The Digital Revolution :

the Coming Crisis of the Creative Class

By Charles Leadbeater

Politicians trade in hope. So it should be no surprise that as the US and the UK lead the world into the deepest recession for 60 years political leaders have alighted on the web, specifically connecting everyone to high speed broadband networks, as a ray of hope to offer electorates worried about their futures.

Extending broadband to under served areas forms a key part of President Obama's stimulus package, with telecommunications groups being offered tax breaks to reach rural and poorer areas, which thus far have proven unprofitable to serve. In the UK, the recently ennobled Lord Carter has produced an interim plan – *Digital Britain* – which envisages everyone having access to affordable broadband by 2012. The French government has embarked on a strategy – *France Numerique 2012* - with 154 initiatives to modernise the media industries and make broadband universal by 2012, up from 54% coverage in 2008. Portugal, Australia and Ireland have drawn up plans to finance broadband roll out, while the Japanese and South Koreans are planning widespread access to the web at speeds many times greater than those planned for the UK. Denmark, Finland, the Netherlands and Norway are already well ahead of the British.

Around the world politicians are making the same claims for these plans. Infrastructure building will create jobs. High speed networks will provide a platform for companies making content, software and services, such as computer games, social networking and online retailing. These are high growth sectors. Ubiquitous broadband should allow lots of organisations to be more productive, intensifying collaboration between clients and suppliers, doctors and patients, teachers and pupils. Government subsidy is justified to kick start investment programmes hit by the credit crunch and to ensure deprived communities are not excluded from the digital future. Access to the net at broadband speed is widely seen as a universal right; to exclude people will widen inequality.

Yet far from being a win-win policy, the push to accelerate the spread of the web through broadband puts political leaders in a painful bind they are keen to overlook.

They want to tell us about a brave new future full of opportunity that broadband will open up. Yet the investment in broadband will only make sense if more consumers use the web to access, create and share media content and services in new ways, exploiting the web's capacity for interactivity and collaboration. If more people do that, more intensively, however, it will just accelerate the painful disruption of established media and cultural industries – newspapers, film, television, music recording, books – which rely on a mass market advertising, physical distribution and copyright protection. The incumbents in these industries were already fearful that the web was eating away at their business models. The steep decline in advertising revenues brought on by the recession has only made things more perilous, especially for the weakest players such as Channel 4 and those dependent entirely on advertising revenue such as ITV. Most commercial old media groups are in the midst of painful redundancy programmes. The remaining staff will be asked to do much more with and for less.

Accelerating the spread of broadband will not save these industries but make their predicaments more difficult. Here's the truth: plans to invest more in digital technologies will only pay off if they bring further disruption to economies that are already in turmoil. We will know when politicians are really serious about the coming digital revolution when they start to admit that it will have to cause significant disruption to established business models if it is to pay off.

This is particularly tricky in the UK. The implosion of financial services, long the flagship of the services economy, means the cultural and media industries, in which Britain has a strong position, will take on an even more important role. Many established businesses in these industries were already alarmed by the impact of the web on their business models. Now they face the steepest recession in modern history, certainly since the start of commercial television and the rise of the tabloid press. Public spending on arts and culture is likely to further constrained due to the recession. The creative class which breezed its way through the 1990s is about to hit

the wall. The crisis will not be as sudden and shocking as the one that has hit banking but it could be as profound.

The government is right to make investment in universal high-speed broadband a priority. New technologies, business models, consumer habits and industries can emerge from the depths of recession. Crisis is a vital spur to innovation. But to succeed the government would need to go the whole hog. The plans set out in Digital Britain would get us half way across the ravine and leave us hanging in mid-air.

To understand why new technologies and industries emerge from the depths of recession it is worth looking at the work of a fiercely focussed, Venezuelan born economist, with seemingly boundless energy and a shock of thick black hair. Carlota Perez, and her partner Chris Freeman, for many years professors at Sussex University's highly regarded Science Policy Research Unit, have been ploughing a furrow on the margins of the mainstream economics profession as followers of Schumpeter and Kondratiev. In *Technological Revolutions and Financial Capital* published in 2002, the culmination of four decades work, Perez argues that economies develop through crises in which consumer habits change and new business models emerge to attract investment into emerging technologies that with mass take up make the whole economy more productive.

