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# **MANAGING PARADOX IN A WORLD OF KNOWLEDGE**

*Peter Murphy and David Pauleen*

## **IDEAS PEOPLE AND SOCIAL CAPITAL**

In the 1960s and 1970s, advanced economies were propelled by the rise of the service sector. In the 1980s and 1990s, information and communication technology emerged as the leading sector of major economies. Today, the shift is toward the conceptual economy (Pink). While service industries attract low-wage workers and information jobs are moved off-shore, advanced high-wage economies are ever-more reliant on success in research-based knowledge industries (Florida). Those industries have not appeared overnight. Examples reach back into the nineteenth century. In the decades after the Second World War, however, they reached a critical mass (Bell, 1999). Systematic auditing and commercialisation of intellectual capital (IC) assets accelerated in the 1990s. Today, it is estimated that 20% of IBM's profits come from its patent licensing (Howkins, 108).

Research-based industries were the key to the most successful economies in the latter half of the twentieth century—California and Japan. California grew on the basis of research-intensive defence and aeronautical industries. Defence research incubated the information technology industry. Japan similarly grew its industrial infrastructure through heavy long-term investment in successful research and development. The crucial factor in each case was not simply the capacity to produce marketable goods and services, but also the ability to conceptualise technologies, systems, and designs—making possible new generations of goods and services, new kinds of industries and markets, and new kinds of jobs. This implied high levels of inventiveness and creativity.

The core of research-intensive organizations is intellectual capital. Today in some of the most valuable businesses in the world, intellectual capital assets have grown to the point where they are as economically significant as a firm's physical assets (Stewart, 1997, 2003; Roos et. al., 1998; Sveiby, 2000 Bassy & Van Burn, 2000). Such firms consequently spend a good deal of their time producing concepts. The first life of concepts is as sketches, spreadsheets, reports, analysis, assessments, designs, and inventions. Concepts are embedded in patents, models, computer and business and administrative systems, brand and trade names, images, plans, documents and books. Conceptual work is primarily done in a handful of IC-rich regions almost exclusively concentrated in nodal areas in North America, East Asia, Australasia, and Europe. In their second life, conceptual ideas exported or disseminated from these regions provide the basis for manufacturing, building,

coding, and service delivery elsewhere. What is exported or disseminated are the visible artefacts of invisible thought—images and plans, diagrams and documents. The foundation of intellectual capital is the creation of pattern-ideas capable of reproduction elsewhere (Murphy, 2005b).

Much IC is informal. Some of it circulates in and between organizations. Some of it circulates in the public domain. Some of it is formalised and privatised, and registered as intellectual property (IP). One pointer to IC-intensive societies is the level of intellectual property that they possess. Formal IP assets are increasingly audited by companies, institutions and societies as their significance as economic drivers or economic indicators has become better understood (Burton-Jones, Howkins). Rents reaped through the reproduction of concepts (e.g. via franchising or licensing) yields massive economic value. In other cases, conceptual artefacts (e.g. architectural plans) produced in one location provide the basis for economic or social activity elsewhere. Factories designed in one country are built in another country.

Intellectual capital is terrific to work with. It doesn't pollute, degrade, or break. These days it is also easy to store and retrieve, thanks to information technology. It nevertheless does pose some interesting challenges. One specific challenge, discussed in this article, is that of ensuring the social foundations of intellectual capital production. Informal social networks are crucial for businesses or institutions that produce conceptual artefacts. These networks are a key to creating open systems which are essential for concept creation and development. Open systems break down entropic tendencies that afflict all organizations (Bertalanffy). They provide entropy-countering inputs of cognitive stimulus and creative energy. They deflect from the procedural routine that tends to wear organizations down. Thus social networks that cross the boundaries between organizations are important for the process of conceptualisation, the keystone of conceptual economies and their intellectual property system.

The importance of informal social networks to intellectual capital generation is matched by the difficulty of initiating and maintaining these networks. There are various reasons for this. One is that managerial procedures in intellectual capital organizations (ICOs) are often difficult to reconcile with peer acquaintanceships, communities of practice (Wenger, 1999; Wenger et. al., 2002), and intellectual friendships (Murphy, 1998). These, though, provide the decisive milieu in which conceptual breakthroughs occur. The problem is not just that the formal logic of

organizations is different from the informal logic that underpins professional peer exchanges and intellectual social networks. It is also that social capital represented by these networks is difficult to create in the first place. The social networking behaviours of creative personalities are very paradoxical. They run hot and cold.

