Digital Futures: an agenda for a sustainable digital economy

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Abstract

This article summarises the key findings of the Digital Futures project: a groundbreaking exploration of the social and environmental opportunities of the internet and e-business. Co-ordinated by the think-tank Forum for the Future, the project brought together leading thinkers from the worlds of policy, business and academia in an insightful, vigorous and at time controversial examination of the impact e-business will have on the way we live and work, and on the environment on which we all depend.

Introduction

Predicting the future is a hazardous business. History is littered with prophecies that went awry. Take Charles Duell, the US Patent Commissioner, who in 1899 proposed shutting down the Patent Office on the grounds that ‘Everything that can be invented has been invented.’ Or Thomas Watson, the former CEO of IBM, who declared in the late 1940s that ‘there is a world market for maybe five computers’.

Forecasting trends in information technology is particularly tricky. Who could have anticipated the white-knuckle ride of the e-commerce sector over the course of 2000? But beyond the boom and bust of the dot-coms, even the most sceptical of commentators concedes that e-commerce is changing the way we do business. This means, in turn, that it will change our society, and our relationship with the natural environment. It will create new problems, but it will also open up new solutions, new ways of doing things. Now, in the early stages of the digital revolution, is the right time to pose some IAQs (infrequently asked questions) about the potential of e-business to bring wider benefits for society.

The Digital Futures project was set up to tackle this challenge. Over the past year, three UK government departments, eight think-tanks and fourteen companies have

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worked together to better understand the social and environmental opportunities of e-commerce. Each of the think-tanks led our research into a particular piece of the e-commerce and sustainability jigsaw – from local communities and social exclusion, through to energy use, planning, and transport. They conducted surveys, interviewed companies, scoured existing literature, organised seminars, and visited a number of grassroots projects.

Our findings are summarised in the form of ten headline principles - what we could call our ten ‘dot-commandments’. Together, they constitute our ‘agenda for a sustainable digital economy’. Above all, they make clear that there are more ‘e’s in e-commerce than you might think…

- e is for electronic – the internet revolution that is changing the way we live, work and do business.
- e is for enterprise – the dynamism and creativity that drives the new economy.
- e is for environment – the scope to use new technologies to reduce our impact on the natural world.
- e is for equity – the potential of the internet to strengthen communities and build social cohesion.

Add all these together and you get the final e – the explosion of opportunities to tackle the challenge of sustainability in new ways.

1. Beyond the hype, there’s hope…

E-commerce creates new opportunities for environmental and social sustainability.

The defining characteristic of the new economy is not technology but innovation. The internet helps creative minds to develop entirely new ways to deal with old problems. Unlike sectors such as oil and chemicals, which have had to retro-fit social and environmental concerns in response to stakeholder pressure, e-business is uniquely well-placed to incorporate them at the design stage. The trick is to address these issues now, before they become a burden or a challenge to the existing way of doing things. A young, fast-changing sector can adapt far more easily than one which is trapped in established mindsets. With a mixture of vision, imagination and intelligent policy, it should be possible to splice sustainability into the DNA of the new economy.

2. The e-economy can access all areas

The digital revolution could refresh the parts that other revolutions haven’t reached, by spreading benefits to all regions and all sectors of society.
The digital divide will not be solved through access alone. The roll-out of technical access – whether via PC, mobile phone, or digital TV - is the easiest part of the problem to address. The more fundamental challenge is to overcome the underlying forms of division that contribute to the digital divide: the skills divide, the regional divide and the social divide. E-commerce could be a vehicle for revitalising marginalised areas and communities if we can find ways to spread the benefits around. But without action to create change, the new economy is more likely to reflect, rather than transform, existing social, environmental and economic maps.

Another important question is what lies ‘over the bridge’ of the digital divide: what impacts will far higher levels of internet access and usage have on local economies and communities? The low-income market, which many e-tailers shun, will become increasingly significant. There are millions of people who lack bank accounts or credit, and so are excluded from shopping online. In order to bring these people into the e-marketplace, companies will have to develop novel networks of producers and consumers, and different forms of electronic currency.

