Multiple Meanings of ‘Network’: some implications for interorganizational theory and research practice

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University of Bath
School of Management
Working Paper Series
2006.12

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Multiple Meanings of ‘Network’: some implications for interorganizational theory and research practice

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Acknowledgements

We are grateful to those who contributed to and supported the research reported here, including Christine Harland for her comments on system levels and units of analysis.
ABSTRACT

In interorganizational research, the meaning of ‘network’ can be: a logic of organizing, an analytic perspective; an organizational entity. These three established notions are brought together in a novel framework, illustrated using a recent empirical study of network learning. This shows how appreciating these three views of network are valuable in the research process notably: literature review, research design, positioning findings. The framework can serve as a heuristic to inform interorganizational research practice and theory.
INTRODUCTION

Building on prior review articles of network research, this paper proposes three meanings of ‘network’ that can be found in management and organization studies literature, and reflects on the implications of these different views for interorganizational theory and research practice. Powell and Smith-Doerr (1994) suggested that two contrasting perspectives on networks were apparent in the organization and management literature – networks as a logic of organizing and networks as an analytic perspective. Here, we add a third view of network, as an entity at a system level ‘above’ three other levels of the individual, the group and the organization. In this view, a network is a group of organizations that (however it is defined and bounded) can be regarded as a unit within the organizational domain.

Whilst the three perspectives are not new, bringing them together in one framework, and recognising that a text on networks may reflect one, two or all three of these views of network, though not necessarily explicitly, are novel.

A research project on network learning – learning by a group of organizations as a group (Knight & Pye, 2005) – is described to illustrate the three conceptions of network and explore how they can all be related to one research effort. The study assumes the third view of network, as an entity. As is shown below, however, the logic of organizing and analytic perspective views of network are also relevant, though their use is not always explicit and it can vary across time and context.

This paper is organized as follows. First, with a brief overview of network research review articles we make the case for the need for and relevance of network research, and demonstrate the many ways in which authors have sought to make sense of the field. Second, in the context of network literature, the three views of network are elaborated and the value of each is highlighted. Then, the empirical study of network
learning is introduced. The study serves as a case to illustrate the framework, and consequently the focus here is on the research process, with minimal coverage of findings which are presented elsewhere. Four phases of the study are described in greater detail and related to the different notions of network and their changing emphasis over time. In the fourth section, we draw out some guidance for researchers, based on applying the three meanings of network to help identify and analyse relevant network research. In the fifth and final part, the implications for theory and research practice of the three views of network are discussed and conclusions drawn.

An approach for identifying what notions of network are relevant to a particular study, even though they may be implicit, is presented. It is argued that the value of the three-part framework is that it offers a means to (a) identify and analyse relevant prior network research, to help shape a network study; (b) develop a research design and select methods; (c) relate one’s findings back to the extant body of knowledge. In particular we suggest that the framework can help researchers draw together knowledge across disciplinary boundaries.

**REVIEWS OF NETWORK RESEARCH**

This section sets the scene for the discussion on network meanings by considering a number of texts in which authors sought variously to: review prior network research, discuss the relevance of network to research and practice and propose priorities for further research. Key parameters of a number of review articles are summarised in TABLE 1, below.

Review articles in the network field can be distinguished according to whether authors elaborate within a sub-field or seek to integrate across sub-fields (see 2nd column). It is also interesting to note the disciplinary background of the author(s) (see 3rd
column). The fourth column shows the key themes covered by the authors. The discussion and conclusions of these articles are organized around themes which typically cover the subject of inquiry (content) or key concepts and constructs employed by authors. The theoretical groupings often feature as part of the review articles’ authors’ findings and are related to suggestions for further research.

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Insert Table 1 about here

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Among these review article authors, there seem to be widely different views about the importance of what they are discussing. Easton writes of the industrial network approach as an alternative perspective which challenges traditional perspectives on business relationships, marketing and purchasing. Davern (1997), Oliver and Ebers (1998) and Borgatti and Foster (2003) write of the network ‘paradigm’ in terms of the new ways it can help us to analyse certain, established subjects. Agranoff and McGuire (2001) are more ambitious, arguing that the “the classical, mostly intraorganizational-inspired management perspective that has guided public administration for more than a century is simply inapplicable for multi-organizational, multigovernmental, and multisectoral forms of governing… Network management is thus in need of a knowledge base equivalent to the hierarchical organizational authority paradigm of bureaucratic management.” (Agranoff et al., 2001: 296-7)

Even though only review articles that specifically address interorganizational relationships are covered here and thus, for example, texts on network as an organizational form (e.g. Baker, 1992) were excluded, there is notable variety within and between the texts mentioned in Table 1. Oliver and Liebeskind (1997) distinguish three levels of networking, two of which are inter-organizational: individuals within organizations, individuals across organizational boundaries and
between organizations. Some authors are interested in networks of individuals, others in networks of organizations, and yet others in both. Davern (1997) and Powell and Smith-Doerr (1994) are in the latter category. This mixing of levels of analysis is arguably not an issue when an article is about how a network perspective can illuminate an established subject of inquiry in which both firms and individuals are studied. Though some research is very explicit about network structure (e.g. Conway & Steward (1998) and Kenis & Knoke (2002)); and relations between levels (e.g. Kostova & Roth (2003); Fiol, O'Connor, & Aguinis (2001)), there is remarkably little discussion in these review articles of level and unit of analysis. A notable exception is Borgatti and Foster (2003) who argue “in network research, … micro and macro can be very similar theoretically and methodologically… This does not mean that we expect every theory that applies to networks of persons to apply as well to networks of organizations, since the agents have different capabilities and the relations have different meanings. It is just that structuralist explanations are much more likely to scale than are individualist or essentialist explanations, a fundamental tenet of the physics literature on networks.” (p1001).

