ICTs, the Knowledge Economy, and Neo-Liberalism

Richard Hull
Sociology & Communications Group
& Centre for Research on Innovation, Culture & Technology
Department of Human Sciences
Brunel University
Uxbridge, Middlesex, UB8 3PH, UK

Email: richard.hull@brunel.ac.uk

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Abstract
It is a common argument that ICTs have enabled a new epoch in which information and knowledge play a central role, economically, socially and politically. This paper suggests that such arguments – despite any ‘radical’ intentions – are in danger of perpetuating neo-liberalism by promoting government intervention into the production and use of information and knowledge. It argues (1) ‘Knowledge’ as a unit of analysis was linked to the emergence of neo-liberal theories in 1930s. (2) Those theories used what were apparently ‘problems’ with knowledge to justify markets. (3) They also entailed a paradoxical coupling of ‘post-positivist’ epistemology with sovereign ethics. (4) That coupling was apparent in the social science input to ICT development from late 1950s. (5) Social science analysis of ICTs then mistakenly extrapolated from the specific to the general. (6) Current social & political theory which utilises ‘knowledge’ or ‘information’
as units of analysis must deploy the same paradoxical coupling, and hence run the risk of perpetuating neo-liberalism.

1 Introduction

1.1 ‘Knowledge’ in current social & political theory


Although the style, scope and politics of such analyses are widely divergent, they share enough features for one to label them together as ‘Knowledge Economy/Society’ (KE/S) theses. Firstly, not only do they assign a new central role to ‘information’ and ‘knowledge’, it can also be shown that these two concepts are assumed within the KE/S theses to be relatively simple and unproblematic when compared with the various broader epochal changes that are being described and analysed. For instance for Castells (1999) a simple formulation of ‘information’ is the foundation for a ‘new mode of capitalism’, and for Knorr Cetina (1997) it is new types of ‘knowledge process’ which are the foundation of new social arrangements and identities. Secondly, they ascribe universal attributes to ICTs in terms of those relatively simple understandings of ‘information’ and ‘knowledge’, so that for Webster (1995), following the lead of Schiller (1984), ICTs
simply generate an ‘informatisation’ of life in general, and for Hodgson (1999) they generate a qualitatively new ‘knowledge intensity’ within the labour process.

We can suggest then that the KE/S theses view ‘information’ and ‘knowledge’ as relatively simple observable phenomena – and hence ‘depoliticised’, devoid of any inherent politics. For such analyses, politics – whether macro and governmental level or micro and local level – merely affects the production, distribution and use of ‘information’ and ‘knowledge’, they do not affect the conceptual definitions of the phenomena themselves. The neo-Hegelian analysis of Žižek (2000) develops a similar critique of the ways in which much contemporary social and political theory, even of the most radical and critical types, ‘depoliticise’ the economy: see it being composed of conceptually simple observable phenomena (money, goods, market mechanisms) which are thought to have no inherent politics, and are only subsequently affected by politics.

For the KE/S theses in other words, the political philosophy of any government – whether neo-liberal, social democratic, socialist, Marxist or totalitarian – would have no effect on the essential (and relatively simple, as they see it) characteristics of ‘information’ and ‘knowledge’. In this paper we take a different view. In particular we argue that there was a specific political context for the emergence, within social, political and economic thought, of the idea that ‘knowledge’ was an entity of interest outside philosophy; an entity whose production, distribution and use could be described; and an entity of central importance to economies and society. This emergence of ‘knowledge as a unit of analysis’ was inescapably linked, we argue, to the parallel emergence of neo-liberal theories, techniques and modes of argument.