The philosopher Immanuel Kant once described the human condition as one of “unsocial sociability” (1970). This is certainly true of ICOs. The large body of evidence about creativity suggests very clearly that persons who are strong conceptual thinkers also have pronounced anti-social traits. Social hostility, aloofness, unfriendliness, introspection, irascibility, independence, and lack of warmth are commonplace (Feist, 273-296; Storr, 1972, 50-73; Cattell, 312-325; Ludwig, 46-47, 63-67, Henle, 45). These are by no means the only traits of creative personalities (Kneller, 62-68). Creative individuals as a type are also both humorous and playful in their exploration of ideas. Their thinking is fluent, flexible, and adaptive. They offer uncommon responses to problems. They are non-conformist and self-confident in thought. They are also persistent. They are patient in conceiving ideas and in executing them. But, for all of that, creative personalities are also very detached.

One researcher summed up 20 years of research data by saying that the creative individual has “little interest in interpersonal relationships, is introverted, is lower in social values [and] is reserved” (Stein, 59). Whether this is a matter of appearances, as Csikszentmihalyi (10) suggests, or whether it goes to the substance of the personality is irrelevant. In the language of service industry organizations, these people are not good team players. The fundamental reason for this is very simple. Ideas need time to develop. Anti-social behaviours are defence mechanisms that protect scarce time for concentrated thought from being eaten away. Time set aside for the ‘incubation’ of ideas is valuable and is always threatened by intrusions (Henle, 41; Wallas).

The thinking needed to develop ideas occurs in solitude (Storr, 1988; Piirto, 48-50). This is because it requires enormous concentration or absorption in a problem or a question (Heller, 1984: 57-58, 69, 87; Heller, 1985: 110). Distraction detracts from thinking. Focus, in reverse, excludes others. The person who thinks brings down the shutters to exclude the chatter and clutter of everyday social life. One of the effects of this bracketing is that, in thinking, the forward movement of ordinary time seems to be suspended (Maslow; Murphy, 2005c). Hence thought is often described in meditative or contemplative terms. Removing the jumble of everyday reasoning and

behaviour means that creativity, conceived as a personality trait, is strongly correlated with independence of mind. There is little empirical evidence to support the proposition that creativity can be successfully turned into a group procedure. Simonton (2000), for example, points to the failure of the popular industrial and business technique of group brainstorming. The equation of thinking and solitude may appear to stand in blatant contradiction with the proposition that IC creation is dependent on social networks. But in fact this is not so much a contradiction as an antinomy. Both propositions, though they contradict each other, are true.

### **THE ART FIRM**

The role of solitude in creation helps us better understand the peculiar nature of the social networks that underpin IC formation. We need to think of solitude as a social phenomenon, and solitary creation as a collective act. This is a paradox, but, as we'll soon discover, paradox lies at the heart of social creation. Solitude should not be confused with romantic inwardness—which it often is. Just as, in practice, moody self-absorbed individuals are rarely creative. Creativity is always an outward act. It involves social positing or objectivation. There is a very thin line between solitary conceptualisation and social making (Allen; Murphy & Roberts). Knowledge is always embodied in social artefacts—ranging from physical objects to information objects. Such objectivation means that knowledge is a social act. The paradox is that the first or incipient part of this social act is carried out in solitude. Its results are public, and a good deal of its maturation is subject to peer tests, but the nascent core of an idea takes shape habitually in some contemplative zone.

How then is the apparent gulf between the reflective self in solitude and the social acts of making bridged? The key to such bridging is the art institutions of a society. Art generates spaces of both retreat and publicity. This may be self-evident if we are talking about the creation of a painting. It is easy to see that the solitary work of a painter goes hand-in-hand with the collective domain of patrons, courts, galleries, exhibitions, and painters' circles. But it might seem on the surface of things unlikely that the aesthetic condition of collective solitude applies to the case of business creativity. Nothing, though, could be further from the truth. Knowledge creation per se, whether in the arts or science, technology or business, is strongly correlated with the institutions of art. Art intensive societies are also the societies with strong business and technology innovativeness. Take the case of Japan. There have been all sorts of

attempts to explain the power and innovation of Japanese industry. One of the popular explanations in the 1990s fastened on the thick social ties of Japanese companies (Nonaka, 1995). Their creativity was linked to their propensity to brainstorm, meet and consult with employees, departments, customers, contractors and bankers. Without doubt, lots of exogenous relationships are typical of creative environments. Yet, while exogenous social interaction is a necessary condition, it is not a sufficient explanation of creative action. This type of theory mistakenly assumes that creativity is a one-dimensional social process, whereas in reality creativity interpolates both the social and the a-social.

