

**CULT**

**IT**

by

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‘Technology is the campfire around which we gather.’

- Laurie Anderson, in *Wired*, January 1998.

‘Everything is very simple in War, but the simplest thing is difficult. These difficulties accumulate and produce a friction which no man can imagine exactly who has not seen War.... in War, through the influence of an infinity of petty circumstances, which cannot be properly described on paper, things disappoint us, and we fall short of the mark.’

- General Carl von Clausewitz, *On war* [1832], Penguin Classics, 1982, Chapter VII, ‘Friction in War’, p164.

# Introduction

**In August 1998, a British GP implanted, using a local anaesthetic, a chip underneath the skin** of Reading University cyberneticist Professor Kevin Warwick. The chip will open doors for Professor Warwick at his office, and switch on his computer when he gets close. Placed in his left forearm, the chip is held in a glass phial 250mm long and 60mm in diameter. <sup>1</sup>

Britain's artistic community, and its legion of body-piercing youth, didn't rush to acclaim this news. Still, Information Technology (IT) – for the purpose of this article, any combination of Computers, Telecommunications, Consumer electronics and audio-visual Content – is already under their skins.

Since Eduardo Paolozzi first fêted it in the 1960s, American electronics has fascinated the occasional European artist. In the 1970s, Roxy Music's Brian Eno, for example, played an international role in popularising the computerisation of music. <sup>2</sup> In recent years, however, visions of the future of the arts have been more and more digital in character. Overtly, if more usually covertly, the suggestions are that IT

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<sup>1</sup> Nigel Hawkes, "‘Professor Cyborg’ opens a door on the future", *The Times*, 26 August 1998.

<sup>2</sup> See Brian Eno, Russell Mills and Rick Poynor, *More dark than shark*, Faber, 1986.

- 1 *ushers in a new kind of knowledge-based, networked society* – one which heightens the status of signs, symbols, intellectual creativity and the arts
- 2 *puts mainstream entrepreneurs and multinational corporations in the culture business*. Their screens need illuminating by designers and, ultimately, by artists<sup>3</sup>
- 3 *allows cultural production and creative industries to become more entrepreneurial*
- 4 *fundamentally transforms the basic working materials of the arts: Time, Space, Identity and Play* –<sup>4</sup>

In this pamphlet, I challenge the unrecognised hold which such digital visions have over the arts. The challenge is mounted not so much by addressing artistic issues as by exploring what difference the digital way of life has made to business. I make no apology for this device, for the striking thing about most cultural commentaries about IT is how little they understand of its practical use in business.

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<sup>3</sup> Industry needs ‘a constant source of original and innovative ideas’ from artists, a conference of artists and telecommunications managers agreed last year in Souillac, France. See J Barton and D Foresta, *The Souillac Charter for Art and Industry*, France, July 1997 (<http://www.cicv.fr/citoy/souillac/charte/pregb.html>).

<sup>4</sup> On the transformation of time and space, see for example Scott Lash & John Urry, *Economies of signs and space*, Sage, 1994, and Manuel Castells, *The rise of the network society*, Blackwell, 1997.

Business remains the principal field of deployment for IT, and conversely supplies it with most of its high priests. While the arts have yet to make a fully-fledged cult of IT, business has already done so. And like all cults, the corporate vision and use of IT has some disturbingly irrational aspects to it.

Despite or perhaps because of the corporate's world's IT cult, IT is regarded as empowering the arts. Most of Britain's 25 000 crafts firms have computers. From digital film and TV production houses in Soho, through computer-aided set design in the theatre, to youthful millionaire inventors of videogames in Manchester, the claims made for IT paint it

1. as a *commercial tool* for 'improving the productivity of the artist'. Here IT speeds the production of artefacts or their later sale on the market. It is a means of doing business
2. as a *creative tool* that allows the artist to 'capture... a portion of the creative process'. Here IT helps the artist borrow from others, or directly originate change in, the design and machining of media as varied as textiles, wood or stone
3. as a provider of 'forms of expression that were previously unavailable' – in other words, as a *creative medium in its own right*.<sup>5</sup>

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<sup>5</sup> Quotations from Raymond Kurzweil, *The age of intelligent machines*, MIT Press, 1990, p373.

Michael Dertouzos, director of MIT's Laboratory for computer science and one of America's best writers about IT, argues that the 'Information Marketplace' will bring to art four distinct dynamics:

1. the *simultaneous involvement of several senses and muscles* through visual and auditory immersion, haptic interactions [combining manipulation with touch sensing], temperature changes, and controllable smells
2. *advanced forms of interactivity*, on the part of the individual art viewer and of larger audiences, with the art
3. *group play*, by audiences, with the art and with members of the audience
4. the *democratisation of art*: 'Suddenly, all the world's art will be available to all the world's people', while at the same time 'neophytes will also want to expose their creations to the global audience. The costs for mounting an exhibit on the Web will be from 10 to 1000 times cheaper than today's cost of renting a small gallery or exhibition hall.'<sup>6</sup>

To be fair, Dertouzos has his doubts about the popularity of (2) and (3) above – popularity either with the masses or with artists. Nevertheless, the benefits of IT to the arts are held to be not accidental, but epochal.

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<sup>6</sup> Michael Dertouzos, *What will be: how the new world of information will change our lives*, Piatkus, 1997, pp76, 150-7.

IT itself is often regarded not as technology, but as politics. How ? In the sense that, like Dertouzos, most commentators believe that IT is, in potential at least, intrinsically *democratic*. Thus, in matters of culture, IT ‘can help citizens break the monopoly on their attention that has been enjoyed by the powers behind the broadcasting paradigm – the owners of television networks, newspaper syndicates, and publishing conglomerates’.<sup>7</sup> Similarly, at a local level, IT will, we are told, play a full part in the revival of urban culture, even as it erects new, virtual communities bound not by geography, but by shared pursuit.<sup>8</sup>

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<sup>7</sup> See Howard Rheingold, *The virtual community: finding connection in a computerized world*, Secker & Warburg, 1994, p289. Rheingold believes that the potential of IT is qualified by the fact that it tends to commodify public discourse, lend itself to surveillance applications, and create a fake world of the ‘hyper-real’.

<sup>8</sup> William J Mitchell, *City of bits: space, place, and the Infobahn*, MIT Press, 1995. Karlsruhe city council and the state of Baden-Wurtemberg, for example, have since the mid 1990s run a Centre for Arts and Media Technology. It seeks to commercialise computer-based music, animation and performance arts.

The arts argument for IT is not just political, however. For boosters of IT,

1. a 'weightless' *economy* highlights the value of manipulating signs, symbols and image<sup>9</sup>
2. in terms of *demography*, today's cyber-youth, at least, have the cognitive faculties to do the required manipulation of symbols in a style appropriate to the New Age
3. above all, *Internet technology* has accelerated the development and universalisation of IT, and has therefore propelled the digitally-savvy artist to pole position. Through corporate Websites, IT can be said to force every company to lift the kimono, put on a show, and thus rely more on Britain's animators and designers.

It is all very ironic. Only yesterday, computers, IBM and satellite TV were excoriated by most European artists as American, depersonalising and encouraging of the couch potato. Today, by contrast, the interactivity of the Internet is celebrated. Britain's artists like to flaunt their IT credentials wherever possible. To know about IT is to be home-based, yet global; it is to be flexible in your work, which is taken to mean that the artist is more autonomous than ever before. It is to add a spirited, modern twist to the longstanding artistic drive to be *chic* in language, literature, dress sense, etc. IT, in short, has become for all artists a must-have fashion accessory.

Even more bizarrely, a niche market of 'digital artists' has emerged. Never mind the fact that an artistic discipline like photography, for example, has taken more than a century to become accepted as such. Never mind, either, that many digital artists might be described as failed traditional artists. No. Nobody wants to challenge the sudden emergence of digital art.

