfield, Chan, Butler & Hoag, 1998 ; Lash & Urry, 1993, pp. 309–310; Fisher & Wright, 2001; Cordell & Romanow, 2005, p. 2).

## ***Competing collaboratively: Evolution and non-linear thinking***

In the move away from linearity, scenario thinking usefully connects with complexity theory and Kauffman's (1995) adaptation of evolutionary biology to describe one business creating niches for another in the ecological landscape of the new technology market or 'technosphere' as *technological co-evolution*. He also describes two core tacit strategies that align with the techniques employed in the United Kingdom project outlined later in this paper. The first is what he calls the 'Red Queen' scenario, by which small organisations selfishly compete against one another. Over time, as the evolutionary 'landscape' gets harder with increasing competition, shortening lead times, consumer sophistication and rising product expectations, these organisations end up having to run faster just to stand still relative to others and to the general pace of change.

However, as this paper will argue from a different angle, the new technology developed by one firm often provides a niche for another firm's product or service to enter. There are symbiotic developments as well as competitive developments, similar to the kinds of co-evolutionary developments seen in 'predator' and 'prey' species in the animal world (Kauffman, 1995, p. 125). The system, as well as the parts of the system, evolves new patterns of relationships. This is often a chaotic market, with a diversity of forms and redundancy leading to heavy fatalities, as we have seen, for example, among the 'dot.coms' in the 1990s. This co-evolutionary strategy is contrasted with the evolutionary stable strategy often employed in the past in large, hierarchical organisations that freeze too readily into compromise solutions, trying to maintain a 'business as usual' impression. Saffo (1995, June 7–10) suggests such an organisational co-evolution in his 'value webs' conceptualisation. The newly emerging organisational forms discussed include a diverse range, from networked or cooperative forms, such as *Ocean Spray*, who use a single company name, to

multinationals like General Motors with electronic data interchange (EDI) links to suppliers. In both of the last two examples, boundaries and identities are becoming more permeable. It is difficult to determine where one 'entity' ends and another begins, since their fates are so closely intertwined (Saffo, 1995, p. 1).

The suggested optimum is for organisations of the right size (as determined by trial and error) to operate at the cusp of the transition from chaos to order. It is here that the smaller organisations or departments, working for their own selfish ends, will nevertheless maximise benefits for others by a process of co-evolution. That idea informs the holographic small and medium enterprises like Magna International that grow by cloning themselves when they reach a certain size (Morgan, 1997, p. 104). Similarly, new social spaces and publishing such as wikipedia and blogs are challenging mainstream media. Niche markets are becoming personalised markets. There are new developments such as Netflix, which streams movies catering to literally everyone's tastes because single-person demand can be accommodated in their business model, unlike in the traditional and reductionist model of demand used by big corporations to shrink diversity by giving bestsellers only or clones of hit series. Thus, there is no business as usual for the large, traditional firms, but neither can the smaller organisations afford to assume that they have the field to themselves any more, and so business is not 'as usual' for them either. Although referring to technological co-evolution, it seems reasonable to infer organisational co-evolution too as a concomitant structural development. Other research findings provide further evidence to support this (Powell, 1990; Rajan & van Eupen, 1997; Hoffman, Novak & Chatterjee, 1995; Hoffman, Novak & Peralta, 1999).

These developments span a range of other management and learning issues, such as the control versus empowerment problems and issues of feedback and information veracity highlighted in the distributed management of franchising operations (Sherman & Schultz, 1998, pp. 182–183). The web, now only 11 years old, provides numerous examples of new problem-solving methods too, such as the web-based Innocentive Inc — a virtual 'dating agency' for scientists to meet entrepreneurs. Innocentive Inc is a network of 80,000 independent, self-selected problem solvers in 173 countries, established in the pharmaceutical and bioscience area. It operates as a knowledge e-brokerage, linking corporations with problems to scientists with solutions. There is increasing evidence of this vibrancy across all sectors of the economy in advanced countries (Rajan & van Eupen, 1997; United States Department of Commerce, 1998).