The simplest way of understanding this is to say that creative formation is an “aesthetic” process that requires both secluded reflection and public testing. Creativity is an act of retreat and return. Aesthetic processes take many forms. In many cases, the aesthetic process of creation has religious overtones. This is true of Japan. One of the key media of Japanese creativity is the powerful legacy of the heterodox, Taoist-influenced, Zen Buddhism. Zen has given rise to a pervasive “religion of aesthetics” in Japan. At the heart of Zen are meditative and aesthetic rituals. These emphasise escape from the “burning house” of mundane attachments. This is a condition of all creative action. Creation of any kind requires emergence out of the heterogeneity of everyday life into a homogeneous sphere of objectivation (Heller, 1984: 56-59). Homogeneity simply means the capacity to tie things together. Aesthetic-meditative discipline is one way of achieving such synthetic effect: it fosters the harmony of elements and ensures the integrity of parts of cognitive structures that are otherwise subject to pervasive internal and external change and fragmentation in the course of ordinary social life. Homogenization or holistic conceptualisation is fundamental to creative thinking. In the language of the Japanese tea ceremony, it touches order behind chaos (Fling). What creative action does is to unify elements that, at first glance, look hopelessly at odds—like the American inventor of the 3M Post-It Note, Arthur Fry, who took two seemingly contrary notions, the notion of a “weak bond” and the notion of an “adhesive”, and combined them to create an innovative and highly successful commercial product. Notably, he conceived this idea “outside” of his work, at his church choral group.

The religious-aesthetic realm, like the example of the church choir group, is a classic collective space in which the synthesizing or harmonizing function of the mind, essential to the creative act, is set in train. Heterodox religions seem especially

conducive to this process. The radicalism of the Taoist current, for instance, gave Japan's *geido* or arts-ways a highly charged edge, taking thinking into a very paradoxical realm. In this realm, the non-duality of objects and movement between them are simultaneously conceivable, just as there is an interpenetration and oneness behind the separateness and multiplicity of people and things. Arthur Fry probably would have been perplexed by the idea that Zen religious philosophy might explain his handiwork, but this is beside the point. What Fry did was to successfully marry contrary pairs. It doesn't matter how this process is described—as long as there are sufficient art-ways to induce the leaps that lead to such un-obvious but powerful pairings.

A small handful of societies, or rather social regions, have this grasp of paradox. If we ask ourselves why East Asia in the second half of the twentieth century emerged as an IC region, the answer is not that it shared Confucian culture, for much of China dominated by the Confucian legacy was not successful. Only certain parts of East Asia have taken off as economic powerhouses—Japan, South Korea, Taiwan, Hong Kong, Singapore, and the South Coast of China. What all of those parts share is a strong thread of Taoist heterodoxy. Love of satire, paradox and seemingly nonsensical stories, and a sceptical view of norms and rules, is crucial to all such heterodoxies (Murphy, 2003b). “Those who would have good government without its correlative misrule, and right without its correlative wrong, do not understand the principles of the universe.” This is a classic Taoist paradox. In the same manner, we can say that there is no social capital without anti-social capital—and indeed there is a strong body of evidence that demonstrates that social withdrawal and intellectual sociability go hand-in-hand. They are one of those paradoxical pairings that so often characterise creative endeavour (Storr, 1972, 188-201). Understanding such paradoxes means, in effect, accepting that one hand does clap. So that while everyday social relations may be unimportant to creative personalities, intellectual and professional friendships, “invisible colleges”, peer affinity groups, “communities of practice”, and the like, are crucial to creative work (Castells & Hall, 12-28; Saxenian; Ludwig, 61-63; Wenger; Lesser & Prusak). Friendships and informal milieu of this kind help test, shape, and tease out ideas in formation.

What follows from all of this is the paradox of “unsocial sociability”. In short, good ideas people are often “socially difficult” yet they do their best work with collaborators. Creative cohorts are filled with prickly or introverted characters that

ignore conventional social proprieties. Yet they often do their best work, or rather they move through a crucial stage in their best work, chatting over a coffee being pushed hard by a conversation partner. Peer interaction and cooperation is a key to innovative knowledge production. This is doubly true, and doubly difficult, when knowledge depends on cooperation between experts with different discipline backgrounds. The point of boundary-crossing between disciplines is typically the place where the interesting breakthroughs occur. But disciplines by their nature, just like organizations, tend to be closed systems.

### **INSIDE AND OUTSIDE**

For managers in ICOs, this presents a challenge. Crucial to their success is the ability to manage a paradox. They need to be able to facilitate social networks among unsocial people, and allow these contacts to develop across the conventional boundaries of systems. When people speak about intellectual peers being self-organizing, often what is meant is that they are good creating their own informal, ad hoc systems in between institutional systems. To complicate matters, collaborators are rarely to be found in the office next door. Intellectual capital pays little heed to physical location. The best knowledge is found in the heads of people scattered all around the world. This has been true since the emergence of modern science. The earliest science-based industries made good use of the letter. Henry Ford was a master of a learning loop that directed feedback from customers into the engineering design process. Car purchasers were encouraged to write to Ford's engineers to suggest design improvements.