1.2 Neo-liberalism as a mode of rule, rather than an ideology

We should stress that we are viewing neo-liberalism as a widespread ‘mode of rule’ (Rose, N. 1999), rather than merely a particular ideology, set of policies, or hegemonic apparatus. The standard critical discussions of neo-liberalism see it as a sophisticated combination of theoretical justifications and policy instruments which attempt to ‘roll back’ the welfare state or public sector spending, and to use government intervention to
de-regulate and allow greater freedom for market forces, primarily as a response to the needs for economic adjustment and renewed legitimation of government following a series of globally significant events such as the oil crisis of the 1970s and the apparent failure of Keynesian and socialist arrangements. The recent versions of the KE/S theses all appeared, in the mid 1990s, after an extensive period of debate about the rise of neo-liberal policies and the ‘new right’. However, that debate had been essentially negative, emphasising resistance to neo-liberalism and a return to the previous role of the public sector. There was very little discussion, prior to the KE/S theses, which offered an alternative to either neo-liberal marketisation or a return of the ‘old welfare state ways’. However, with the KE/S theses we see, alongside the focus on changing patterns of ‘knowledge production’ and the shift towards knowledge as a new resource, a decidedly interventionist approach – the state now has a new role to play in promoting knowledge capabilities and ensuring the adequate conditions for the new patterns of knowledge production to be profitably mobilised. The KE/S theses are, we could argue, often seen by their proponents as the viable alternative to neo-liberalism.

There is, however, a more rounded view of neo-liberalism which places less emphasis on ‘public versus private’ and analyses in detail the specific policies, practices, and supporting theories and techniques within the social sciences (Barry et al., 1996a; Rose, N. 1999). Whereas classical liberalism had seen both society and markets as essentially ‘natural’ phenomena, the neo-liberalism of Hayek, Friedman, and others sees markets as only existing “under certain political, legal and institutional conditions that must be actively constructed by the government” (Barry et al., 1996b, p. 23). Markets are no longer seen as delicate natural mechanisms not to be interfered with, and are now seen to require the constant attention and reinforcement of government. In other words neo-liberalism is defined more by the focus rather than the extent of government intervention.

This alternative view of neo-liberalism, which disinters its detailed modes of operation within specific aspects of government, also emphasises its necessary support from areas of existing and new expertise. The 20th century saw the emergence of new relations between expertise, the State and citizens in which new forms of expertise such as
accountancy, audit and financial management establish one form of meta-authority over other expertise; and where citizenship becomes more ‘active’ than ‘passive’, more a series of active attitudes, participations and involvements, rather than a passive status as recipient of rights and voting duties (Rose, N. 1999). On this view, government intervention in ‘knowledge production’, and a citizen’s duty to be knowledgeable, both appear less of an alternative to neo-liberalism.

1.3 ICTs and the ICT Techno-Economic Paradigm
We also adopt here a different perspective on the characteristics of ICTs, revising the theory of an ‘ICT Techno-Economic Paradigm’ (ICT TEP) (Perez, 1985; Freeman & Perez, 1988). In brief, the concept of an ICT TEP suggests that ICTs are at the heart of a long (50-year) shift in the ways in which both production and consumption are organised within capitalist (or rather profit-motivated) economies. Our revision re-asserts the original focus on microelectronics and retains the utility of the ICT TEP analysis to describe the pervasive and generic diffusion of ICTs, but discards the theory’s description of the ‘information intensity’ generated by ICTs. However, we also suggest that there are three distinct ‘frameworks of computing’, ways of understanding, developing and working with computers, which have all been strongly influenced by different social science analyses of the proper relations between people, machines and organisation. It is the two later frameworks which most correspond to the types of ‘information and knowledge effects’ generally ascribed to all ICTs, although the earliest framework still pervades much computing and could indeed re-assert its dominance. However, with those two later frameworks the development of specific types of ICT relied on particular types of social science which had strong connections with the emergence of ‘knowledge as a unit of analysis’.

2 The emergence of ‘knowledge’ as a unit of analysis
Let us now take one of the central features of the various KE/S theses, the notion that ‘knowledge’ is a relatively unproblematic entity, and that it is a relatively easy matter to say that ICTs enable ‘more’ knowledge to be produced, and a relatively easy matter to say that the advanced industrial nations ‘have’ more knowledge, or are ‘using’ it more, or
that knowledge is ‘more’ central to the economy and to social life. Indeed, the extent to
which ‘knowledge’ has become a calculable entity in this sense is dramatically illustrated
in the emergent forms of Knowledge Management, particular sets of techniques and IT
systems, increasingly deployed in organisations to improve the ways in which knowledge
is ‘leveraged’ or put to use for economic gain (Coombs & Hull, 1998; Hull, 1999;
Prichard et al, 2000). Consider also the extent to which academics and management
consultants now attempt to sub-divide and categorise knowledge. At the most basic level
we have the distinction between ‘tacit’ and ‘explicit’ knowledge, whilst other
formulations distinguish ‘falsifiable and non-falsifiable knowledge’, ‘subjective and
objective knowledge’, ‘bounded rationality’, ‘embodied knowledge’, ‘embedded
knowledge’, ‘embrained knowledge’, ‘encultured knowledge’, ‘symbolic knowledge’,
‘organisational or social knowledge’, ‘group knowledge’, ‘a plurality of situated
knowledges’, ‘commodified’ and ‘non-commodifiable knowledge’, or the distinction
between ‘know-how, know-why, know-who, know-what’. At one of the most refined
levels we get nearly 40 different types of knowledge supposedly used within the
innovation of new technologies (Faulkner, 1994). Add to this the ‘sociology of
knowledge’ and the ‘economics of knowledge’, and the proliferation within the former of
diverse methods, such as the ‘social construction of skill’; the fact that increasing
numbers of people are now labelled as ‘knowledge workers’, and that the calculation of
‘intellectual capital’ or ‘intellectual assets’ entails new forms of measurement and audit
of the personnel within an organisation. ‘Knowledge’, it would seem, is an increasingly
central element of new attempts to change the ways people work and learn (Prichard et
al, 2000).