From a different research background, Nouwens and Bouwman (1995) argue that network forms of exchange have completely different modes of

coordination that are based on neither price nor supervision, but instead upon mutual interest and interdependence. However, although network attributes (in particular, openness) are undoubtedly important, they do not operate in a vacuum (Steinfeld, Kraut & Plummer, 1995; Nouwens & Bouwman, 1995). Factors such as the locus of control of the electronic service application and the business environment are likely to interact with the use of the Internet to promote both hierarchical and market-like structures. As a result, pure electronic markets, permitting the easy comparison and acquisition of products and services across many suppliers on a spot-market basis, are likely to be less common, and dependent upon market-making intermediaries (Sarkar, Butler & Steinfeld, 1995). Consequently, many supplier organisations are developing Internet applications that promote electronic transactions and information flows among trading partners. If previous trends continue, at the business-to-business level these will most likely map on to existing trading relationships, capitalising on the benefits of electronic integration networks (Kraut et al., 1998).

## *Transacting e-business in the early twenty-first century*

At the business–client interface, KPMG have confirmed that customer relationship management is a critical area, but it suffers from the ‘seller’s dilemma’ — that is, customers expect firms to understand them and treat them as individuals, but resent unsolicited contact or being asked for detailed personal information by organisations (Infoconomy staff, September 1). Consequently, personalisation aspects and interactivity have been recognised as important features in the development of e-business for some time now (Hoffman et al., 1995; Saffo, 1995, June 7–10; Down, 2000, July 7). Upshaw (1995, May 29) encapsulates that view:

The inter active nature of the Web is especially conducive to relationship building and offers marketers new opportunities to create stronger brand identities which have the potential to translate to brand loyalty. (p. 15)

The need for a customer relationship is recognised as an important part of demand ‘pull’ rather than technology ‘push’ in e-business development. The latter is still predicated on certain other presumed critical organisational decision factors, such as the supposedly direct relationships between the transfer economics and the network technology use for interfirm cooperation and coordination. Contrary to such often uncritically accepted views about electronic coordination or brokerage leading directly to more outsourcing and

leaner organisational structures as the key to the degree of 'virtualisation' (see Malone, Yates & Benjamin, 1987; Davidow & Malone, 1992; Bradley 1993; Clemons, 1993; Brynjolffson, Malone, Gurbaxani & Kambil, 1994), Kraut stresses personal relationships as the key factor (Kraut et al., 1998).

As part of those relationships, the nature of both customer and staff profiles, and desires, is also evolving. Noel Turnbull (1996) has offered one of the most creative visions of future customers with whom corporations will have to relate. He predicted that in the twenty-first century there will be a new generation of customers and that this group, whom he terms 'generation MM' (p. 21), will demand that business demonstrate that it is motivated by community interest rather than self-interest. Turnbull supports his view with quotations from research finding in the United States, which show that:

- 84% of adult Americans believe that cause marketing creates a positive company image
- 66% would switch brands and 62% wanted to switch retailers to support a cause they care about
- 54% would pay more for a product in support of a cause
- 78% are more likely to buy something associated with a cause
- 62% are impressed by a company that commits to a cause for more than a year. (1996, p. 137)

Turnbull's recommendations, arrived at after collating consumer surveys with corporate actions, come down in favour of future success for those 'altruistic companies [who] are the companies that balance the interest of all their stakeholders and see profit as a result of a company's total goals rather than as an end in itself' (1996, p. 138).

These findings have subsequently been confirmed in other countries. A Millennium poll of 1000 citizens from each of 23 nations on 6 continents found 49 per cent cited corporate citizenship factors such as business ethics, environmental practice and labour management issues as the most significant determinant of their impressions of companies (Marlin, 2000, November 9–10). Only 32 per cent were most influenced by basic business investment factors such as finance, management or size. There is also supportive evidence for this trend from the United States, where well over *one trillion* dollars, or one in every eight investment dollars, is managed in social responsibility investment vehicles (Marlin, 2000, November 9–10). In Europe, too, three of the four scenarios outlined by the corporate consulting giant PricewaterhouseCoopers suggested

that ethical issues, especially those relating to the environment and genetics, will have a major influence on the future prosperity (McKie & Cockburn, 2000) and governance of Europe (Pedler, 2000). This bears on the central issue for an expanding e-business economy: the trust necessary for further development in the business-to-consumer sectors (Handy, 1995; Jarvenpaa & Leidner, 1998; Palmer, Bailey & Faraj, 2000; Down, 2000, July 7).