Most of the authors of integrative reviews are concerned about fragmentation of the field, for example:

“The concept of network is in vogue, but its popularity is accompanied by a general vagueness about exactly what the idea entails” (Powell et al., 1994: 368)

“the increase in the number of studies has contributed to a rather messy situation marked by a cacophony of heterogeneous concepts, theories, and research results” (Oliver et al., 1998: 549)
And yet, these same authors express optimism about the extent of intellectual coherence (Powell et al., 1994: 391) and prospects for future research:

“Given the complexity and heterogeneity of the field, the positions of the individual variables within the field, their inter-relations and their segmentation had not been self-evident in the literature. Our analyses led us to conclude that might be greater opportunity for fruitful cross-disciplinary and cross-perspective dialogue than is often realised.” (Oliver et al., 1998: 573)

Davern (1997) and Berry et al (2004) advocate theoretical integration. Our approach in this paper is to welcome the diversity apparent in the field, but to advocate greater cross-fertilisation and, in particular, to support greater use of prior research where there is a shared interest in a topic, even though levels of analysis, methodological approaches and theoretical perspectives may differ.

The purpose of this section is not to provide a synthesis of prior reviews. Rather it is to demonstrate the volume and variety of network research and the perspectives of those who undertake it. In particular, we highlight the ways in which those preparing review articles have sought to organise the field. This reveals the complexities of doing so, and the prevalence of doing so according to theoretical and/or disciplinary perspectives. In using the four metaphors, Easton comes closest to the approach we explore in this article, but his focus is on industrial networks. In this article, we propose a new organizing framework whose three constituent elements are introduced in the following sections.

**NETWORK AS A LOGIC OF ORGANIZING**

The ‘logic of organizing’ view has generated much interest among those who regard networks as a key, emerging empirical phenomenon that explains and is explained by
other important phenomena, such as ‘globalisation’ (Giddens, 2000), ‘New
Competition’ (Nohria, 1992) and ‘information society’ (Fukuyama, 1999). In the
context of commerce, Thorelli (1986: 37) portrays networks as a form of governance
situated ‘between’ markets and hierarchies^: “For expository purposes we may think
in terms of a spectrum of (institutional) arrangements, from loose to tight, from arms-
length bargaining to total integration, from spot transactions via standing relations to
the internalization of markets. Internalization involves the absorption of other
organizations or their tasks. At one end of the spectrum is what we may call the open
market. At the other we find the firm which is relatively self-sufficient in terms of
vertical or functional integration.”

The more recent and more dominant view is that networks are distinct from both
markets and hierarchies (Fukuyama, 1999; Mayntz, 1993: 199-201). Definitions
differ but if we consider network in relation to markets and hierarchies we can
characterise the ‘pure’ forms of the three types of ‘organizing logic’, as summarised
in TABLE 2.

Where once vertical integration of firms was seen as the recipe for success, business
managers are now encouraged to establish sub-contracting networks and joint
ventures to innovate and respond rapidly to changing markets. Writing specifically
about for-profit organizations, Jarillo (1988) termed groups of legally autonomous
organizations with high levels of inter-dependence and co-operative working
‘strategic networks’.

Within the public sector, the notion of partnerships and networks to formulate policy
for and deliver local services, or resolve specific problems, competes with traditional,
organization-centred views of public management (for example: Kickert, Klijn, & Koppenjan, 1997a). “Policy networks emerge because societal actors seek participation in the policy process, while for the state, cooperation with societal actors provides access to information and can increase the acceptance of policy decisions.” (Mayntz, 1993: 5) Academics in both private and public sector domains have undertaken research aimed at understanding the factors relevant to the success or failure of such networks, and how they can be managed (e.g. Dyer & Nobeoka, 2000; Kickert, Klijn, & Koppenjan, 1997b).

Different authors specify different combinations of qualifying criteria that characterise relationships between network actors, such as levels of autonomy, interdependence and risk (Ebers, 1997; Jarillo, 1988; Mayntz, 1993). Authors share however a common view of the underlying logic of networks, as described by Mayntz (1993): the ‘logic’ of markets is competition; the logic of public bureaucracies and commercial hierarchies is authority and obedience; the logic of networks is negotiation. Network is thus regarded as a form of governance

In many cases, interest in networks as an organizing logic is grounded in a more or less explicit association drawn between a network form of organization and ‘better’ outcomes. There is a network ‘ethos’: network organizing is seen as good way of doing business or providing a public service. This stretches the logic of organizing view of network beyond the stricter definitions of network (vs. market or hierarchy) presented above. In the case of the commercial sector, many high-profile descriptive cases ascribe organizational success to establishing and controlling networks (see for example, on Benetton: Jarillo & Stevenson, 1991; on Toyota: Womack, Jones, &
Roos, 1990). In the public sector, the greater transparency and participation often associated with network working are seen as desirable.

Less often, authors provide a more critical view. For example, Mayntz (1993: 5) points out: “The emergence of policy networks … has two important implications: it is a sign of the “weak” state, but it also signals responsiveness to the heightened complexity of governing and to the growing consensus needs in modern democratic societies.”, and Kickert and colleagues acknowledge that some view policy networks as producing “ineffective, inefficient and insufficiently legitimised policies” (1997c: 171) And, of course, the success of firms like Toyota and Benetton could be at the expense of the security and prosperity of their network ‘partners’.

