

# Blogging and the emerging media ecosystem<sup>1</sup>

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## Introduction

It's a truism that our communications environment is changing. It was ever thus: all 'old' media were new media once<sup>3</sup>. But there is something special about our present situation at the beginning of the 21st century. The combination of digital convergence, personal computing and global networking seems to have ratcheted up the pace of development and is giving rise to radical shifts in the environment.

Because we are living through this upheaval, it is difficult to take the long view of it. Our problem is not that we are short of data, or even of information; *au contraire*, we are awash with it, as companies and governments turn to consultants and market researchers for enlightenment or guidance. But the resulting glut of information doesn't seem to be making us much wiser. Indeed our current state might be best described as one of 'informed bewilderment'.

Part of our difficulty is that we lack a discourse that is appropriate to what is happening. Traditionally, we have drawn linguistic and analytical tools from economics, and as a consequence seek to interpret what is going on through the prism of that dismal science. But economics – at least the economics on which we have relied to date – is the study of the allocation of *scarce* resources, whereas an important feature of our emerging media environment is abundance, not scarcity.

Besides, much of the cultural production which characterises the new environment is driven largely by non-economic motives and takes place entirely outside market processes. In the words of Yochai Benkler, what we are seeing is the emergence of:

“a flourishing non-market sector of information, knowledge and cultural production, based on the networked environment, and applied to anything that the many individuals connected to it can imagine. Its outputs, in turn, are not treated as exclusive property. They are instead subject to an increasingly robust ethic of open sharing, open for all others to build on, extend and make their own.”<sup>4</sup>

For these and other reasons, a discourse rooted in market-based economic analysis seems unequal to the task of understanding what is going on in our media environment just now. This essay explores the utility of an alternative conceptual framework borrowed from science.

## Terms of debate

'Media' is the plural of 'medium', a word with an interesting etymology. The conventional, everyday interpretation holds that a medium is a carrier of something. But in science, the word

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<sup>3</sup> Lisa Gitelman and Geoffrey B. Pingree (Eds), *New Media 1740-1915*, MIT Press, 2003.

<sup>4</sup> Yochai Benkler, *The Wealth of Networks: how social production transforms markets and freedom*, Yale University Press, 2006, page 7.

has another, more interesting, connotation. To a biologist, for example, a medium is a mixture of nutrients needed for cell growth. And that's a very interesting interpretation for our purposes.

In biology, media are used to grow tissue cultures - living organisms. The most famous example, I guess, is the mould growing in Alexander Fleming's Petri dishes which eventually led to the discovery of penicillin.

What I want to do is apply that perspective to human society: to treat it as an organism which depends on a media environment for the nutrients it needs to survive and develop. Any change in the environment - in the media which support social and cultural life - will have corresponding effects on the organism. Some things will wither; others may grow; new, mutant, organisms may appear. The key point of the analogy is simple: change the medium, and you change the organism.

This way of looking at our media environment is not new. I picked it up originally from the late Neil Postman, a passionate humanist who taught at New York University for more than forty years and was an unremitting sceptic about the impact of technology on society. In a series of witty and thought-provoking books - *Teaching as a Subversive Activity*, *Amusing Ourselves to Death*, *The Disappearance of Childhood* and *Technopoly* - he described how our societies are shaped by their prevailing modes of communication, and fretted about the consequences.

Postman deserves to be better known. But he was his own worst enemy, because he was a witty and iconoclastic writer who apparently did not realise that, in academic life, you will never be taken seriously if you make jokes or write clearly. In the academic culture, luxuriant obscurantism is taken as the litmus-test for profundity. The other reason Postman may have been under-rated is that he was a sucker for the Big Idea, the broad sweep across historical periods and disciplinary specialisms. He was therefore regarded with suspicion by scholars whose preferred *modus operandi* is to crawl along the frontiers of knowledge peering through a thick magnifying glass.

Postman's most intriguing book is *The Disappearance of Childhood*.<sup>5</sup> In it, he argues that the concept of 'childhood' - as a special, protected phase in a person's life - is an artefact of communications technology. It was, he claims, a by-product of the evolution of a print-based culture.