Henry Ford's practice is a simple version of the general principle of conceptual innovation—it is driven by external relationships. The overwhelming majority of breakthrough research and development is the product of joint venturing by firms with outside partners. In sum, “the origin of major innovations is exogenous” (DeBresson et. al., 101) and industry interdependence is a key to a knowledge-creating economy (77). In spatial terms, innovative firms cluster. Examples of regional clustering range from the Great Lakes hugging Montreal-Ottawa-Toronto region in Canada, the Île de France around Paris, and Lombardy (“First Italy”) or the Veneto through Tuscany of “Third Italy”—depending on whether you are persuaded by DeBresson or by Piore and Sable. Like the coast cities of California, the Japan archipelago, or emergent innovation regions like the space-industry driven arc that

extends along the Gulf of Mexico from Houston to Miami (Kotkin, Starner), these are all highly trafficked zones—with a constant flow of people, goods or message in and out of them. At both the level of the firm and the industry cluster, the permeability of these regions is reproduced. Firm, cluster and region—each exhibits high levels of transactions across their boundaries.

Thus a condition of the success of an ICO is that the firms' core employees have extensive networks “outside” or “away” from the firm. This may partly explain the proliferation of alliance and strategic partnerships between firms in late twentieth-century advanced economies (Dunning, Dodgson). Many of these alliances have a strong technology focus and rationale. Alliance and partnership is not simply a way of marrying complementary strengths or achieving economies of scale but also of introducing “the environment” into “the system”—that is bringing the outside into the inside, which is essential to ICOs, because it is essential to conceptual formation. Innovation strongly correlates with “outsiders”—outside companies that enter a new region or managers who come into a company from the outside (Porter, 124).

ICOs bring the environment into the system in two ways. One is to send their employees away. They send them on the road or abroad, to go to conferences or to work with their peers in contracting or partner organizations on projects. The second way is to encourage core creative personnel in ICOs to spend time interacting and communicating at a distance with their peers, doing virtual collaborative work. Forms of virtual working in science have existed on a large scale at least since the seventeenth century. Today, the medium of e-mail and other information technologies has given new impetus to virtual working. But the logic of virtual working is old. The development of reliable postal services made it possible. The letter morphed into news-letter, and then branched into other forms such as the newspaper and the corporate news-letter. In the latter guise it became a key building-block of organizational communications. The postal service model has continued to exert extraordinary influence through to today. The British mathematician, Alan Turing, used the postal service model as the working metaphor when he conceived his architecture for computing. Concepts of “posting” and “addresses” became key ways of conceptualising information technology as a result.

Universities started to use information technology extensively in the 1980s. Business caught up in the 1990s. Collating expertise across the world has quietly become pervasive, but with all success stories comes certain difficulties. There is a

strong correlation between virtual working and creativity (Murphy, 2003a). This is because conceptualisation first requires those involved in conceptual thinking to strip away the distractions of everyday life (Heller, 1984: 56-58, 60-113). Conceptualisation involves focus on one thing (e.g. “solving the problem”). It requires “immersion” (Henle, 43) in thought to the exclusion of other demands. Social and organizational rituals are sacrificed as a result. This often works best where correspondents are not in physical contact and are not bound together by local attachments. Even when they know each other, they are still strangers to each other. What follows from this is that the forms of their communication and interaction are “abstract”. This does not preclude friendships but the friendships are intellectual-social rather than being ritual-social. This distinction is a subtle one, but it is important. Intellectual friends relate through the excitement of shared ideas (Murphy, 1998). It is in such an atmosphere that concepts and intuitions and imaginative ideas develop best. In contrast, organizational ties reliant on the time-punctuating moments of social-ritual occasions and meetings detract from the intense focus of creative personnel. In any communication between people who know each other in an organization, personal influence and social status has the upper hand. In contrast, virtual communication between those at a distance dissipates the power of personal influence and status. In such communication and interaction, abstract principle and intuition is more important. The tacit processes of abstraction and intuition are powerful drivers of concept formation.

### **CORRESPONDING AND BONDING**

Much of the success of modern ICOs relies on relations between people “who are not there”. There is some evidence to suggest that an organization filled with people “who are not there” is more likely to succeed than one which is not (Burton-Jones, 159). However, having said that, getting people with knowledge to collaborate is tricky. The mechanisms for achieving this in face-to-face situations are reasonably well understood. We know that people like to travel to workshops and seminars. We know that without “third places”, such as coffee bars, Silicon Valley would never have developed (Castells & Hall, 12-28; Saxenian). Such places encouraged the social-professional interaction of engineers, programmers, investors, and the like. There is a fairly long history of the social-anthropological investigation of third

places. It is clear that such places have been essential for the success of business districts in places like Manhattan (Whyte).

