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New Media as Social Facts: Researching as Shaping the Digital Landscape

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Introduction: researchers and new media

By the end of the twentieth century, media studies research within developed western societies had entered a middle-aged, stodgy period and wasn't really sure what it could say about things any more. Thank goodness the Web came along (Gauntlett, 2000: 3).

The emergence of new media (or digital media, or perhaps even 'the new economy') has certainly had some salutary effects on media studies. The advent of the Web has raised (or re-raised) a whole set of interesting questions for those concerned with researching various aspects of the media from those concerned with political economy and industrial organisation to those concerned with reception, interpretations and texts. Digital media frequently appear, even in the most sober accounts, to be some unstoppable tidal wave of change, a complex and multi-layered landscape moving so fast that researchers can only rush to try to keep up with its myriad implications and perturbations throughout society. This paper is concerned to break down that image, to try to show that its basic categories – digital media, developing quickly, researchers rushing to catch up – are, if not false, at least questionable. What I want to argue is that the researchers do not simply react, belatedly to the emergence of digital media, but that they have an active role in shaping its development. At the end of this essay I want to draw out some of the more practical implications of this point of view.

I want to begin, however, with a detour through some of the history of the Sociology of Knowledge.

Social Facts

If men define situations as real, they are real in their consequences
(WI Thomas quoted in Merton, 1957: 421)

The urge to write this paper comes from a growing dissatisfaction or sense of unease on my part with much of the literature on 'new media' (including some of my own contributions). Almost co-incidentally, I have been trying to get up to speed with the sociology of knowledge and Science and Technology Studies (STS). What I want to do here is to try to use some of the basic concepts from the sociology of knowledge and STS to analyse just what it is that makes me feel uneasy about so much writing about 'new media'.

The founding principle of the sociology of knowledge is, perhaps, the notion of the 'social fact'. This idea is most closely associated with Robert K Merton, although as Merton was at pains to point out, it is an observation that we can find in Mandeville, Marx or Freud, among others. Merton addressed the concept in an article called the 'self fulfilling prophesy' which he describes thus:

A self-fulfilling prophesy is, in the beginning, a false definition of the



situation evoking a new behaviour which makes the originally false perception come true (Merton, 1957: 423)

Merton's classic example of a self fulfilling prophecy was a run on a bank – if enough depositors heard that the bank was going to become insolvent, and acted on that rumour by taking their money out of the bank, then the bank would indeed become insolvent. Merton's second example concerned the relationship between ethnic groups in the United States. White workers, he suggested, saw black workers as dis-organised and un-unionised, prone to being used as strike breakers and, as a result of lower living standards, driving down wage rates. Acting on these beliefs, they excluded black workers from unions, and thus from many employment opportunities, driving black workers to accept lower wages and jobs in strike bound companies and excluding them from any opportunity to experience union organisation.

The sociologist Donald McKenzie (2000) has recently reminded us that such self fulfilling prophecies need not be socially pathological, nor need the prophecy be, in the beginning at least, 'false'. Indeed, fundamental social categories, such as money, are utterly reliant on widespread belief in their efficacy – a point that can be seen most clearly when, exceptionally, they break down (e.g., in the event of hyper inflation). Indeed, elsewhere Merton points to the 'Copernican revolution' in the Sociology of Knowledge as being the realisation that

not only error or illusion or unauthenticated belief but also the discovery of truth was socially (historically) conditioned (1957: 459).

Indeed the extension of this position, the notion that the same explanatory schema should be used to describe how true and false knowledge arise, has become one of the key prescriptions of the so-called 'strong programme' in the sociology of knowledge.

One of the key targets of the Strong Programme is the notion of a "fact". Studies of large technical systems and of laboratory sciences (e.g., Hughes, 1998; Latour, 1998), for example, have pointed to the complex networks which produce and sustain facts – for example, the "fact" that large central plant power generation is most efficient and the "fact" of bacteria.

A fact can thus be seen as the assertion of power(s) by a range of human and non-human actors to make some claim into a "fact" about the world – in the terms of Latour's actor-network approach, to make the network that sustains the fact 'act as one', a black box. Much of the work of STS, then, is the careful unpicking of the various threads of the networks that sustain facts, of revealing how they are contingent on a wider network that is hidden in the black box of facticity.