Before print, Postman maintained, adulthood began the moment a young person was deemed to be competent in the prevailing communications mode of the society. In the oral culture which pre-dated Gutenberg, a child therefore became, effectively, an adult at around the age of seven. This, he maintains, is why you never see children *per se* in the paintings of Breughel - you merely see small adults; and it is why the Catholic Church defined seven as the 'age of reason', after which an individual could be held accountable for his sins.

But the invention of printing changed all that. Why? Because in a print-based culture, it takes longer (and requires more education, some of it formal) to attain the kind of communicative competence needed to function as an adult. So the concept of childhood was extended to the age of 14 or thereabouts (which, of course, was the original leaving-age for most children in state schools in the UK). And this remained the case from the 18th century to the middle of the 20th.

The title of Postman's book - *The Disappearance of Childhood* - comes from his contention that the arrival of broadcast television represented the first revolutionary transformation of our communications environment since Gutenberg. Just as print had transformed society - undermining the authority of the Catholic Church and stimulating the Reformation, enabling the

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<sup>5</sup> Neil Postman, *The Disappearance of Childhood*, Vintage, 1994.

rise of modern science and the growth of a new intellectual class - Postman argued that the dominance of TV had a correspondingly dramatic impact.

In particular, it had effectively lowered the age of reason. In a society dominated by the idiocies of such a medium, it didn't take long for a child to master the basics. Postman cited research which allegedly showed that American children were 'competent' TV viewers, in the sense that they understood genres and could follow narrative threads by the age of three. This explained, he said, why although there were remedial classes in reading in every American public school, he had never seen a remedial class in TV viewing! (It also explained, he contended, why adults were increasingly dressing like children, and *vice versa*.)

I'm not sure what to make of Postman's view about education, but his general point – that changes in the communications environment bring about cultural change - is, I think, accurate and profound. He made a convincing case for it in another book, *Amusing Ourselves to Death*. It is in part a devastating analysis of the impact that broadcast television had, and continues to have, on American politics.<sup>6</sup>

So we live in a polity which has been shaped by a single communications medium. Most of us have grown up in such an environment. It seems as natural to us as the air we breathe. And yet it is changing under our noses.

In seeking a language in which to talk about change, I've borrowed another idea from Postman: the notion of *media ecology* - that is to say, the study of media as environments. As with 'medium', the term is borrowed from the sciences, where an ecosystem is defined as a dynamic system in which living organisms interact with one another and with their environment.<sup>7</sup>

These interactions can be very complex and take many forms. Organisms prey on one another; compete for food and other nutrients; have parasitic or symbiotic relationships; wax and wane; prosper and decline. And an ecosystem is never static. The system may be in equilibrium at any given moment, but the balance is precarious. The slightest perturbation may disturb it, resulting in a new set of interactions and movement to another – temporary – point of equilibrium.

This seems to me a more insightful way of viewing our communications environment than the conventional 'market' metaphor more commonly used in public discussion, because it comes closer to capturing the complexity of what actually goes on in real life.

Just to illustrate the point, consider what has happened when new technologies have appeared in the past. When television arrived, it was widely predicted that it would wipe out radio, and perhaps also movies and newspapers. Yet nothing like that happened. When the CD-ROM appeared on the scene, people predicted the demise of the printed book. When the Web arrived, people predicted that it would wipe out newsprint. And so on.

These 'wipe-out' scenarios are a product of a mindset that sees the world mainly in terms of markets and market share. Yet the reality is that while new communications technologies may not wipe out earlier ones, they certainly change the ecosystem. The CD-ROM did not eliminate

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<sup>6</sup> And not just on US politics, either. Think of the way General Elections have been fought in this country since 1960, or of the way our governance has been affected by the demands of 24-hour 'rolling' television news. The rise of news management and political spin has been the predictable – and understandable – response on the part of politicians. The result is a political climate in which public discussion is often conducted in banal sound-bites; in which there are always only 'two sides' of a question, no matter how complex; in which politicians seek to engineer 'photo opportunities', to dictate the terms on which they will submit themselves to questioning by television presenters and to distance themselves as much as possible from any uncontrolled encounters with actual electors. And so on. See also James Fallows, *Breaking the News: how the media undermines American democracy*, Pantheon Books, 1996.