Perez argues that that business and consumer innovation is critical to bring technological innovation to life. Technologies transform society only when they become aspirational for a mass of consumers who adopt new lifestyles around the technologies, Perez argues. Mass consumption and industrial production came with a series of messages about the new good life it enabled, based on the suburban American dream: bigger is better than small; new is better than old; fabricated better than hand made; synthetic preferable to organic; disposable better than durable. As Perez puts it: "A technology might lay out what is possible but whether and how it is taken up depends on consumers and that in turn creates opportunities for entrepreneurial businesses to make a profit from the new patterns of consumption. The change has to come from consumer aspiration, a vision of a better life."

To succeed, according to Perez's theory, the government's plans for broadband would only succeed if they also bring about a massive change in consumer habits and lifestyles, which new businesses can make a profit from. When her theory is boiled down it turns into three questions about the government's plans set out in Digital Britain. Will the technology really deliver? Will enough consumers want it and create new demand with it? Can businesses innovate to supply new services that a mass of consumers want which will be profitable?

Will it work?

Broadband is a tried and tested technology, which allows perpetual connection to the net and the rapid transfer of large packets of data, particularly video. We know it works. The question is how fast does the broadband really have to be to make a big difference to the economy.

The web will become a really powerful medium for collaboration and creativity with easily available, quality video and animation. That in turn requires high speed broadband. The BBC iPlayer has gone from zero to 41m hits in a year. Millions of videos are downloaded and uploaded to YouTube everday. Video conferencing and tele presence currently confined to upscale businesses will soon become much more widespread. The National Endowment for Science Technology and the Arts, based on research into high-speed broadband in South Korea and California estimates a universal network in the UK might create an additional 600,000 jobs.

In Japan average broadband access speeds at 10 to 30 times faster than in the UK. On the back of that new services (telemedicine, teleconferencing, television over the internet) are emerging with new business models and different consumption patterns.

The UK does not do too badly on broadband access and take up. Nine out of ten households have access to a broadband network and 60% take up that opportunity. Carter proposes by 2012 there should be universal access to broadband networks that would carry up to 2 megabytes per second – enough to download an album of music in less than 5 minutes. That will seem glacially slow. The guarantee is only that the speed will be *up to* 2Mbps. For many people it will be slower. Average UK broadband speeds are already 3.6Mbps. The main network operators Virgin and BT

are planning to upgrade their networks to 40 – 50 mbps by 2015. By 2013 average connection speeds in the EU will be 35mbps, according to the lobby group Fibre to the Home. Portugal, Australia and Germany are all upgrading their fibre optic networks. Korea, Japan, the leading north European nations and some cities in the US are targeting speeds of 100mbps. Across Europe leading cities such as Amsterdam have ambitious plans to run fibre right into people's homes, rather than stopping a few hundred metres short as Carter plans, with the last stage of the connection still carried by traditional, slow copper wires.

So even if the UK achieves the goals set out in *Digital Britain* – and it is not clear how the universal service obligation would be financed – it could hardly claim to be at the leading edge of technology. The 2Mbps target is designed to meet forecast rises in demand for video online and prevent bottlenecks developing. It is not designed to create spare capacity for new services that have not been foreseen.

The Carter report, like early versions of Obama's broadband plan, assumes that people will log on to broadband once it is readily available. Roll out the networks and people will come. Yet the Pew Internet & American Life Project last year found that more than 50% of broadband non-adopters said they had not connected because there was nothing interesting or useful to do online. Making broadband available will not change the fact many people find the Internet boring, difficult or threatening. The main problem, it turns out, is Perez's second challenge: will people want it?

The relatively slow average speed of broadband in the UK might not matter, however, if we compensate with a mass of consumer and business innovation. What matters is how creatively we use the technology. Digital Britain's very limited commitments on broadband might be made good by more ambitious and aggressive policies to promote innovative use of the networks. How does it do on this score? In short : even worse.

Will people want it?

Transformative technologies get taken up because a mass of consumers see them as aspirational, part of the good life. *Digital Britain's* proposals to extend broadband technology are unambitious. The report's ideas to stimulate demand for innovative

new services to excite consumers are even weaker. That is because the government is yet to understand let alone embrace the changes in culture being brought by the web.