**NETWORK AS AN ANALYTIC PERSPECTIVE**

Network as a perspective has proved important in organizational analysis (Araujo & Easton, 1996; Easton, 1992; Nohria & Eccles, 1992) emphasising the recursive influences between actors and their context, and addressing both structure and agency. Granovetter (1985; 1992) argues that traditional economic perspectives are ‘undersocialised’, giving primacy to individual attributes and taking the role of self-interest as the sole guide for action, while traditional sociological perspectives are ‘oversocialised’, giving primacy to aggregate outcomes and social structures (Dacin, Ventresca, & Beal, 1999: 319-320). Both over- and undersocialised views however “share a conception of action and decision carried out by atomized actors” (Granovetter, 1992: 30, italics in original) whereas: "Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of sociocultural categories they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations.” (Granovetter, 1992: 32)
He goes on to differentiate two forms of ‘social embeddedness’: “‘Embeddedness’ refers to the fact that economic action and outcomes, like all social action and outcomes, are affected by actors’ dyadic (pairwise) relations and by the structure of the overall network of relations. As a shorthand, I will refer to these as the relational and structural aspects of embeddedness.” (Granovetter, 1992: 33) The notion of embeddedness extends beyond actors and relationships: events are temporally embedded in relation to other events, and the meaning given to events relates to their organizational and historical context (Granovetter, 1992; Peterson, 1998). In a broad ranging review of embeddedness research, Dacin, Ventresca and Beal (1999: 319) argue that its potential lies in “drawing attention to both the nested and constitutive aspects of context… Attention to rich and structured context offers institutionalist extensions to resource dependence and organizational ecology arguments. It re-establishes concerns with political activity and power in the institutional and ecological traditions”.

In studying interorganizational networks, network as an analytic perspective draws attention to: (a) an organization’s embeddedness in one or more networks – for example a firm may supply its products to several distinct industrial sectors, and any one of these networks may be taken as a study’s focal network; (b) a focal network can itself be seen as embedded in other networks, for example in England the network of organizations which provide health services for renal patients is embedded in the wider National Health Service network; and (c) a consideration of individuals not just as employees of a particular organization but also as members of other institutions, such as professional associations. Network actors face constraints and opportunities that are the “result of the sum total of relationships she or he is engaged in. At the
same time, the network structure is continuously being reproduced or changed through interaction episodes between situated actors”. (Araujo et al., 1996: 100)

**NETWORK AS AN ENTITY WITHIN THE ORGANIZATIONAL DOMAIN**

In the third view of networks, an interorganizational network is seen as an organizational entity (Araujo et al., 1996), either socially constructed or objectively ‘real’, which can be studied. Organizations within a network might be: based in the same geographical region forming ‘regional networks’ or ‘clusters’ (e.g. Tallman, Jenkins, Henry, & Pinch, 2004); share technologies, suppliers or customers (e.g. Dyer et al., 2000); be linked through product/service supply (e.g. Harland, 1996, on supply networks) or policy implementation networks (e.g. Kickert et al., 1997b, on policy networks); be actively co-operating to exploit a commercial opportunity (e.g. Gulati, Nohria, & Zaheer, 2000 on strategic networks; Jarillo, 1988), to innovate (e.g. Conway et al., 1998, on innovation networks) or to learn (e.g. Ruggie, 2001, on learning networks); or, belong to a particular industrial sector (e.g. Oliver et al., 1997).

For these scholars, networks are not new; it is merely that they have not been studied as such before. Focusing on the interorganizational network as the unit of analysis offers different insights into business processes and outcomes than are elicited by organizational or dyadic analysis.

Empirical examples in studies of regional, supply, innovation, learning, public policy and commercial networks can be differentiated according to whether they describe networks of organizations that are (a) closely and formally linked and engaged in co-operative activities to meet common objectives, or (b) more loosely-linked with divergent objectives and co-operative activities present at dyadic level and among sub-sets of network actors. In the commercial sector, the former type of network is
identified with joint ventures (Beamish & Inkpen, 1995), strategic alliances (Brouthers, Brouthers, & Wilkinson, 1995) and strategic networks (Jarillo, 1988); they may be local (i.e. between geographically proximate organizations), national or international, whereas in the public sector they tend to be local. In the former type of network, actors are aware of one another and purposively co-operate; in the latter type actors may have only limited relations with others and may not identify strongly with the network – the actors are interconnected but, at the network level, they do not rely on collaborative relations to act collectively and/or achieve common goals (Weick, 1979: 91-95).

In summary, organizations within a network may be: more or less numerous; more or less interconnected; more or less aware of other network members; and may or may not be purposively co-ordinating their resources, plans and actions. Here, (comparatively) small groups of organizations, whether from the public, commercial or voluntary sectors, engaging in collective action are termed ‘strategic networks’ (after Jarillo, 1988). More loosely bonded collectives of organizations are, in contrast, termed ‘extensive networks’. Examples in TABLE 3, below, illustrate this distinction.

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In the network as entity view, network boundaries are important and often not obvious. Murty (1999) demonstrates how different criteria for and methods of identifying actors significantly affect the composition of a network as it comes to be studied. A researcher’s construction of a network may, or may not, be shared by ‘regular’ participants in the network; network boundaries are determined according to particular interests. The social and research subject may differ (Hardy, Phillips, &
Network actors in an extensive network may, of course, share a network identity (e.g. mental health care provision in England; global automotive sector) but the boundaries of such networks are equivocal, unlike those of a strategic network. Nevertheless, these networks are not unbounded or universal (Easton, 1992). There may be uncertainty about whether some, marginal actors should be considered to be ‘in’ the network, or as more contextual, but there is usually clarity about ‘core’ organizations that should be included and other organizations that should be excluded. Extensive interorganizational networks can usefully be studied as a unit.

These three views of network have various implications for how we design and undertake research. These are considered below, in the context of a study of network learning, which is introduced next.

**ILLUSTRATING THE THREE MEANINGS OF NETWORK: A STUDY OF NETWORK LEARNING**

In this section, so far as it is possible to do so retrospectively, we attempt to convey the (sometimes changing) ways in which the different views of network described in the three-part framework have impacted upon the process and outcomes of the study of network learning, using four phases of the study to structure the discussion. For each phase, we describe the issues addressed, and then relate these to the meanings of network.

Crossan et al (1995) draw a distinction between OL authors who focus on learning by individuals or groups within organizations and those who address learning by organizations. The latter is an organization-centred view of OL (Crossan et al, 1995) in which learning outcomes can be seen as enduring changes to organizational properties such as systems, processes, culture etc (Knight, 2002: 434). Crossan et al go on to discuss the then relatively new body of work on learning in
interorganizational settings, indicating that authors on interorganizational learning “depict learning that occurs between organizations as predominantly individual, group or organizational” (p.346). By extending Crossan et al’s earlier distinction, however, this could be seen as learning within interorganizational networks. There was therefore a gap: what is learning by interorganizational networks, and how does it occur? Could we elaborate a network-centred view of network learning?