<sup>7</sup> Clapham: *Natural Ecosystems*, Macmillan, 1973.

the printed book, for example, but it altered forever the prospects for printed works of reference. Novels and other books continued to thrive.

A vivid illustration of ecological adaptation comes from the interaction between television and newspapers in the UK. There came a point, sometime in the late 1950s, when more people in Britain got their news from broadcast media – especially television -- than from newspapers. This created a crisis for the print media. How should they respond to the threat?

Basically, they reacted in two different ways. The popular papers – the ones with mass circulations and readers lower down the social scale - essentially became parasitic feeders on television and the cult of celebrity that it spawned. The broadsheets, for their part, decided that if they could no longer be the first with the news, then they would instead become providers of comment, analysis and, later, of features. In other words, television news did not wipe out British newspapers, but it forced them to adapt and move to a different place in the ecosystem.

The ‘organisms’ in our media ecosystem include broadcast and narrowcast television, movies, radio, print and the internet (which itself encompasses the web, email and peer-to-peer networking of various kinds). For most of our lives, the dominant organism in this system – the one that grabbed most of the resources, revenue and attention – was broadcast TV.<sup>8</sup>

This ecosystem is the media environment in which most of us grew up. But it’s in the process of radical change.

### ***Life after broadcasting***

Broadcast TV is in serious – and apparently inexorable - decline. It’s haemorrhaging viewers, or at least the viewers who are the most commercially lucrative. And its audience is fragmenting. In particular, it’s been eaten from within: the worm in the bud in this case is narrowcast digital television, in which specialist content is aimed at specialised, subscription-based audiences and distributed via digital channels

The problem is that the business model that supports broadcast is based on its ability to attract and hold mass audiences. Once audiences become fragmented, the commercial logic changes. And, to compound the difficulty, new technologies have emerged -- such as Personal Video Recorders (PVRs), which record onto hard drives rather than tape and are much easier to program. They’re enabling viewers to determine their own viewing schedules and – more significantly – to avoid advertisements.

Note that when I say that broadcast TV is declining, I am *not* saying that it will disappear. That’s what the computer scientist John Seely Brown calls ‘endism’<sup>9</sup>, and it’s not the way ecologists think. Broadcast will continue to exist, for the simple and very good reason that some things are best covered using a few-to-many technology. Only a broadcast model can deal with something such as a World Cup final or news of a major terrorist attack – when the attention of the world is focused on a single event or a single place. But broadcast will lose its dominant position in the ecosystem, and that is the change that I think will have really profound consequences for us all.

What will replace it? Simple: the ubiquitous internet.

Note that I do not say the ‘web’. The biggest mistake people in the media business make is to think that the net and the web are synonymous.

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<sup>8</sup> Note that ‘broadcast’ implies few-to-many: a relatively small number of broadcasters, transmitting content to large audiences of essentially passive viewers and listeners.

<sup>9</sup> John Seely Brown and Andrew Duguid, *The Social Life of Information*, Harvard Business School Press, 2000.

They're not. Of course the web is enormous<sup>10</sup>, but it's just one kind of traffic that runs on the internet's tracks and signalling. And already the web is being eclipsed by other kinds of traffic. According to data gathered by the Cambridge firm Cachelogic, peer-to-peer (P2P) data exceeds web traffic by a factor of between two and ten, depending on the time of day.<sup>11</sup> And I've no doubt that in ten years' time, P2P traffic will be outrun by some other ingenious networking application, as yet undiscovered.

