Postsocial Relations: Toward A Performative View Of Accounting Knowledge

Stream 7: Critical Accounting

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Abstract

This paper discusses the impact and influences of the growth of postsocial relations on accounting practice. Aspects of the growth of knowledge cultures, which have been argued to impact on social and organisational arrangements, are discussed. Extending this view to accounting would see accountants as forming a distinctive knowledge culture with their own unique rules of how knowledge is constituted. These rules are embedded in accounting systems and practices. This paper suggests the need to further develop a research programme that seeks to investigate accounting practice in local settings. The discussion in the paper is based on views which posit the growth of intimate links with epistemic objects within organisations and society. It is argued in this paper that such ideas lead to an increasing tendency for us to experience the changes in societal relations and social arrangements as a compression of time and space. The paper relates these ideas to developments in the accounting research literature.

Keywords

* epistemic cultures  * knowledge-objects
* time  * space
* postsocial  * practice
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Introduction

Much accounting activity within organizational settings is achieved through information technology and software systems such as enterprise resource planning systems (ERPs), accounting reporting systems such as XBRL (eXtensible Business Reporting Language), or accounting packages such as SAGE®. Systemic mechanisms for producing accounting and accountings increasingly produce accounting standardization, at least in terms of the way in which accounting is practiced and experienced.

This paper suggests the need to further develop a research programme that seeks to investigate accounting practice in local settings. Such a research programme would place its emphasis on the importance of recognizing and investigating the nature of that practice. This would involve a careful examination of the linkages formed between humans, accounting knowledge objects such as inscriptions and reports and accounting systems, including both hardware and software. This view would see accountants as forming a distinctive knowledge culture with their own unique rules of how knowledge is constituted.

A significant literature has begun to take the growth of expert systems and technology and knowledge objects seriously. Studies of scientists have revealed interesting insights into their cultures and practices. A persuasive literature has suggested that knowledge cultures (Knorr-Cetina, 1999) differ quite dramatically across the hard sciences. This paper is concerned with the implications for studies of accounting in organisations of a move toward expert knowledges and postsocial relations (Knorr-Cetina, 1997; Lash, 2001; Latour, 1993). The arguments in this paper are based on the recognition of a growth in linkages between humans and knowledge objects (Latour, 1993).

The central idea of Knorr Cetina’s work (see for example, 1999) would see accounting knowledge as emerging from the processes of accounting practice. Accountants are encouraged to take recourse to inscriptions and representational techniques whenever possible, rather than rely on gut feel. In this process it would hardly be surprising to find that accountants take their technologies and representational devices seriously. Accountants construct facts as a consequence of their engagement with the technology of accounting and information systems. The fact producing process is constituted through these close ties with technology and accounting rules and institutions.

This paper places the emphasis on the processes of knowledge production as practiced-within structures, processes, and environments. It is these factors that in combination make up epistemic cultures (Knorr Cetina, 1999). The study of these knowledge settings becomes important as they increasingly form an influential role in the constitution of organisations and society.

… the study of knowledge settings becomes a goal in the attempts to understand not only science and expertise but also the type of society that runs on knowledge and expertise (Knorr Cetina, 1999, p.8).

The next part of the paper consists of three sections. The first of these takes up the idea of technological forms of life and postsocial relations directly. The discussion in this section seeks to illustrate the links among the concepts which Lash (2001) identifies, and the manner in which such concepts can be seen to affect views and interpretations of practice. The next
section discusses some of the ways in which knowledge cultures have been conceptualised. The following section considers the links between knowledge and practice. This section seeks to provide an understanding of a processual view of knowledge production. Such a perception places an emphasis on understanding the nature of practice as it unfolds in its social and organisational context. The paper then moves to outline the impact of the ideas which have been discussed in the earlier parts of the paper on accounting practice through an examination of the accounting research literature. This is followed by a brief discussion section and finally some concluding comments.

**Researching Knowledge Cultures in a Postsocial Society**

This section of the paper comprises three areas of discussion. Table 1 provides a summary of the main concepts which are discussed in this part of the paper. The paper indicates a way of viewing the relations between these theoretical constructs by presenting the material in a hierarchical form. The section will attempt to make clear how these constructs which reflect our understanding of the knowledge society affect the ideas presented in this paper.

**Table 1: Theoretical Framework for Research Using a Postsocial Perspective**

<table>
<thead>
<tr>
<th>Level of theorization</th>
<th>Theoretic Research Framework</th>
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<tbody>
<tr>
<td>Methodological/Philosophical</td>
<td><strong>The postmodern turn</strong></td>
</tr>
<tr>
<td></td>
<td>This is reflected in a diversity of view and the importance of local interpretations. But conceptualised within the context of strong global imperatives.</td>
</tr>
<tr>
<td>Social theory/concepts</td>
<td><strong>Postsocial relations/technological forms of life</strong></td>
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<td></td>
<td>A move toward post-social relations, reflecting an ontology based upon a depth of understanding of social relations (Knorr Cetina, 1999; Lash, 2001). This understanding seeks to identify some of the ‘generalisable’ effects of these changed, postmodern social arrangements. Some of the aspects identified include: an increased reliance on relations with objects (both of a solid technological character and an ephemeral knowledge based nature; the increased incidence and experiencing of generic spaces; a faster pace of life (at least in the developed world) and the pervasive influence of ICT (integrated communication technologies).</td>
</tr>
<tr>
<td>Implications and effects at the social and cultural level</td>
<td><strong>A knowledge based society</strong></td>
</tr>
<tr>
<td></td>
<td>One interpretation of a knowledge society is that it reflective of technological forms of life and is increasingly typified by postsocial relations. These social arrangements are based on knowledge cultures and work relations which increasingly are affected by the proliferation of technologies and the growth of expert knowledges (Beck, 1992; Giddens, 1990; Knorr Cetina, 1999).</td>
</tr>
<tr>
<td>Research styles/programmes</td>
<td><strong>ANT and Performative Studies</strong></td>
</tr>
<tr>
<td>Broadly constructionist – relying on empirical</td>
<td>Initially these studies were comprised of investigations in the sciences. Research in the Sociology of Science and Science Studies have provided a number of innovative perspectives on the diverse ontology’s of different disciplines (Callon, 1986; Barnes and Shapin, 1979; Knorr Cetina, 1997; Latour, 1987). Such studies examine the way in which expert work is performed at</td>
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enquiry. Theoretical framework provided by the concepts described above. A broad theoretical school can be identified as ANT (actor network theory; see Callon, 1980; Law, 1992; Latour, 1987, 1999). These studies commenced in the hard sciences but have made a considerable impact in sociology and organisation studies (Blackler, 1993; Bloomfield, 1995; Knorr Cetina and Bruegger, 2002a; Law, 1996). This research is characterised by its strongly empirical style (lee and Hassard, 1999), the importance placed on network relations and the need to trace the networks by following the actors (Latour, 1987), the role of knowledge objects and object relations in enriching social and work cultures (Knorr Cetina, 1997, 1999).