People are after a mix of three different experiences when they engage with modern media. Some of the time people want to enjoy being entertained and served, to listen to a great concert, follow an intriguing lecture, watch a great film, read a good book. For the sake of short hand call these Enjoy experiences.

Then there are experiences in which the content provides a focal point for socialising. The value of the content is amplified by the talking that goes on around. I watch football perhaps 90 minutes a week but talk to people about it for at least twice that amount of time. Lets call these Talk experiences.

People also want experiences that allow them to be creative. They want to get involved, have a go, do their bit. This does not have to be high tech. My youngest son does this with a pen and paper. But he also uses Garage Band to make a podcasts on his computer. Call these Do experiences.

Most media is a mix of Enjoy, Talk or Do. People talk about films that they enjoy. The best trips to museums for young people involve searching and doing. For adults they often involve a trip to the café for a chat. Online computer games such as World of Warcraft are all about socialising and in social networking sites such as Facebook, socialising is the content. The lines between Enjoy,Talk and Do are not rigid.

The web is shifting dramatically the mix of Enjoy, Talk and Do. For my parents' generation most media experiences were in the Enjoy category, with a limited amount of Talk and a tiny bit of Create. In their lifetime the main innovations were to improve the quality of enjoyment – through colour television and to make it more available – through paperback books and television channels which provide, for example, tennis coverage all year round. Till now, the main agenda for most media companies, has been to improve enjoy experiences and make them available when and where people want them.

My youngest son's generation, the ones who will become real consumers after the recession is over, are looking for a completely different mix. My son likes Enjoy experiences that are engaging: the Simpsons, Harry Potter, Michael Morpurgo. But if the television, film or book he is looking at does engage him, then he is off to do something more interesting. That generally involves talking to his friends – in person, online, through Club Penguin - or doing something – painting a picture, making an animation, playing a game, online or offline.

The web's significance is not just that it allows new channels for people to download Enjoy experiences – the BBC iPlayer phenomenon. The real significance is that it encourages people to adopt new habits and roles, as collaborators, distributors, editors and creators of content. They want to connect with other people and do stuff together. This culture of mass participation and collaboration is feeding new lifestyles and demand that will determine how broadband technologies are put to use.

The Carter report, like much of government, shows little or no sign of getting this shift in consumer culture.

The report has nothing to say about why or how the BBC might help people create a shared knowledge resource as impressive and useful as Wikipedia. There is no mention of how highly collaborative methods based on open access archives, publishing and software is helping to transform and internationalise science, including scientific publishing. There is no hint of how we might adapt the model of social networks like NetMums which is attracting 20,000 new members a month to forums that allow mothers to learning from and support one another. Why do we not, for example, have an online social network linking the adult children of older parents to help people coordinate care and support? *Digital Britain* complacently notes that many public services are available online but there is no encouragement for citizens who might want to use the web to exert more influence over education, as is becoming commonplace in the US or of the schemes being piloted by innovative police forces in the UK to allow citizens to map crime in their area. One of the most impressive public service initiatives on the web was started by a GP off his own bat: Patient Opinion allows thousands of patients to voice their views on the services they get from the NHS. One might expect a vision of Britain's digital future to explain

how children and parents could become similarly engaged in education, or how the web might encourage new forms of ultra local political engagement. If we could get just one percent of the children in formal education in the UK involved in proposing better ways to learn that would be 70,000 people, about a fifth of the teaching workforce. One of the most exciting social web start ups is the School of Everything which is becoming a kind of eBay style market place for adult informal learning. Social eBays like this could be set up in many other areas, for example, allowing people with physical disabilities to shop for and swap tips on assistive technologies.

The recession will accelerate these shifts in consumer behaviour that *Digital Britain* is only dimly aware of. The recession will be a boon for the web's Pro Am, do-it-yourself ethic as people who lose jobs set up micro businesses online and consumers turn to the web in search of better deals. Professional social networks such as *Linked In* may come into their own as people out of work look for jobs. There may be more traffic on free sites such as *Pop Bitch* and less *Heat* magazine; more use of free, open source, software than expensive offerings from Microsoft; more recycling of second hand goods through eBay and freecylcing schemes; more sharing of resources like cars through websites like GoLoco and Liftsharing. More people will log onto Spotify to listen to music for free.