How can these founding insights of the sociology of the last century, and their development in STS, be applied to the field of new media? I want to start by unpicking one key, new media fact. My aim is not dispute the retrospective truth of the fact of rapid internet growth but rather to reveal some of the network of people and texts that support it. I then want to go on to show how this fact, far from standing outside that which it describes, acts to support its own contention, that it is a social fact.

The eclipse of all other technologies

No invention of modern times has extended its influence so rapidly as the electric telegraph (Scientific American, 1852 quoted in Standage, 1998)

One of the few facts about the internet to go almost uncontested is that it is "the fastest growing communication medium of all time". And as the quote above from the Scientific American in 1852 demonstrates, it is not the first communications technology



to claim that status. The sheer amount of repetition of this fact should, I think, make one uneasy. How can we trace out some of the strands of argument, the network, which sustains this almost universally accepted fact?

The earliest version of the claim that I can find appears in the well known commentator Bruce Sterling's influential 'Short history of the Internet' which, in 1993, averred that

The Internet's pace of growth in the early 1990s is spectacular, almost ferocious. It is spreading faster than cellular phones, faster than fax machines. Last year the Internet was growing at a rate of twenty percent a month. The number of "host" machines with direct connection to TCP/IP has been doubling every year since 1988. The Internet is moving out of its original base in military and research institutions, into elementary and high schools, as well as into public libraries and the commercial sector (Sterling, 1993)

However, the more recent, more influential and widely cited source is a report from the US Department of Commerce. Here we find the assertion in what we might call its classic form.

The Internet's pace of adoption eclipses all other technologies that preceded it. Radio was in existence 38 years before 50 million people tuned in; TV took 13 years to reach that benchmark. Sixteen years after the first PC kit came out, 50 million people were using one. Once it was opened to the general public, the Internet crossed that line in four years. (US Dept of Commerce, 1998)

More recently still we can find this claim all over the internet in a variety of settings:

The Internet is growing faster than any single technology in history, far faster than the railroad, electric light, telephone, or television, and it is only getting started. (Bradner, 2000)

Today the Internet is growing at a faster rate than any previous technology – faster than the telephone, than electricity, than television grew when they were introduced. (Pritkin, 2000)

The Internet is the fastest growing communication medium of all time, increasing far faster than its predecessors - television, radio, telephone and fax. It took 38 years before 50 million Americans were listening to radio. Television reached that many in only 14 years, however, the Internet had reached that number in just four years. (Oxford Branch of the British Computer Society, <http://www.bcsaxon.org/past2000.htm>)

Already one can see that there is some truth in the contention of copyright holders that the Internet is 'the biggest copying machine in the world'.

Let us explore this almost ubiquitous fact. Where does this fact come from? The US Dept of Commerce Report, a key source for many of its subsequent appearances, cites a report by Mary Meeker and Sharon Pearson for Morgan Stanley U.S. Investment Research: Internet Retail (Morgan Stanley, 1997: 2-2, 2-6) and goes on to note some of the assumptions underpinning its claim (for example, the fact that the data used for TV and other media are U.S. figures while the PC figures reflect worldwide users). Turning to the Meeker and Pearson report itself, the claim is rather more qualified. The critical text and, very importantly, the associated graph, are on page 2-2. The text, beneath a heading of 'Internet adoption is happening faster than in other media', reads: 'We believe that the internet has surpassed all of these [other media] in its rate of adoption' (emphasis added). Rather tellingly, the foot of each page of the report bears the following inscription:



This memorandum is based on information available to the public.
No representation is made that it is accurate or complete.

The centrepiece of the Meeker and Pearson's report however is a graph comparing the diffusion curves for radio, TV, Cable (see Figure 1). Adoption curves, a commonplace of technology diffusion studies, are generally seen as being S shaped and based on a broadly normal distribution of propensity to adopt with a few early adopter, a larger cohort of mainstream adopters, a small rump of late adopters (for a discussion of diffusion theory with respect to information and communication technologies see Mansell and Steinmueller, 2000: 104ff.). It is worth noting, however, that when Meeker and Pearson's report was published, they did not have data for internet adoption beyond the end of 1996 and they argue in the text (para. 2-3) that 'we believe that there are currently 30-35 million Internet users'. A footnote to the graph points out that the estimate for when the Internet curve will cross the magic line indicating 50 Million users is in fact a 'Morgan Stanley Technology Research Estimate'. Thus, at the time the report was published, there was no actual evidence that the 50 million mark had yet been achieved.