Already, the signs of the net's encroaching centrality are everywhere. We see it in, for example, the remarkable penetration of broadband access in developed countries; the rapid growth of e-commerce; the streaming of audio – and, increasingly, video across the net; the interest of Rupert Murdoch and other broadcasters in acquiring broadband and other internet companies; declining newspaper sales and the growth of online news; the expanding use of the web as a publication medium by public authorities; the spread of public Wi-Fi; and in the stupendous growth of internet telephony – spurred by the realisation that, sooner rather than later, all voice telephony will be done over the net.<sup>12</sup>

The point of all this is that while my (baby boomer) generation grew up and came to maturity in a media ecosystem dominated by broadcast TV, our children and grandchildren will live in an environment dominated by the net. Which begs an interesting question: what will that mean for us, and for them?

### **A net-centric world**

In thinking about the future, the two most useful words are 'push' and 'pull' because they capture the essence of where we've been and where we seem to be headed.

Broadcast TV is a 'push' medium: a relatively select band of producers (broadcasters) decide what content is to be created, create it and then *push* it down analogue or digital channels at audiences which are assumed to consist of essentially passive recipients.

The couch potato was, *par excellence*, a creature of this world. He did, of course, have *some* freedom of action. He could choose to switch off the TV; but if he decided to leave it on, then essentially his freedom of action was confined to choosing from a menu of options decided for him by others, and to 'consuming' their content at times decided by them. He was, in other words, a human surrogate for one of BF Skinner's pigeons<sup>13</sup> – free to peck at whatever coloured lever took his fancy, but not free at all in comparison with his fellow pigeon perched outside on the roof.

The other essential feature of the world of push media was its fundamental asymmetry. All the creative energy was assumed to be located at one end (the producer/broadcaster). The viewer or listener was assumed to be incapable of, or uninterested in, creating content; and even if it turned out that s/he was capable of creative activity, there was no way in which anything s/he produced could have been published.

Looking back, the most astonishing thing about the broadcast-dominated world was how successful it was for so long in keeping billions of people in thrall. Networks could pull in audiences in the tens of millions for successful and popular broadcasts – and pitch their

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<sup>10</sup> At a recent conference at the Open University, the Head of Research at Yahoo estimated the size of the public web as 40 billion pages. The 'deep' web – the part that lies beyond the reach of search engines has been estimated to be 400 – 550 times larger than the public web.

<sup>11</sup> [www.cachelogic.com/home/pages/studies/2004\\_03.php](http://www.cachelogic.com/home/pages/studies/2004_03.php)

<sup>12</sup> "It is now no longer a question of whether VOIP will wipe out traditional telephony, but a question of how quickly it will do so. People in the industry are already talking about the day, perhaps only five years away, when telephony will be a free service offered as part of a bundle of services as an incentive to buy other things such as broadband access or pay-TV services. VOIP, in short, is completely reshaping the telecoms landscape." *Economist*, 15 September, 2005.

<sup>13</sup> B.F. Skinner, "'Superstition' in the pigeon", *Journal of Experimental Psychology*, vol.38, 1974.

advertising rates accordingly. Small wonder that one owner of a UK ITV franchise<sup>14</sup> famously described (in public) commercial television as “a licence to print money”.

But in fact the dominance of the push model was an artefact of the state of technology. Analogue transmission systems severely limited the number of channels that could be broadcast through the ether, so consumer choice was restricted by the laws of analogue electronics. The advent of (analogue) cable and satellite transmission and, later, digital technology changed all that and began to hollow-out the broadcast model from within.

The web is the opposite of this: it’s a *pull* medium. Nothing comes to you unless *you* choose it and click on it to pull it down onto your computer. You’re in charge. In the words of Elizabeth Murdoch, the web is a “sit up” medium, in contrast to TV which is a “sit back” medium.

So the first implication of the switch from push to pull is a growth in consumer sovereignty. We saw this early on in e-commerce, because it became easy to compare online prices and locate the most competitive suppliers from the comfort of your own armchair.<sup>15</sup> The US automobile industry has discovered, for example, that a majority of prospective customers turn up at dealerships armed not only with information about particular models, but also with detailed data on the prices that dealers elsewhere in the country are charging for the exact same cars.<sup>16</sup>

But the internet doesn’t just enable people to become more fickle and choosy consumers. It also makes them much better informed – or at least provides them with formidable resources with which to become more knowledgeable. In an interesting study,<sup>17</sup> John Battelle describes the dramatic effects that powerful search engines such as Google are having on the advertising and marketing industries.