Though most artists continue with traditional art forms, cyber-art, if it exists, still remains separated from the mainstream, in a kind of feelgood ghetto all its own. As a creative medium in

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<sup>9</sup> It was Robert Reich who first turned the manipulation of symbols from a post-modernist's theory into respectable White House analysis. See his famous *The work of nations: preparing ourselves for 21st-century capitalism*, Knopf, 1991. On 'weightlessness', see among others Diana Coyle, *The weightless world: strategies for managing the digital economy*, Capstone Publishing, 1997. For a cautious view of the role of IT in growing weightlessness, see Danny T Quah, 'Increasingly weightless economies', *Bank of England Quarterly Bulletin*, February 1997.

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its own right, cyber-art is rarely compared with other kinds of art, and still more rarely *judged*. As such, it bears vivid testimony to the general prestige of IT in the arts.

My argument is that, if the affairs of business are anything to go by, this prestige is unjustified.

**A Voodoo  
Economics of  
the Virtual**

**In America, the bookstore chain Barnes & Noble** has a quarter of the market and runs 1000 outlets. Its 'virtual' rival Amazon.com has a three per cent market share and no stores. Yet while B&N is valued at \$2.5 billion on the stock market, Amazon is rated at \$6.4 billion.

For many, figures like these underscore the fact that today, bricks-and-mortar assets are no substitute for entrepreneurial brains able to take advantage of the Internet. In an influential article, Boston Consulting Group's Philip B Evans and Thomas S Wurster generalise the business world's euphoria about the new economics of information:

‘Where once a sales force, a system of branches, a printing press, a chain of stores, or a delivery fleet served as formidable barriers to entry because they took years and heavy investment to build, in this new world, they could suddenly become expensive liabilities. New competitors on the Internet will be able to come from nowhere to steal customers.’

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Beyond the selling of *books*, electronic commerce for *music CDs* in the USA is predicted to reach sales worth \$1.1 billion in the year 2002.<sup>11</sup> And here, too, the redundancy of physical capital compared with electronic versions of the intellectual sort appears to liberate the artist from many constraints. Thus, Creation Records' Alan McGee looks beyond e-commerce toward artists directly downloading their music on a mass scale – a trend begun in 1996 with the distribution, by David Bowie and N2K Inc, of 300 000 free downloads of a Bowie song.

In this scenario, *Business Week* argues:

‘What's certain is that artists will gain power, while record companies' huge assets and power bases in manufacturing and distribution, as well as relationships with retailers, will become less important’.<sup>12</sup>

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<sup>10</sup> Evans & Wurster, ‘Strategy and the new economics of information’, *Harvard Business Review*, September-October 1997.

<sup>11</sup> Jupiter Communications, *Music industry and the Internet*, New York, July 1998.

<sup>12</sup> ‘Net nightmare for the music business’, *Business Week*, 2 March 1998.

Equally interesting is the estimate of Esther Dyson.<sup>13</sup> Her vision of the future of work is one in which power passes from employers to employees (they are ‘better able to find new jobs in a fluid market’). And the fundamental talent in demand will be

‘creativity – whether artistic or intellectual. As the world becomes faster-moving, companies will stay ahead not with proprietary technology, but with a constant flow of new technologies and ideas....

‘The major business of business will be design – of new products, new processes, even new business models.’

In the cold light of day, however, IT cannot so easily be pressed into service as Liberator of the Arts. After all, as both Alan McGee and George Michael have found at the hands of Sony, whenever the entertainment industries are active in IT, an army of lawyers is on hand to protect intellectual property and copyright. The ubiquity of the Internet also means that government intervention, or, more frequently, aggressive ‘self-regulation’, now attends every aspect of the Web. And this legal background is more than matched by economic constraints.

When US investors bet as highly as they do on the future earnings of Amazon, that cannot be taken as meaning that the brains of the company are exchangeable with money now. What it means is that Internet-based firms engaged in Initial Public Offerings (IPOs) on Wall Street have, until very recently, become fashionable items to own bits of – like, for instance, land in Florida just before the Great Crash of 1929. A bet has been made not on creative talent, but on future earnings. Indeed today, as apprehensions grow about a collapse in the world economy, bets are being made less frequently. Both the volume and the value of hi-tech IPOs on the US market have fallen since 1996.<sup>14</sup>

It is true that IT lends itself particularly well to

\* *economies of scale*: it costs very little to copy that software program

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<sup>13</sup> Esther Dyson, *Release 2.0: a design for living in the digital age*, Viking, 1997, pp 8, 68.

<sup>14</sup> ‘A dip in the valley’, *The Economist*, 5 September 1998.

- \* what economists call '*positive externalities*': every new user of, say, the Internet increases its value to other users.

But these two truths are trotted out with such unerring regularity that our IT boosters protest too much.<sup>15</sup> Without exception, they are used to declare a whole new economic era based on IT.

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<sup>15</sup> The 'foundation' of *Wired* writer Evan Schwartz is: 'Since the Web is a fast-growing world of intellectual property that can be copied and downloaded ad infinitum, the Web's supply of resources will continue to soar past human demand'. See Schwartz, *Webonomics: nine essential principles for growing your business on the World Wide Web*, Penguin, 1997, p2. Similarly, *Wired* magazine founding editor Kevin Kelly argues – it is the second of his 10 'rules' for success with the Web – that each new member added to a network of n members adds to its value *faster* than the square of n, because of the many-way connections possible with online networks. In this way, Kelly proves himself more optimistic even than Robert Metcalfe, the founder of 3Com Corporation, who first valued the utility of a network by the square of its users. See 'Increasing returns', Chapter 2 of Kevin Kelly, *New rules for the new economy: 10 ways the network economy is changing everything*, Fourth Estate, 1998.

In this era, Stanford university professor W Brian Arthur tells us, enterprises in scarcity-based sectors such as ores, dyes, coffee – ‘commodities heavy on resources, light on know-how – still continue the 19th-century, ‘neo-classical’, perfect-competition economics of Alfred Marshall and others. As they expand, they are driven to use land that is less suitable than it might be, and so are subject to diminishing returns. But knowledge-based firms in the high-tech sector, and in IT in particular, have drawn alongside resource-based companies, and do not suffer from such diminishing returns. If their gismo is the right gismo, if their ‘killer application’ in software is the right ‘killer app’, it will set a standard. They are in ‘winner-take-most’ markets, and are subject to a magical economic effect: increasing returns.<sup>16</sup>

Now: the shift from analogue to digital technologies can indeed lower the costs of reproducing and transmitting an original work of art, and in this sense allow for more entrepreneurialism on the part of the artist. If an artist comes up with the right artistic gismo, the Net can indeed help popularise it and so help him or her laugh all the way to the bank. But to believe that the arts, like society, are poised to enter a digital era would be to indulge in technological determinism. After all, the Book brought economies of scale in production, and the Motorway positive externalities in use, long before the advent of IT.

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<sup>16</sup> See Arthur’s seminal article, ‘Increasing returns and the new world of business’, *Harvard Business Review*, July-August 1996. The point about networks as an increasing-returns means of diffusing killer apps is made by Larry Downes and Chunka Mui in *Unleashing the killer app: digital strategies for market dominance*, Harvard Business School Press, 1998., pp23-28.

Anyway, both the shift from analogue to digital technologies, and the marketing campaigns that surround the launch of art on the Internet, are expensive, not automatic processes. They involve a whole lot of creative effort beyond that of the artist.<sup>17</sup> Because of the 0s-and-1s nature of digital information, all IT systems have the *potential* to talk to each other. But to reap IT's strong scale economies and positive externalities is a tough call. It is to lay down new means of production and distribution, and also to devise software capable of integrating these means with old ones.