What is peculiar about these mobilisations of ‘knowledge’, or the emergence of what we
call ‘knowledge as a unit of analysis’, is firstly that it is a distinctly 20th century
phenomenon, and secondly that ‘knowledge’ would seem to have become divorced from
truth. At the start of the 20th century the only people who were interested in any detail
with ‘knowledge’ per se, explicitly for itself, were the (mainly English-speaking)
philosophers who were attempting to establish the grounds for the truth of any particular
knowledge. Their only interest in knowledge, in other words, was in terms of its truth-
value. Indeed, for many years at the turn of the century knowledge was truth – anything not true was not even called knowledge. And yet now, as we have glimpsed above, there would seem to be a whole spectrum of different knowledges, whilst the questions about truth have shifted elsewhere, for instance to social theory and the philosophy of science. More specifically, ‘knowledge’ has become amenable to the analyses of a wide range of experts before it is validated as ‘true’. In other words, those experts – sociologists, economists, psychologists, management consultants or educational researchers – think it is valid to analyse the production, distribution and use of this entity called ‘knowledge’, and to conduct such analyses separately and prior to analysis of the truth-value of such knowledge. What does it mean, then, to talk about a ‘knowledge economy’, or the ‘knowledge generating’ capabilities of ICTs, or the impact of ICTs upon ‘knowledge production’? Are we merely seeing the proliferation of falsehoods?

Elsewhere we have extensively charted the ways in which ‘knowledge’ has come to be so central to contemporary debate, whether in the KE/S theses or within those many other disciplines and approaches which mobilise ‘knowledge’ (Hull, 2001). This history or genealogy strongly suggests a central role to two initially separate problematisations of Positivism, as a philosophy of the natural and social sciences. In the first strand knowledge, and specifically the sociology of knowledge, emerges as a pivotal issue in debates within political and social theory about questions of science, culture, ideology, and the role of intellectuals in social change. This becomes clear from the debates and connections between, for instance, Lukács, Manheim and the Polanyi brothers, Michael and Karl. In the second strand, new ‘problems’ of knowledge are mobilised in debates within economics and political economy over ‘scientism’ in methodology, about the relative merits of markets versus scientifically planned economies, and about the character of complex markets that are not in equilibrium and which rely on the distribution of data and information. This is similarly clear from debates and connections between Hayek, Machlup, von Mises, Karl Polanyi, and Karl Popper. In the 1930s-50s the two problematisations merged together as many of these intellectuals, driven by a desire to oppose what they saw as necessary connections between Positivism and Marxism, developed a variety of what we could now call ‘post-positivist’ perspectives in sociology, economics and the philosophy of science, and especially for instance with
respect to the role of the state in planning scientific progress. In other words the emergence of ‘knowledge as a unit of analysis’, as a ‘post positivist’ perspective, was tightly bound to a set of arguments which sought to criticise ‘scientific’ approaches (i.e. socialist or Marxist approaches) to planning and government whilst maintaining a privileged role for the economic and human benefits of science and technology.

