THE PARADOXES OF INFORMATION MARKETS.

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"…the most interesting characteric of symbolic exchange is that the symbolic object cannot actually be expropriated or possessed. … the function of such exchange is not accumulation but the maintenance — at all costs — of the relation between the exchangers" [1]

INTRO

The new right

The emergence of the multimedia market in the 1980s coincided with a sea change in state policy toward communications & media signalled by the coming to power of 'new-right' governments in the US and UK. At the heart of new-right policy was the belief that it was the dynamic of the free market that would most effectively transform the existing telecom and broadcasting monopolies into a market for many diverse digital telecommunication services including, eventually multimedia. For the Thatcher and Reagan governments technology and private enterprise were seen as the foundations of the new information economy. In terms of policy this meant the deregulation and privatisation of the existing broadcasting and telecommunications monopolies in order to provide both financial incentives for innovation and to benefit consumers by encouraging competition between media and telecommunications providers.

At the same time the notion took hold, boosted by writers such as Alvin Toffler, Nicholas Negroponte and many others, that the new media technologies heralded the advent of a qualitatively new phase in human history in which ever-faster computers and expanding bandwidth allied to free markets would lead to major increases in wealth. There was much talk of a new economic paradigm and a 'weightless economy' in which 'information' would become the new source of wealth.

Aim

In this paper I wish to draw attention to the contrast between the brilliant advances in multimedia at the technical level and a whole series of failures at the commercial level. These failures are exemplified by the dot.com crash and the financial travails of telecommunications companies & broadcasters on both sides of the Atlantic.

1 PHILOSOPHY

How to explain?

In this paper I want to deal with these puzzles by taking an epistemological approach — in the sense

about the statement ‘Cretans always lie’ – it is a metamessage and as such it is of a higher logical type. The function of the metamessage is to classify the messages that occur within its context. [M&N p.116] In the case of the Cretan paradox one statement reclassifies the other. The answer to the question is the Cretan telling the truth is: ‘if yes, then no’, and if no, then yes.’ [M&N p.117]

Bateson

Although ‘Principia Mathematica’ deals with very abstract matters it provided the British anthropologist & polymath Gregory Bateson with the insight that it could be applied to all forms of communication. According to Bateson every communication contains meta-messages that give information about the message. These meta-communications may be verbal or non-verbal, as in tone of voice, demeanour (in the case of animals the body languge or posture which indicates ‘this is play’) or they might be contextual – the environment in which the communication takes place.

For Gregory Bateson when a society fails to make valid predictions about the real world it indicates epistemological error. In his essay “Pathologies of Epistemology”[2] Bateson discussed whether it was possible to talk about a “true” ideology. By this he meant whether the mental maps we had of our place in the order of things could ever represent an accurate reflection of the “real” world in which we lived. Bateson pointed out that a paradigm or world-view could work for a society even though it was not “true” in a scientific sense because “epistemological error is often reinforced and therefore self-validating. You can get along all right in spite of the fact that you entertain at rather deep levels of the mind premises which are simply false.”[3] The problem is that if the mismatch between epistemology and reality is significant it can lead to, at best, paradox and, at worst, extinction. Epistemological error is all right up to the point at which you create around yourself a universe in which that error becomes immanent in monstrous changes of the universe that you have created and now try to live in. Bateson calls such inappropriate idea systems pathological epistemologies. Thus for Bateson a pathological paradigm is one that fails to take account of the different levels (or contexts) of the reality that the statements it generates purports to model.

Economics as injunction

Economic paradigms represent statements in a communication -- they are essentially injunctions to organise society in a particular way. Implicit in these injunctions are assumptions about the nature of the categories and relations between categories which punctuate the ‘economic universe’. Essentially the free market paradigm upon which media and telecommunications policy has been based from the 1980s to the present is that of founders of economics like Adam Smith and David Ricardo in the 18th Century and further developed in the 20th century by economists such as Marshall and Friedman.

Capitalism is controlled not by physical forces, but by the feedback of information about its past present & probable future states. [5]

As Keynes pointed out in the 1930s the key information in determining whether an economy grows or contracts is the expectation of profit. When the expectation of profit is high businesses will invest which will expand production. When the expectation of profit is low they will retrench, production will fall, unemployment rise.