Mark well the latter point. Much of the future of IT over the next decade will revolve around building links between what corporations call 'legacy systems' data held in a variety of antiquated forms on a variety of antiquated equipment and the Internet. For as the editor of the much-respected techies' bible, *Byte*, has observed, 'radical net-computerists may want to start with a clean Web, but that's not likely to fly'.<sup>18</sup> In business, the vast amount of capital tied up in legacy systems cannot just be written off with a few lines of HTML. It is the same story in art.

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<sup>17</sup> In a relatively sober and pragmatic book, Tim McEachern and Bob O'Keefe rightly note that a woman craftworker in Vermont making decorated plates in special kinds of woods may use the Web for hawking her wares; but she 'doesn't have to sell directly, and the effort is obviously considerable. Successful [printed] catalogs specializing in craftwork abound. For someone wanting to be free of the time and travel commitment of craft fairs, E-mail seems to be a replacement burden.... [for artists with commercial problems] solutions may involve technologies other than, or in addition to, the Web'. See *Re-wiring business: uniting management and the Web*, John Wiley, 1998, pp12-13.

<sup>18</sup> Mark Schlack, 'Why interfaces matter', *Byte*, July 1998, p12.

Whatever the efforts of Bill Gates, or Chris Smith's public libraries, to digitise the world's best paintings, the planet's existing installed base of data, art and culture will continue to overwhelm that held on the Net for many years to come. To convert paper, canvas, sculpture and performance art into content for the Web is a daunting task at the technical level and at the level of resources. And to observe this is to say nothing about what these media can lose when translated to the screen, or about how Europe and the rest of the world lag behind the USA's love affair with Web, or about the fact that the penetration of the Internet into American households has itself begun to reach its limits.

So: the artist and the art consumer may believe that the costs of storing, processing and disseminating information tend toward zero. Yet between the two protagonists lie chip factories costing \$10 billion and up, submarine cables and satellite tracking systems, and a whole heavy infantry of systems integration firms with names like Cap Gemini and EDS. It is in this tangible, labour-intensive but often invisible domain that real wealth is generated.

As Computers link more to Telecommunications, analysts everywhere proclaim that data now circulates in seamless networks and that distance is dead.<sup>19</sup> They insist, too, that firms can nowadays gain sustainable competitive advantage not through technology (it's too easily and quickly copied), but only through 'knowledge management' – mobilising the intellectual assets of the workforce.<sup>20</sup> At the Massachusetts Institute of Technology, where they are *Inventing the Organizations of the 21st Century*, Thomas Malone and Robert Laubacher suggest that even the monolithic US auto industry has already moved toward a new economy of individual 'e-lancers' – one in which temporary, autonomous and self-organising coalitions of car designers and engineers become multi-millionaires overnight.<sup>21</sup>

These doctrines can only flatter the artist. They suggest a world of autonomy and creative freedom, in which Technology has oddly, but not a moment too soon, forced The Suits into valuing the insights and explorations that artists offer. But the real world of IT is very different.

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<sup>19</sup> Frances Cairncross, *The death of distance: how the communications revolution will change our lives*, Orion Business, 1997.

<sup>20</sup> Thomas H Davenport & Laurence Prusak, *Working knowledge: how organisations manage what they know*, Harvard Business School Press, 1998. See also Dale Neef, ed, *The knowledge economy*, Butterworth-Heinemann, 1998.

<sup>21</sup> In the US automotive industry of the mid-21st century, it is foreseen, 'while much of the venture capital goes to support traditional design concepts, some is allocated to more speculative, even wild-eyed ideas... A small coalition of engineers may, for example, receive funds to design a factory for making individualized lighting systems for car grilles...'. See Thomas W Malone and Robert J Laubacher, 'The dawn of the e-lance economy', *Harvard Business Review*, September-October 1998. Drawing on the Nobel prizewinning Swedish economist Ronald Coase, Downes & Mui write, in a similar vein: 'If firms increase in size until they reach the point where the next transaction would be just as cheap if done outside the firm, what happens when the outside world gets cheaper? The natural corollary is... the Law of Diminishing Firms: As *Transaction costs in the open market approach zero, so does the size of the firm....* The US Department of Labor is already predicting that by the year 2005 the largest employer in the country will be "self".' Op cit, pp42, 47.

Just a call to Britain's banks or utilities confirms that 'seamlessness' is no more a property of data networks than it is of Armani suits. Similarly, telecommunications have not so much abolished distance as enhanced the significance of transport. People are more interested in visiting far-away places, more able to plan their trips, and more able to work on the move.

Or take Knowledge Management. Chart 1 shows that forecasts for the future size of the world market for *warehousing* data are much larger than those for conducting *on-line analytical processing* (OLAP) of that data. *Mining data for insights*, and extracting patterns from it, is an even smaller affair.<sup>22</sup> OLAP and data mining among different *legacy systems* – databases held in a variety of old hardware and software formats – have been around for decades; yet suddenly, as 'Knowledge Management', they are given what *Information Strategy* magazine describes as 'a crass rebadging... which has inevitably both confused and irritated end-users'. Indeed, a business backlash against IT suppliers and consultants in the discipline has already begun.<sup>23</sup>

As for the 'e-lance' economy, it seems to exist more in the heads of MIT e-lancers than in reality. Its fundamental unit is 'not the corporation but the individual'. And the role of individuals ? To play their parts 'in shaping a network that neither they nor anyone else controls'. What freedom this is !<sup>24</sup>

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<sup>22</sup> Of course, companies seeking to learn something from their data, rather than just store it, may choose to conduct analysis and mining in-house, rather than on the open market. Nevertheless, the disparity in figures is striking, given the willingness of IT suppliers to help their clients 'outsource' everything.

<sup>23</sup> See Paul Tate, 'The knowledge backlash', and Andrew Bottomley, 'Jumping on the Bandwagon', *Information Strategy*, July/August 1998.

<sup>24</sup> Malone & Laubacher, op cit. Note that, in this vision, corporations have no control the Internet. We are left also to believe that they will exercise no control over American society.

For artists to value the freedom of the artist is not new. What is new is that a voodoo economics of the virtual claims to do the same. Similarly, business is now in a mood to value artists even if it would, as ever, rather avoid paying for them.

Artists are right to notice this mood. But it is not IT and the knowledge economy that has thrust business, arms flailing, into the cockpit of culture.

# **The Cult of E-commerce and the Crisis of Content**

**Why does business now need culture ? Because it lacks creative direction.** Because it has proved itself less and less able to deliver thoroughgoing innovations in the realms of strategy, production, and Content. Finally, business feels it needs culture because it fears losing touch with audiences that are more fragmented than in the past.

IT is a part of business. As a result, the IT world feels as much in need as culture as the rest of the business world. Why ? Because new Content – Content which provides corporate or consumer users of IT with real value and meaning – has yet to be developed successfully for the Internet. Instead, frustrations have been eased by a lurch into the *trading* of *old* Content at a distance. *What artists can learn from the current evolution of the Internet is that, for a long time to come, e-commerce, electronic sales, dealers, transactions and online markets look like prevailing over the generation of new Content.*

That fact is worth remembering. After all, Peter Mandelson used the occasion of his first speech as trade and industry secretary to pledge that the UK would by the end of this Parliament ‘be globally recognised as the best environment in which to trade electronically’.<sup>25</sup>

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<sup>25</sup> ‘Mandelson vows to make UK a top player in electronic trade’ *Wall Street Journal*, 10 September 1998;  
‘Mandelson plans electronic commerce ???’, *Financial Times*, 10 September 1998.

At first sight, there does not appear to be a crisis of Content in IT. As noted by Reinier Frans de Bruïne, director of DGXIII/E (?????) at the European Commission, 'Content represents an industrial sector of primary importance when compared with the Computing and Telecoms sectors, traditionally considered as the building blocks of the Information Society.'<sup>26</sup> Chart 2 supports this. Again, according to Forrester Research, Americans responsible for building *content for the Net* generated a small but healthy \$5 billion of revenues in 1996, itself more than a third of the US 'Internet economy'.<sup>27</sup> By the millennium, Forrester predicts, revenues from the US Content industries working around the Net will have grown by a factor of seven.