To interrogate this genealogy further we draw on the philosophy and social theory of Gillian Rose (e.g. 1981, 1992). She developed a ‘speculative’ style of reasoning as an alternative to what she called the impossible choice between ‘rationalism’ and ‘pluralism’, for instance between Critical Realism and the various styles of postmodern or poststructuralist thought. Her work draws on both Hegel and Nietzsche, and in particular she argues that the problems with Positivism have generally been misrecognised, leading to formulations in philosophy and social theory which either cannot resolve the Kantian problematic of fact versus value (as with rationalism and realism), or cannot grant any universality to their ‘post-humanist’ ethics (as with postmodernist formulations).

Drawing on Gillian Rose we can see that a ‘hidden ethics’ accompanied ‘knowledge as a unit of analysis’. Whilst that ethics starts as the promotion of knowledge and intellectual method as the counter to the dangers of ideology, especially for instance with the work of Manheim, as the two problematisations of Positivism merge with each other the ethics becomes an essentially positivist or sovereign ethics of the ‘individual’, ‘freedom’, and the naturalism of ‘ownership’, in opposition to the power of the state. It is this ethics that underpinned the emergence of neo-liberal schemas, and it was many of the prominent neo-liberal theorists, especially Hayek and Machlup, who actively promoted the problematics and techniques of ‘knowledge as a unit of analysis’.

There is thus a paradoxical coupling within the concept of ‘knowledge as a unit of analysis’ and the various social science analytical schema, techniques and styles which deploy it: on the one hand a ‘post positivist’ perspective on knowledge, and on the other hand a positivist or sovereign ethics of the ‘individual’, ‘freedom’ and ‘ownership’. Whilst the perspectives on ‘knowledge’ are justified with a style of reasoning explicitly
opposed to Positivism, the ethics are justified by appeal to timeless absolutes, ‘natural laws’ if you like, which is of course the prime characteristic of Positivism. The deployment of ‘knowledge as a unit of analysis’ cannot escape this paradox: divorcing knowledge from truth means abandoning ethics to either Positivism or the ‘non-ethics’ of postmodernism. The paradoxical coupling within ‘knowledge as a unit of analysis’ is thus bound to yield strange, paradoxical results, some of which can be seen within the history of ICTs.

3 Social Science, ICTs, and ‘frameworks of computing’

The second central aspect of the KE/S theses, and indeed of earlier discussions of ‘new production technologies’ and Information Technology from the late 1960s onwards, is what we might call the paradoxical character of ICT debates. ICTs have been attributed with an astonishingly wide range of effects, from the earliest discussions of the ‘de-skilling effects of automation’ (Braverman, 1974) or the optimistic hopes and dreams of a ‘networked nation’ (Hiltz & Turoff, 1978), to the condemnation of the ‘informatisation of life’ (Webster, 1995) or the utopian hopes for an ‘evotopia’ (Hodgson, 1999). ICTs, it appears, are either heaven or hell. One reaction to this paradox would be to suggest, with Joerges (1990), that any radically new technology would inevitably provoke early discussions of it as either fun or useless, as either magic or threatening. However, ICTs have been with us for quite some time now. One would have thought we had ceased to treat them in these ways.

Another response is to say that ICTs are inherently ‘flexible’, or that they enable ‘flexibility’. There is a long tradition of seeing ICTs this way, since the ‘flexible specialisation’ thesis of Piore & Sabel (1984). Here, ICTs are seen to be open to many different uses, enabling many different outcomes, and specifically enabling much greater ‘flexibility’ in production arrangements, compared with mass production. There are however, a number of problems with this notion. Firstly, ICTs themselves no longer play any explanatory role – they are so flexible, or they enable such flexibility, that it is not ICTs which have any ‘effects’ as such, but rather the particular ways in which they are deployed and used. Secondly, the notion of ‘flexibility’ does not really tell us anything
about the limits and parameters of that flexibility – can ICTs be used for anything, can they enable better mass production as easily as enabling flexible production, can they be used for oppressive surveillance and control just as easily as for emancipatory communication? Thirdly, it is usually the case that arguments for the ‘flexibility’ of ICTs once again rely upon a universal attribute such as ‘information intensity’ (e.g. Perez, 1985). Finally, the earliest ‘flexible manufacturing systems’, which emerged long before the ‘flexible specialisation thesis’, had their origins at least partly in a very specific social science approach to the analysis and design of computer-based manufacturing systems (Hull, 2001), so that we have social science input into specific ICTs being later interpreted as a generic feature of all ICTs. As we have charted extensively elsewhere (Hull, 1997, 2001; Coombs & Hull, 1995), this has been a characteristic of the involvement of social science with ICTs for many decades.