In a more global sense, evidence strongly points to a close connection between knowledge creation and the built environment, especially of the city (Allen; Csikszentmihalyi, 139-140, 128-129; Murphy, 2001). It is less well understood the ways in which socially-based knowledge exchange and production occurs in virtual environments, though there is no doubt today that electronic mail plays a key role in this process. It is surprising how little attention has been paid to the way that correspondence works in expert organizations. There is a long history of scientists and artists using letters to develop social and intellectual bonds (Boorstin, 386-394). But even personal experience tells us just how often such relations misfire. When they work, they can be marvellous, but getting them to work is difficult.

When all is said and done, ICOs are built around correspondence. E-mailing is letter writing. All of the bells and whistles of audio and video don't change this fact. We know that letter writing is as much a social as a professional and intellectual activity. We know that correspondence can produce powerful social-peer relationships amongst knowledge professionals and creative producers. But we also know that there are numerous instances of virtual transactions in knowledge organizations failing miserably. Technology plays its part in the failures. Mediating communication through machines eliminates some of the flexibility and nuance of face-to-face interaction. But this loss can be over-estimated. The more potent reason for the failure of peer relations is the "unsocial sociability" of knowledge work. Technology solutions might be helpful, but the real art of enabling intellectual peer relations on an organizational level lies with management. ICOs need management styles that cope with the paradox of the "unsocial sociable" employee.

Take the case of a consultancy business. Its *raison d'être* is to create concepts that others will apply. The kind of knowledge that a consultant or an analyst deals with is on the whole quite abstract. The best of it will have a high innovative component. Yet the process of knowledge production in practice requires a lot of "bouncing off others". It is a curious mixture of the reclusive and the social. Analysts need time alone. They also need the resistance of others to sharpen their ideas. Multi-disciplinary reports draw on solo expertise but also require professional diplomacy to make each part fit with the others. Investigators have insightful judgments but they also have to talk to the object of their inquiry. Ways of editing and presenting

information with flair and impact invariably reflect a personal voice, and yet they also have to be tempered to suit organizational templates.

The paradox of “unsocial sociability” extends to the relationship of creative labour with partners and clients. Intellectual capital generation has always been, and continues to be, concentrated in a relatively small number of geographical regions and cultures (Murray; Murphy, 2005d). The growing propensity today to export intellectual capital from these regions to the rest of the world exacerbates the inherent tensions in the relations between conceptual producers and consumers. Export increases the incidence of tensions between the “unsocial sociability” of creative workers or ICOs and their partners or clients whose sociability is more “social”, more ritualised or more politeness-driven. This can be an explosive mix, or at the very least perplexing for parties on both sides of the divide.

These tensions are mapped onto the cultural geography of the world. For instance, the assertiveness of an emergent intellectual capital nation (ICN) like Taiwan creates uneasy relations with its larger neighbour, mainland China. Outside of its south coastal region, e.g. Shanghai (Lee), arts or science industries have not historically been a feature of the Chinese economy. On a deeper level the two China divide is symptomatic of the gulf between the heterodox Taoist business culture and the orthodox Confucian managerialism of Beijing. This gulf replicates a common divide in the history of business culture. Heterodox business cultures tend to be holistic, intuitive and visual. Orthodox cultures in contrast lean toward sequential, analytical, and verbal (or literary) styles. In terms of concept formation (the foundation of conceptual economies), the former (the intuitive) is much more important (Murphy, 2005c; Pauleen & Murphy, 2005). Tacit-holistic-intuitive-figurative-visual thinking is highly correlated with creative acts of whatever kind (Miller, 1986, 2001; Ferguson, 1992; Arnheim, 1976; Wertheimer, 1982; Finke, et. al. 1992; Finke, 1990; Castoriadis, 1998). Highly innovative intellectual capital formation relies heavily on intuitive abstraction and figurative imagination. The heterodox-intuitive side of the heterodox-orthodox pair of cognitive styles is crucial to the processes of form generation that underpin intellectual advances.

Conceptualisation means something very simple. It is the ability to create structures without relying on rules or codes. We give various names to this ability. We call it thinking, creativity, research, development, design, and so on. Each of these names is inadequate in some respect. The most common way of creating order

without rules is through the formation of concepts. Concepts emerge on the back of visual or kinaesthetic or audio patterns. This is why “fluency” correlates strongly with creative personalities (Guilford, 145). Fluency is the capacity to produce words each containing a specified letter or combination of letters. What at first sight looks like a rather obscure aptitude turns out to be an indicator of pattern recognition competency. In contrast to patterns, language is always a secondary process in concept formation. Language follows endoconceptual intuitions (Arieti, 37-65) or preverbal tacit knowledge (Polyani). The most powerful endoconcepts are emergent patterns—such as symmetry. Emergent patterns drive concept formation—for example, symmetry morphs into the symmetrical columns of a table. Once we have a concept, we can turn that concept into rules or codes. But we cannot produce concepts (“good ideas”) from rules and codes.