Meeker and Pearson's graph is also attempting to make a further claim based on the comparison of diffusion curves for different media to show that the internet is diffusing faster than previous domestic communications technologies. This claim can be challenged on a number of counts. For example, as Larry Press (2000) has pointed out, while 'some claim the Internet is growing more rapidly than earlier information technologies like radio or television,... such claims depend upon the choice of a starting date for the Internet and the definitions of growth measures' (Press, 2000). Let us start with the first of these two observations.

It is clear that the time taken to achieve the magic number of 50 million Americans is highly sensitive to the chosen starting dates and the criteria by which we choose them. Should this be the 'first' American internet user? Or should it be the first 'commercial' internet user? In what year was the internet 'opened to the general public'? A wide range of available dates can, of course, be suggested (for a useful account with a fuller set of possible dates see Kitchen 1998).

The problems multiply when we move to the comparative nature of these statements. For example, the arbitrary choice of '50 million Americans' as the benchmark figure becomes problematic in the context of the inter-temporal dimensions of the implied comparison. The original Morgan Stanley report stated that, 'Although these numbers are not adjusted for population growth, it is clear to us that the adoption rates for new media have accelerated over time — TV was faster than radio, cable came on even faster (despite the new infrastructure it required that previous broadcast media did not), and we believe that the Internet has surpassed all of these in its rate of adoption' (1997: para. 2.2). Leaving aside the issue of why Americans are seen as the benchmark community, we can raise questions about the figure of 50 million. According to the US Census, the US population was 62,116,811 in 1890, long after the telegraph boom. By 1997 the estimate was 266,490,000, after growing by 18 million in the period between 1990 and 1997 (US Dept of Commerce/Bureau of the Census, 1998: 6; see also the superb US Census browser at <http://fisher.lib.virginia.edu/census/>). As a proportion of the US population, of course, 50 million is a far less impressive percentage of 266 million (around 18%) than it is of 122 million (41%) or 62 million (80%). The comparison between media looks very different if we choose, not the arbitrary figure of 50 million, but a proportion of the US population, say 20 per cent. Our target figures for the telegraph might be a mere 12 million users and for radio or the television more like 24 million. In this context, the growth of the internet appears much more modest.

I want to focus on yet another problem with these comparisons. To make such a comparison is to treat each of the elements, or to suggest that each of the elements should be treated, as discrete or unrelated. This is quite clearly not the case for internet access. What the comparison effaces is the differences between the various media. Now, what is important is that the internet is wholly reliant on earlier rounds of technology



investment – the internet curve builds on the earlier curves. For example, as Michael Mingos has pointed out:

Telephone lines and personal computers are key components for Internet access. Both have significant impact on the take-up of Internet in a country. Dial-up Internet access requires a telephone line and a personal computer (with a modem). These hardware components thus constitute an upper limit for Internet access. For example, if 25 percent of households have personal computers with modems, then Internet access from households cannot exceed 25 percent. Pro-Internet policies will not be successful if they do not address these fundamental access requirements. (Mingos, 2000)

What is more, we can push this analysis further. The earlier technologies were obliged to finance the construction of huge infrastructures, substantially, if not totally, from scratch.