In brief there are a number of distinct ‘frameworks of computing’, where each framework has distinctly different ways of understanding, developing and working with computational devices and their applications. The earliest framework, which we call the Technical, deploys essentially Positivist understandings of ‘information’, ‘knowledge’, ‘communication’, and the ways in which humans work with machines in a command-and-control structure. It is, in other words, an approach strongly linked to Taylorism and Scientific Management. However, from the late 1950s onwards a number of significant problematisations of such approaches emerged (notably from Norbert Weiner, J.C.R. Licklider and Doug Engelbart), and those problematisations gave rise to two quite distinct frameworks, each based on a critique of Positivism, but put into operation in different ways. These two later frameworks were not so much opposing paradigms as sets of concepts, techniques and artefacts which apparently augmented the Technical and could thus co-exist side by side, as for instance within the Personal Computer and Information Systems, whilst at their heart they offered radically different ways of understanding, developing and working with computers. With the Partnership framework the ‘human’ operator becomes a ‘user’ with varying information needs, who works in ‘interaction’ with the computer, rather than either controlling it or being controlled by it. With the Benevolent framework the focus is more on the systems of communication
entailed by multiple, distributed computer users, the networks that link both the computers and their users, and a new understanding that such multiple, distributed computer users will have their own understandings of the validities of any knowledge they use or generate.

Moreover the critiques of Positivism deployed within the two later frameworks were essentially the same as those central to ‘knowledge as a unit of analysis’. Thus with both of the later frameworks we see the ‘post positivist’ perspectives on knowledge, and also the sovereign ethics of the ‘individual’, their ‘freedom’, and debates about the ‘ownership’ of information and knowledge. Once again then, we have particular social science concepts and techniques, bringing with them particular understandings of the proper description of economies, government, free individuals, and ‘knowledge’, but this time embedded, as it were, within some types of ICTs. And doubling the effect, it was then by and large those same social science concepts and techniques which were subsequently used to announce that all ICTs have the ‘information’ and ‘knowledge’ effects that had been built into the two later frameworks, and to eventually provide the foundations for the various ‘knowledge economy/society’ theses, first in the 1960s and later in the 1990s. It is a virtuous circle, and is analogous to the development within social science of a range of statistical techniques which are then used to demonstrate the existence of features within the population, and relationships between those features, which had already been presumed to exist by the developers of those techniques (c.f. Hacking, 1990). Future analysis of the interactions between ICTs and contemporary social and economic change would proceed more fruitfully by strictly separating the characteristics and effects of the ICT TEP, on the one hand, from the concepts and techniques of social and political thought.

4 Conclusion
Gillian Rose (1992) remarked that the current attempts to ‘supersede’ philosophy with social theory and social science must inevitably entail paradox and contradiction. In this paper we have briefly described one such paradox and its many consequences – the coupling of ‘post-positivist’ perspectives on knowledge with a positivist or sovereign
ethics of the ‘individual’, ‘freedom’ and ‘ownership’. The primary consequence is that those radical and critical attempts to understand contemporary life, which deploy ‘knowledge as a unit of analysis’, must inevitably bring with them an ethical legacy which remains, at present, irredeemably neo-liberal. The various Knowledge Economy/Society theses thus place immense barriers in the path of fully understanding, opposing and overcoming neo-liberalism.

Richard Hull – Brief Biography

Richard Hull is Lecturer in Sociology with the Department of Human Sciences, Brunel University. His research has focussed on the social history of computing, the use of IT in organisations, and knowledge management. His current research areas are Medical Informatics, the conduct of expert labour, and more broadly in the social theory and philosophy underpinning social and historical studies of science and technology. He is co-editor of the collections Managing Knowledge: Critical Investigations of Work and Learning (Macmillan) and Knowledge and Innovation in the New Service Economy (Edward Elgar); he is on the Editorial Board of Information Systems Review, and has contributions in the forthcoming Encyclopaedia of Computers and Computer History (Fitzroy Dearborn).

5 Bibliography


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ii See for example Haggard & Kaufman, 1992; Giddens, 2000.

iii Hull, 2001 & 1997; see also Green *et al.*, 1999.

iv See Hull, 2000, for a brief summary.

v It was thus the Technical which was the target for critics such as Braverman, 1974.