The first of these sections takes up the idea of postsocial relations, what this term means and how it may affect our views of sociality and practice. The intention is to identify how such constructs can be seen impact the way we experience society and organizational life. The discussion seeks to illustrate the links among the concepts which Lash (2001) associates as evidence of such a conception of social relations, and the manner in which such concepts can be seen to affect practice.

Secondly the discussion focuses on the claimed movement toward a society which is increasingly populated by experts. It is widely argued that we live in a “knowledge society” (Bell 1973, Drucker 1993); alternative concepts and terms include "information society" (e.g., Lyotard 1984); or “risk society” (Beck 1992). Different writers provide differing interpretations of the way we might best conceptualise such ideas their social significance or impact. Rather than use the established descriptors without care it is important that we try to define as carefully as possible what the interpretation in this paper is.

The third section considers the links between knowledge and practice. This section seeks to provide an understanding of knowledge production as a process which is strongly influenced by the knowledge culture of groups of experts. Such a perception places an emphasis on understanding the nature of practice as it unfolds in its social and organisational context.

**Post-social relations or Technological forms of life**

This section will take up the idea of technological forms of life Lash (2001) and post-social relations (Knorr Cetina, 1997, 1999). The discussion will concentrate on illustrating the concepts which Lash and Knorr Cetina identify in their respective theorization of the increasing reliance of western societies on technology and the pervasive nature of expert knowledge. The discussion will draw on examples from a number of different epistemic cultures (Knorr Cetina, 1999). The intention is to make clear the way in which technological forms of life have pervasive though not homogenous effects through their creation of postsocial relations. A central theme of this discussion is the importance of technology as a constructive element of social practice. It’s constitutive nature being a result of the intimacy of human and nonhuman mixing within what might best be described as discontinuous networks. These discontinuous networks produce differentiated epistemic cultures which it is argued are increasingly the norm or organizational life in the knowledge society.

Lash suggests that the contemporary western life world, is increasingly characterized by technological forms of life (see also Knorr Cetina, 1997, 1999).
I cannot achieve sociality apart from my machine interface. I cannot achieve sociality in the absence of technological systems, apart from my interface with communication and transportation machines (Lash, 2001, p108).

While Lash talks of technological forms of life, Knorr Cetina (1999) describes similar arrangements as epistemic cultures. A postsocial view of contemporary social relations emphasises “the ways in which major classes of individuals have tied themselves to object worlds” (Knorr Cetina, 1997, p.1 see also Cooper, 1992, 1995; Knorr Cetina, 1996, 1997a, 1997b, 1999; Latour, 1993, 1997, 1999; Law, 1986, 1996). This is in contrast to traditional social theory (Bourdieu, 1990; Habermas, 1989; Luhmann, 1984; Weber, 1905/1930) which sees greater individualization as being balanced by a loss of “embedded[ness] in communities of other human beings” (Ibid, p.1). These losses are seen as a result of increases in: abstraction; technical systems; the litigated and legalistic nature of society and the spread of expert systems and scientific processes (Knorr Cetina, 1994). Sociality in this view is crucially influenced by, post-social relations, in particular by the intimate and enduring, relations which human actors form with objects, both technological and natural.

Knorr Cetina (1997c) argues that rather than a simple loss of sociality and increase in alienation and colonisation “… the flattened structures [and] thinned out social relations (Ibid, p.7)” are in fact just indicative of a change in the texture rather than the volume of social relations. We are left with a society which exhibits postsocial relations specific to late modernist societies. These relations are the outcome of things like the move toward a knowledge-based society (Habermas, 1989; Drucker, 1993; Giddens, 1990, 1994) and the increasing role of epistemic cultures and expert systems in society.

These relations are “postsocial in that they step into the place of more traditional human bonds… perhaps for the first time in recent history it appears unclear whether, for individuals, other persons are indeed the most fascinating part of their environment - the part they are most responsive to and devote most attention to” (Knorr Cetina and Bruegger, 2002a, p163). It is in the sociology of science that the conceptualization of postsocial relations has been especially creatively developed (Callon, 1980, 1986; Latour, 1987, 1993, 1999). These writers describe the nature of the object worlds to which experts and scientists are so intimately oriented. These object worlds need to be included in an expanded conception of sociality and of social relations.

Lash (2001) in his attempts to theorise the impact of technology on society begins by returning to a sociological notion of forms of life. Lash writes of the emergent understandings of such a notion as vitalist rather than organic. This “idea of forms of life - the lineage of Wittgenstein's notion - is intrinsically anti- positivist. Life here is not organicist but vitalist; it is phenomenological” (Lash, 2001 p106). Lash argues that such a conception entails a number of related concepts which have a history in the ideas of the centrality of life or life-force which he associates with writers such as Nietzsche, Dilthey and Simmel. The notions Lash identifies include conceptions of time, understanding based on experience or phenomenology and the loss of neutrality of the observer.