But here's the catch about Content for the Net. Forrester predictions have it that *the prodigious growth in Internet Content will itself be dwarfed by the growth of business-to-business transactions on the Net*. At \$66 billion in the year 2000, these will be worth double the market for Content for the Net, and will themselves take the top third of all the \$200 bn revenues that surround the Net.

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<sup>26</sup> Reinier Frans de Bruïne, 'Publishing and the Information Superhighway: the European Commission's Perspective on the Information Industry in a new century', paper to a *Financial Times* conference on 'A new century in publishing', 5-6 November 1997.

<sup>27</sup> See <http://www.forrester.com>

Of course, Forrester's upbeat forecasts for the Net need not be taken too seriously. The whole field is beset with wild predictions: Forrester's estimate for total e-commerce in the States for the year 2002 – \$327 billion, or 2.3 per cent of US GDP – has been endorsed by Clinton, only for it to be held a double or triple underestimate by Nicholas Negroponte, chief of MIT's Media Lab.<sup>28</sup> Not to be outdone, Forrester CEO George Colony has recently countered that e-commerce will, by 2005, be worth six per cent of US GDP....<sup>29</sup> Yet whatever the outcome, the way in which electronic invoices between firms are poised to overtake the creation of Web Content certainly points to a problem.

After all, Content is expensive to produce. Many authoring tools have yet to be developed, and incompatibilities are rife. Above all, Content for the Web is widely regarded as very primitive: to browse the writings, illustrations and other 'art forms' that have evolved on the Web is, as Dertouzos rightly notes, to confront 'a mounting pile of info-junk'.<sup>30</sup> Even without the decelerating limitations, among many Net users, of early-vintage browsers and low-bandwidth telecommunications lines, motivating content, appropriate for the Web as a medium in its own right, is a rare thing.

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<sup>28</sup> See interview with the *Financial Times*, 25 April 1998.

<sup>29</sup> Quoted in 'The Net is open for business – big time', *Business Week*, 31 August 1998.

<sup>30</sup> Dertouzos, op cit, p155.

It might be argued that to worry about Content for the Net is to highlight but one aspect of the interaction between culture and IT. But it is precisely software which, as a World Trade Organisation report admits, most lends itself to electronic commerce; using the Net to deliver a physical book is a much more expensive business. It could also be noted that the WTO is extremely cautious in its estimates of business-to-consumer electronic commerce. That will only succeed, the WTO implies, 'if the Internet instils a new sense of "having fun" in shopping'. But in fact the problems of content go deeper than this.<sup>31</sup>

In 1991, Brenda Laurel was the first to propose theatrical drama not just as just another metaphor for the design of interfaces on-screen, but as a fundamental means of understanding human-computer interactions. Perceptively, she wrote:

'The search for a definition of interactivity diverts our attention from the real issue: How can people participate as agents within representational contexts ? Actors know a lot about that, and so do children playing make-believe. Buried within us in our deepest playful instincts, and surrounding us in the cultural conventions of theatre, film, and narrative, are the most profound and intimate sources of knowledge about interactive representations. A central task is to bring those resources to the fore and to begin to use them in the design of interactive systems'.<sup>32</sup>

Yet in the six printings her book has had since, business has come little closer to Laurel's vision. Surveys both sides of the Atlantic, indeed, show that more than 90 per cent of businesses running a Website are dissatisfied with the interactions it prompts. That points to a veritable crisis of Content in the business world.

The Gartner Group has estimated that, for a typical 'knowledge worker', time spent finding data, downloading it, organising and finally integrating and outputting it amounts to 25-35 per cent of all activity with IT at work. As we head toward the twentieth anniversary of the PC, therefore, even unclouding the most immediate form of Content – the interface on screen – remains unconquered territory. Moreover, as Charts 3 and 4 demonstrate, the first generation of new Network User Interfaces marks an improvement on previous practice, but still leaves much to be desired.

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<sup>31</sup> See WTO, *Electronic commerce and the role of the WTO*, 20 March 1998, pp12, 14, 20, 21.

<sup>32</sup> Brenda Laurel, *Computers as theatre*, Addison Wesley, 1993, p21.

Today, real advances are at last being made in display screens, the visualisation of data and in the voice control of computers.<sup>33</sup> So: let's suppose that these advances continue, disposing of many interface problems. In that case, then, we are left with the question of what kind of content-generating culture we are likely to live in.

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<sup>33</sup> An early and beautifully illustrated essay in the former is Richard Mark Friedhoff and William Benzon, *Visualization: the second computer revolution*, Harry N Abrams, New York, 1989.

*In publishing, music, film and television, we face the onset of a **retro culture**.* The scarcity of really good, durable new novels is lamented by the chairman and CEO of the Penguin Group, as publishers everywhere find that tried-and-tested backlists of old titles spin more money than new novelists.<sup>34</sup> In music the world's bestsellers remain Michael Jackson and the Beatles, acts from the past; Polygram's big merger and acquisition prize, Motown Records. In film, despite each summer's Hollywood blockbusters, the big money lies with old movies. In TV domination is exercised by fly-on-the-wall documentaries, repeats, low-cost US imports and endless variations of *The Bill*; indeed as Chris Dunkley has acutely observed, 'perhaps the very idea of quality and depth in programmes is going out of date'.<sup>35</sup>

The symptoms have been widely remarked on, and in polite circles are termed the 'dumbing down' of the arts and of culture. Yet what is less remarked on is the link between this deep-going crisis of Content and the wider, more profound failure of nerve suffered by management whenever it confronts the uncertain areas of innovation. For all the mission statements, focus groups and brainstorming retreats, corporations are more anxious about funding and applying radical solutions than they have been for a very long time.

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<sup>34</sup> Michael M Lynton, 'Strategic visions: opportunities and challenges in a new media age', *Financial Times* conference, op cit.

<sup>35</sup> *Financial Times*, 23 September 1998. That, and the fact that they are now being offered the attractions of the PC and the Internet, may explain why people in the UK have averaged only 25 hours a week watching TV since 1994, compared with 26-28 hours a week in the early 1990s. Similarly, market research among 3000 people by NOP in 1998 supports forecasts by the Future Foundation, which suggest that digital terrestrial television is likely to surpass digital cable and digital satellite within a decade. Among many factors, Content from established analogue terrestrial broadcasters in the digital domain is seen as a superior 'sell' to that offered by cable and satellite operators.

In every sector of industry, 'Risk Management' has become a mainstream management discipline.

<sup>36</sup> The aim is to minimise danger and maximise immediate shareholder value. As a result,

1. *financial re-engineering* often takes precedence over rule-breaking innovations in physical products, processes and infrastructure
2. *mergers and acquisitions* often substitute for real corporate strategy and substitute, too, for efforts to grow the top line of a business through consistent innovation
3. the conservative mantra of *customer loyalty* can substitute for innovation-led growth in market share
4. an *army of consultants and advisers* is on hand, not to propose a way forward as guru management consultant Gary Hamel has written of his trade, 'the dirty little secret of the strategy industry is that it doesn't have any theory of strategy creation' <sup>37</sup> but rather to help postpone or qualify important decisions.

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<sup>36</sup> See for example 'Managing corporate risk', *Financial Times* Survey, 29 June 1998.

<sup>37</sup> Hamel, 'Killer strategies which make shareholders rich', *Fortune*, 23 June 1997.

These rules hold even in the world of IT. In complacent mode, we are told that new technologies can be found anywhere, and need only to be fused together and managed better.<sup>38</sup> For a few years now, attention has turned to brands, not breakthroughs.<sup>39</sup> In the wake of Compaq's January 1998 takeover of Digital, hi-tech firms long used to organic growth through better products have themselves turned to mergers and acquisitions.<sup>40</sup>

If we remember the overridingly cautious culture which plagues the managerial elite today, it is a simple step to see that all the fuss about e-commerce is just a joke. The WTO confirms as much.