Here I want to use the notion of infrastructure developed by Susan Leigh Star and Karen Ruhleder (1996). For Star and Ruhleder, the question is not what is an infrastructure but when is an infrastructure. For them, the nature of infrastructure is relational. What is infrastructure for you may not be for me, and what is regarded as infrastructure changes over time. What is more, the classic feature of an infrastructure is that it does not draw attention to itself, usually it just works (which is why its infrastructural nature is revealed when it breaks down and why it is so easy for Meeker and Pearson to ignore the infrastructural basis of rapid internet adoption). In short, infrastructure is the taken for granted. To the cook, turning on the tap to get water for cooking is using an infrastructure. She does not even think of the pipes, regulators, pumps, and filtration plants and reservoirs, coupled with billing systems and so on. For the waterboard engineer, however, these things are the very stuff of action and not at all infrastructural. One advantage of the Star and Ruhleder understanding of infrastructure is that it doesn't limit us to an infrastructure of things, but can be extended to include 'social infrastructure' – the taken for granted dispositions and ways of behaving of people and groups that become apparent mainly when they break down. And once again, this is dependent on context and position. What is infrastructural from one social, personal, spatial or temporal perspective is certainly not from another.

Let us return to communications infrastructures. For the telegraph network to develop, wires had to be strung between every telegraph office which was to be connected and vast numbers of telegraph operators had to be recruited and trained, property had to be acquired to house them, and a local delivery network had to be constructed for telegrams to reach private residences and offices. The telephone, while able to build on some of this network (and replace other aspects) required new space for operators (exchanges), and customers had to rent or buy customer premises equipment, complex billing systems had to be developed and so on. For radio broadcasting, a network of radio masts had to be created, together with the cables to link them together. Studios for broadcasting and recording were created and customers had to purchase radio sets (and, in many countries, licences). Subsequent technologies have, of course, built on many of these "infrastructures" – television, for example, built on the network of transmission sites it inherited from radio, although it still had to construct new transmitters and a different type of distribution network to feed those transmitters. Further, and unlike radio, television or telephone, the internet, at least in its current form, builds on the development of mass literacy over the last 300 years.

My point is that what is infrastructure for the internet – taken for granted services, objects and behaviours – was not so for earlier technologies. (Interestingly, Meeker and Pearson, do allude to this matter, but in a rather confusing way by pointing to the substantial conventional infrastructure required by cable, which they confusingly contrast with 'previous broadcast media' which they claim did not require new infrastructure.)



The internet was able to grow so fast, at least in part because it could use these invisible infrastructures, above all the 'last mile' of the public switched telephone network and the installed base of home computers. To be an early adopter of television, the consumer had to spend very significant sums of money (relative to average earnings) on a television set and a licence. To be an early adopter of the internet, a household that already had a personal computer and telephone line, needed only to buy a modem and subscribe to an ISP. The comparison implied in the claim that "The Internet is the fastest growing communication medium of all time" is therefore a difficult one.

Facts in the World

So far I have simply tried to show that what is regularly taken as an established fact about the internet is less straight forward than one might think and that, at the time it was put forward, rested on a mixture of assertion, estimates, and beliefs, coupled with some questionable inter-temporal comparisons. One response to this has been to argue for better Internet statistics, less shaped by the needs of business plans and embodying more rigour (see for example, Jordan, 2001). Here I want to take another tack and move from examining the network which has sustained that the claim for the unprecedented fast growth of the internet, to the effects of that claim in the world. Specifically, I want to suggest that the rapid growth of the internet is, in part, a 'social fact. That is to say, the fact that claims about the rapid growth of the internet are believed and acted on by investors, companies and consumers, lead them to invest in and adopt the internet and therefore render those claims correct. Of course, to make this thesis stick we would have to show how the belief that internet adoption is growing fast encourages internet adoption. While the economics of networks would suggest that that would not be an unreasonable thesis, we obviously need some more substantial evidence.

First, we can return to Mary Meeker, author of the Morgan Stanley report which we met before. Meeker has been a well known figure in the field of financing internet-based activity, for some, 'the Queen of the Internet'. For example Network World (01/04/1999) identified her as one of the '25 most powerful people in networking', while Wired News (21/12/1998) opined that 'when Mary Meeker speaks, markets move'. Her reputation in the late 1990s was as a highly bullish analyst of the internet. In an interview with Business Week (16/9/1999) the following exchange occurred

BW: How would you describe your contribution so far?

Meeker: I'd prefer to have you or someone else answer this question! I'd like to think that the folks at Morgan Stanley and I helped create important, insightful, and credible playbooks for the evolution of Internet businesses and that we helped legitimize the financing of Internet companies with early, critical, and aggressive financings for especially successful companies such as America Online, Netscape, excite@home, and Amazon.com. And, importantly, while I have certainly had my share of screwups, so far [over the past decade] we have been on a ride with our stocks and investors for hundreds of billions in market capitalization appreciation.