Phenomenological inquiry makes sense of the world less though 'intellection', but rather through what Husserl and Bergson called 'intuition'. We have knowledge, not through the abstraction of judgement, but through the immediacy of experience. Intuition is more bodily and organic than intellection; experience more life-like ... than judgement (Lash, 2001, p106).
Lash argues that the basis of phenomenological engagement is a matter of ontological understanding rather than through logic and epistemology and that we experience and interact with other people and things through our existential understanding of them. As neutral scientific observers we can gain epistemological knowledge but what we seek is more of an ontological meaning. A ‘form of life’ understanding of knowledge “takes place in the life-world, through the subject understood as life (the body, class interest, the unconscious, the will to power). Through being no longer above things, but in the world with things, we come to grips, not with epistemology and appearances, but with deeper ontological structures” (Lash, 2001, p107). Lash suggests that we can conceptualise these technological forms of life as exhibiting a number of distinctive features. With technology, forms of life:  

1/ get flattened; 
2/ become non-linear, in which they seem speeded-up, compressed or discontinuous [or stretched-out]; 
3/ become lifted out 
(adapted from Lash, 2001, p113).

Though Lash tries to make clear distinctions between each of the elements they are closely related. The ensuing discussion will take the constructs which Lash describes that are most relevant to the ideas this paper seeks to develop. They are lifting-out, compression and speeding-up.

Technological forms of life are according to Lash disembedded, or lifted-out. Such forms of life do not occupy any particular space, but are generic spaces (Knorr Cetina and Bruegger, 2002b).

Airports and indeed aeroplanes are such generic spaces … the branded spaces of department stores: one Ralph Lauren section is interchangeable with another, one Boss with another, one Tommy with another. The department store could be in Tokyo, London, Chicago, as could the airport … One McDonald's is interchangeable with another… (Franklin et al., 2000, as quoted in Lash, 2001, p108).

Lash argues that “the Internet is a generic space. It is no particular space.” as indeed are networks in general. The 'laboratory' is such a generic space as Knorr-Cetina (1999) recognises. The laboratory is 'lifted out' from 'normal life' such that it was and is the subject of anthropological study (Latour and Woolgar, 1979). But increasingly normal life is being influenced by a laboratory cultures. Not only science but also society have become increasingly technological. Laboratories used to produce primarily scholarly papers. But now … it just as often produces prototypes… Laboratory science becomes increasingly technological, as bio-technology scholars and computer science whizzkids from the universities, produce prototypes… There is a double movement here. First, science 'descends', so to speak, from its pure autonomy to become techno-science. Second, there is the rise, so to speak, of everyday social relations to become, themselves, forms of laboratory life (Lash, 2001, p114, emphasis in original).

It does not matter where the laboratory is geographically. It could be in London, Sydney or Auckland. Laboratories are filled with similar equipment and the people all wear white coats. The laboratory is a generic space.

The currency markets represent another example of a generic space. Economists regard the prices, which fascinate the currency trader, as 'carriers of knowledge' not just of reflection of it. Hayek describes the market as the aggregator of contradictory knowledge elements ‘only
the price mechanism can collect and aggregate such knowledge' (1945, p524). The efficient market theory tells us that information is contained in prices. The events in which the currency trader is engaged are typical illustrations of Lash’s sped-up life form. The price of the dollar not only immediately reflects an interest rate change announced by the Federal Reserve when it is announced but in fact changes in anticipation of such an announcement as market participants anticipate the rate change. Active currency traders endeavour both to make prices that embody their own knowledge and the knowledge which they have access to, but they also “read” prices, trying to derive knowledge from them.

In the environment of the currency market we can appreciate the manner in which the technology, represented by the data screens, compresses both time and space for the traders. The market is appresented on the screens in the generic space of the trading room or increasingly and in addition aspects are similarly presented on hand help digital displays through which the trader can maintain an almost constant engagement with the market. Time is both stretched out in Lash’s sense as trading takes place continuously through different generic trading rooms through out the world.

The market composes itself in these produced-and-analysed displays to which traders are attached. It exists only on screen, where it has a distinctive written surface or what one might call a gestural 'face-in-action' (Knorr Cetina and Bruegger, 2002a, p165).

Lash argues that technological forms of life are speeded-up. As observed earlier the simplicity of narratives and meta-narratives are replaced when forms of life enter technology. Reflection is lost in the speed up. Technological forms of life are too fast for reflection and too fast for linearity.

In speed-up culture becomes increasingly ephemeral. The monument lasts for centuries, if not millennia; the novel for generations; a scholarly book a decade. The newspaper article has value for just a day … Technological forms of life are … sometimes as fast as the speed of light… We improve so fast in technological time that improvement itself is thrown into question. (Lash, 2001, p110).

Lash argues that such a speeding-up also impacts explanation. Tracing cause and effect gives way to a concern not for causes but only for consequences. He suggests that “technological time outpaces the determinacy of causality; it leads to a radical indeterminancy, to radical contingency; to a chronic insecurity (Lash, 2001, p110). The consequences of this move means that our concern is with the events in the present producing risks in the future (Arnoldi, 2000).

Effects of this increase in risk and indeterminancy may arguably be seen in the increasing volatility in world stock markets over recent times and especially values of the “technology” sector and dot-com companies. Technological forms of life constitute a network society. The technological culture reconstitutes social bonds and links as non-linear and discontinuous networks (Latour, 1993, p119). These networks are joined by links that are technical, or technological as much as social. Networks are both inorganic at the same time organic. They are collectives of human and non-human elements (Law, 1999).

Object relations have increasingly become a significant focus across a range of literatures. Knorr Cetina uses the term 'postsocial relationships' to refer to “new kinds of bonds such as those constructed between humans and objects” (Knorr Cetina and Bruegger, 2002a; see also, Knorr Cetina, 1997). Examples in the literature include scientific and technological
things (Callon, 1986; Knorr-Cetina, 1981; Knorr Cetina and Bruegger, 2002b; Latour, 1988, 1993; Pickering, 1995) on consumer objects (e.g. Baudrillard, 1996), on information technologies (Turkle, 1995), on the return of nature (Latour, 1987; Serres, 1990), and economic markets (Smith, 1999; Abolafia, 1996). Clearly a number of authors take seriously the influence of objects and object-worlds on our social relations. Not only have such changes effected the way we work and spend our spare time, but our increasing intimacy with object worlds may change the structure of relationships, and our conception of sociality.