A simple example may help to clarify this. A timetable is a code. Children are taught to “break” the timetable code. To do this, they learn the rules or regularities in the way a timetable sequences and correlates places and times. The first timetable, though, was a conceptual innovation. The organization of space and time-related data into a table structure was a conceptual breakthrough. Without a doubt, as modern economies have moved from industrialism to post-industrialism, demand for tabulated information has escalated. The corresponding creation of database technologies, including the web-enabling of databases, was a re-conceptualisation of the table idea. In contrast, the effort required in order to migrate all of the world’s tabular information into database and web form requires little conceptualisation and a lot of routine data entry and manipulation of rules. At this point, conceptual innovation declines, the role of coding rises, and the standardisation of products and codes takes over.

The division between information and conceptualisation replicates itself on a global level. Take the example of a company like Versaware Technologies Inc. which converts books to data text files. The firm employs 700 people in Poona, India. They convert 20,000 books a month. But parallel with its conversion operation, the company has a marketing office in New York City and a research lab in Jerusalem (Howkins, 192). Information technology and telecommunications makes such arrangements increasingly feasible. The notion of a global division of labor between codes and concepts is another way of thinking about this. A US company that produces factory templates for roll-out in China will not just manage projects from the

home office (Siddens). It will set up an office in China—to deal with local codes and regulations. Even when it does this, notably it will choose the cosmopolitan, IC-rich centre of Shanghai from which to operate. In measures of IC concentration, Shanghai is even further removed from provincial China than New York is from Arkansas. There is a persistent rule-of-thumb: IC concentrates.

### **POLARITIES AND PARADOXES**

While today advancement of the sciences and the arts is routinely praised for its importance, the consequences of progress in the arts and the sciences also cause deep-felt social anguish. Most societies for millennia have reproduced themselves through rote learning. This learning emphasises familiarity with codes and rules. In a world of knowledge economies and knowledge management, these societies are confronted with subtle but intense pressures to shift gear. The fact that conceptual development is the creation of structure without rules or codes has an enormous corrosive effect on things like social norms and organizational procedures. Knowledge often flourishes best under conditions of anomie. Knowledge producers are often highly resistant to both social codes and institutional procedures. This is consistent with the nature of knowledge at its most creative. Creative knowledge produces structure without rules or codes or norms. Sennett (2000) has suggested that correlated knowledge industries corrode human character. There is some element of truth in this, but, equally, creative knowledge produces its own kind of human bonds. Aesthetic qualities—like beauty, form and elegance, or architectonic design and immanent order—tend to take replace norms and rules as the media of interaction and communication (Poincaré, 85; May, 124-140; Gruber). The former are tacit (“silent”) where the latter are explicit (“noisy”).

The success of knowledge firms, it has been observed, rests on their capacity to capture tacit knowledge (Nonaka & Takeuchi). This is true—though exactly what constitutes tacit knowledge is debatable. Nonaka, for instance, suggested that tacit knowledge in firms was best captured by fraternising, socializing, collective brainstorming, and informal dialogues. The frequent meetings, chats with customers, and the intense social life of a Japanese company, he thought, were ideal for this. But it is doubtful that this explains the long-run innovative capacity of Japan’s economy. In fact it is doubtful whether meetings or socialising on an intensive scale are peculiarly Japanese corporate traits, or, more importantly, that such activities are

positively correlated with high-level innovation. They may just as likely be a symptom of entropy. Socializing and chatting will produce observations and understandings that no documented process will ever capture. But it is not clear that this is the source of major creative leaps. The most powerful evidence that we have is that creation has an “aesthetic” source. Sociability, especially across organizational boundaries, plays a role in this, but the dynamic of sociability under aesthetic conditions is very peculiar. This is true irrespective of whether we are talking about creation in the arts or sciences, in the self or in society. Japan is a very good example of this in practice.

Peter Drucker (1981) observed something very interesting about Japan. It is a society built on tense polarities. Thus, while it is a society that admires strong institutional consensus, it also has a long history of ruthless economic competition and militant, even violent, industrial relations. It has seen purist Shintō fascism coexist with tranquil Buddhist pacifism. It is a leading capitalist nation with a prolonged tradition of socialist parties. Drucker’s point is that the tensions of Japanese society are polarities, not contradictions. If these were contradictions, they could be resolved one way or the other. Observing this, Drucker makes the crucial point: one should not expect radical polarities of this kind ever to be overcome. Versions of them will coexist in perpetual tension. This is an important observation because it goes a long way to understanding why Japan is a creative society. Like creative personalities, creative societies internalise deep, unresolvable polarisations. That’s the source of their creativity. Such polarities would be self-destructive were it not for the power of aesthetics. Whether we are talking about the self, the firm, or society, creativity is characterised by the capacity to combine opposites (Ward et. al, 45-50) into schemas and models (50-56). It is art (the art of fine arts, the art of science and technology, the art of aesthetic rituals, the art of the firm) that produces the schemas and the models. In the aesthetic act, in the quest for beauty (from the beauty of landscape to the beauty of the machine) polarities are combined, scaled, and integrated but are never overcome. That is why societies that are creative internalise high levels of paradox. They appear to others, and sometimes they appear to themselves, to be enigmatic.