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<sup>38</sup> Fumio Kodoma, 'Technology Fusion and the New R&D', *Harvard Business Review*, January-February 1991; Marco Iansiti and Jonathan West, 'Technology integration: Turning Great Research into Great Products', *Harvard Business Review*, May-June 1997.

<sup>39</sup> See for example Chuck Pettis, *Technobrand: how to create and use "brand identity" to market, advertise and sell technology products*, Amacom, 1995.

<sup>40</sup> Roger Taylor & William Lewis, 'Waiting to connect you', *Financial Times*, 10 September 1998. M&A is also associated with firms hoping to control consumers by dominating their screens with so-called Internet 'portals' – corporate pages that connect the user in a branded way to his or her preferences on the Net. To get access to portals, Motorola has taken a 26 per cent share in satellite Internet providers Teledesic, and America Online has acquired an Israeli firm, Mirabilis, and its ICQ ('I Seek You') system of instant messaging. It can be argued that even Microsoft's growth was the result of 'M&A', at least at the level of products. Microsoft acquired MS-DOS from Seattle Microcomputer and Steve Patterson. It acquired and put its name to Word, bought as a character-based DOS product; Excel and Powerpoint, purchased as Mac products; FoxPro, bought from Fox Software; Visual Basic, built largely under contract, and SQL Server, licensed from Sybase.

<sup>41</sup> Op cit.

At the moment, the bulk of e-commerce takes place between firms through Electronic Data Interchange (EDI), in which items like electronic invoices and purchase orders are transmitted over a variety of closed networks. The WTO says that the Internet should extend the use of EDI from three per cent of America's 6m firms today to 30-40 per cent by the year 2000. Whatever the final figure, we can be sure that, well beyond America, many small firms – including arts firms – will use the Net to buy things more cheaply.

But that is the story of *business-to-business* use of e-commerce. By contrast, the WTO's view of US *consumer* e-commerce is pretty dismal. In 2001, it predicts, US consumer e-commerce will be worth \$50bn – just 2.3 per cent of all US retail sales. Consumer purchases over the Net will be no match for consumer purchases through printed mail order catalogues. Much of what will be bought by consumers over the Net will simply be downloadable software. Thus, even by 2007, only 14 per cent of all US consumer purchases are likely to be made by the Net.<sup>42</sup>

The 'innovation' surrounding the Web appears to be more about organising transactions of the old than producing the new. And the cult of e-commerce masks an overwhelmingly business-to-business phenomenon which is itself of strictly limited proportions. Yet the cult has completely occluded the real crisis of Content surrounding the Net.

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<sup>42</sup> Ibid, pp1, 10, 23. In my view, purchases made by the humble telephone will could well exceed the figure for purchases through the Net.

The chief Content that the Net makes available is pornography, which accounts for between a third and two-thirds of worldwide hits. But in another relatively simple kind of content for the Net – advertising – commercial results are, by contrast with pornography, poor. Procter & Gamble, for instance, spends but 0.5 per cent of its \$3bn advertising budget on the Internet; when it tried to animate its Bounty kitchen towel to clean up an on-screen spill, ‘the ad found almost no takers because of... download times, third-party server integration, and browser compatibility’. Indeed, P&G is so perplexed about advertising on the Net that it invited arch-rivals Unilever and Colgate-Palmolive to its Cincinnati HQ to discuss the whole problem.<sup>43</sup>

Since the summer of 1996, about 400 000 Americans have bought digital set-top boxes from WebTV Networks Inc, enabling them to use the Net on their TVs. But the evidence that this number will reach 4m, or 40m, is thin. For all its interactivity, and for all Carlton Television’s interest in WebTV, Content on the Internet is no match for television.

In fact the crisis in Content for the Internet is fully matched by a crisis in Content for the TV. There is no intrinsic reason why the multiplication of channels bound up with the October 1998 launch of digital TV in Britain should lead inevitably to a dumbing down of Content. But if digitisation cannot be blamed for dumbing down, the plausibility of this scenario goes beyond the hated Rupert Murdoch and BSkyB. The weakening Content of British and American television speaks of a wider creative paralysis.

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<sup>43</sup> Richard Tomkins, ‘Net ads fail the soap test’, *Financial Times*, 28 August 1998. Unilever’s chairman, Niall Fitzgerald, had earlier attacked the advertising industry for failing to keep up with IT. See Raymond Snoddy, ‘Advertising agencies “out of step”’, *The Times Business News*, 11 October 1997.

In all this, the Net is, as ever, merely what Alfred Hitchcock used to call the ‘MacGuffin’ in the plot. Yes, through Websites like Planet Retail, which automatically performs ‘comparative’ shopping, arts consumers will be helped by the Net to find the cheapest and/or the best deal. Yes, the Net lends itself to auctions, a staple of the art circuit. But for practising artists, the cult of e-commerce needs sober assessment. An outbreak of electronic Sothebys, Christies and more down-market emporia would merely mean a *different kind* of struggle for public success; but for artists, art would remain a physical, creative and intellectual struggle all the same. Indeed, we can be sure that the struggle for the *production* of good art, of enlivening Content in all its forms, has never appeared so arduous to people as it does today.

# The Illusion of Productivity

If IT indeed makes art more entrepreneurial, it might be expected to make business more productive. But, even at the level of giant corporations, for whom computers and networks might be thought to be more vital than they are to lonely artists, the productivity benefits of IT remain obscure. Evidence from the USA suggests that providers of artistic services would be wrong to believe that IT will really do much for their commercial operations. E-commerce may improve their ability to reach and do business with bigger and better audiences; but improving an artistic enterprise's communications may not, in a market economy, translate as a properly valuable increase in that enterprise's productivity. Likewise, IT may prove a powerful creative tool in the manufacturing of artistic artefacts; but once again, that may not, paradoxically, increase output per person per hour.

Since the early 1990s, writers on US productivity and its relationship with IT have themselves proved highly productive. An enormous literature has grown up arguing that the American economy has entered a 'New Paradigm' in which unemployment, inflation, competitiveness, profitability and stock markets are all pointing the right way courtesy IT. Underlying the New Paradigm, the argument goes, US productivity gains in 1996 and 1997 confirm the emergence of an 'Internet economy'.

The literature is that of fiction. In it, the colossal investments in IT made by US manufacturing and service companies over the course of the 1990s have begun to have their effect. These technological investments have made US corporations very much more efficient than they were. They contrast with the largely fruitless initiatives in nuclear power and space made by the US state in the past. Why ? Because with IT, which is a private-sector kind of affair, 'profits motivate both buyers and sellers'. As a result,

'Businesses are devoting more and more their investment spending to computers and IT, something that would make sense only if managers thought they were getting a real payoff. Over the last four years, [US] business spending on computers has risen 86%, far outpacing the 40% rise for all other types of investment.'<sup>44</sup>

Business managers, the story goes, would only invest in IT if it generated 'a real payoff'. And that is exactly what IT is now doing.

In US business, then, IT has come to be viewed as an elixir. And in Britain's cultural industries, IT has an air of inevitability all its own. At the BBC, John Birt is prepared to invest millions to support his vision of digital TV. All major newspapers and publishers run Websites in parallel with their print operations. If the artistic enterprise does not adopt IT as commercial and creative tool, as well as creative medium in its own right (for example, in Websites), the unstated fear must be that it will fail.

That IT has become a *sine qua non* for business and the arts is one thing. But to say that it propels economic dynamism today in a way that steam, electricity and motorisation did in the past is, once again, to indulge in technological determinism. Who said that these technologies, and not imperial rule or exploitation, really were the famed 'drivers' of growth in the late nineteenth century, the early twentieth century and the post-war period ? And if IT is claimed to be more pervasive and thus more powerful than they, how does that stack up with the WTO's

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<sup>44</sup> Michael Mandel, 'Innovation: you ain't seen nothing yet', *Business Week*, special issue on the 21st century economy, 31 August 1998.

forecast of a grand total of 300m Internet users, worldwide, in 2001, compared with a world population of 6bn – an influential, but still tiny five per cent ?