These views are based on hard-nosed business perspectives rather than sentiment, and are about brand image and profitability, as well as concerns about sustainability and public good (*The McKinsey Quarterly*, 2006, January, p. 4). A 2006 Social Investment Research Analysts Network (SIRAN) survey, carried out by independent investment research firm KLD Research & Analytics, Inc., shows that more than three-quarters (79) of the current Standard & Poor's 100 index companies now have special sections of their websites dedicated to sharing information about their social and environmental policies and performance (SIRAN, 2006). This represents a 34 per cent increase on the previous year, when 59 companies included this information on their websites. In addition to that, institutional investors filed 19 shareholder proposals over the last year calling on companies to issue sustainability reports that detail their social and environmental performance. *The McKinsey Quarterly* global survey of chief executive officers (CEOs) in January 2006 indicates that 84 per cent of those CEOs surveyed share many of the views of others in society about the role of the corporation (2006, p. 2). They see that the role of company management extends beyond simply satisfying shareholders to incorporate social responsibility, with the most enthusiastic being Indian private sector executives (2006, p. 2). However, the confidence index also shows that the executives are wary of the risks of trying to guess which socio-political issues will most closely concern them and lack faith in the old remedies such as public relations and lobbying, although 41 per cent choose job loss and offshoring as key emergent issues (2006, p. 5). Such values may not translate directly into other organisational systems or relationships — business-to-business networking, for example.

While business-to-consumer relationships continue to be important, interorganisational social relationships also act as coordination mechanisms, shaping the likelihood of any extension of network use *between* organisations as opposed to internally in any single one of them (Kraut et al., 1998). Such business-to-business relationships are exchanges too, as Nouwens and Bouwens indicated above. Online, as Chandler (2000) notes, there are few fourth generation business websites in the United Kingdom, so that few are building the customer relationships referred to by Upshaw (1995, May 29). Not only are the relationships between organisations important for network development and, ultimately, for further e-business growth, but so too are those between



employees for branding, internal marketing and the shared development of corporate identity. That is especially important in those organisations with newly established online persona in rushed, and sometimes temporary, marriage arrangements between 'bricks'n'clicks' (Edouard & White, 1999). It is important to note, too, the interconnections between lifecycles for products, brands and communities of practice.

These also need to address the multiple dimensions invoked. That is, both lifelong and lifewide aspects can be further 'unpacked' over generational cycles and anchored individually in the community.

## ***Values convergence, learning and globalisation***

The OECD's 2001 report on cities and regions in the new lifelong learning economy has reinforced the increasing trend to include lifewide as well as lifelong dimensions as part of a policy for fostering the development of social capital (Faris, 2004, August, pp. 9–10). The following bulleted list summarises the generally agreed features of social capital:

- It consists of three related forms, namely *bonding* (relations between relatively homogenous groups, such as family members), *bridging* (ties across heterogeneous groups, such as friends and colleagues), and *linking* (ties across social strata and community members accessing resources and information beyond the community itself).
- It interacts with other forms of capital.
- Communities have large reserves of latent social capital, evidenced in times of crisis as the community comes together without question to solve problems (for example, in the face of a natural disaster).
- It is both a means and an end — that is, it can mediate both relationships and participation that can, in turn, lead to concrete outcomes; while at the same time the relationships and networks that mediate these actions become strengthened.
- It fundamentally involves values, and what is considered to be 'good' social capital cannot help but be a value judgement.

- It must be considered in the larger community context.
- It is a public good that increases as people within a community 'use' it and decreases if they don't. (Cavaye, 2004, cited in Cordell and Romanow, 2005, p. 9)

The worker-citizen has morphed into a learner-citizen for life in the new millennium knowledge economy (Grace, 2006, June 14, p. 2). The changing social contract, increasing corporate community involvement, and current neo-liberal dominated globalisation processes have meant that new understandings and interpretations of the lifewide social capital component of the '3 Rs' (*reading, writing and arithmetic*) are emerging (Faris, 2004, August, p. 18; Chappell, 2005, November 24–26, p. 7). However, there are other aspects to consider in relation to how such matters are addressed sustainably in a virtual environment of closer triadic cooperation and collaboration; that is, collaboration and strategic alliances between the three big players — government, universities and corporations — in a global mega-community of learning practice for the networked age. Such collaborative ventures have to be able to performatively embody the operationalisation of the shared vision in their everyday habitus.