The first part of the study was conceptual, elaborating the notion in part through identifying and analysing secondary cases of network learning presented in the literature (see Knight, 2002). The second, empirical phase was centred on the comparative analysis of five ‘episodes’ of network learning identified in the network of organizations providing prosthetic (artificial limb) services in England. It was also informed by data from two further supply networks in the health sector. The key findings and one of the episodes are presented in Knight and Pye (2005); two further episodes are described by Knight et al (2002) and Knight and Pye (2004).

For the purposes of this paper, a number of aspects of these findings are worth highlighting. First, the outcomes of network learning are changes to network-level properties. The processes by which these changes come about are, however, often not at the network level, but relate to groups of actors within the network rather than the network as a whole. Second, each of the five episodes of network learning is centred on a particular theme/topic, rather than a focal actor or a specific change/learning initiative or event. Thus, a decentred account of network learning is provided, based on a decentred view of the prosthetics network (Tsoukas, 1996: 11). Third, our conceptualisation of network learning emphasises its social, political, situated and practice-oriented characteristics, and thus reflects conceptions of OL described by
authors who eschew basing OL on theories of cognitive, individual learning (e.g. Araujo, 1998; Cook & Yanow, 1993; Coopey & Burgoyne, 2000; Vince, 2001).

**Phase 1 Conceptualising Network Learning**

Through extending the idea described above, which differentiates between the agent that is learning (i.e. whose properties are changing through learning) and the context in which that learning occurs, the matrix illustrated in FIGURE 1 is generated. This proved to be a vital heuristic for appreciating the relevance and usefulness to our inquiry of prior learning research.

Mapping prior research onto the matrix showed that the term interorganizational learning is most often used to refer to learning in interorganizational settings, where the agent of learning could be a group of people, a formal organization, a pair of organizations or a group of organizations. Thus we chose to use ‘interorganizational’ to refer to the context of learning, delimited by the two right-hand columns of cells in the matrix. We found several cases of learning by groups of organizations (see Knight, 2002: 440-444). Authors’ rich descriptions of network learning (though the term was hardly used) enabled further elaboration of the concept. These provided support for our notion of network learning, defined as learning by a group of organizations whatever the ‘setting’ (i.e. the bottom row of the matrix).

The third concept that can be more clearly delineated using this matrix is ‘learning network’; this is a term that is widely used but in many different senses, including for example groups of students communicating via electronic technologies, groups of individuals learning in work/professional settings, and groups of organizations coordinating efforts to develop capability. In this study, a learning network was regarded as a network whose purpose is to learn (i.e. individuals or organizations actively seek to learn through their interaction).
The matrix is useful for helping to differentiate key concepts, but it does have limitations. First, the entries on the top-left to bottom-right diagonal imply an atomised view of the learning agent, somehow learning in isolation of others. Those advocating network as analytic perspective would instead emphasise the embeddedness of actors and learning as a situated and social process (Araujo, 1998; Gherardi, 2000). Second, the meaning of ‘context’ is not the same across the whole matrix. For example, for ‘organization learns within a dyad’, the context - dyad - means ‘setting’; for ‘dyad’s learning in influenced by an organization’, context is used in the sense of ‘catalyst’. Nevertheless, it serves to elaborate the difference between interorganizational and network learning, and helped to analyse prior research.

The notion of network as a group of organizations is at the heart of this study, and thus the third view of network – as an entity within the organizational domain – was predominant in this study of network learning. A second view of network is also apparent in conceptual stage of the project, though it is more implicit. Closer consideration of the detail of the matrix invites one to consider the issues of agency in learning and the atomisation of social actors. Thus making sense of the matrix draws in the view of network as an analytic perspective and consideration of differing views of learning, notably the important differences between those who take a social, as a opposed to technical, view of learning (Easterby-Smith & Araujo, 1999).

**Phase 2 Designing the empirical investigation – selecting research sites**

Even the most cursory review of interorganizational network literature would reveal the great range of types of networks, from few to many actors, which may be co-located or widely geographically dispersed, and between which there are various
types of links which are more or less formalised. An important consideration in investigating network learning was to appreciate the relationship between organizational and network learning theory.

In order to evaluate whether OL and network learning are isomorphic, it was important to avoid networks that can be seen as being at the (equivocal) boundary between definitions of organization and network. We chose to avoid ‘strategic networks’, even though this would have been less resource intensive. Strategic networks feature significantly in research that takes (more or less explicitly) network as a logic of organizing. A formalised strategic network might exhibit similar learning patterns to, say, a large conglomeration with a culture of loose centralised control.

A tactic in network research to contain resource requirements and make access easier to negotiate is to begin with a focal organization and work outwards using a ‘snowball’ approach to identify other organizational actors in the network. The difficulty with this is that it might constrict findings to a firm-centred view of the network, and the focal firm could well wield disproportionate power in the network. Crossan et al (1995: 344) describe how some theorists, such as Daft and Weick (1984), have “equated organizational learning with a specialized form of group learning focused on the dominant coalition of senior management team”. A similar criticism could be levelled at a firm-centred view of network learning.

Network as an entity and as a logic of organizing were the dominant views of network in designing the empirical phase of the research – the former as essential to include and the latter because it was essential to avoid. Strategic networks – with their limited scale and scope and ethos of co-operative working between network actors – would have been more practical to investigate than extensive networks, as would a network
centred on a particular firm. However, both approaches would have led to important theoretical limitations to the study’s findings.

**Phase 3 Collecting and Analysing Data**

As data collection and analysis progressed, the importance of the social and political facets of interactions and the situatedness of actors, interactions and events in the network became increasingly apparent. We initially assumed formal interviews would be the main form of data collection, to be complemented by observational data arising from our involvement (arising from other research activities) in the ‘Prosthetic Strategic Supply Group’ (PSSG). This is a group representing all the different types of organizations within the network, which was established to address transorganizational issues and promote strategic change.