The condition of paradox is captured beautifully by Hakuin Ekaku (1686-1769) the Japanese Zen master (Drucker). Ekaku was asked how long it took him to paint one of his paintings of Daruma, the founder of the Zen sect. He is said to have answered: “ten minutes and eighty years”. This encapsulates the nature of creativity.

It runs both hot and cold simultaneously. Cold heat is what makes creative societies seemingly opaque. The Japanese, themselves, have a phrase for it: “We Japanese”, meaning that outsiders will never understand the Japanese, which may be true. But this phrase may be equally well applied to any IC-rich society. “We Americans” is equally plausible. As Drucker seemed to suggest, one should not try and understand such societies as if they made “logical sense”. This just leads to misunderstanding. Creative societies are riddled with paradox, polarity, and heterodoxy. This is true whether we are talking about the Sufis of modern Jeddah (Schwartz), Taoist Taiwan, Zen Japan, Whig England, Deist America or Sceptical Australia (Murphy, 2001, 2003b, 2005d). To “read” such societies as if one were reading a book is self-defeating.

As Drucker suggests, the best way of figuring out a society of paradox is through its arts. Art in the broadest sense, the power of beauty, produces the tacit knowledge that allows structures to be created without rule and codes. No wonder then that art-ways (*geido*) permeate Japanese society and business—and have done so for centuries. No wonder also that aesthetic “association” is a key kind of social networking in all IC-rich societies. Without art-ways, there is no knowledge society. Robert Putnam’s famous example of the choral society providing the invisible glue—the social capital—cementing innovation-rich “Third Italy” is typical of IC regions generally. Putnam thought that the voluntary association of the choral society was the key driver of the wealth of “Third Italy”, just as Francis Fukuyama thought that the quasi-involuntary group membership of Japanese society was the key driver of its wealth. Both focused on the question of membership, rather than on the more important question of “the membership of what?”. In this case, the “what” that counts is participation in an aesthetic discipline. The particulars of how a society defines aesthetic discipline vary enormously. It is enough, for a creative economy, that there is widespread participation in aesthetic disciplines.

All aesthetic disciplines provide exercise in “harmonizing differences”—in homogenization, in making one out of the many. That is how beauty is created. It does not matter if the beauty is mathematical or machine beauty, the beauty of rhyme or the beauty of a vase, the beauty of the athlete or of the dancer. Beauty is the silent or tacit order that underlines what we do, what we make, and what we process. The tacit knowledge of beauty creates structure where there are no rules and codes. The ability to mobilise such knowledge has become increasingly a condition of successful

economic development. The fact that tacit knowledge does not rest on rules and norms, however, means that those who create it or rely on it appear to the rest of the world as very odd. Often, in contrast to the rest, knowledge societies appear to be variously critical, impious, disrespectful of age, dismissive of social ritual, aloof, conceited, or arrogant—the list goes on. Some of these accusations have substance. To dispense with normative codes has risks. Like anything, there are pathologies that can arise from this. Some knowledge societies at times have mistaken nihilism for the creation of tacit order (Murphy, 2005a) and rebellion for thinking (Bell, 1996). Nobody really likes knowledge societies: from the Venetians to the Scots, the Dutch to the Americans, the ancient Athenians to the modern Japanese, they are often unpopular, even pointedly loathed. This is difficult to avoid, for their attachments are always detached. Their heat is cold. This social ambivalence is reflected at an individual level in the paradox of “unsocial sociability”. Conceptual work is intensely solitary yet necessarily social. As Kneller put it, imagination produces ideas, judgement communicates ideas, and creation requires both production and communication (59).

#### **“TEN MINUTES AND EIGHTY YEARS” MANAGEMENT**

Compounding the difficulties of managing the process of creative labour is an additional paradox. The social capital that researchers and analysts and the like develop is generated by successful peer relations. But organizations, even supposedly flat ones, are hierarchical. Conceptual workers, even when they put aside solitude for peer activity, are often impatient with the demands of procedural hierarchy, best symbolised by form filling. Creative peer work in hierarchical organizations generates its own set of paradoxes and tensions, which managers in ICOs must deal with.

Managers find themselves in an intrinsically difficult position to deal with these tensions. Management is hierarchical, yet managers in ICOs manage people who do their best and most productive work through self-organizing peer networks. Just as the sociable and the unsociable must be reconciled, so must hierarchical and peer organization. A precarious balance between the formal and the informal, the free-wheeling and the procedural, the horizontal and the vertical has to be struck. For every network of peers, there will be an organizational tree—and vice versa. The problem is not that these things exist, but rather that they have to be integrated and reconciled. This is the difficult part of the art of management in the age of conceptual

economies. It requires a class of managers who can bridge between “two cultures”—one going “up-and-down”, the other going “across-and-around”. This is the age of the tangential manager.