In accounting Lowe (2001a, 2001b) has noted the importance of accounting artefacts as knowledge-objects and argued for a carefully constructed research programme to seek to examine these postsocial effects in accounting (see also Chua, 1995; Cooper et al, 1983; Briers and Chua, 2001; Mouritsen, 1999). Lowe (2001b) suggests that we view accounting practice as being dependent on the objects of knowledge it constructs and that if we view accountants as experts, it makes sense to see accounting as an occupation, not as “overcome by alienation and commodification, [but] … characterised by close relations with objects of knowledge which provide self-fulfillment in their daily practices” (Ibid, p.80).

The discussion in this section has sought to highlight a number of features which have been associated with the advent of a knowledge-objects, postsocial relations and ways of understanding knowledge processes and practice. The next section seeks to develop this discussion further to consider the ways we might conceive of the knowledge society.

A Knowledge Society
Bell (1973) writes of the impact of knowledge from an economic perspective. Bell identifies widespread changes including the development of specialized occupations, shifts in the division of labor, changes in the pattern of growth and the emergence of new enterprises (see also Stehr, 1994; Lash, 2001). Much of this analysis is based on traditional economic approaches using statistical databases to identify changes in R&D spending and support in Europe and the United States and analysis of economic growth data to support the conclusions reached. Other commentators have taken different perspectives. Drucker (1993) links knowledge to changes in education, organizational structure and management practices. Beck (1992) suggests that alliances between science and capital, through the corporatisation of research and development are marking the clear politicizing of science (compare Latour, 1987).

At a global level (Quinn 1992, p229) argues that the position of the nation-state has been undermined by multinational organizations. But that in addition to these changes in the capitalist economy the nation-state has been further affected by the moves toward a knowledge society which has produced transnational social units whose ties are based upon technologically usable knowledge (see also Smith 1990). Lash and Urry (1994) describe the "information structures" (often electronic) which, provide the "arteries" of economic production systems that increasingly operate on a global scale. These changes are complex and not subject to simple characterization, such that changes in information technologies, for example do not produce simple one way effects between the nation state and multinational corporations.

Habermas (1981) has argued that the lifeworld is "technicized" through the growth in application of principles of cognitive and technical rationality. Society in this view is loosing its communality in exchange for a greater reliance on rationality and abstract systems in everyday life. Giddens (1990) concentrates his analysis on effects on the self rather than at
the societal level. He argues that individuals engage with the environment and themselves through information produced by specialists, which we routinely act on in everyday life. Giddens (1991, chap. 5) suggests that we live in a world of increased reflexivity mediated by expert systems. Giddens (1990) considers the role of knowledge in society from a sociological rather than an economic perspective and concludes that contemporary society is permeated by "expert systems". He defines such expert systems as being comprised of "...systems of technical accomplishment or professional expertise that organize large areas of the material and social environments in which we live today" (Ibid, p.27). Giddens conceives of this as a key feature existing within a global phenomena which he describes as "reflexive modernization".

The association of knowledge in organizations with a mentalistic image and processes is linked to the use of terms such as 'organizational learning' and 'cognitive framework' or 'cognitive learning theory' (Nicolini and Meznar, 1995; Easterby Smith et al., 1998). The key feature of such a conception is that though knowledge resides in the heads of individuals it can be appropriated, transmitted and stored. The general idea of this approach is that of a "store" of knowledge. Knowledge is seen as an investment or an identifiable asset. Knowledge is conceived as existing prior to and independent from the knowing subject. The individual is seen as a carrier "who creates no knowledge in the act of appropriation" and transmission. This perspective implies, "the production, circulation and consumption of knowledge are viewed as autonomous activities" (Ibid, 212).

A second conception of knowledge in organizations may be broadly identified with the economics of knowledge and knowledge management (Lev, 2001; Parker, 2000; Robinson and Kleiner, 1996). The starting point for this literature has been the acceptance of knowledge as a production factor distinct from the traditional ones of capital, labour and land. This paper takes a rather different approach which starts with conception of knowledge which accepts its importance but doubts our ability to extract its value from the networks of practice in which it functions and evolves. Consequently this paper sees attempts to gain a deeper understand of knowledge to be consequent on investigations of practice.

Bell argues that knowledge may be defined as "a set of organized statements of fact or ideas" (Bell, 1973, p41) and goes on to suggest that knowledge has become a productive force in its own right along with the more traditionally recognized elements of productive asset. Traditional economic based measures of wealth creating assets have been limited to capital, labor, and natural resources but Bell among others suggests that knowledge is now the central wealth-creating factor in modern economies.

According to such a view knowledge is increasingly the most valued resource. On this understanding it is knowledge that has produced the "post-industrial" or "post-capitalist" society. A number of writers argue that this has led to fundamental change in the nature of production systems, the nature of work, demands on workers and the structures of commercial and increasingly governmental organisations (Drucker 1993; Lash and Urry, 1994). In organisation studies this view has become characterized by its tendency to see knowledge as located in the head of the organization (i.e. management). Knowledge is conceived as a critical 'strategic' resource which is crucial in determining corporate performance. Examples of the styles of theorizing here include: the resource-based theory of the firm (Barney, 1996) and 'core competencies' or 'core capabilities' (Prahalad and Hamel,
Knowledge becomes commodified as it is seen as overt, objectified and transferable. The knowledge management approach largely envisages knowledge as “synonymous with information created, disseminated and embedded in products, services and systems” (Gherardi, 2000, p.213). The concreteness of knowledge in this view is what enables the routinization of activities.

The term 'knowledge management', combines an image of knowledge as an asset or commodity with a conception of its controllability form above. Management stands in a privileged relationship with knowledge. The image of knowledge management is strongly that the organization, as opposed to the individual, is able to 'know'. Operational knowledge in organizations exists at a tacit level, and organizational routines are the carriers of such knowledge. The commodification of knowledge proceeds by seeing a dynamic transforming of the tacit into the explicit (Nonaka and Takeuchi, 1995). Though this is not always conceived as an uneventful process as core capabilities may turn into core rigidities, creating ‘path dependency’ (Leonard-Barton, 1995). Gherardi suggests that perhaps we ought to avoid the:

Functionalists' views of knowledge [which invoke a] fixity of structure and control of form...[and that] rather than focusing on knowledge as inert material, to be fixed and controlled, knowledge could be articulated both in its spatiality and in its fabrication, and in consideration to its transformative linkages between the human and the natural (Gherardi, 2000, p.213).