The net is also making it much harder for companies to keep secrets. If one of your products has flaws, or if a service you provide is sub-standard, then the chances are that the news will appear somewhere on a blog or a posting to a newsgroup or email list. And when it does, conventional PR news management techniques are ineffective.<sup>18</sup>

The emergence of a truly sovereign, informed consumer is thus one of the implications of an internet-centric world. This is significant, of course, but it was predictable, given the nature of the technology. And in the end it may turn out to be the least interesting part of the story.

### ***The couch potato bites back***

My conjecture is that the most significant consequence of an internet-centric world lies not in the arena of consumption, but in production. In blunt terms, the asymmetry of the old, push-media-dominated ecosystem looks like being replaced by something much more balanced.

The implicit assumption of the broadcast model was that audiences are passive and uncreative. In recent years, what we’re discovering is that that passivity and apparent lack of creativity may have been more due to the absence of tools and publication opportunities than to intrinsic defects in human nature.

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<sup>14</sup> Roy (later Lord) Thompson, the Canadian media magnate who also owned the *Times* and the *Sunday Times*.

<sup>15</sup> Erik Brynjolfsson and Michael Smith, “Frictionless Commerce? A Comparison of Internet and Conventional Retailers”, *Management Science*, vol.6, no.4, April 2000, 563-585.

<sup>16</sup> “Crowned at last”, *Economist*, 31 March, 2005.

<sup>17</sup> Battelle, John, *The Search*, Nicholas Brealey Publishing, 2006.

<sup>18</sup> Companies which have discovered this include Kryptonite, manufacturers of expensive bicycle locks, and the Sony BMG corporation, which used DRM (digital rights management) software on CDs which covertly installed a ‘rootkit’ on the customer’s PC, thereby potentially exposing it to malware attacks.

Take blogging – the practice of keeping an online diary. At the time of writing<sup>19</sup> Technorati, a blog-tracking service, was claiming to be monitoring 56.9 million<sup>20</sup> And new blogs were being created at a rate approaching two per second. Many of them are, no doubt, vanity publishing with no little literary or intellectual merit. But hundreds of thousands of blogs are updated every day or so, and many of them contain writing and thinking of a very high order. In my own areas of professional interest, for example, blogs are often my most trusted online sources, because I know many of the people who write them, and some of them are leading experts in their fields.<sup>21</sup>

What is significant about the blogging phenomenon is its demonstration that the traffic in ideas and cultural products isn't a one-way street, as it was in the old push-media ecosystem. People have always been thoughtful, articulate and well-informed, but up to now relatively few of them ever made it past the gatekeepers who controlled access to publication media. Blogging software and the internet gave them the platform they needed – and they have grasped the opportunity in very large numbers.

The result is a dramatic reversal in the decline of what Jürgen Habermas calls 'the public sphere'<sup>22</sup> – an arena which facilitates the public use of reason in rational-critical debate and which had been steadily narrowing as the power and reach of mass media increased. In recent years, the political implications of this re-energised public sphere have begun to emerge, notably in the debates among Democrats in the US about how to challenge Republican political ascendancy and the Bush presidency.<sup>23</sup>

### **Blogging and conventional journalism**

The explosive growth in blogging has prompted a predictable outburst of 'endism' – as in questions about whether the phenomenon marks the end of journalism. Yet, when one looks at it from an ecological perspective, what one sees is the evolution of an interesting parasitic/symbiotic relationship between blogging and conventional journalism. Several case studies – for example the Harvard study of the Trent Lott case<sup>24</sup>, and the *60 Minutes* saga<sup>25</sup> (which led to the premature retirement of TV news anchorman Dan Rather) – have delineated the contours of this relationship. In the Oxford presentation, I will focus on these case studies.

What has happened, I will suggest, is that a new organism has arrived in our media ecosystem and existing organisms are having to accommodate themselves to the newcomer. And *vice versa*. Interesting, complex – and essentially symbiotic – relationships are emerging between the new medium of blogging and more conventional print journalism. My conjecture is that this is beneficial to both.