## ***Habitus in virtual environments: Tacit knowledge and communities of practice***

In an extension of well-documented late 1980s and 1990s practices (see Kanter, 1989; Peters, 1992; Meyerson, Weick & Kramer, 1996, pp. 166–167; and Arrow, McGrath & Berdahl, 2000, pp. 197–198), Meyerson, Weick and Kramer (1996) indicate temporary groups are becoming an increasingly common organisational phenomenon. Handy (1989), in his 'shamrock' organisation model, refers to the need for a more fluid and flexible organisational form in the future. Over the last few years, the phenomenon has increasingly had an online dimension. There continue to be issues concerning the perceived equity of rewards and the new psychological contracts among employees under the regimes of flexible and agile companies (Rajan & van Eupen, 1998). The mix of financial, legal and educational advantages and disadvantages in this for those involved (New economy survey, 2000, September 23, p. 11) is compounded for the workforce by the lack of the traditional face-to-face normative psycho-social structures that foster trust and can serve as organisational glue (Meyerson, Weick & Kramer, 1996, p. 167) — particularly for permanent staff. The learning

occurs at individual, team and organisational level and is impacted by a range of socio-psychological factors that sensitise the team to initial or initiating conditions of change.

The psychological and social rewards commonly available for core company member's offline are not necessarily going to work or be available to those online or on the periphery as temporary contracts. At present, project teams are frequently made up of members of disparate occupations, may be located around the world and across different time zones, and may only share the commonality of the specific project. Members of such groups have different psychological links (even, perhaps, contracts), and are likely to work differently, not least because the habitus of their practice fields vary. In this context, Bourdieu's definition of habitus as the 'system of acquired dispositions functioning on the practical level as categories of perception and assessment or classificatory principles as well as being the organizing principles of action' (Bourdieu, 1990; 2000) is a helpful frame. Such a habitus presupposes an identity of interests and institutional frames of reference *for action*, if not for values and beliefs. It is a kind of cultural prism through which the world, divided into overlapping fields, can be viewed. The field is the social arena for interaction and contention where power is claimed and legitimated. At the level of the corporation, the emerging digital economy occurs principally within the field of work, but could also be seen as intruding into other fields such as leisure, learning, family and domestic activities as electronic connectivity escalates.

Within these teams, a common currency of symbolic exchanges and power has to be fashioned from the strands of accepted practice in knowledge work teams. The team field of interaction within which this habitus is seen to operate in the digital economy will be the social base of the network studied by Kraut et al. (1998). The habitus in the freelancers' professions will not necessarily coincide with that of the customers of an employing company, its senior management or of the other colleagues engaged for the team. Habitus is clearly not an entirely explicit phenomenon either. In fact, in so far as it relates in the main to mental schema and models, it is largely tacit and an unarticulated 'given' in individual and corporate thinking. There are, therefore, a number of critical questions for organisations. For instance, what is the best way to develop what Weick (Meyerson, Weick & Kramer, 1996) calls 'swift trust' in teams? How should such teams be set up and maintained, especially in the emerging digital economy where many will be supervised by interim managers, perhaps with some *virtual support* (Clutterbuck & Dearlove, 1999)? Teams such as these may never have had any unmediated face-to-face contact and the organisation therefore exists largely as a web presence. They need to learn rapidly and to work together to generate the necessary corporate knowledge to carry out their tasks and complete the project.

In networked, virtual or computer-mediated communication, team development can be severely constrained, thereby slowing the social integration as well as the knowledge integration of the network. In such a habitus, this paper argues for moving towards helpful cooperation, and away from unproductive competition, by adapting ideas and practices from tacit knowledge theory. As Eden and Spender observe, 'the most important dynamic emerges from the dialectic between the individual's explicit "conscious" knowledge, and the implicit "collective" knowledge that is embedded in the language and activities of the community of practice' (1998, p. 35). Cook and Brown (2002, pp. 76–84) extend this with their discussion of the concept of the 'dynamic affordance' or the 'possibility space' that emerges from the synergies of individual and group perceptual, cognitive and physical interactions with the world.