Gherardi nicely encapsulates the view adopted in this paper that much knowledge is tacit, person and location (firm) specific. Rather than being inert, identifiable and manageable much organizational knowledge is rather opaque, obdurate and hard to extract from the intricate networks of linkages among human and object where it resides.

**Performative Studies of Knowledge Cultures**

In science studies the genre of studies of knowledge that took practice as a central tenet of its investigations dates back to the late 1970s and early 1980s (Barnes and Shapin, 1979; Collins, 1981; Knorr Cetina, 1981; Lynch, 1985; Mulkay, 1979). A common focus of these studies was an emphasis on the production of science in contemporary settings, such as scientific laboratories. These studies tended to place an emphasis on practice by studying scientists at work rather than analysing the structure of scientific theories or science as an institution. The notion of practice emphasised the acts of making knowledge by interpreting practice within a performative idiom (Pickering, 1995, chap. 1; Alexander 1992; see also Law, 1999).

This performative approach regards practitioners as actors and emphasises the agency-related components of knowledge processes (Hacking 1983). This framework looks to reveal the strategies and interests and interactional accomplishments of individuals, and sometimes groups. The performative approach “yields important insights into how agents generate and negotiate certain outcomes” (Knorr Cetina, 1999, p.9).

Knorr Cetina (1997, 1999) emphasises the situated nature of knowledge in her descriptions of “epistemic” cultures. She places great store in the manner in which communities of scientists and others groups (see Knorr Cetina and Bruegger, 2002b, for an analysis of foreign exchange dealers in a major multinational Swiss bank) establish “forms of life” (Lash, 2001) which are practice based. The common theme of this research is the manner in which Knorr Cetina argues humans are influenced by the nature of their everyday practice. High energy
physicists adopt quite distinct forms of organization work relationships and even perhaps scientific understandings, as compared to molecular biologists, as a consequence of the specific nature of their research object which “determines” their work practices.

In the sociology of science, it is the centrality of these object worlds to which experts and scientists are oriented that has been emphasised particularly by Callon (1980, 1986) and Latour (1987, 1993). These object worlds need to be included in an expanded conception of sociality and of social relations. The implication of this growth of postsocial objectualised relationships is that we might expect to observe changes in the perceptions of people within organizations that result from the closer bonds which they are likely to have with technological objects. The argument in this paper is that such changes are partially responsible for a tendency for organizational members to experience a compression of time and space. The implications for research include the likelihood of explanations which are contextual and local understandings of organizational life based upon the intimacy of the bonds between people and technology.

Law argues that with an actor network theory\(^1\) (ANT) approach ‘actors are network effects’, they acquire the attributes of the entities which they include (Law, 1999; see also Latour, 1988). Such a conception means that there is little interest in context as such and that in any case context might reasonably be defined as an effect, or an outcome, rather than a cause. Actants whether human or non-human ‘acquire the attributes’ through the idea of ‘performativity’. Actants, these human or non-human entities achieve their form as a consequence of the relations in which they are located. The idea of performativity refers to the dynamic through which actants become defined through the performance of network relations.

The actor-network view of science is as ‘a process of ”heterogeneous engineering” in which bits and pieces from the social, the technical, the conceptual, and the textual are fitted together, and so converted (or ”translated”) into a set of equally heterogeneous scientific products’ (Law, 1992, Ibid). Latour (1987) writes of the 'fabrication' of scientific facts and technical artifacts (see also Bloomfield et at, 1992, KnorrCetina, 1981). Knowledge rather than emerging from scientific discoveries is fabricated by situated practices of knowledge production and reproduction. Such production processes include aspects such as the technologies of representation and inscription but also as a consequence of the material of the production settings themselves – the laboratory and all its equipment (KnorrCetina, 1999).

The practices of knowledge production in the laboratory may be seen as a key to understanding the practical knowledge of the scientist. Latour (1987) argues that we ought to 'follow the actors' in order to identify the ways in which they associate the various elements that make up technoscience (Hughes, 1971; Callon, 1986). It is in this manner that sociologists of science have problematised the nature of even the hardest of the hard sciences – high energy physics (Pickering, 1995, Knorr Cetina, 1999). Much of this research has been based on a strongly empirical programme which has increasingly seen the explication of science practice as its goal. Such programmes of research suggest that scientific knowledge should be treated as a culture like any other form of knowledge (Knorr Cetina, 1999). Knorr Cetina writes of ‘epistemic cultures’ and Starr (1995) of ‘ecologies of knowledge’. Both

\(^1\) Actor network theory has been accepted as a legitimate methodological approach to research in management accounting (Chua and Baxter, 2003)
conceptualise scientific knowledge as distinctly local and subject to ethical questions and issues concerning social change.

An actor-network understanding of knowledge is as a social product with a difference. Knowledge is seen as being produced from a heterogeneous network consisting of human and other material elements. Writers in the sociology of science more generally have argued that knowledge ‘may be seen as a product or an effect of a network of heterogeneous materials’ (Law, 1992, p381, emphasis in original). This perspective sees knowledge as always material or as always embodied in a material form. The actor-network answer is that knowledge “is the end product of a lot of hard work in which heterogeneous bits and pieces—test tubes, reagents, organisms, skilled hands, scanning electron microscopes, radiation monitors, other scientists, articles, computer terminals, and all the rest… is a material matter but also a matter of organizing and ordering those materials (Law, 1992, Ibid).” Knowledge in this sense appears in scientific papers and commercial patents, but also in conference presentations and in the form of the tacit skills of scientists and technicians (Latour and Woolgar, 1979).