Anyway, distinguished American critics of IT do not let New Paradigm boosters have it all their own way. In the most recent salvo fired by the critics, Stephen S Roach, chief economist at investment bankers Morgan Stanley Dean Witter in New York City, holds unsustainable and one-off corporate downsizing, not IT, responsible for the buoyant performance of the US economy in the 1990s.<sup>45</sup>

Charts 5-8 summarise Roach's views. Britain's artistic community should pay attention to them, for much of what Roach says is right. In particular, his warning that IT tends to facilitate the working of long hours by knowledge-orientated labour will ring true in many of Britain's craft workshops, ad agencies and design firms.

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<sup>45</sup> 'In search of productivity', *Harvard Business Review*, September-October 1998.

In fact Roach is probably too lenient on IT. For the small, artistic enterprise, the costs of ownership of IT, to which he refers, are onerous. No wonder that, once such a firm has bought a new IT system, it's likely to insist that employees make the most of it. It will ask for them to do some overtime, send them on training courses, tell them to refer to user manuals or a Helpdesk so that they can debug systems and improve their IT skills in so doing, etc. To amortise its investment in IT before its newly acquired system becomes obsolete, it will expect employees to build better quality presentations and to be better acquainted, through internal e-mail, with the tasks that need to be performed. *Once it is accounted for by arts administrators or by the self-employed artist*, IT will be one of the factors tending to contribute to the enforcement of longer, not shorter, working hours.

We have seen it in publishing. And there, too, we find a feature of IT and the world of work which other creative industries know well, but which Roach forgets. IT screens and long hours don't just go together; they also tend to be associated with relatively poorly-paid work performed, full-time or part-time, by *women*.<sup>46</sup>

By itself, IT does not bring these things. But by its application to the service sector, IT has participated in the expansion of 'office jobs' from 30 per cent of all US employment in the 1960s to 40 per cent today. And office jobs, and not heavy industry or construction, have been where women in America's overworked, dual-income families have gone to earn a salary.

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<sup>46</sup> For a feminist and postmodernist recognition of this point, see Sadie Plant, *Zeros + ones: digital women + the new technoculture*, Fourth Estate, 1997.

It is the working habits of those families which explain the 1990s: both the froth on US employment and profitability, and the bad news on productivity. Jobs are up, but output per job is only barely up. Put another way: all the investments in IT in services, the dominant part of the US economy, appear to be taking the place of the kind of substantive investments which make a difference to productivity.

Of course, 'shareholder value', not productivity increases, is the aim of the Granada Television just as much as it is of Lloyds Bank. Nevertheless, given the outlays on and rhetoric surrounding business investment in IT, its negligible impact on productivity is certainly worth a closer look. How do we explain the contrast between what Roach terms the 'micro' anecdotes of IT-led corporate miracles and the 'macro' picture of US economic stagnation? How do we explain the illusion of productivity?

Provided that it is accompanied by harder work, IT can, despite its cost, give the individual employer help in a competitive struggle against rivals. But its chief arenas of deployment marketing and finance in service enterprises, including arts enterprises confirm that improvements here cannot be compared with the total and sustained kind of 'creative destruction' of old technologies which steam, electricity and motorisation brought with them to economies as a whole.

They are incremental improvements. The risk-conscious ‘What If ?’ corporate mentality, which disgraced junk bond king Michael Milken did so much to promote in his pioneering 1980s use of the spreadsheet, ensures that companies prefer to flirt around IT rather than get daring with it. The slightest innovations in IT are today presented to society as an enjoyable, often aesthetic and potentially liberating consumer experience. IT is also widely hawked as an experience in which, despite millions of late nights at the office laser printer, chores never take more time than they did before. The effect of IT on worker stress has been widely commented upon; but to contest IT any more widely than this is to try to expose the Emperor’s New Clothes. It is to be stigmatised with the name of a movement which namecallers have never studied: the Luddites.<sup>47</sup>

Altogether, a person’s failure to move from recognition of the particular and supposedly obvious benefits which IT brings to recognition of the general, society-wide improvements it elicits is tantamount to heresy. As chart 6 suggests, we are in a world where the paramount character of IT and of IT-based media barely causes comment. Yet what are the benefits that IT really brings ? Two relatively isolated heretics from the Roach school of scepticism are revealing here.

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<sup>47</sup> E P Thompson makes clear that the Luddites had no illusions about technology being their enemy. During their heyday (1811-7), they were quite aware that the source of their grievances was the employers, not machines for cutting cloth, weaving or knitting. Machine-breaking was just a tactic in the Luddites’ struggle, which looked to government and state for redress. See Thompson, ‘An army of redressers’, Chapter 14 of *The making of the English working class* [1963], Penguin, 1970.

In his own exhaustive study of IT and US productivity, Thomas K Landauer, an alumnus from Bell Laboratories, argues that we love computers for their gadgety quality, for the games and toylike fun they offer, for their addictive qualities. He writes:

‘One way of understanding how computers have permeated our world is to think of them... as just another aspect of Western culture....

‘We have taken to computers not because they have made us more productive, not because they bring us better products and services, but because we like them... There’s nothing to stop us from changing our culture with computers even if it lowered productivity, even if we have to trade wealth and convenience for the pleasure. In this view, computers have been consumer products, not capital goods. We’ve shifted some of discretionary spending to computers and the business lifestyle they afford. If the net effect on GNP is slightly negative because most of the “consumers” involved are business employees using money that managers used to spend on more productive capital goods, so be it.’<sup>48</sup>

It is not IT that puts Art on a business pedestal, but business that puts IT on an Art one. The purpose of business has been redefined, through IT, as Play. The merit of IT is what the toy industry terms ‘play value’. What began as merely a displacement activity for business has become the construction of a giant game of electronic Ludo, a giant electronic sculpture, a giant cult icon, or idol, of the sort the Bible warned about.

Once business adopts the necessarily-not-quite-rational framework of Art in its purchase of IT, that has implications which extend far beyond the obvious ones for macroeconomic productivity. Princeton University’s Edward Tenner brilliantly spells out these implications:

‘Computerization is as much an end as a means, Nearly every computer user must feel such joy when things go right seeing the first gorgeous page of text from a new program or printer, for example, that it seems crass to talk of profit and loss. But this approach ignores the times of correspondingly great frustration. Some programmers are repeat

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<sup>48</sup> Thomas K Landauer, *The trouble with computers: usefulness, usability and productivity*, MIT, 1995, pp191-3.

keyboard smashers. And if personal experience is paramount, what of the countless people who still enjoy manual ways of doing things ?' <sup>49</sup>

Even in art, the personal experience of the artist or the viewer can be transcended in favour of universals. But in business, as Tenner notes, individual feelings of delight now seem to be driving a sledgehammer of IT investments – one which is unable to crack the hard nut of US productivity.

The benefits for which business flirts with and makes a cult of IT are, then, modest enough. Artists interested in making their organisations more productive need to be mindful of that. They can also be certain that, at most, IT will facilitate on the part of business a flirtation with the arts just as superficial as its dalliance with IT.

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<sup>49</sup> Edward Tenner, *Why things bite back: new technology and the revenge effect*, Fourth Estate, 1996, p209.

# The Real Potential of IT

IT accompanies a new burst of trading more than it heralds the production of attractive artistic content. In this sense it is, at present, a commercial tool more than a creative one. The weakness of content for the Web reinforces me in the view that the contribution of IT to art as a creative medium in its own right is also, at present, very limited. Yet even the commercial merits of IT are questionable. Esther Dyson may hold that 'the digital world is a new terrain that can be a source of untold productivity';<sup>50</sup> but for artists, IT tends to accompany more work, not less.