At Meeker's own estimate, her role has been in creating and supporting the necessary financing for many Internet retailing companies, including some of the largest and most widely known. Much of this finance was dedicated to marketing the internet to US (and other) households. Meeker, Pearson and Morgan Stanley were by no means mere observers of the development of the internet – they were crucial players in channelling money into its development. The Internet Retail Report and above all the memorable and much copied graph, were crucial instruments in enabling them to play that role.



The crash in the share price of most internet-related stocks (including Meeker favourites, such as Yahoo, Amazon and Ebay) has, of course, significantly undermined the authority of Meeker and Morgan Stanley. By 2001, the internet trade journal *The Industry Standard* (274/2001) was headlining an article 'Mary Meeker Speaks, But Probably Shouldn't', describing the analyst as 'Missing In Action'. However, she remains a long term internet enthusiast, subsequently being quoted in the industry magazine *Red Herring* (15/06/2001) as saying 'We will likely go through more bad times before we get to "normal times." That said, we reiterate our view that we continue to be upbeat about the underlying secular global growth for Internet users, uses, and usage.' Although Morgan Stanley, successfully defended a class action in 2001 from aggrieved investors in internet stocks which had been boosted by Meeker's reports, the US Securities and Exchange Commission has begun an enquiry into the flotation of lastminute.com, focusing on Meeker's role (Walsh 2002).

In this story, however, Mary Meeker is, perhaps, less important than the report which she helped to author – it is the report which is the real actor. In spite of the revelations about the linkages between the research and investment banking business of Wall Street companies such as Morgan Stanley, the report remains (as of June 2002) on the Morgan Stanley website. However, the impact of the report was perhaps most powerfully amplified by its take up by the US Department of Commerce in its E-commerce report. It is the Department of Commerce formulation that is most widely found on the internet. A quick search on Google.com for 'took radio 38 years 13 Television Internet 50 million' returns over 40,000 pages from companies, voluntary organisations and universities, the vast majority of which contain a version of the Department of Commerce's version of the fact.

Another way of beginning to test the thesis that rapid internet adoption is, in part, a social fact is to see what happens to counter claims – those who argue that the internet is not straightforwardly growing fast. Here my evidence comes from the UK ESRC's Virtual Society? (VS?) Programme. Sally Wyatt prepared a conference paper, publicised on the VS? website, entitled 'They came, they surfed, they went back to the beach: why some people stop using the internet' (1999). Wyatt pointed to the results of American researchers (Katz and Aspden, 1998) who had included the category of 'former internet user' in their questionnaires 'for conceptual clarity'. Much to their surprise, their survey suggested that as many as 8 per cent of their sample fell into that category. Further, the study had found that it was teenagers who were most likely to be former users. Wyatt's paper was drawn on in a presentation by the Virtual Society? Director, Steve Woolgar, in a meeting with UK journalists at a Press Lunch in London on 29 November 2000. Some of the subsequent media furor is detailed on the Virtual Society? Web pages (<http://virtualsociety.sbs.ox.ac.uk/reports/media.htm>). Many of the media sources sought to rubbish, or contradict the research. The most spectacular over-reaction however, came from Channel 4 News which announced that "although some researchers are saying that no one is using the Internet, in fact Channel 4 can reveal that lots of people are still using it" and proceeded to interview a number of teenage users of the internet!

Conclusion: Reflexivity and Responsibility in (New) Media Research

My purpose in all of this has not been to suggest that the internet is not (was not?) growing fast. Rather what I have tried to show is that the widespread belief in the claim that the internet is growing fast, indeed faster than all previous media, is part of the reason that it is growing fast. In short, I have tried to show that the rapid growth of the internet is, in part, a social fact.

I have focused on the fact of the growth of the internet, but my argument should not be seen as restricted to this one aspect of the development of the digital media



landscape. To give just one brief example, I could have focused on the claimed propensity of digital media to 'cluster' together in 'Silicon Alleys'. Here too we have the necessary ingredients for a social fact – that is to say one that is widely believed by policy makers who act to support it with incubator units, networking events, managed workspace and all kinds of inducements and support. In this context too, it is difficult to distinguish between representation and effect.