The semiotic nature of capitalism is most clearly demonstrated by the cybernetic phenomenon of the business cycle of boom & bust. Just as the Cretan paradox sets up a paradoxical loop by treating statements of different logical types as being of the same logical type – (statements about the class of all Cretans as against statements by one Cretan) so capitalism sets up the paradoxical loop of the boom & bust cycle. When economic activity is low costs are low also & this encourages corporations to begin to expand production which then ripples through the economy. Production will increase as long as there is confidence that the expansion will continue. But as the expansion spreads, costs will begin to rise, competition will increase, and expectation of profits will fall. Thus the paradox: at a certain point in a recession expectations of profit will increase leading to an expansion which creates the conditions for the next recession. The business cycle demonstrates that what is rational at the individual level can become irrational at the social, collective level – the level of relationships with other people & the natural environment.

MEDIA PARADIGMS

I want now to look at the paradigms which have underpinned state policy toward electronic media. A paradigm is a communication -- an injunction to act in a certain way.

A paradigm is also a system of values in the sense that it may be mobilised, appealed to in support of one course of action over another. In this sense every paradigm is inevitably ideological.

Pre-1980s State Telecommunications policy

The media and communications landscape that had emerged in the inter-war and post war years had been based on a general faith in the powers of rational public organisation. It was the product was a faith in technology, and rational planning. There was also a belief in the virtues of scale, at least when it brought order to the untrammelled market. Underlying it all was an abhorrence of commercial mass culture on the part of the political establishment both right and left.

***Post-1980s* State Telecommunications policy**

In contrast, as has been mentioned, the regime of state regulation that emerged in the 1980s saw the

Mathematical concept of Information

Coincidentally this concept of the information market has its origins in attempts to commodify telephony communication in the 1940s. In order to improve the electromagnetic efficiency of telephone wires and equipment Claude Shannon, an employee of the Bell Telephone Company,[6] created a model in which information was conceptualised as a quantifiable entity. Shannon's ideas, though seemingly technically narrow, had a wide influence. In constructing an abstract model of a telephone system, Shannon developed a "concept of information so logical and precise that it could be placed in a formal framework of ideas"[7].

Within media studies many theorists of a behaviourist disposition took up Shannon's information theory as a model for the study of the media for example in analysing the 'information value' of news.[8] But, crucially, by describing information as a quantity Shannon provided a paradigm logically similar to that of the classic free market paradigm and so provided a rational basis for the concept of an 'information market'. Actually what Shannon and his co-worker Warren Weaver were concerned with was the physics of communication and not with the meaning or effect of the signals[9].

Since the Shannon-Weaver model conceptualises information as a measurable entity it compounds the basic epistemological error which is the exclusion of the social context – the reality that for communications to take place there must be shared language and shared assumptions about what is relevant. The failure to recognise this allows information to be seen wrongly, as merely an economic category subject to the classic laws of the market

Telecomms: A Natural Monopoly

The belief upon which state media and communications policy has been based since the 1980s and 1990s is that a combination of digital technology and free markets will bring rich and diverse media offerings to consumers and a boost to the general economy. But, in trying to apply this model, governments have been attempting to impose a free market on a domain dominated by monopolistic telephone companies and broadcasters -- nothing like Adam Smith's classic market of small tradesmen. In fact telecommunications are, as the early regulators were well aware, a natural monopolies.

Economies of Scale versus Competition

Under the new right regulatory regime different companies, with different cultures, who had previously operated in the separate worlds of telecomms and broadcasting, found themselves to be potential or actual rivals. Even if the legislators had ignored the reality of economies of scale the corporations had not and consolidated through a whole series of mega-mergers. Faced with the uncertainty caused by deregulation, the former monopolists in broadcasting, telecomms and cable did not set out to compete

system, operating at very high frequencies of infrared light, can carry many more signals than can be transmitted through the air over the entire radio spectrum.