So is there nothing good, for artists, in IT ? The claim is made that IT transforms the stuff of art – Time, Space, Identity, Play – in ways that contain the promise of newer, better art. The claim is also made that, in democratic style, IT puts the manipulation of this stuff at the disposal of more people than ever before. In fact, however, the real potential of IT lies elsewhere.

The Spanish geographer Manuel Castells is certainly daring in his claims. He argues that today's global communications annihilate time, and that a fundamental aim of the network society is to eliminate the conventional sequencing of time through a hypertext organisation of the past, the present and the future. With IT propelling information around the world, a Castellsian 'space of flows' has also come to dominate over the conventional 'space of places'. As a result, Castells contends, 'architecture and design are likely to be redefined in their form, function, process and value in the coming years'.<sup>51</sup>

Castells says that IT does more than put Time and Space in the shredder. He proposes that while computer-mediated communication begets a vast array of virtual communities, 'the distinctive social and political trend of the 1990s is the construction of social action and politics around primary identities'.<sup>52</sup> For Castells the global action of IT has prompted a reaction: the rediscovery of local Identity.

If Castells sees IT as destabilising Identity, however, others are happy to make IT out to be a positive force for personal growth. Sherry Turkle, a clinical psychologist and professor of the sociology of science at MIT, writes that on-screen windows

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<sup>50</sup> Dyson, op cit, p6.

<sup>51</sup> Castells, op cit, p418.

<sup>52</sup> Ibid, p22.

‘... have become a powerful metaphor for thinking about the self as a multiple, distributed system. The self is no longer simply playing different roles in different settings at different times... The life practice of windows is that of a decentered self that exists in many worlds and plays many roles at the same time...

‘...More than twenty years after meeting the ideas of Lacan, Foucault, Deleuze, and Guattari, I am meeting them again in my new life on the screen. But this time, the Gallic abstractions are more concrete. In my computer-mediated worlds, the self is multiple, fluid, and constituted in interaction with machine connections; it is made and transformed by language; sexual congress is an exchange of signifiers; and understanding follows from navigation and tinkering rather than analysis.’

Turkle concludes:

‘Some are tempted to think of life in cyberspace as insignificant, as escape or meaningless diversion. It is not. Our experiences there are serious play. We belittle them at our risk.’<sup>53</sup>

Altogether, IT seems to have vindicated the Post-Modern programme. ‘I shop, therefore I am’ has turned to ‘I surf, therefore I am’. As a result, IT is seen by many in the arts and culture as deserving of cult status. We are in a relativistic world of multiple Identities. ‘Serious play’ is, in this vision, dynamised by IT.<sup>54</sup>

Digital visions of the future, and of art, transfix many today. But Manuel Castells gives the game away when he argues that ‘technological determinism is probably a false problem, since technology *is* society’.<sup>55</sup> Muddying the two categories into a third, the ‘network society’, Castells creates a world where, despite denials to the contrary, technology has the last word.

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<sup>53</sup> Sherry Turkle, *Life on the screen: identity in the age of the Internet* [1995], Phoenix, 1997, pp14, 15, 269.

<sup>54</sup> Interestingly enough, W Brian Arthur also talks up the role of Play in the management of increasing returns among high technology firms in general and IT firms in particular. There, ‘part of the game is to choose which games to play, as well as playing them with skill. We can imagine the top figures in high tech – the Gateses and Gerstners [IBM] and Groves [Intel] of their industries – as milling in a large casino. Over at this table, a game is starting called multimedia. Over at that one, a game called Web services. In the corner is electronic banking. There are many such tables. You sit at one. How much to play ? you ask. Three billion, the croupier replies. Who’ll be playing ? We won’t know until they show up. What are the rules ? Those’ll emerge as the game unfolds. What are my odds of winning ? We can’t say. Do you still want to play ?’. Arthur, op cit.

<sup>55</sup> Castells, op cit, p5. For technological determinism just as breathtaking, compare the US management guru Peter Drucker, who believes that, after AD 700, ‘the knight was created by the stirrup’: Drucker, ‘From capitalism to knowledge society’, in *Post-capitalist society*, HarperCollins, 1993. Indeed, for Drucker’s more recent and more electronically-minded followers, the stirrup was the most important of the ‘medieval killer apps’, just as post-war television ‘redefine[d] the relationships of family and community’; Downes & Mui, op cit, pp17, 29.

In this world, human agency has vanished, except in the sense of what passes for radicalism in the late 1990s. Agency is soldered on. Brief hopes are raised for a rainbow coalition of locally- and identity-based New Social Movements, but that is it.

My belief is that artists must take off their IT-tinted spectacles. It is humanity which is the independent variable in the future, and technology the dependent one. It cannot be denied that IT plays its part in the compression of Time and Space – both in reality, and in popular perceptions. But it seems to me that the chain of causation runs, first, from human beings, through the accumulation of capital, and on to the globalisation both of markets (foreign trade, the international money markets) and of the corporation (foreign direct investment, portfolio investment).

It is only then, reflecting business demand, that the business of IT comes into play. Drawing on the work of Harvard's James Beniger, I have suggested elsewhere that the rise of IT began more than 100 years ago as a *response* to the needs of the corporation.<sup>56</sup> To believe in it as some kind of autonomous dynamo, spinning out cheaper and better innovations faster and faster, is to lose sight of the whole human process of production and innovation. This is all the more bizarre, since the PC, precisely because it is a general-purpose piece of machinery rather than a dedicated 'information appliance', relies on human beings to select and use its varied capabilities.<sup>57</sup>

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<sup>56</sup> See 'Before we rush to declare a new era', in Geoff Mulgan, ed, *Life after politics: new thinking for the twenty-first century*, Fontana Press, 1997, and James Beniger, *The control revolution: technological and economic origins of the information society*, Harvard, 1986.

<sup>57</sup> In fact, a rewarding literature exists which shows that digitally-driven visions say more about their authors than they do about reality or the future. See for example John David Bolter, *Turing's man: Western culture in the computer age*, Duckworth, 1984; Theodore Roszak, *The cult of information: the folklore of computers and the true art of thinking*, Butterworth, 1986; Frank Webster, *Theories of the information society*, Routledge, 1995.

It is striking that, in her analysis of Identity, Turkle's key categories are *interaction, language, tinkering* – not *analysis* which leads to *action*.<sup>58</sup> Yet, particularly with performance art, IT could support a more activist conception of art. By simultaneously involving senses and muscles, as Dertouzos proposes, IT can help track and improve performances – can function as a creative tool. It can also supplement performances, through display, and be a creative medium in its own right.

But Dertouzos is right to doubt that IT really aids greater interaction with and between members of the audience. The issue for artists with IT is not to get *individual consumers* to *Play more* with art or with each other, but rather to get *artists, singly or in groups*, to use IT, where appropriate, to *Produce Better Art*.<sup>59</sup>

Answering deeper questions about Play can help us deal with the final claim made for IT – that it democratises art because it is, or can be, a general force for democracy. James Heartfield has given an excellent riposte to post-modern doctrines of Play. He writes:

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<sup>58</sup> Dyson's discussion of community takes interaction as its basis, not production.

<sup>59</sup> The point about the group production of art is important. For all his incisiveness, Stephen Roach errs in suggesting that breakthroughs in productivity are limited by the brain's capacity and creative instincts. That might be true of individuals; but in art, as in other forms of production, 'no one is as smart as everyone'. Quotation from Larry Keely of the Doblin Group, Chicago; cited in Kelly, op cit, p14. Similarly, Don Tapscott's 'Age of Networked Intelligence' is overblown, but he is right to say that it is 'not simply about the networking of technology but about the networking of humans through technology. It is not an age of smart machines but of humans who through networks can combine their intelligence, knowledge, and creativity for breakthroughs in the creation of wealth and social development'. See the preface to his *The digital economy: promise and peril in the Age of Networked Intelligence*, McGraw-Hill, 1996, p xv.