I am reminded in all this of a study by Michel Callon (1998), sociologist of science and technology, of an electronic strawberry auction in France. As Callon noted, the strawberry auction appeared to work as an almost ideal market according to the economics textbooks. For the economist, it was a kind of proof of the adequacy of economics leaving nothing 'sociological' for the sociologist to explain. Yet on closer examination, Callon makes clear that part of the reason why the market operated in this way was that it was carefully constructed to do so. It had, indeed been designed by a trained economist who had sought to ensure that the market conformed to the neo-classical ideal (separation and anonymity of buyers and sellers, standardised descriptions of goods through the grading of strawberry quality, price oriented information flows). It was, thus, no great surprise to find that the constructed reality reflected the textbook because the textbook had been instrumental in its design.

Callon has used this example to remind us that the relationship between the discipline of economics and the "real" economy is a complex one, in which the discipline of economics does not stand outside of and reflect on the workings of the economy, but in which it is an essential part of the network of things, people, practices and principles that make up the economy. 'We should not forget,' he writes, 'the essential contribution of economics in the performing of the economy' (Callon, 1998: 23). Thus, for example, he suggests,

Homo economicus does exist, but is not an a-historical reality; he does not describe the hidden nature of the human being. He is a result of a process of configuration (Callon, 1998: 22)

This configuration involves a wide range of elements, but crucially, it also requires economic theory. In the same manner, we might suggest that the rapid growth of the internet does exist, but it too is no outward expression of some technological or industrial logic inherent in the "nature" of the internet. It too, is a result of configuration. And again, it is one in which research makes an essential contribution.

If I am right, and the proliferation and recycling of the notion of the rapid development of the internet is an important part of the process of bringing about exactly that outcome, then this has important implications for media researchers. We cannot see ourselves as outside of the digital media landscape, mere observers and measurers of its dimensions. Rather we are deeply implicated within it. What we choose to focus on, highlight, or recycle can have real effects, perhaps more so in the field of digital media, where change is perceived as so rapid and there is so little certainty around, than in other fields. Even if our research does not have the same impacts as Mary Meeker's, researchers play a powerful role in shaping the digital media landscape.



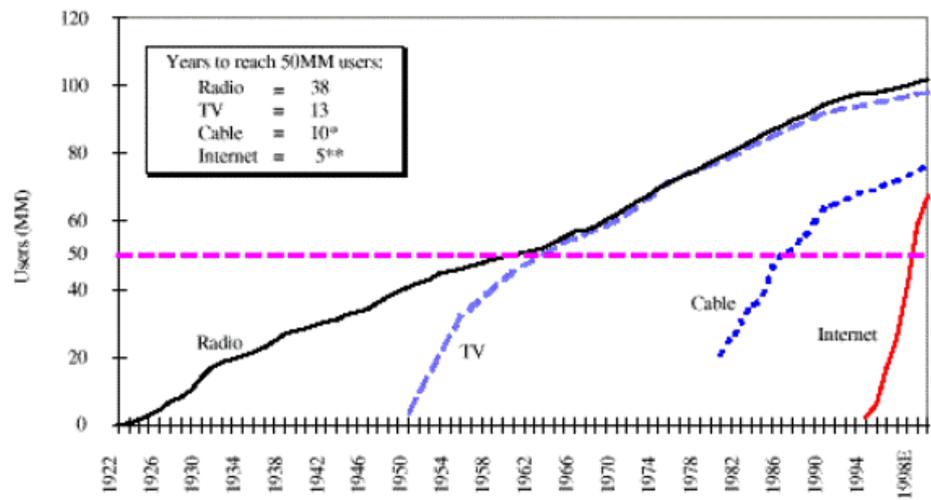
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Internet as a Mass Medium

Adoption Curves for Various Media — The Web Is Ramping Fast



Source: Morgan Stanley Dean Witter Technology Research. * = Morgan Stanley Dean Witter Research Estimate.

Figure 1

(Source: Morgan Stanley Dean Witter, 1997)