## ***The research: New Zealand***

In practice, this was researched in 2001 in a New Zealand power company that had been operating a year-round workplace with workers scattered geographically and temporally. Effectively, as part of the deregulation of the industry, the company had become a series of virtual teams using e-business methods. However, successful as their transition to online communities of practice had been, they felt they had reached a plateau and did not know how to move forward into the uncertain future caused by a change of government and a declining New Zealand economy. In order to capture the intellectual capital of the workforce, and to maximise buy-in for a new corporate vision, two different virtual teams generated scenarios for future business developments. At this point I wish to point out that scenarios for e-business futures are nothing new (see, especially, Eames et al, 2001). However, what has not been sufficiently researched is their potential to endorse diversity and uncertainty in a sophisticated manner online. Workers who had seriously diverging views of the future of the New Zealand power industry, and the role of their company in it, were able to contribute without being judged as right or wrong, and were also able to maintain the discussion of differences as new evidence emerged and each of the scenarios became more or less likely to be realised. Moreover, in generating, and adjusting, the scenarios, participants were able to maintain strategic conversations, which easily accommodated difference, both within the teams and across teams. The project utilised the publicly available *Wired* scenarios (for examples, see Wilkinson, 2006) with their online visuals to initiate discussion and had the capability, although they chose not to use it, to generate their own images. The other main outside input came

from the New Zealand Government's Foresight scenarios, which complemented the global *Wired* futures with local and national future projections.

In this example there was a considerable amount of homogeneity between the participants, but the technique of using scenarios online can also accommodate cultural, ethnic and other diversities. Spears and Lea (1992) state that in some forms of computer-mediated communication (CMC) non-verbal and paralinguistic signs cannot be transmitted and hence important cues about the interpersonal identity are filtered out. However, this low visibility may benefit some groups, who might otherwise be discriminated against (for example, the physically disabled or ethnic minorities). Nevertheless, CMC users may know the social context in which they communicate. Therefore, in CMC one may either feel like a member of the same group as one's communication partners or like an individual. Thus, social behaviour can be classified into two important modes: acting as an individual and acting as a group member. Behaviour in communication situations can be determined by both kinds of identity and which part dominates depends on the specific situation. Hence the different paradigms referred to at the start of the paper.

The first (UFI) paradigm is an isolating and less empowering conception. The non-sociable, solo-learner, transactional model can be compared to other, sociable and more transformational models I describe. The UFI paradigm for human-technology interface allows limited interaction with the software and is information-oriented in its presentation. The typical learner may select a topic, but the purchaser — that is, the employers — essentially drives the choices. The potential to develop a group approach is limited and depends on the employer's approach to learning, and the model employed is that of a more traditional classroom. Attempting to design more sociable forms is not likely to be easy and there have already been some technical hitches. It is likely that this will be partly determined by the nature and range of the employer market demand. It will also be determined by the technology underpinning such provision and its perceived effectiveness. In contrast, the central purpose of the design of the sociable paradigm is to develop, sustain and enhance the relationships within community learning as a catalyst for the changes in that community learning field and related enhancement of organisational learning (Cockburn & Cockburn-Wootten, 2000, March 24; Cockburn, Treadwell & Cockburn-Wootten, 2001, p. 2; Cook & Brown, 2002).

## *The research: United Kingdom*

The United Kingdom research investigated the formation and dissemination of corporate visioning. It looked at the collective development of what can be called 'creative knowledge cooperatives' among teams and the demands of the 'new leadership' in learning organisations. The process of using live consulting cases as a medium for experiential action learning and reflection-in-action was employed. In phase 1, teams of MBA students were initially researched over a two-year period, 1997–1999, following some preliminary pilot work in 1996 with a small cohort of 10. This was later extended into a second phase covering 2000–2001 using focus groups. The technique was further field tested and refined in 2003–2004, with managers from an Australian and a New Zealand telecommunication company included in the second Australasian phase.