‘On the face of things, identity theory puts an enormous premium upon freedom and upon the diversity of possibilities open to the human subject. The theory insists, in defiance of conservative notions of natural difference, that identity is constituted and disrupted through the endless play of meanings in society...

‘But in a certain respect we must ask whether identity theory represents a delimitation of human subjectivity, precisely because it restricts identity to the realm of play... As a wholly cultural intervention, identity theory has nothing to say about the realm of production. The only social relations that it recognises are those interpersonal relations that operate outside of the productive realm: essentially relations of consumption within the family and cultural life.’

This ‘delimitation of subjectivity’ for which identity theory is responsible, has been carried by the theory’s advocates into debates on IT. The result is that the democratic dynamic which boosters of IT enthuse about masks implications which are the opposite of democracy.

According to Horace Mitchell, programme director of the EU’s project on European Telework Development, ‘the next generation of mobile computers and communications will mean that any spectator at a soccer match will be able to broadcast video and sound from the match to a worldwide audience’.<sup>60</sup> As a prospectus for the future of media, this *sounds* great: but is it ? What will be the artistic contribution, in and certainly beyond sport, of ‘any spectator’ ?

Dumbing down, we should not forget, means that everyone can be an artistic ‘Player’ without being judged. IT may then, as a creative tool or medium, make artists of everyone, and also put them beyond judgement; but it cannot be termed democratic, because it is not at all meritocratic. In a democracy, views are debated, tested, and measured. Democracy is a political, not a technical question. Dyson, to her credit, understands this:

‘The greatest structural impact of the Net is decentralization; things and people no longer depend on a center to be connected. People often confuse that with democracy, but

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<sup>60</sup> Letter to *The Times*, ?? ????? 1998.

democracy is where the majority rules (...), whereas decentralization is where the masses separate into small groups.’<sup>61</sup>

Dyson is right. Just as Post-Modernism disaggregates enquiry, IT – always a medium and a mirror to society – tends, in today’s conditions, to facilitate fragmentation, atomisation and relativism in art.

Artists should know that the human subject, a force they should hold in high esteem, is annihilated in the literature of IT. MIT’s Malone and Laubacher, like Kevin Kelly and many others nowadays, see the future of business in terms of natural biology. Dyson opposes their doctrine of autonomous self-organising systems only with a Lamarckian alternative. The minutiae of ‘filters’, ‘spam’, ‘frames’ and other wrinkles of the Net come to dominate discourse on it. Most telling of all are Dyson’s remarks on intellectual property, which are worth quoting at length. In the future of IT, she says, individuals

‘dream of creating a best-seller – book, music, or software program... [but] they will discover that it’s easier to get so-called work-for-hire... Creators will increasingly be paid for working, rather than for their work. As individuals, they often won’t have the means or clout to protect their copyrights or to exploit them. Starting out, creators may even want to give their work away in order to get enough of a reputation to get a job or sell performances or services.

‘The bad news may be less opportunity to sell products and get rich. But the good news is that the Internet will offer individual contributors a good way to find work on their own terms, rather than becoming long-term employees.

‘All this may seem unfair... But the result seems more fair... The rewards will go to the creator who keeps creating, rather than the person or corporation that might own rights to the product. In other words, if you produce good stuff they have to keep paying you to produce more good stuff. And you, on the other hand.. you have to keep working !’<sup>62</sup>

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<sup>61</sup> Dyson, op cit, p8.

<sup>62</sup> Ibid, pp155-6. Downes & Mui agree: ‘Information actually *increases in value* the more people use it....If and when novels can be distributed with little cost over the Internet, a new author might be well served to give away his or her first book to as many people as possible’. Op cit, pp48, 49.

So now we understand. IT shows us that The Purpose of Art is not to retire after making a best-seller, but to keep being a worker bee.<sup>63</sup> Indeed, it is also to give of your free time to ‘the community’.

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<sup>63</sup> Interestingly, the US management guru and father of Business Process Reengineering, the aptly named Michael Hammer, has a similar message about the joy of work. Though ‘BPR’ and downsizing are often associated with the introduction of IT, Hammer ignores it. Rather, he believes that taking personal responsibility, in a multiskilled, professional manner, for complete and customer-orientated *business processes* can bring meaning, transcendence, nobility and social connectedness to everyday jobs. About organisations which concentrate on such processes, rather than division-of-labour *tasks*, Hammer reaches predictably thespian conclusions: ‘your work may still largely consist of tightening bolts or handling forms, but you now have a sense of control and influence over it. *You are a responsible actor in your own drama; you make choices and you make a difference*’ (my emphasis). See Michael Hammer, *Beyond reengineering: how the process-centred organization is changing our work and our lives*, HarperCollins, 1996, p268.

In fact IT shows us other things about art. As a commercial tool in the advertising, broadcasting, museum, leisure, music and film sectors, IT has already made accounting, the planning of schedules and the booking of tickets somewhat easier. At the same time, IT has helped many branches of the creative industries follow conventional retailers and, in effect, enter the financial services business. There are arts credit cards, 'frequent flyer' benefits associated with membership of arts organisations, and a growing cadre of professional arts administrators (one thinks of museums, in particular) who feel that their moment has come. The growing subordination, facilitated by IT, of mass-access arts practice to the dubious disciplines of financial services will certainly be a trend to watch.

As a marketing tool, IT is unlikely to bring about much of that old futurologists' favourite, 'mass customisation'.<sup>64</sup> There will be some opportunities to tailor literature, music, cinema and television to 'audiences of one', for these media lend themselves to digital techniques. But for a typical craft workshop, the arts are plastic and so more intractable. There, IT-based manufacturing technologies can bring commercial benefits more from savings on materials usage, fast turnover times and lower inventories.

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<sup>64</sup> For a naive case for mass customisation, see Tim Clarke, 'We are all prosumers now', *Blueprint*, January 1998.

As a creative tool, perhaps the most intriguing applications of IT lie in the realm of performing arts. Here IT can map musical rhythms and notes visually, track groups of dancers and help them improve their technique, supplement live action and the physical stage set with all kinds of displays.<sup>65</sup>

As a medium in its own right, IT has far to go. This is not too surprising: it took 20 years for cinema to develop montage and the close-up. To reconcile both narrative and non-linear forms, to process and display emotion – these are big tasks ahead. Nevertheless, films like *Antz*, *Babe: Pig in the City*, *Mulan* and *Prince of Egypt* contain a glimpse of the future of ‘IT as art’, and one that is not all bad.<sup>66</sup> In the meantime, we can be certain that PC processing speeds approaching 750 Mhz, together with the advent of digital TV, will give further impetus to a mass culture of computer games. We have by no means seen the last of IT being summoned to reduce art to play.

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<sup>65</sup> Japanese media artist and designer Toshio Iwai is one of the world’s leaders in visualising music with the help of computers. His was the final presentation at the Netherlands Design Institute’s December 1998 conference, ‘Play’, in which the possibilities which IT brings to performance art were excellently illustrated. See [www.doorsofperception.com/doors/doors5](http://www.doorsofperception.com/doors/doors5) and [life.doorsofperception.com](http://life.doorsofperception.com)

<sup>66</sup> On *Prince of Egypt*, see Georgina Howell, ‘The toon commandments’, *Sunday Times Magazine*, 8 November 1998.

Still, IT can help us walk through simulated landscapes, cities, architecture and interiors. It can help us more easily design and make things in textiles, wood, stone, plastics, and metal, and it can help us produce new effects in these media. Of course, IT can only help; human beings, together with physical materials, are needed for IT to be mobilised to any effect. But just as new kinds of social organisation will one day put an end to IT as a displacement activity in the world of work, so we can look forward, chips under our forearms, to a moment when IT is something better than a cult in art.