3. Community is alive and clicking

*Online relationships, supported by e-commerce, can add a valuable extra dimension to real world interaction.*

Some commentators have expressed fears that the internet and e-commerce will erode social relationships and undermine local communities. Our research suggests that the trend is in the opposite direction: towards the creation of on-line relationships as a supplement to existing social networks.

Historically, commerce and social networks have a long tradition of mutual dependency, from gentlemen’s clubs to Tupperware parties. E-commerce is no exception. All sorts of social networks are being created by the internet, and it is e-commerce which is funding the technology, infrastructure and software that will enable these networks to flourish. Even if the initial contact with an individual or organisation is electronic, it often turns into a face to face relationship. Internet banks in the US have recently started opening branches; the Compuserve police discussion forum now has an annual barbeque; and the Scottish community on AOL’s Local Life channel have regular social get-togethers.

4. ‘e’ is for environment

*E-commerce could help to cut energy and resource use, and improve environmental productivity.*
Our research uncovers plenty of environmental opportunities being created by e-business. Firstly, there is scope for virtualisation – the spread of intangible products like entertainment and software in the form of computer files. This is happening already: banking and accounting take place online; MP3 music files are distributed in digital form; and the Britannica.com website has replaced the need for millions of leather-bound encyclopaedias.

Environmental benefits could also flow from business-to-business (B2B) e-commerce. Re-engineering supply chains through B2B exchanges can lead to less warehousing, less transportation and less wastage overall.

And e-commerce could also support green consumerism. Traditionally, the barriers to this have been the difficulty of accessing products and the limited availability of reliable information. The internet is ideally suited to overcoming these obstacles. It’s only a matter of time before someone launched a green search engine, which would be capable of locating products on the basis of environmental or ethical performance, for example the most energy efficient fridge, the most fuel efficient car, or the most ethical pension.

5. HTML = heavy traffic made lighter?

Virtual traffic can replace real traffic. With the right policy framework, e-business could create more efficient logistics and distribution systems.

If we look at the direct impacts of e-business on transport, there is a fair amount to be cheerful about. It seems likely to make distribution more efficient, reduce waste and improve the utilization of vehicle capacity. But there is also the potential for negative effects. E-commerce tends to make greater use of air freight in order to shorten delivery times, and of light goods vehicles to deliver products to consumers’ homes. Unless we take action now, the rise of e-commerce could lead to busier skies and residential streets jammed with half empty white vans.

6. Trust me I’m a dot-com

E-commerce is changing the relationship between companies and stakeholders, and could usher in a new era of corporate transparency and accountability.

One of the questions we examined in the project was how the new breed of e-entrepreneurs see the role of business in society. Between September and November 2000, we conducted a survey of the social and environmental attitudes of 150 e-businesses. The results were broadly positive:
• 65 per cent said that social and environmental issues are important or very important to their company
• 62 per cent agreed that e-commerce will enable companies to be more responsive to consumers’ ethical and environmental concerns

However, our survey also highlighted a sharp gulf between theory and practice. On asking whether companies have any systems or policies in place to address these issues, we found that:
• 79 per cent of companies do nothing to measure or manage their environmental impacts.
• 66 per cent do nothing to measure or manage their social impacts.
• 83 per cent offer no staff training on environmental or social issues.

This suggests many e-businesses still have a lot to learn about the basic policies and systems. Closing the gap between ideals and action is a priority for any e-business seeking to establish a reputation for good corporate citizenship.

The internet is the ideal tool for creating more inclusive, accountable models of business. But first, the sector needs to place greater emphasis on building its ethical credentials. Currently, debates about trust on the internet are focused on privacy and the security of transactions. As e-commerce becomes more sophisticated, customers – whether B2C or B2B - are likely to want assurance on a wide range of issues - including the social and environmental performance of online products and services.

7. But right now matter matters more

Potential environmental gains won’t be realised without a concerted effort from government and business to align e-commerce with wider sustainability objectives.