Participation in this group was a vital source of contacts, insights and data. It provided opportunities for extensive informal interaction with a range of network actors, many of whom were particularly influential within the network. Participant-observation, visits to disablement service centres and suppliers, and informal interviews proved eventually to be as important as formal interviews, if not more so. Clearly, this had methodological and ethical implications for the study.

Network learning is a political process, and so is management research (Easterby-Smith, Thorpe, & Lowe, 1991; Pettigrew, 1990). An understanding of network learning could enable an actor to more effectively influence what happens in a network. As with any management knowledge, it is a potential source of power, so researchers’ roles and influence in the networks in which they undertake the research must be considered carefully.
The dominant view of network in this phase of the project is as an analytic perspective. The importance of social and political features of episodes was soon evident, and this affected what data were sought and how they were collected. Network as an analytic perspective operates, however, at more than one level. It also highlights that a researcher is not a neutral observer without effect on the network; it places ethical requirements on how the researcher does her work.

Phase 4 Relating findings to prior research

An important question to address in evaluating the findings was whether learning is an isomorphic construct (i.e. whose underlying structure is the same across levels, Rousseau & House, 1994: 19). In particular, is network learning best regarded as a form of organizational learning, or as distinct concept? The model of network learning that was developed through interpretation of the empirical data in five episodes (i.e. cases) of network learning in the prosthetics service highlights the recursive influences between learning outcomes, processes and context and a view of learning that emphasises its social and political characteristics.

With the model of network learning drafted, it was then appropriate to relate back to the initial conceptualisation of network learning and the underpinning literature. Overall, the distinction between learning by organizations within networks (a form of interorganizational learning) and learning by a group of organizations as a group (network learning) held up.

Our model of network learning emphasises the recursive influences between its elements, and structural and temporal embeddedness. By recognising that network as an analytic perspective is highly relevant, we could concentrate our comparison of OL and NL on the subset of OL literature which is centred on notions of organizational learning as a social, political and situated process (e.g. Araujo, 1998; Cook et al.,
1993; Coopey et al., 2000; Gherardi, 2000; Vince, 2001), rather than aspects of the literature which adopt a more technical view of learning by atomised actors.

Network learning outcomes are changes to network-level properties, which can be categorised as network structures, network interpretations or network practices; these are conceptually distinct from OL outcomes. Patterns of, and possibilities to, influence learning process at the level of the network are significantly affected by the limited presence and impact of formalised authority and control mechanisms in a network, as compared to an organization. We concluded that OL and NL are not isomorphic (Knight et al., 2005: 388), despite conceptual links between our view of network learning and certain views of OL.

Finally, we observe that network as a logic of organizing is relevant to our findings. The PSSG was set up to engender co-operation and collective action, at the time we first began collecting data in the network. Over time it has become established and more influential. In parallel with this, networks and other collaborative forms of working are becoming ever more popular modes of working/governing across the public sector. Thus, network as a logic of organizing became progressively more pertinent to our research setting, despite our initial plans to avoid strategic networks. v

APPLYING THE THREE VIEWS OF NETWORK

As summarised in FIGURE 2, the illustrative case described above shows how all three meanings of network can be relevant to a single network research project, and how their relative importance can vary within and between different phases of a study.

Clearly, the network as an entity within the organizational domain is crucial. Second, the resulting model of network learning emphasises social and political features of
learning and the embeddedness of actors (individuals and organizations) and events. Third, though some relations among actors in the networks studied could be characterised as market-oriented or hierarchies, there was evidence of more formalised efforts to co-operate, relating to network as a logic of organizing.

The results of the network learning study emphasise the social and political aspects of learning and recursive influences between (elements of) learning context, content and process (Pettigrew, 1987). These features of learning, which are represented in the view of network as an analytic perspective emphasising embeddedness, became more evident as the study progressed. They did not feature highly in the initial design, but did affect the relative value placed on different sources of data, for example highlighting the usefulness of informal interviewing and participant-observation, compared to formal interviewing.

This analysis of one research study illustrates the application of the framework and its usefulness as a sense-making tool. The insights gained from this one study are, we argue, of wider relevance too. Appreciating the three meanings of network can help identify and analyse others’ research, for which we draw out two, related sets of guidance.

First, for identifying what prior research should be considered in one’s own work, we advocate being mindful that:

1. texts may reflect more than one meaning of network

   For example, Dyer and Nobeoka’s (2000) article about Toyota’s supplier network reflects network both as a logic of organizing and as an entity.

2. the meaning(s) of network may not be explicit

3. the term network may not be used, though the text is relevant
Spender’s (1989) and Nathan and Mitroff’s (1991) work on industry recipes and negotiated order in interorganizational fields could have been missed.

4. texts may claim to relate to network when, by certain definitions, they do not

For example, in the fields of marketing and supply management, some authors write of networks, when their empirical analyses are about sets of dyads (i.e. relationships between a firm and its customers or suppliers).

These four ‘rules of thumb’ help to exclude literature which is less relevant and to draw attention to important work whose relevance may not be immediately apparent. This is particularly valuable in considering work from outside one’s own disciplinary fields.

Second, appreciating the three meanings of network can help close reading of others’ work. In evaluating a text, a researcher would be posing three key questions, each with several subsidiary questions, as indicated in TABLE 4. Answering each question for texts on learning in interorganizational settings helped to draw out a small set of writings that were most pertinent to developing the concept of network learning. These questions are also relevant when organizing a research project.

\[ \text{Insert Table 4 about here} \]

\[ \text{CONCLUSIONS AND IMPLICATIONS} \]

This article presents three meanings of network used in interorganizational research and practice – network as: a logic of organizing, an analytic perspective, and an entity within the organizational domain. We have shown that all three views of network were relevant to the study of network learning used to illustrate our argument, and we have extended the lessons learnt in this study to produce some general guidance for
network researchers, as presented in the previous section. The need for this is well articulated by Holton (2005: 215) in concluding his review essay: “Network may be a metaphor for our times, but little analytical progress will be made until those who discern networks are clearer about what networks are not as well as what they are. Meanwhile, network discourses and the empirical modalities of network activity require sensitive and radical interdisciplinary handling, rather than set-piece encounters between disciplinary imperialism or weaker forms of multidisciplinary stand-offs.”