### **Other kinds of user-generated content**

Another remarkable explosion of creativity comes from digital photography. In the last few years sales of digital cameras have grown phenomenally. Many mobile phones also now come with an onboard camera. So every day, millions of digital photographs are taken. Until the advent of services like PhotoBucket and Flickr.com, an understandable response to this statement

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<sup>19</sup> October 13, 2006.

<sup>20</sup> [www.technorati.com](http://www.technorati.com)

<sup>21</sup> For example [www.freedom-to-tinker.com/](http://www.freedom-to-tinker.com/) and [orweblog.oclc.org/](http://orweblog.oclc.org/).

<sup>22</sup> Jürgen Habermas, *Structural Transformation of the Public Sphere*, MIT Press, 1989.

<sup>23</sup> Frank Rich, "Ideas for Democrats?", *New York Review of Books*, October 19, 2006.

<sup>24</sup> "'Big Media' Meets the 'Bloggers': Coverage of Trent Lott's Remarks at Strom Thurmond's Birthday Party", Kennedy School of Government, Harvard University, Case Program, 2004.

<sup>25</sup> Dave Eberhart, "How the Blogs Torpedoed Dan Rather", NewsMax.com, 31 January, 2005. Available online at: [www.newsmax.com/archives/articles/2005/1/28/172943.shtml](http://www.newsmax.com/archives/articles/2005/1/28/172943.shtml).

would have been “so what?” But these services allow people to upload their pictures and display them on the web, each neatly resized and allocated its own unique URL.

Flickr was launched in 2004. By April 2005 it had 270,000 users, hosted four million photographs, was adding users at a rate of 30% a month, and its stock of photographs was growing at a rate of 50% per month.<sup>26</sup> I don’t know how many photographs Flickr now holds, but it must already run into many millions. The most interesting aspect of it is that users are encouraged to attach tags to their pictures, and these tags can be used as the basis for searches of the entire database.

When writing this I searched for images tagged with the word ‘Ireland’. The database returned 226,688 photographs. (A few months earlier, the same search had yielded only 85,000 images.) Of course, I didn’t sift through them all, but I did look at a few hundred. They were mostly holiday snaps, but here and there were some memorable pictures. What struck me most, though, was what they represented. Ten years ago, those holiday snaps would have wound up in a shoebox and would certainly never have been seen in a public forum. But now they can be – and are being – published, shared with others, made available to the world. And this is something new.<sup>27</sup>

In fact, strictly speaking, it’s something that ought not to be possible, at least in terms of the old media ecosystem. The blogging avalanche and Flickr’s visual cornucopia are just two examples of *user-generated content*, which to an old-style broadcaster would be an oxymoron, a contradiction in terms. In the previous paradigm, broadcasters *created* the content and users (audiences) merely *consumed* it.

In the emerging system, broadcasters and conventional media outlets will doubtless continue to create content, but so will a great many others. If present trends continue, there will come a point where more content is being produced annually by users than by the entire output of what the UK Treasury rather quaintly calls the “creative industries”. And when that crossover point is reached, we will have moved into uncharted territory.

### **The wealth of networks**

The explosion of user-generated content has been made possible by a conjunction of several technologies: the personal computer; inexpensive but powerful software tools; and the open internet. Jonathan Zittrain, a prominent cyber-legal scholar, describes the effects of this combination as “generativity”. This denotes, he says,

“a technology’s overall capacity to produce unprompted change driven by large, varied, and uncoordinated audiences. The grid of PCs connected by the internet has developed in such a way that it is consummately generative. From the beginning, the PC has been designed to run almost any program created by the manufacturer, the user, or a remote third party and to make the creation of such programs a relatively easy task. When these highly adaptable machines are connected to a network with little centralized control, the result is a grid that is nearly completely open to the creation and rapid distribution of the innovations of technology-savvy users to a mass audience that can enjoy those innovations without having to know how they work.”<sup>28</sup>

The most persuasive narrative to have emerged to date about the significance of generativity is Yochai Benkler’s *The Wealth of Networks*.<sup>29</sup> In it, he charts the remorseless industrialisation of the

<sup>26</sup> [www.oreillynet.com/pub/a/network/2005/02/04/sb\\_flickr.html](http://www.oreillynet.com/pub/a/network/2005/02/04/sb_flickr.html)

<sup>27</sup> It is also beginning to have a dramatic impact on the market for stock photographs – as the rise of [www.istockphoto.com](http://www.istockphoto.com) shows.