In total, 107 students were grouped into 18 self-organised teams and each individual was given a log and a reflective diary. I observed the groups and later interviewed individuals and managers of host organisations. This research utilised ethnographic and interpretive methods for data analysis. The non-participant observation of the various meetings was used to cross-reference the interpretations of the texts that teams produced wherever possible. Meetings at the host companies were all observed. A number of the team meetings in the participating university were observed, since they were facilitated in formal class contact time. Whole class plenary sessions were facilitated and observed by staff. Other meetings were not observed, but were recorded in individual diaries and logs of meetings held. The explicit purposes and descriptions could be compared and analysed, but some further cross-reference to the tacit knowledge in these consulting team communities of practice was required. Teams had previously gone through a number of sessions of training in a range of consulting methods and visioning techniques delivered by other university staff. I had developed a projective method for team planning and collective learning that they were also able to practice. Many, though not all, teams and individuals chose to adopt the technique during their projects. It was called the 'walkback' method and teams could decide whether or not they wished to employ it and/or other methods on their live consulting projects. There was no compulsion and no sanctions or disapproval if they opted not to use any specific methods they had been instructed in previously. The training was part of the process of equipping them for their consulting assignments. If they opted to use the technique, then it provided me with an opportunity to observe tacit and explicit features of the use of it in their action research.

The observation of the walkback technique used by teams for visioning and subsequent planning also crucially enabled me to examine the process of

generating new tacit knowledge. This transferable technique gives actors a metaphorical means to express the tacit scenarios and associated values and beliefs inherent in individuals' script changes: a crucial catalyst to forge a cohesive team. Subsequently, I have piloted some refinements to these cognitive techniques in three other local telephony-based or digital environments in organisations. The technique encompasses the three domains of learning: cognitive, affective and psychomotor. I am now at the stage where I can leverage the work by applying emergent technologies.

In 2000–2001, the Phase 2 part of the project, the teams were smaller, with from four to six participants, and were based in Cardiff, Berkshire and Uppsala. Two teams were from Cardiff call centres and another was a 'virtualised' team, to use Kraut et al's (1998) term, and was dispersed in the United Kingdom and Sweden. In all of the teams, the social network was clearly a major determinant of the effectiveness and continuation of the team's electronic network.

One of the call centre teams was based in a telemedicine company and composed of qualified cardio technicians. This group already had many years of experience of the conventional roles of cardiac teams in the National Health Service in the United Kingdom and had been socialised in that professional role prior to leaving the public sector for private sector employment.

The other call centre team had more varied personnel and was focused on the customer service requirements of an international telecommunications company with an office in Cardiff. There were two shifts and the shift teams there were composed of a more diverse mix of personnel with business or commercial backgrounds. A number of participants were from within ethnic minority communities in the city. The ethnic community shift team was working on a marketing project targeting ethnic communities specifically. They operated in parallel with the more usual customer service teams and also functioned as company representatives in a number of face-to-face exhibitions and meetings in the minority community areas of Cardiff. Although these call centre staff members were separated by their shift patterns, they socialised outside of work and saw themselves as one team within the company, as they effectively composed the majority of the ethnic minority personnel at this office (although this was not true of other United Kingdom offices of the company I visited prior to the initiation of the research).

The third, 'virtualised' team was composed of staff from a multinational corporation in the United Kingdom energy industry. As mentioned, they were dispersed around the United Kingdom, with some in offices near Cardiff, Wales, others in Berkshire, England, and the rest of the team in Uppsala, Sweden. I did not have any face-to-face meetings with the Uppsala team personnel, although

I did have brief audiovisual and teleconferencing interaction and had met the staff from both the United Kingdom locations on a number of occasions before, during and after the research for this phase of the project. Some email correspondence was also used for communication purposes between meetings.

A series of visits to the teams during their working time, including interviews with supervisors and managers of all the teams, was initiated. I had carried out a pilot version of the techniques and a set of interviews at the university prior to the start of this phase of the project. The pilot involved two groups, totalling 15 people, with a diverse mix of relevant occupations being represented. These ranged across banking, commercial personnel, health professionals and others actively involved in new media and call centre activities. The first group consisted of three insurance staff, two banking staff, one recruitment company member, one person in telesales, two Internet marketers and two webmasters. The second group were all healthcare professionals: one hospital doctor, one general practitioner and two nurses involved in manning a call centre facility. The two groups above were invited to a meeting as focus groups and the research procedures explained and executed over two separate meetings in two weeks.