A practice-based approach to theorizing knowledge seeks to examine in a symmetrical way—claims to knowledge—by, in part, ignoring what appear to be disjunctures between order and disorder and concentrating some attention on inconsistencies, paradoxes and tensions (Engeström, 2000; Blackler, 2000). Perhaps the most salient point of the analysis and discussion presented above is to emphasise that:

… for us, the point is not to go in search of a framework which comprises all these reflections in a single space, but rather to show how a practice-based theorizing arises from multiple perspectives and negotiations, and how in so doing delegitimizes a univocal narrative of scientific authority (Gherardi, 2000, p219, emphasis added).

This section has noted the importance of localised and context specific, aspects of the culture of knowledge workers to our ability to understand the effects on practice within these social groupings. These constructs are important in advancing a social constructionist view of the development of accounting knowledges and knowledge cultures.

**Implications for Accounting Research of the Recognition of Postsocial Relations**

This section seeks to show the connections between aspects of the literature introduced earlier on postsocial relations, knowledge object and knowledge cultures to developments in the accounting literature. The intention is to provide an insight that could sensitize research into aspects of accounting and other information systems within organizational settings. The arguments are based on the value of combining a view of the knowledge society which focuses on the processes through which knowledge is constructed or produced with a sensitivity to arguments about the nature of technological forms of life and the role of knowledge objects in a postsocial context. The intent is to indicate a framework of ideas which could help explain some of the effects of accounting as a social practice in a postsocial environment.

The discussion in this section recognizes the different ways of seeing how accounting and other information systems impact on organization arrangements. The aggregation of data has long been accepted as a critical feature of accounting systems. Indeed the use of accounting metrics to support the growth and control of hierarchical organizations has long been
recognized (Chandler, 1977; Johnson and Kaplan, 1987). The sense in which such system compress time and space has been less well understood (Robson, 1992).

Accounting professionals are engaged in a technological form of life (Lash, 2001). This is perhaps less obvious that the thoroughly pervasive form of life which is constituted by the nature of the currency markets. The market “within-the-screens” with which the currency trader interacts is more tangible that the less obtrusive and apparently less restrictive nature of the accountants practice. Nevertheless it seems reasonable to emphasise the technology bounded-ness of accounting practice; the following of standards and rules; the application of techniques and ways of doing and responding to carefully defined situations.

The ability of accounting technologies to inscribe aspects of the organisational environment is a key feature of accounting practice. Significant parts of accounting practice are designed to compress aspects of organizational reality in order that such reality may be re-presented to corporate and middle management. It is just these features of accounting that provide the most influential elements of the accountants craft. Accounting draws much of its value from its ability to abbreviate information in order to bring spatially remote activities and operations within the “boardroom”. Such accountings render the operations visible and actionable by top management but also allow the same managers to exercise discretion to take action or delay (Munro, 1999).

Accountants experience long periods of trained before entering the ranks of the professional accountant. They are also heavily socialized, at least in the large firms (Andersen-Gough et al, 2001). Much of the emphasis of such training and educational processes is to socialize the individuals into an acceptance of the necessity of objectivity and representation. The processes and organisation of such socialisation and training are enacted through a disembedding of the individual from their work situation to generic training establishments where individuals are fed accounting facts at speed. Socialisation involves the same moves to disembed workers from familiar surroundings in order to make them more aware of their responsibility to and role in the work processes of the firm. These processes in accounting firms are dependent on close surveillance and monitoring of activities, time and productivity.

The central idea of Knorr Cetina’s work (see for example, 1999) would see accounting knowledge as emerging from the processes of accounting practice. Accountants are encouraged to take recourse to inscriptions and representational techniques whenever possible, rather than rely on gut feel. In this process it would hardly be surprising to find that accountants take their technologies and representational devices seriously. Accountants construct facts as a consequence of their engagement with the technology of accounting and information systems. The fact producing process is constituted through these close ties with technology and accounting rules and institutions.

The increasing move toward standard processes and technological support in business and accounting systems combine to produce an accounting culture and practice typified by complex linkages between humans and other receptacles of knowledge. Much accounting activity within organizational settings is achieved through information technology and software systems such as ERP systems, accounting reporting systems such as XBRL, or accounting packages such as SAGE. Systemic mechanisms for producing accounting and accountings increasingly produce accounting standardization. At least in terms of the way in which accounting is practiced and experienced. Practitioners engaged in international audit assignments follow similar procedures whether the audit is in Chicago, London or Cairo. The
availability and implementation of these systems lead to the standardization of accounting processes and practices which creates the experiencing of accounting as taking place in its’ own generic spaces.

Viewing accountants as forming a distinctive knowledge culture with its own unique rules of how knowledge is constituted is tightly linked with the notion of a research programme that would seek to investigate accounting practice in local settings. Such a research programme would place its emphasis on the importance of recognizing and investigating the nature of that practice. This would mean taking seriously the role of accountants in knowledge production, not just accepting the output of accounting as a knowledge product but examining the process through which accountants manufacture such knowledge through their practices. A few studies of accounting practice have already revealed a good deal about the socially constructed nature of such practice (Ansari and Bell, 1991; Ahrens, 1997; Armstrong, 1987; Berry et al, 1985; Dent, 1987, 1991; Lawrence et al, 1994; Llewellyn, 1998) but these studies have neglected the postsocial linkages with technology.

A literature has begun to develop which is informed by some of the ideas discussed in the first part of the paper. Chua (1995; see also Briers and Chua, 2001) places an emphasis on the way human actors seek technological allies consisting of accounting inscriptions and accounting systems. The administrators must tame the casemix Model in order to obtain the accounting inscriptions they need (see also Ezzamel, 1994). In this regard Chua uses the power of the numbers as the key element in the story of fact production (see Robson, 1992, 1994). Robson, being interested in the power of accounting as representation, musters very similar arguments in the rather more removed context of standard setting. Here the production of facts is not just about the inscriptions but also relies on the conventions and culture of accounting as a profession and a professional practice. Robson’s emphasis is on the power of the physical representation - the ability to reduce and represent in aggregation what lies beneath the numbers - and the ability this provides to the people who are in positions of power.