These multiple uses of the term network, and the changing pattern of use over time, represent what Weick (1995: 35) calls ‘ontological oscillations’ – a normal part of the sense-making (Weick, 1979: 133) task of social research, which can enrich our understanding of organizational life. An appreciation of the various meanings of network in the context of interorganizational research can help both to organize research projects (assessing the design and methods for consistency with varying uses of network) and to read others’ reports of their research findings (comparing their uses of network with one’s own interests).

The 3-fold framework builds on categorisations proposed in previous reviews of network literature. Notably, however, it avoids reflecting disciplines within the field of organization/management studies, unlike many of the contributions listed in Table 1. For some researchers, this could be seen as a limitation, if their aim is to make a contribution within a relatively narrowly defined discipline. Overall, though, it seems to be a strength, rather than a weakness, of the framework. It encourages consideration of the work of colleagues from different disciplinary backgrounds and schools of thought and can help to identify relevant knowledge which may employ quite different terminology. For example, network researchers might neglect valuable
literature from the longer established body of work on interorganizational research. Whatever one’s views about the relative merits of building a ‘unified’ body of knowledge on learning in organizational settings, or welcoming diversity, it seems evident that we need to understand links between otherwise fragmented knowledge ‘bites’ (Easterby-Smith, 1997; Huber, 1991) and, arguably, to be prepared to take advantage of the benefits of discussing the same term in different ways.

Researchers’ approach(es) to ‘network’ frames what levels and units of analysis are relevant to their studies, and practical considerations around data collection and analysis can be a major constraint on our ability to perform network-centred network research. These challenges are exacerbated where the subject requires a temporal and processual perspective and longitudinal studies are desirable. This framework of the three views of network is offered as a useful heuristic in studying phenomena such as supply, innovation, learning or performance, in interorganizational networks.

**Implications for research and managerial practice**

The framework of three meanings of network has been developed inductively through our experiences of researching various topics, most notably network learning, in the context of interorganizational networks. To illustrate our argument we have relied on just one of these themes of research, though we have tested our developing understanding against our wider experience (Weick, 1989) in an abductive mode (Coffey & Atkinson, 1996: 156). Thus a first line of further inquiry would be for the framework to be evaluated by other researchers and in other contexts (topics and research sites) to assess its relevance and value.

This framework may influence the practice and outcomes of future network research. Greater clarity about the meaning of ‘network’ should enable more systematic and thorough use of prior research, more rigorous design of research studies and clearer
presentations of findings, which can in turn be more accessible to those subsequently investigating a topic. Cumulatively such benefits offer the prospect of greater coherence and continuity on the developing body of network knowledge, and scope for overcoming the constraints of disciplinary boundaries, without advocating synthesis or integration as the goal of network researchers.

The emphasis in this article has been very much on the practice and outcomes of research, and yet the framework also has the potential to support the work of managers. Just as being clear about the three meanings of network may help researchers in their endeavours, the framework may serve managers well in their efforts to analyse situations, and to avoid the risk of confusions arising from using multiple meanings, or implicit meanings, of network.
REFERENCES


Easterby-Smith, M., & Araujo, L. 1999. Organizational learning: Current debates and opportunities. In M. Easterby-Smith, J. Burgoyne, & L. Araujo (Eds.),


### TABLES

<table>
<thead>
<tr>
<th>Author</th>
<th>Review type</th>
<th>Domain of interest</th>
<th>Dominant themes: Content, Constructs, Theoretical groupings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easton (1992)</td>
<td>elaborative</td>
<td>marketing</td>
<td>Uses four metaphors of industrial networks to structure his review – networks as: relationships, structures, processes and positions.</td>
</tr>
<tr>
<td>Agranoff &amp; McGuire (2001)</td>
<td>elaborative</td>
<td>public management</td>
<td>Organises the review of knowledge on public network management around 7 ‘big questions’, which need to be addressed to inform network management which is alternative to the “hierarchical organizational authority paradigm of bureaucratic management.”</td>
</tr>
<tr>
<td>Gulati, Nohria &amp; Zaheer (2000)</td>
<td>elaborative</td>
<td>business strategy</td>
<td>Describe how the strategic network perspective offers greater insights into firm conduct and performance for five “traditional sources of differential returns to firms in strategy research” (p.204-5)³</td>
</tr>
<tr>
<td>Powell &amp; Smith-Doerr (1994)</td>
<td>integrative</td>
<td>economic sociology</td>
<td>Differentiate 2 approaches to the study of networks (as an analytic tool and as a form of governance) with little cross-fertilization despite three common, conceptual underpinnings: embeddedness, connectivity and reciprocity. Then four main ‘areas of network research’ are reviewed: 1) networks of access and opportunity (informal aspects of network ties); 2) networks and power; 3) the firm as a network of treaties; 4) networks of production</td>
</tr>
<tr>
<td>Davern (1997)</td>
<td>integrative</td>
<td>economic sociology</td>
<td>Considers a wide variety of ‘sociological concepts’ in which the “network metaphor” is manifested, and which are deployed in the study of various topics of relevance to economic sociologists. Uses four categories (structural, resource, normative and dynamic) to help synthesise the literature. Shows how (concepts within) the categories are combined in different ways to address different topics (e.g. resource + structural, for job search; structural and normative, for network capital).</td>
</tr>
<tr>
<td>Authors</td>
<td>Type of Review</td>
<td>Title/Details</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Berry, Brower, Choi, Goa, Jang, Kwon &amp; Word (2004)</td>
<td>Integrative</td>
<td>Public management and policy studies. 3 “streams of literature” (social network analysis, policy change + political science, and public management networks) are reviewed on 3 dimensions (assumptions about human behaviour, research methods, typical research questions). Network is viewed as a ‘theoretical framework for research’ and an integrative framework is sought.</td>
<td></td>
</tr>
<tr>
<td>Borgatti &amp; Foster (2003)</td>
<td>Integrative</td>
<td>Management/OS Reviews several major ‘research streams in organizational network scholarship’. Then distinguishes a number of dimensions along which network studies vary: direction of causality, level of analysis, explanatory mechanisms and explanatory goals.</td>
<td></td>
</tr>
<tr>
<td>Araujo &amp; Easton (1996)</td>
<td>Integrative</td>
<td>Cross-disciplinary review published in marketing book. Analysis of 10 network approaches according to 8 dimensions. Approaches: social networks; interorganization theory, actor-network theory, networks of innovators; policy networks; networks in economic geography; comparative studies; entrepreneurship studies; industrial networks. Dimensions: exemplary works; research goals; nature of actors; nature of links; disciplinary background; methodological orientation; orientation structure/process; cross-references.</td>
<td></td>
</tr>
</tbody>
</table>
Oliver & Ebers (1998) conducted an integrative study of sociology and organization studies. They analyzed 158 articles using 77 variables in 7 categories. They identified four substantive configurations or variables that constitute distinct research paradigms: social network, power and control, institutional theory, and institutional economics and strategy perspectives (p.568).