Gilder calls this potential the "fibresphere"[10] and it was a version of the fibresphere which was promised by the telephone and cable companies. For example in 1993 Pacific Bell promised that it would spend $16 billion upgrading its system to all optical fibre by 2000. However the fibersphere has so far proved too expensive for even the biggest players, because, in a fragmented, oligopolistic market, no one can afford to risk the considerable investment involved in setting up broadband multimedia networks. (The Pacific Bell scheme was scrapped in 1997)[11]. In both the US and UK the costs -- of cabling, acquiring content, and gaining access to markets through expensive mergers -- has been high and has left companies with high levels of debt. The ability to get a return on investment has also been inhibited by competition from satellite, telecomms and video-cassette as well as existing terrestrial broadcast networks. Where investment has taken place it has been generally tentative and unprofitable. Rather than bravely innovate there has been a desire, particularly on the part of the telecom companies, to protect and exploit their existing copper infrastructure.

By the 1990s governments had come to recognise the necessity for economies of scale and the contradiction between competition and investment and began to place the emphasis on policies to encourage business mergers and alliances.

For example, in 1996 the US Telecommunications Reform Act removed barriers to entry, allowing extensive cross-ownership and also in 1996 the UK Broadcasting Act relaxed rules on cross-ownership to encourage investment in new technologies. However these measures have still failed to encourage media corporations to undertake the necessary investment.

Demand Overestimated

At well as underestimating the cost of bringing new technologies to market the industry has also grossly overestimated the size of the digital multimedia market.

It has become clear that there is not the consumer demand for the cornucopia of multimedia goodies that the new technologies promise – not least because these products are uniquely time based and there are only so many waking hours in the day.

It has also been suggested that the amount of disposable income spent by consumers on media is related to the level of national income and remains constant over time.[12] In the United States it is estimated that consumers spend less than US$150 per year on video rental which translates into a market of US$14 billion. Even if all of these homes switched entirely to video-on-demand, for example, profits would not seem adequate to make the huge investment worthwhile.[13]

Thus by the turn of the new century the plans of the cable and telephone companies to provide

This failure is due to basic flaws in the epistemological assumptions upon which current policies are based.

A Public Information Utility

In the early heady days of the 'Information Revolution' Vice-President Al Gore used the term 'Information Superhighway' to describe the new technology. There is a way in which I think this concept has some relevance since, like roads, public communications systems are natural monopolies. Just as it makes no sense to have rival parallel roads between cities so a plethora of rival transmission systems is inefficient and reduces utility for consumers.

I would like to outline some principals upon which a more functional system of public communications might be built.

In the first place ownership of the means of transmission should be conceived as a public utility free from state or commercial influence (the BBC, though far from perfect, is a model).

Finance for maintenance could be raised by tolls on usage by commercial enterprises. Just as the state builds the real highways so there is a strong case for using general taxation to build the fibre based network which private corporations have been reluctant to construct.

Just as any traffic can use the highway so any publisher should be free to make their offerings to the public with no proprietary gateway function to restrict access.

Finally, I would argue the strengths of this epistemological approach to public media and communications policy are: that, firstly it focuses on what is to have a theory that is adequate to human purposes and, secondly that it reminds us that a dysfunctional public sphere compromises our ability to bequeath a safe social and ecological environment to future generations. Thirdly such an approach reminds us that the desired 'output' of a human system is not some quantity measured in cash but a state of mind and body.

These views may be considered naive in the current climate of global capitalist hegemony but as Jameson has argued "(the proposition that)'The market is in human nature' cannot be left to stand unchallenged … it is the most crucial terrain of ideological struggle in our time."[14]

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[1] WILDEN, A , System and Structure. Essays in Communication and Exchange , London Tavistock Publications Ltd, 1977, p.20

[9] For this reason the engineer and philosopher Heinz von Foerster has argued that information theory ought really to be called ‘signal theory’ Wilden, A , *The Rules are No Game. The Strategy of Communication*, London Routledge Paul, 1987 p175

[10] Interview on BBC Radio4 In Business 12 May 1993

[11] Kushnick, B, How the Bells stole America's Digital Future, at http://www.netaction.org, (visited 22/3/01)

[12]R. Allen, 'This is not television …' in Steemers (ed.) *Changing Channel: the Prospects for Television in Digital World*, Luton, University of Luton Press, 1998, p.65.

[13]N.Munford, L.Kolbe, and W.Brenner, ‘*Convergence of Media Machines & Messages’*, Convergence, Vol.3, No.1, 1997, p.117.

[14] Jameson F, Postmodernism Or The Cultural Logic Of Late Capitalism, Verso, 1991 p263