For a stronger emphasis on the construction of heterogeneous networks of human and non-human elements see Lowe (1997, 2000). Lowe (2000) describes the processual nature of network building in the context of casemix accounting systems. Here the nature of accounting technologies as actants is emphasized. Lowe documents the heterogeneous nature of the resulting casemix accounting system which is built up in a major health provider. The system is composed of black boxed accounting techniques such as overhead allocation procedures, budgetary control spreadsheet models, variance analysis techniques, the application of joint-cost metrics for costing blood products and metrics for determining revenue allocation among revenue and profit centers.

In a related paper Lowe and Dolin (1999) examine the contested nature of a large organizational information system in a regional hospital. Lowe and Doolin illustrate the way in which the system comes to play a role in representing a “reality” within the organization and the way in which organizational players come to use the system to try to achieve their interests. In this manner the information system may be seen as to an extent malleable and able to carry different meanings for different individuals. While at one level such information systems may be seen as inanimate conveyors of objective data clearly in the case organisation described the systems came to play a much more equivocal role. At a further level of interpretation it is possible to see these systems as playing an even more constitutive role in
the construction of organisational reality (Lowe, 2000, 2001) in which the systems become tied intimately with work practices and come to be constitutive of epistemic cultures.

Accountants and other managers come to see the organization in terms of the signs and symbols which are output from such systems. Inscriptions of highly aggregated, data are graphed and depicted in tables which come to be the source of understanding not just a representation of it. Such environments and systems as those referred to here indicate the manner in which complex information systems come to play a significant role not only in the way the organisation is represented to outsiders but also the way in which such systems become a substantial part of the day to day practices of the managers and accountants who work with them. Accounting facts are fabricated and reinforced through processes of translation (Latour, 1987; Robson, 1992). Solidity is added to accounting facts through the inscription of data inside black-boxed accounting technologies.

One concept which has entered the organization studies/information systems literature, is that of the way in which human actors delegate to technological systems (Bloomfield, 1995; Bloomfield and Vurdubakis, 1997; Bloomfield et al, 1992; Law 1996). This literature examines the way in which the development and impact of information systems within organizations can be understood in different ways using actor network theory and other constructs such as those discussed in this section.

Such interpretations are beginning to be applied to accounting information systems (Munro, 1999). Munro (1999) describes one of the effects of accounting inscriptions. He argues that accounting reports provide managers with power over subordinates through discretion. In these circumstances managers are argued to gain influence over the behaviour of their subordinates through a technology of surveillance which relies on accounting and other reporting mechanisms to provide indications of performance. Munro argues that such reporting systems enable managers to delay the imposition of penalties on subordinates by exercising discretion. Such a conception of the use of information systems clearly has implications for the timing of managerial actions within organisations.

Some writers in the accounting literature have noted the ceremonial and mythical nature of accounting systems (Ansari and Bell, 1987; Berry et al, 1985; Covaleski and Dirsmith, 1988), and others have noted the institutionalised nature of accounting systems (Burns, 2000; Burns and Scapens, 2000). A different way of understanding and explaining such phenomena could be to take seriously Lash’s construct of a postmodern move toward technological forms of life. In combining this with Knorr Cetina’s research into the nature of the processes of knowledge production I would suggest that a programme of investigation into the nature of the intimate links between accountants and their technologies might be useful. Our ability to appreciate the success of accounting as practice may well be aided by an approach which seeks to discover the nature of the epistemic culture of accounting practice. In this endeavour both Lash and Knorr Cetina provide valuable sensitivities. Some aspects of the nature of currency markets, which we encountered above (Knorr Cetina and Bruegger, 2002b) have parallels in accounting.

Accounting is also centrally concerned with representation. In financial accounting we are concerned to provide an image of the organization as a “going concern” or as a “legal entity”. In management accounting our concern is more with the representation of aspects of the organization in order to “assist” in decision making. In such activities the accounting professional is in a position which can be contrasted to that of the currency trader. The
accountant is typically creating the image of the organization (Boland, 1989) rather than responding to the image that is created as a result of a concert of traders actions and market information releases. In the case of the trader the market provides a continuous and largely unpredictable frame with which the individual engages in real time. In certain control decisions accountants may sometimes find themselves in fast changing situations but not typically comparable to that of the currency trader. In the sense that some economists liken the organisation to an internalized market (Williamson, 1975) there are further similarities.

Discussion: Accounting Technologies and the Compression of Time and Space

This paper argues that there is traction to be gained in theorizing the processes that underlie our increasing reliance on expert knowledge (see Latour, 1996). This paper places the emphasis on knowledge as practiced-within structures, processes, and environments. It is these factors that in combination make up epistemic cultures (Knorr Cetina, 1999). This paper regards accounting practitioners as fitting these conceptions of expert knowledge and proposes a research programme sensitised by such ideas.

In an ethnographic study of a large multinational banking institution Knorr Cetina and Bruegger (2002a) argues that the screen, together with the associated dealing and information systems it embodies, encapsulates the market for the currency trader (cf McGoun, 1997). The screen can be seen as an appresentational device (Husserl, 1960, 49-54). The screen acts as an appresentational device in the sense that it “brings a geographically dispersed and invisible market close to participants, rendering it interactionally or response-present …After the introduction of screens, the market became fully available and identified as a separate entity in its own right for the first time - with prices, interests and the relevant information all visually indicated on screen” (Knorr Cetina and Bruegger, 2002a, p163).

These generalised textual surfaces, or “faces” are truly representative of the “lifted-out” spaces of which we identified earlier with Lash (2001). They are hardly normal. Transactions of billions of dollars are not uncommon, they are not territorial or geographically based in any real sense and involve decisions that are measured in seconds. Such contemporary market activities are illustrative of the ultimate speeding-up of social arrangements. Knorr Cetina and Bruegger (2002b) give a typical example of an exchange between traders which indicates the participants expectations in relation to the speed of transactions. The exchange involves a deal or potential deal during which a chief trader chides another for taking more than a moment [a few seconds] to respond to an exchange bargain by retorting that “this is spot not foids [not a forwards deal]” (Knorr Cetina and Bruegger, 2002b, p.939).