| TABLE 1 |
|———|———|———|
| **Summary of selected network review articles** |

Footnotes for Table 1

a “1) industry structure including the degree of competition and barriers to entry; 2) positioning within an industry including strategic groups and barriers to mobility; 3) inimitable firm resources and capabilities; 4) contracting and coordinating costs; 5) dynamic and path dependent constraints and benefits” (p.205)

b ‘structural holes’ and ‘social resources’ for study of organizations and employment; network capital for transition economies; interlocking directorships, social capital, embeddedness

c social capital, embeddedness, network organizations and organizational networks, board interlocks, JVs and inter-firm alliances, knowledge management, social cognition, group processes
### TABLE 2

**Distinguishing markets, hierarchies and networks.**

<table>
<thead>
<tr>
<th>‘Organizing logic’</th>
<th>Key characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hierarchy</strong></td>
<td>Group of organizations (operational divisions, or business units) that are linked legally and economically, with a command-and-control structure.</td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td>Group of legally autonomous organizations linked with arms-length economic relationships, controlled by the ‘invisible hand’ of the ‘free market’</td>
</tr>
<tr>
<td><strong>Network</strong></td>
<td>Group of legally autonomous organizations with economic interdependencies and informal, negotiated and voluntaristic co-ordination mechanisms.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Public sector</th>
<th>Commercial sector</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic network</strong></td>
<td>A group of social and healthcare organizations providing mental health services in a community (Provan &amp; Milward, 1995).</td>
</tr>
<tr>
<td><strong>Extensive network</strong></td>
<td>The 60 or so centres which provide dialysis services for the c.15,000 renal patients in England, and relevant policy personnel at the Department of Health and professional associations.</td>
</tr>
</tbody>
</table>

### TABLE 3

**Examples to illustrate the differences between strategic and extensive networks.**
<table>
<thead>
<tr>
<th>View of network</th>
<th>Key questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic of organizing</td>
<td>does the author treat network as a form of governance?</td>
</tr>
<tr>
<td></td>
<td>Is there an assumption that network governance is better than its alternatives?</td>
</tr>
<tr>
<td></td>
<td>What criteria are used to define network governance and to differentiate it from hierarchy and market forms of governance?</td>
</tr>
<tr>
<td>Analytic perspective</td>
<td>does the author view actors and events as relationally and structurally embedded? (Granovetter, 1992)</td>
</tr>
<tr>
<td></td>
<td>Is there a focus on particular actors or events? What assumptions about agency or cause and effect are evident? How clearly are boundaries perceived between actors/events and their context?</td>
</tr>
<tr>
<td>Entity in organizational domain</td>
<td>what is the author’s unit of analysis?</td>
</tr>
<tr>
<td></td>
<td>For interorganizational networks: What types of organizations are in the network? What types of links exist between them (by purpose, by governance type and formality, by frequency and quality of interaction, etc)? Is it an extensive or strategic network? How is it determined whether an actor is in the network or excluded from the network? What is the fit between the research subject and the social subject?</td>
</tr>
</tbody>
</table>

**TABLE 4**

Summarising the three views of network.
Network logic is also applied within organizations. In ‘network organizations’ (Araujo and Easton, 1996), network logic is applied to achieve greater flexibility and adaptability (Baker, 1992; Snow, Miles and Coleman, 1992), than more traditional hierarchical structures. Here, we focus on network governance of groups of organizations (Tricker, 1994).

In this paper, we use governance to indicate mechanisms and processes for structuring interorganizational relations as distinct from its use in the phrase ‘corporate governance’ which refers to business practices within a regulatory environment of codes of conduct and principles which govern the conduct of ethical business (Tricker, R. I. 1994. *International corporate governance: Text, readings and cases*. New York: Prentice Hall.)