In short the web is promoting mutual media.

Mutual media is growing all over the place serving the niche communities and interests. Ironically the authors of Digital Britain would not have had to look far to find examples of the exploding mutual media sector. Many of them are referenced in the Power of Information Taskforce report commissioned by the Cabinet Office. Money Saving Expert got 6.4m visitors in December and 3m people get its weekly email. The Army Rumour Service has 42,000 registered users. The Poultry Keeper has attracted more than 70,000 posts and the Sheffield Forum has more than 2m posts about a city with just 500,000 inhabitants. The Student Room, which has 1.4m visitors a month seeking answers to questions they have, is run by just 60 volunteer moderators and a small business.

Digital Britain has next to nothing to say on all these opportunities for the web to promote better outcomes in science, education and health, by mobilising the power of mutual media. Indeed, judged by where it is prepared to make specific policy proposals *Digital Britain* seems to regard the net mainly as a danger promising to crack down on illegal file sharing, creating a quango to defend copyright and protecting children from threats to their safety. What stands out is the government's complete lack of excitement and ambition for the kind of mutual media being ushered in by the digital revolution it says it wants.

The main reason for the government's equivocation is not hard to find. It lies in the answer to the third question: can new businesses emerge, with innovative models to serve these new consumer demands?

Will business make money from it?

The mutual media of the web will come into its own during the recession. High fixed cost, industrial era business models will suffer, perhaps especially in the media and cultural industries. These media and cultural industries are more important than ever to the UK's service based economy. The OECD estimates they account for about 6% of GDP, larger than the equivalents in the US, Canada, France and Australia. Audiovisual content production is worth about £6bn a year, with exports worth £2.3bn. Television and publishing is critical to this. Overseas sales of TV programmes and formats were worth £663m in 2007. The UK is the world's largest cultural goods exporter according to the United Nations. These industries now face a treble whammy: profound disruption brought by the web to business models built on high barriers to entry, copyright protection and physical distribution; the worst recession in modern history decimating advertising revenues; tighter restraints on public spending for the non commercial parts of these industries.

This is one simple way to understand what might be at stake: divide the world into organizations that resemble boulders and those that are like pebbles.

Twenty years ago the industries that provided most of our information and

entertainment, resembled a few very large boulders strewn over a largely empty beach. These boulders were the big media companies that came into being because media had high fixed costs – print plants for newspapers and studios for television. They were closely regulated and resources, like broadcast spectrum, were scarce. All that created high barriers to entry. These boulders made their money mainly from advertising and by charging consumers for access to their products, which required controlled access and often physical distribution and storage.

Anyone trying to set up a significant new media business could be seen coming from a long way off. Rolling a new boulder onto the beach took lots of people, money and heavy machinery. In the mid-1980s an entrepreneur called Eddie Shah tried to roll a boulder onto the British beach by setting up a national newspaper based in northern England. That provoked a protracted national strike. Rupert Murdoch caused controversy by moving his boulder – production of his News Corporation newspapers – from one part of London to another. That caused another lengthy dispute. Channel 4 caused a stir by becoming a new boulder on the beach, one which eventually spawned several other mini-boulders in the form of independent production companies. The big advertising agencies – WPP and TBWA – are boulders that service other boulders. The ITV companies have all merged to create an even bigger, arguably even more unsuccessful, boulder. Until recently boulders were the only business in town.

Now imagine the scene on this beach in five years time. A few very big boulders will be still showing. But many have been drowned by a rising tide of pebbles. Every minute millions of people come to drop a pebble on the beach: a blog post, a YouTube video, a picture on Flickr, an update on Twitter. A bewildering array of pebbles in different sizes, shapes and colours are being laid down the whole time, in no particular order, as people feel like it.

This dangerously simplified division of the world into boulders and pebbles means there will be three kinds of media and information businesses in future.