The need to bridge between the twin paradoxes of the social and the anti-social, and the procedural and the informal, places complex demands on managers. A classic example is how to respond to employees who decide “not to speak to others”, who choose for example to ignore email requests. The act of not speaking to others may be a defence of their time; it may symbolic defiance aimed at hierarchy. Such problems are typically exaggerated in virtual environments where knowledge management takes places across time and space, and crosses over organizational and cultural boundaries. The intensive, and often exclusive, use of ICT in knowledge collaboration and communication further magnifies the effects of reluctant and resistant institutional actors.

Hierarchies intimidate or annoy peers. One strategy managers adopt to placate ruffled peer feathers is to act as a buffer between superiors and peers. A classic example is the middle manager who works hard to keep senior management informed of progress so as to abate their anxieties.<sup>1</sup> The intent of this is to reduce senior management’s unwarranted interference with peers, and any resulting spiralling up of peer hostility. The paradox of this strategy is that the manager ends up asking for endless reports on peer progress—having the effect of bringing hierarchy into the world of peers. Having done that the manager will encounter the peer who won’t cooperate with this. Sometimes the uncooperativeness is deliberate, other times it arises from the simple difference in nature between hierarchical procedure and the informal society of creative peers.

Silence is a typical form of non-cooperation. Often it takes the simple path of refusing to respond to reporting demands. What does an ICO manager do when emails that have repeatedly been sent to one of their consultants are just ignored by the employee? The manager telephones, only to hear the explanation “Well, I’m a Yorkshireman, and we go quiet when we are thinking.” The irony is that the manager is trying to protect the consultant from the potentially imperious demands of senior management by penetrating the shell of solitude (Storr, 1988) that the peer-consultant

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<sup>1</sup> This example draws on observations by Pauleen in his 2001 study of a classic ICO, an Australasian consulting firm using a multi-national project team to deliver a study report for an institutional client in Thailand.

needs in order to do core thinking activity. The employee is protecting precious time for thought, the manager is protecting the employee, and both are working at loggerheads.

Free time is the most valuable resource for creative work. But free time is scarce. It is not as scarce as it once was, but it is still not easily secured. In an ICO firm or laboratory, around 20% of creative work time is free time. Major innovations like email and the web were created by individuals (Ray Tomlinson and Tim Berners-Lee) doing unofficial experiments on “company time”. In top-class research universities, free time rises to about 30% of working time. In obligatory time, time is measured and metered by managers (Burton-Jones, 28-29). In free time, there are no deadlines (except for self-imposed ones). This is good for conceptualisation by virtue of its nature. Rule or code-based activity can be segmented and adapted to deadlines. The visualizations and figurative work typical of conceptual innovation can't be. ICO firms, laboratories, and universities uneasily straddle between the codified and visualised (Csikszentmihalyi, 132-133). There is no simple way of escaping this precarious straddling. The old division between the flux of time and the timelessness of creation reasserts itself here in a prosaic and intractable fashion. Some things need to be done “now”, but the most unexpected and most interesting things are done outside the pressures of “now” (Csikszentmihalyi, 121; Murphy, 2005c).

The impulse of creative persons is to side step “now time” for free time. Organizations respond to the contrary. They fear employees shirking and slacking. Accordingly, they monitor input (effort) and output (timely production). Dreaming is for night time. The act of monitoring works quite effectively for codified production but not for uncoded production. For one thing, it is difficult to monitor something that does not exist yet. For another thing, monitoring assumes that employees are “there” but creativity assumes a workforce that is “not there”. At the same time, there is strong evidence that the most creative people work very hard, work very long hours (Csikszentmihalyi, 58-59, 83), and are very eager to work. But they also do so in unprocedural ways. They work anti-social hours, and they work in boom-and-bust cycles, and often away from the office. Idling is often a prelude to creative bursts (Csikszentmihalyi, 221). In periods of peak creation, they work with the kind of concentration that excludes colleagues, that looks and sounds rude, and that resists all distractions—not least calls on them to be metered, monitored and measured.

There is no direct route out of this paradox. Indeed there is never a direct route out of any paradox. Managers and the core creative employees in intellectual capital organizations require distinctive skills and mental habits to deal with the issues that these powerful and productive paradoxes generate. Managers in ICOs cannot effectively deal with work processes using the traditional management technique of the service organization (the team) or of information technology organization (the project group). In the emergent age of conceptual organization, new kinds of coordination and reflexivity are essential. The art of living with paradox is one of them. It is the art of learning to do something in ten minutes and eighty years.

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