At a time when so much is changing as a result of e-commerce, the last thing we want to do is slip into a sense of complacency about the inevitability of positive outcomes. Above all, we mustn’t underestimate the rebound effect, whereby all the extra environmental ‘space’ created by new technology is instantly swallowed up by our insatiable appetite to consume ever more exotic products and services.

The lesson from the last thirty years is that technology is no panacea. Now – at this critical juncture in the development of the new economy – is precisely the time when we need to devote more effort to ensuring that innovation is channelled towards sustainability.

It’s also important to reinforce that the environmental opportunities of the new economy do not make existing policies redundant. Far from it - to make the most of these opportunities we need to accelerate existing policy trends: more green taxation; stronger measures to promote sustainable transport; and increased responsibilities on manufacturers and retailers for products throughout their life-cycle.
8. Smart technologies need smart institutions

Technology is developing at breakneck speed. Institutionally we’re struggling to keep up. Sustainable e-business will depend on multiple forms of multiple forms of innovation.

It’s often the case that technology catches us by surprise. The e-commerce explosion is no exception. Government and NGOs sometimes give the impression of being caught off guard, without adequate tools to make the most of the internet. If we look back at the first Industrial Revolution, it is striking the extent to which scientific and technological innovation was accompanied by radical institutional innovation. But fast forward to the revolution of the new economy, and we appear timid and cautious where our 19th century counterparts were confident and innovative. We are scientific and technological revolutionaries, but political and institutional conservatives. We need to change the way our institutions are designed if we are to deliver a sustainable way of life.

9. We need to join the dots

Partnership will be key to the creation of a sustainable digital economy. Dot-coms, dot-govs and dot-orgs will need to work together more often and in new ways.

The internet blurs traditional boundaries: it brings the high street into our homes, and brings government out of its corridors. The web is becoming a natural meeting point for new partnerships and new alliances. If we are to create a sustainable digital economy we need, literally, to join the dots. Dot-coms, dot-orgs and dot-govs need to share ideas and work together to embed sustainability in every area of the new economy. In a sense, the Digital Futures project is an experiment in these new ways of working; drawing different sectors together to explore the sustainability challenges and opportunities of e-commerce in a collaborative way.

10. and it’s about time.

A year in cyberspace is said to be four months. As the internet accelerates the pace of life, we need to change our attitude to time and long term responsibility.

As computers have accelerated, so have we. Despite the promise that technology would usher in an age of leisure, many of us have entered the digital age working longer hours under greater stress than ever before. And e-commerce is playing its part in the inexorable rise of this 24/7, always-on society. Dot-com culture often ap-
pears hooked on speed. Instant fulfilment is the norm, and everything operates in ‘internet time’.

But speed isn’t the unqualified good that some would have us believe. Slowness can also be a virtue. The e-world sometimes needs to think in longer time horizons, which encompass not just the next business decision, but also the social and environmental impacts that those decisions will have. An important conclusion of our research is that thinking about e-business and sustainability requires us to cope with several different time cycles. Cycles of investment and innovation on the internet which are measured in weeks and months. Cycles of investment in the physical infrastructure of energy systems, roads and towns which are measured in decades. And cycles of change in the natural environment, many of which are measured in centuries or millennia.

Now and then, we need a bolt of inspiration to stop us in our tracks. The Long Now Foundation is one exciting attempt to do this. Initiated by a group of technology pioneers, including the musician Brian Eno, the Foundation is building a clock which will keep time for 10,000 years. It will tick once a year, bong once a century and once every millennium, the equivalent of a cuckoo will come out. Such attention-grabbing reminders of the long-term implications of our actions are essential. As Danny Hillis, the clock’s designer, explains: ‘It’ll be worth building the clock if I can inspire 10 per cent of the engineers in Silicon Valley to spend 10 per cent of their time thinking about problems whose solution is more than 10 years out into the future.’

Taking up the sustainability challenge requires creativity, innovation and alliance-building. It requires a different way of thinking. But this is what e-businesses are so good at. We need to channel their dynamism and creativity for the benefit of all: to turn the new economy into a force not just for economic good, but for social and environmental good too.