Co-operation should be enduring, but not necessarily constant. For example, collaboration amongst emergency services providers for disaster response is characterised by considerable but intermittent co-operation.

i.e. relationships characterised by purposeful co-operation over time (Knight, 1997)

We therefore needed to consider whether this undermined the value our case for a research design which avoids possible shortcomings that we believed would arise from investigating strategic networks. Evidence from the other two networks investigated and comments offered in twelve interviews to provide feedback on the draft findings suggest that the findings could be applied in more extensive, less cohesive networks.
Cross-tabulation of level of learner and context of learning (based on: Knight, 2002)

<table>
<thead>
<tr>
<th>Level of Learner</th>
<th>Context of Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual (I)</td>
<td>Individual learns 'alone'</td>
</tr>
<tr>
<td></td>
<td>Individual learns within a group</td>
</tr>
<tr>
<td></td>
<td>Individual learns within an organization</td>
</tr>
<tr>
<td></td>
<td>Individual learns within a dyad</td>
</tr>
<tr>
<td></td>
<td>Individual learns within a network</td>
</tr>
<tr>
<td>Group (G)</td>
<td>Group’s learning is influenced by an individual</td>
</tr>
<tr>
<td></td>
<td>Group learns through intra-group interaction</td>
</tr>
<tr>
<td></td>
<td>Group learns within an organization</td>
</tr>
<tr>
<td></td>
<td>Group learns within a dyad</td>
</tr>
<tr>
<td></td>
<td>Group learns within a network</td>
</tr>
<tr>
<td>Organization (O)</td>
<td>Organization’s learning is influenced by an individual</td>
</tr>
<tr>
<td></td>
<td>Organization’s learning is influenced by a group</td>
</tr>
<tr>
<td></td>
<td>Organization learns through intra-organization interaction</td>
</tr>
<tr>
<td></td>
<td>Organization learns within a dyad</td>
</tr>
<tr>
<td></td>
<td>Organization learns within a network</td>
</tr>
<tr>
<td>Dyad (D)</td>
<td>Dyad’s learning is influenced by an individual</td>
</tr>
<tr>
<td></td>
<td>Dyad’s learning is influenced by a group</td>
</tr>
<tr>
<td></td>
<td>Dyad learns through intra-dyad interaction</td>
</tr>
<tr>
<td></td>
<td>Dyad learns within a network</td>
</tr>
<tr>
<td>Network (N)</td>
<td>Network’s learning is influenced by an individual</td>
</tr>
<tr>
<td></td>
<td>Network’s learning is influenced by a group</td>
</tr>
<tr>
<td></td>
<td>Network’s learning is influenced by an organization</td>
</tr>
<tr>
<td></td>
<td>Network’s learning is influenced by a dyad</td>
</tr>
<tr>
<td></td>
<td>Network learns through intra-network interaction</td>
</tr>
</tbody>
</table>

Interorganizational learning

‘Atomised’ view of learning agent
FIGURE 2

Illustrating the complex links between meanings of network and phases of a network research project.

Footnote for figure 2

\(^a\) Line width indicates relative importance of a meaning of network to a particular phase in the study
<table>
<thead>
<tr>
<th>Year</th>
<th>Author(s)</th>
<th>Title</th>
</tr>
</thead>
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<tr>
<td>2005.01</td>
<td>Bruce A. Rayton</td>
<td>Specific Human Capital as an Additional Reason for Profit Sharing</td>
</tr>
<tr>
<td>2005.02</td>
<td>Catherine Pardo, Stephan C. Henneberg, Stefanos Mouzas and Peter Naudé</td>
<td>Unpicking the Meaning of Value in Key Account Management</td>
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<td>Andrew Pettigrew and Stephan C. Henneberg (Editors)</td>
<td>Funding Gap or Leadership Gap – A Panel Discussion on Entrepreneurship and Innovation</td>
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<td>2005.05</td>
<td>Juani Swart</td>
<td>Identifying the sub-components of intellectual capital: a literature review and development of measures</td>
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<tr>
<td>2005.06</td>
<td>Juani Swart, John Purcell and Nick Kinnie</td>
<td>Knowledge work and new organisational forms: the HRM challenge</td>
</tr>
<tr>
<td>2005.07</td>
<td>Niki Panteli, Ioanna Tsiourva and Soy Modelly</td>
<td>Intra-organizational Connectivity and Interactivity with Intranets: The case of a Pharmaceutical Company</td>
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<tr>
<td>2005.08</td>
<td>Stefanos Mouzas, Stephan Henneberg and Peter Naudé</td>
<td>Amalgamating strategic possibilities</td>
</tr>
<tr>
<td>Year</td>
<td>Authors</td>
<td>Title</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
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<tr>
<td>2005.11</td>
<td>Richard Fairchild</td>
<td>Persuasive advertising and welfare in a Hotelling market.</td>
</tr>
<tr>
<td>2005.12</td>
<td>Stephan C. Henneberg, Catherine Pardo, Stefanos Mouzas and Peter Naudé</td>
<td>Dyadic ‘Key Relationship Programmes’: Value dimensions and strategies.</td>
</tr>
<tr>
<td>2005.13</td>
<td>Felicia Fai and Jing-Lin Duanmu</td>
<td>Knowledge transfers, organizational governance and knowledge utilization: the case of electrical supplier firms in Wuxi, PRC</td>
</tr>
<tr>
<td>2005.15</td>
<td>Mark Ginnever, Andy McKeechnie &amp; Niki Panteli</td>
<td>A Model for Sustaining Relationships in IT Outsourcing with Small IT Vendors</td>
</tr>
<tr>
<td>2005.16</td>
<td>John Purcell</td>
<td>Business strategies and human resource management: uneasy bedfellows or strategic partners?</td>
</tr>
<tr>
<td>2005.17</td>
<td>Richard Fairchild</td>
<td>Managerial Overconfidence, Moral Hazard, and Financing and Investment Decisions</td>
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<tr>
<td>2005.18</td>
<td>Wing Yee Lee, Paul Goodwin, Robert Fildes, Konstantinos Nikolopoulos, &amp; Michael Lawrence</td>
<td>Providing support for the use of analogies in demand forecasting tasks</td>
</tr>
<tr>
<td>2005.19</td>
<td>Richard Fairchild and Sasanee Lovisuth</td>
<td>Product Differentiation, Myopia, and Collusion over Strategic Financing Decisions</td>
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<tr>
<td>2005.20</td>
<td>Steven Brammer, Andrew Millington &amp; Bruce Rayton</td>
<td>The Contribution of Corporate Social Responsibility to Organisational Commitment</td>
</tr>
<tr>
<td>2005.21</td>
<td>Richard Fairchild and Ganggang Zhang</td>
<td>Repurchase and Dividend Catering, Managerial Myopia, and Long-run Value-destruction</td>
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