The interview themes I explored in semi-structured interviews concerned the values they espoused and enacted, their perceptions of their interactions in these teams, the corporate protocols they followed, their visualisation and personification of the customers and others they engaged with in their duties, and the climate of continuing teams as opposed to adjourning teams disbanding from one-off or discontinued projects. I used the Nud.Ist software in part, when reviewing the interviews and the 'belief box' constructs. I administered a cultural audit tool devised by the Wales Quality Centre. With the exception of the one telesales worker and one of the insurance staff, the other participants were all from organisations with strong, corporate cultures and espoused values, particularly the health professionals. In addition, I used Rajan, Lank and Chapple's 1999 knowledge creation and exchange audit tool to assess some of the knowledge management practices in the organisations, and the Honey and Mumford Learning Diagnostic Questionnaire (LDQ) to assess staff development potential. The data collected was used to construct a beliefs matrix I called the 'belief box', which indicated vectors and coordinates of the visioning and learning activities. The pilot data was used to scaffold an early version of what was subsequently to become the belief box after further empirical research and testing as indicated above.



## ***Outcomes, tools and techniques: The belief box concept***

The belief box concept was derived from Beach's work on image theory (Beach, 1990; Beach (Ed.), 1998). The belief box evaluates the *values* image and the related *trajectory* image, but has been extended into the arena of personal development and enactment with the use of the 'cast and props'. The latter surfaced the salient beliefs or values of individual team members related to images of desired outcomes and ways to achieve them. Students were encouraged to get into a relaxed state and be as creative as they wished in depicting their corporate vision. This was especially so in the use of figurative descriptions.

The team envisages the current cast and props (which might be physical props, such as those involving technology, or metaphorical props, such as team spirit, attitudes and so on) and projects ahead into the desired, or trajectory, image. They then review what cast and props they envisage as part of a successful trajectory image. The derived image may be regarded as subject to individual vagaries and interpretations at this stage and neither the 'values image' nor the 'strategic image' referred to by Beach adequately differentiates 'espoused' from the 'in-use' values.

The cast and props by themselves would require the observer's interpretations without reflective logs and diaries. By itself and even with the logs and diaries, the Beach trajectory and strategic images do not necessarily allow us to translate these individual decisions and images into corporate outcomes in any useful manner. However, with the development of the walkback, this difficulty is overcome.

### ***The walkback***

As Nonaka notes in respect of metaphors:

The association of meanings by metaphor is mostly driven by intuition, and involves images. On the other hand, the association of meanings through analogy is more structural/ functional and is carried out through rational thinking. As such, metaphors provide much room for free association (discontinuity). (1994, p. 21)

Nonaka then goes on to develop that line of thought by adding that:

Analogy allows the functional operation of new concepts or systems to be explored by reference to things that are already understood. In this sense, an analogy — that enables us to know the future through the present — assumes an intermediate role in bridging through rational thinking the gap between image and logic. (1994, p. 21)

The operational analogue for the MBA teams is the walkback process and that is the means by which I put Nonaka's ideas about tacit knowledge conversion in teams into practice (Nonaka, 1994; 1995, June 7–10; Scharmer, 2001). It is simple, easy to apply and gets better with practice. A 'trajectory image' of the problem solved or of the team's preferred situation is developed and a cognitive technique employed to visualise and reveal the stages or activities necessary to achieve it. This includes the cast and props necessary, within currently available resources. The term walkback is used, as the stages are in reverse order. It is associated with concretising the *team's* visions as a *corporate* vision of the community of practice, which are to be enacted within team resources. The team has to have a solid image, which team members share, about how to transform the cast, props and thereby the whole script. This may include a new team story and, for each team member, personal transformations such as a new self-image as a professional and team member. The cognitive, affective and psychomotor attractor patterns that were observed in the teams are embedded in the walkback and enactment as multiple, entwining spirals of learning. The learning occurs in iterative hierarchic and fractal fashion at individual or micro-level, meso- or team level and macro- or organisational level in the relevant community of practice. Time lines of logs and diaries in the MBA teams indicated qualitative phase shifts and emergent emotional regimes in teams. The learning extends the level IV conversations referred to by Scharmer (2001, pp. 69–83).