There are parallels between the financial markets on screen and accountings’ knowledge objects. Much accounting is still presented in hard copy format, but increasingly this is giving way to virtual systems using electronic representations and transmission of both accounting data and reports. In a similar manner, while for the currency trader the screen appresents the geographically dispersed and invisible market, in accounting the system and its reports present an illustration of the geographically dispersed, if visible, organisation. Increasingly the apparent reality of the organisation is irrelevant, as the importance of classes of invisible asset become more and more the norm of contemporary organisation (see also Macintosh et al, 2000 for an interesting discussion of the nature of reality in relation to accounting reporting).
The discontinuous and stretched-out networks (Lash, 2001) that constitute accounting systems are necessary to provide representations of the organization. As the earlier discussion indicates these networks comprise a number of activities which serve to compress time and space. The practice of reducing accounting information to quantitative typically monetary values enables the aggregation and inscription of vast amounts of data on complex and geographically remote organizations. Accountants through such numeric manipulations as asset and brand valuation, depreciation methods, currency translations, consolidations and merger accounting produce inscriptions, which condense the complexities of multinational organizations to a few pages of published accounting data. Such representations allow those at the center to glance over at once the activities of a heterogeneous amalgamation of geographically and technically dispersed operations.

Knorr Cetina and Bruegger (2002a) refer to the ontological diversity of the knowledge objects which effect a market in international currencies through the interactions of traders, markets-on-screen and a host of other elements of market intelligence. The dispersed mass of human participants is of course connected through the screens in spite of their geographic and temporal dislocation. Time and space are overcome in the currency markets. Geographic distance is made to have no significance as a result of the market-on-screen and the associated communication technologies. The market, and there really is only one global market is never still but forever active – time is expressed as GMT (Greenwich Mean Time) merely as a way of fixing a transaction in the flow of market events. Local time is reduced to relevancy only for those traders who need to sleep.

Markets-on-screen… are always in the process of being materially defined … the speed with which this happens may be called, borrowing a notion from participants, the ontological liquidity of markets. (Knorr Cetina and Bruegger, 2002a, p168).

Accounting and other organizational information systems enable the compression of information and the manipulation of time by providing those at the center with the ability to oversee the endeavours of many subordinates (Miller and O'Leary, 1987). Such informational arrangements provide the decision maker with the ability to make decisions centrally without waiting for subsidiary managers to provide locally sourced reports. Information systems often provide the appearance of completeness and enable the speeding-up of decision processes. The appearance of completeness reduces uncertainty because it does not convey all. It abbreviates and aggregates information losing some detail and richness in translation. Previously centralized managers might have delegated decision making to their subordinates or requested additional information prior to making key decisions. The advent of comprehensive real time information systems has enabled those at the center to be, or at least to appear to be, as well informed as those at the periphery (Chua, 1995, see also Lowe, 1997, 2000).

Modern accounting systems construct at least the appearance of such a situation. The comprehensive and timely nature of the information that contemporary ERP systems provide, give the appearance of certainty. Other recent changes in internal control systems, has seen the development of performance measurement and strategic information systems based on the aggregation and reporting of non-financial metrics. The Balanced Scorecard (Kaplan and Norton, 1992; 1996) has adopted a broad approach to the capture of organizational data. This technique relies on the ability of managers to identify an array of financial and non-financial performance measures. Such approaches seek to present a more ‘realistic’ picture of the organization by going beyond monetary values. These systems inscribe many aspects of the organization in an attempt to represent organizational reality in a condensed space.
Concluding Comments

This paper has adopted a broadly poststructuralist, performative perspective on accounting knowledge. In contrast a modernist perspective would “tend not to address the question of how the knowledge processes they incorporate into their arguments work, which structures or principles adequately describe this working, or how the notion of knowledge dealt with in these systems ought to be specified” (Knorr Cetina, 1999, p.7). A performative approach fits well with the move toward interpretive case research that has developed in the accounting literature. The ideas and concepts discussed earlier in the paper could be seen as providing a framework for the research and interpretation of accounting practice and attempts to understand the social implications of accounting technologies.

While modernist concepts and approaches can enable us to appreciate the “transformative effects” of expert systems and the growth of a knowledge society “on other social spheres, on personal life, industrial organization, market expansion, etc” (Knorr Cetina, 1999, p.7), they provide a poor understanding of the contexts within which knowledge is produced (see Latour, 1987, 1996; Pickering, 1995; Hacking, 1999).

A knowledge society is not simply a society of more experts, more technological gadgets, more specialist interpretations. It is a society permeated with knowledge cultures, the whole set of structures and mechanisms that serve knowledge and unfold with its articulation (Knorr Cetina, 1999, p.8, emphasis added).

The influence of accounting is closely related to the nature of contemporary culture. This paper takes the view that contemporary culture is composed and influenced in part by the proliferation of technology and our increasing reliance on expert knowledge. On aspect of these cultural changes can be seen in the collectivities of human actors and technological objects, we form in all manner of aspects of contemporary life and work. Accounting constructs social reality through its practices and technologies. Law has argued that “accounting .. is part of the glue that sometimes and precariously, holds both us and our societies together” (Law, 1996, p.186). The central thesis of this paper is that there is another way of seeing the contribution of accounting to society. This perspective is based on the sociology of science notions introduced earlier and suggest that we need to look also at the effects of accounting practitioners as constituting a distinctive knowledge culture. Such cultures have their own epistemic rules and values and may impact society in ways much harder to isolate than can be seen in the knowledge products that they produce.

Accounting technology provides critical elements of managerial machinery, but it also contributes richly to the practice of accounting professionals. Accountants develop close regard and respect for the techniques they implement. This is observably in the case in relation to changes in accounting systems. Viewing accounting practice as an epistemic culture provides an alternative way of looking at the reluctance of accountants and managers to change existing modes of action and protocols. Because accountants and managers are accustomed to representing information in quantitative terms it is understandably difficult to replace established financial measures with non-financial alternates. Even where such measurement systems have been introduced it is unclear how much attention and action is based on the non-financial metrics. It is reasonable to expect accounting practices and the culture of accounting practitioners to reflect elements of their knowledge production techniques. Accountants like physicists live in a world of signs and traces.
References