<sup>28</sup> Jonathan Zittrain, “The Generative Internet”, *Harvard Law Review*, vol.119, no.7, May 2006.

<sup>29</sup> Benkler, *op. cit.*

information economy from the early 1800s to the 1960s. In that century and a half, communications technologies tended to concentrate and commercialise the production and exchange of information. He writes:

“High-volume mechanical presses and the telegraph combined with new business practices to change newspapers from small-circulation local efforts into mass media. Newspapers became means of communications intended to reach ever-larger and more dispersed audiences, and their management required substantial capital investment. As the size of the audience and its geographic and social dispersion increased, public discourse developed an increasingly one-way model. Information and opinion that was widely known and formed the shared basis for political conversation and broad social relations flowed from ever more capital-intensive commercial and professional producers to passive, undifferentiated consumers.”

This model was readily adopted and amplified by radio, television and – later – cable and satellite communications. But the economics of long-distance mass distribution systems that were needed to reach expanding and geographically dispersed populations were typified by very high up-front costs and low marginal costs of distribution. “These cost characteristics”, writes Benkler,

“drove cultural production toward delivery to ever-wider audiences of increasingly high production-value goods, whose fixed costs could be spread over ever-larger audiences like television series, recorded music, and movies. Because of these economic characteristics, the mass-media model of information and cultural production and transmission became the dominant form of public communication in the twentieth century.”<sup>30</sup>

This was the world in which – as the old joke put it – freedom of the press was available to anyone who was rich enough to own a newspaper.

The combination of technologies which have produced Zittrain’s generativity has, Benkler argues, changed all that. The core functionalities needed to create, store and disseminate information, knowledge and culture are now widely available and cheap – at least by Western standards.

“Any person who has information can connect with any other person who wants it, and anyone who wants to make it mean something in some context, can do so. The high capital costs that were a prerequisite to gathering, working, and communicating information, knowledge, and culture, have now been widely distributed in the society. The entry barrier they posed no longer offers a condensation point for the large organizations that once dominated the information environment. Instead, emerging models of information and cultural production, radically decentralized and based on emergent patterns of cooperation and sharing, but also of simple coordinate coexistence, are beginning to take on an ever-larger role in how we produce meaning-information, knowledge, and culture in the networked information economy.”<sup>31</sup>

What has happened, in other words, is that ownership of the means of cultural production has passed from those who could afford their high capital costs in the old ecosystem to just about anyone who has a computer, some appropriate software and an internet connection. One doesn’t have to be a devout Marxist to realise that such a radical shift in the means of production will, in due course, impact on what Marx called the ‘superstructure’ – the culture that sits atop the fundamental economic realities of production.

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<sup>30</sup> Benkler, *op. cit.*, page 29.

<sup>31</sup> Benkler, *op. cit.*, page 32

**Conclusion: the emerging media ecosystem**

We can now begin to see the outlines of the media ecosystem that is emerging under the pressure of the developments discussed above. My guess is that it will be significantly different from the ecosystem that was dominated by broadcasting technology, and in which all of our regulatory apparatuses and many of our business models were designed.

The new ecosystem will be richer, more diverse and immeasurably more complex because of the number of content producers, the density of the interactions between them and their products, the speed with which actors in this space can communicate with one another, and the pace of development made possible by ubiquitous networking.

The problem – or ‘challenge’, to use the politically-correct term – is whether business models can be adapted to work in the new environment. As far as business is concerned, the answer is simple: companies that don’t adapt are in for a very hard time. And that, alas, includes newspapers.