All the new media business created from now on will be pebble businesses. Google and other more intelligent search engines offer to help us find just the pebble we are looking for. Google will increasingly offer to organize more and more of the unruly beach. Wikipedia is a vast collection of factual pebbles. YouTube is a collection of video pebbles; Flickr of photographic pebbles. Social networking sites such as Facebook allow us to connect with pebbles who are friends. Twitter, the micro blogging, service allows people to create collections of lots of really tiny little pebbles. There is nothing in the Carter report about how Britain will create the next Google or Youtube, where the money, entrepreneurship and markets will come from. It is not really interested in the pebble businesses of the future.

Another growth area will be in hybrids, boulders that find ways to work with the pebbles or pebbles that grow to be boulders. Barack Obama made it to the White House thanks to a campaign which took organizing the pebbles to new heights. Obama's web based campaign rewrote the rules on how to reach voters, raise money, organise supporters, manage the media and wage political attacks. Obama is now a boulder that speaks pebble. There are huge opportunities to create more hybrids like this, as large institutions seek to engage with their communities in new ways and self-organising communities go in the other direction, acquiring scale. A prime example is the way the British Library is trying to keep up with the online revolution going on around it. The web could allow us at quite low cost to create an entire new generation of public service media organisations simply by encouraging publicly funded museums and galleries to become multi-media, running their own television channels over the web. The Carter report has nothing to propose in this area of new hybrids.

Finally there will be lots of activity still in the boulder business. Many of the boulders will have to merge and cut costs to withstand the onslaught of the pebbles. That is why the flagship policy in a report which is meant to be about our digital future is to shoehorn together Channel 4 and BBC Worldwide: to merge two boulders to save them. The regional newspaper industry is already lobbying to make it easier for

mergers arguing it is the only way to stave off the industry's collapse. In virtually every industry incumbents will respond to the recession by merging – witness Lloyds and HBOS, creating businesses large enough to withstand the recession and becoming so large they cannot be allowed to fail. One of the risks of the recession is that we emerge with even fewer, even larger companies acting as oligopolies.

The Carter report does acknowledge in passing that new business models are needed in media. But its main concern is with organising the declining world of the boulders rather than creating new pebble businesses of the future. If we are not careful the Digital Revolution will become a manifesto to protect incumbents rather than promote competition and innovation.

Reading *Digital Britain* one cannot help but feel the government finds the opportunities for people to self-organise through the web all too unsettling for its more technocratic, controlling tendencies. *Digital Britain* conveys none of the excitement that many young people feel about the world of semi-structured free association that mutual media is creating. This interim report, written behind closed doors in an era of open communications, is little more than piece of space filling to persuade us the government has a vision for the future when in reality it seems to have none, at least not yet. (A model of what can be done, even in government, is the parallel The Power of Information report, which is fully of exciting recommendations for how government can open up its information for citizens to use in novel ways.)

Still, *Digital Britain* could be saved yet because Lord Carter has given himself a few months to deliver his final report and it is difficult to imagine that could be worse than the limp, ill thought interim version.

But to save it he would have to set out:

- more ambitious goals for broadband speeds and a practical way to finance the investment;

- a new way to fund the creation of web based content to feed the new generation of mutual media businesses, based on Ofcom's idea of a public service media fund;

- ambitious proposals to encourage citizens to use the web to help one another and public services to deliver important public goods like education and health, taking up the ideas in the Power of Information report;

- ideas for how the open, collaborative web can underpin science, innovation and development by making knowledge more widely available, so Britain leads the way in open science;

- funding for practical experiments to adapt copyright and digital rights management systems so new business models for funding content creation will emerge more rapidly in the UK than elsewhere.

If the government is serious about wanting Britain to lead the way into the digital revolution then it has to be honest about the scale of the challenge: added investment in broadband will pay dividends only if it further disrupts traditional media industries that are already being hit hard by the recession and which are more important than ever to the UK's future thanks to the crisis in the financial services sector.

Universal broadband will be essential infrastructure for the UK's future. But even more important will be the creativity and innovation of consumers and entrepreneurs to create the social and business models of the future. Sadly *Digital Britain* has little or nothing to say about these latter challenges. It is a route map to the future which peters out after the first few metres.

An updated version of Charles Leadbeater's book We Think has just been published by Profile.