The dramaturgical metaphors help formulate this in terms of current realities that can be enacted by teams and used as a map to navigate the surface of complexity. It forces them to review strengths, weaknesses and core values-in-use rather than any espoused values they have. The reverse order makes them work back, in manageable and realistic steps, from a successful outcome to present reality. The complexity is simplified and made more empowering by embodying and integrating the plurality of tacit and explicit social worlds of the various communities involved. The intellectual capital of these 'knowledge cooperatives' is made coherent within the macro- and meso-level social worlds of the organisations in their environment because it tells a story. Thus, the public and private spheres, formal and informal, and the interacting communities of clients', suppliers', workforce and managers' threads and narratives coalesce in a coherent manner.

The walkback involves determining *as a team* the means by which the emergent scenario of the vision is to be achieved. While there may be a number of variations within any individual's conception of the team vision, rendering it more or less fuzzy as a concept, they begin to materialise it as team vision by *collectively* walking backwards. Mentally, teams retreat step-by-step through the stages immediately preceding the final vision of successful completion. This

reverse scheduling approach must be *actionable* within the team's resources, as well as achievable in a realistic time. The vision only became concrete and collectivised in the *team's* actions at the final stage — the walkback. When they reach their starting point, they made their visions more material and made it operational as a pathway. The walkback also serves to develop a holistic, *corporate* habitus in the performance or physical enactment within the specific organisational team/community of practice as they initiate its implementation. This is the opposite of attempting enactment of a fragmented and incoherent compilation of individual images and visions projected forwards.

## ***Conclusion: Integrating challenges and creating transferability***

Again, the complexity perspective offers coherence. Writers as diverse as Kauffmann (2004), from a base in evolutionary biology, Coveney and Highfield (1995), from the point of view of synthesising across arts and science disciplines, and Stacey (1996), from a post-chaos business perspective, converge in identifying new theoretical bases for twenty-first century research and practice. Confirming that synthesis as the new sciences of complexity, Lissack and Roos (1999) hold out the promise of those new sciences becoming 'the new common sense of business' (p. 13). In the examples cited above, I perceive the outline of a new praxis, which is in alignment with emerging theories of complex adaptive systems. Moving from the high theoretical ground, I have researched the practical ways in which team-based organisational structures are currently evolving offline, and the techniques that make them work effectively, as an attempt to identify the potential for creative integration of tacit and explicit knowledge, especially through stories in online (or partially online) virtual communities of practice.

In taking this approach I have built on Schon's (1995, p. 29) ideas on 'intuitive artistry' or the tacit 'kinds of knowing embedded in competent practice' and extend them in cyber-relations. While he didn't formally define it, Schon referred to the holistic, tacit knowledge practitioners apply in complex and uncertain situations (Schon, 1995, p. 29) and I have also looked to tools for mapping futures in multiple 'possibility space' (Eames et al, 2001). Schon emphasises that these processes do not solely refer to skills, but to 'intelligence-in-action', which includes recognition and judgement (Schon, 1995). In concurring with Schon's emphases, I advocate the necessity of taking account of such 'artistic' judgement through participants making creative contributions to, for example, scenario generation and adjustment so that

emergent learning is facilitated in leaders and teams in e-business environments in ways that endorse diversity and embrace uncertainty.

Returning to the paper title's metaphor of navigation, I conclude by revising the orientation tools I provided in order to relate metatheories from complexity to management praxis. I extended the normal scenario planning approach to show how it empowered virtual teams to consider plural futures in a cooperative and inclusive, rather than a divisively competitive, fashion. I advocated its deployment not for large-scale national strategy, but for practically enhancing the dialectics of individual and team agency. I elaborated the scenario planning compass's explicit recognition of multiple, possible end states through two further navigational aids. First, I codified largely experiential knowledge of hazardous and helpful currents across turbulent and peaceful times into communal maps through redeploying belief box techniques. Secondly, I took advantage of the potential for serendipitous branching out (Ciborra & Lanzara, 1994) liberated by both scenario planning and the sharing of tacit knowledge. It is precisely in the area of the generation of new knowledge and experience within teams that the complexity theory illuminates the 'dynamic affordances' embodied in the actual enactment of the storytelling process. I demonstrated how to operationalise this for individuals and teams, both virtual and actual, through adapting the walkback process. Finally, I contend that all of these can be combined to empower the working communities of practice through the 'sociable' (as well as merely 'social') transformation of teams into creative knowledge cooperatives. Moreover, these can be combined using virtual as well as actual social space in a manner that fosters the common capture and management of diverse intellectual capital and new organisational forms.

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