CHAPTER 2: NETWORK THEORY TRAJECTORIES – WHERE FROM AND WHERE TO?

Introduction

Networks are a cornerstone of the contemporary institutional architecture (Castells, 1996). The interest in networks is embedded within the social and political sciences and has reached across to infiltrate other fields, for example, physics; epidemiology and biology (change this). The expansion of arenas in which the network concept is now applied has xxxxx

Earlier positions that networks were atheoretical, that is, descriptive rather than explanatory (Salancik, 1995: 348), and contained no theory of own (Salancik, 1998; Oliver and Ebers, 1998; Borzel, 1998), have been challenged. It is now acknowledged that a broad array of network theories abound across many areas of scholarship (Borzel, 2011; Borgatti, 2003; Borgatti and Foster, 2003; and Kilduf and Tsai, 2003). The resulting "cacophony of approaches and theories" (Oliver and Ebers, 1998: XX), coupled with discipline specific conceptualisations and foci (Borzel, 1998: 254), have created a complex and often confusing platform from which to examine networks and explicate new insights (Berry et al, 2004). Further, it has been argued that a tendency to mix theory, method and models has restrains the potential of the network (Borzel, 1998, p. 254).

As networks and network research has continued to expand issues of network theorising have re-emerged. In an Interactive Panel at the International Research Society Public Sector Management (2009) more than 50 network researchers revisited the debate and concluded that while existing theories have contributed many useful insights into the operation and functioning of networks, and have gone a long way toward explaining the impact of structure and design on performance, many took framework form and therefore not fully explanatory, nor did they address several of the long standing or emerging network issues, such as power, process, growing hybridity XXX. Based on these limitations, this forum along with more recent publications (   ) called for research attention to again be directed toward network theoretics. The Panel identified three key areas for consideration: (a) addressing the long standing question centred on should there network theory or a theory of networks/overarching theory of network and (b) whether existing theories and their combinations were sufficient to explain emergent network issues, or were new theories required?

The objective of the chapter is to identify the various threads of network theorising and track their evolution and application to the public sector space. It is envisaged that by articulating the various streams and their overlaps, it will be possible to go beyond the current network theory confusion to provide a more solid foundation on which new combinations can be formed or enable creation of new generation network theories to deliver illuminating insights to better inform remain or emergent network questions.

This chapter commences by first clarifying the concept of a network and its characteristic elements to provide a basis against which following theoretic propositions and contributions may be assessed.

NETWORKS DEFINED

At its most basic, a network consists of a relatively stable set of actors or nodes (people, organisations, sectors) that are linked by a set of ties (such as friendship, exchanges) (see for example, Mitchell, 1969). A network defined as a set of goal-oriented interdependent/autonomous actors that come together to produce a collective output (tangible or intangible) that no one actor could produce on their own (Alter and Hage, 1993; Koppenjan and Klijn, 2004). Although the definition of network can vary considerably within and between sectors and disciplines (Borzel, 1998; Considine, 2002), all share as a common denominator an agreed notion that networks are about different types of relationships, whether these are the objectively measurable resource or economic ties or subjective emotional links (Wasserman and Faust, 1994). There is an element of differentiation between different groups of network proponents as to the most defining relational element within networks, with some, particularly business network proponents, for example Jones, Hesterly and Borgatti, 1997) following the depiction for generic ties as outlined above by Wasserman and Faust (1994) and others stressing the interpersonal dimension of these exchanges (Church et al, 2001;   +   ). On this latter position, Powell (1990: 300) succinctly expanded: "… certain forms of exchange are more social that is, more dependent on relationships, mutual interests, and reputation…"

Network as Metaphor

This notion of connections through linkages brings into play the image of 'webs of affiliation or nets of links. Such metaphors are a powerful way of conceptualising, presenting and discussing networks. As Auster (1990: 65) noted, the benefit of the vision of a network is that it changes the imagery from a focus on the individual to one of "constellations, wheels and systems of relationships". Kenis and Schneider, 1991: 25) considered a network as metaphor to capture the "architecture of complexity".

Despite the benefits that the network metaphor evokes as an image of connection, its abstractness or descriptive level has been criticised as too broad. Dowdling (1995), for example, argued that the network descriptor was often applied to any type of grouping and therefore not explicit in relation to the characteristics under examination, the boundary of analysis or the specification of expectations. In view of this perceived lack of guidance, the network concept has been described as "imagery without technique" (Schrum and Mullins, 1988, cited Conway et al, 2001:). Consequently, more detailed frameworks and theories around which to organise the concepts have been consistently sought (Salancik, 1995; Dowdling, 1995) as well as the development of 'universal algorithms' to better define the network concept (Isett et al, 2011) and thus avoid the current practice of 'loose analogizing' (Beinhocker 2007: 12).

KEY THEORETIC THEMES

As highlighted above the network paradigm is wide reaching, covering many different arenas. However, this chapter restricts its focus to public sector networks, and draws upon four broad key research/theoretic themes regularly distilled from the literature (Berry et al, 2004; Klijn, 2008; Islett et al, 2011): (a) social network

theory/sociological (b) inter-organisational relations (c) policy /governance networks and (d) service delivery networks. Using Leximancer[1], a content analysis software program, each of the approaches has been active for more than two decades, with the sociological work dating back to the 1930s, the political science literature to the early 1970s, and the public management research to the mid-1980s.

Social Network Analysis/ Theory

SN theory, has a strong grounding in the sociological tradition, with the early work of   providing the first attempts to rise above the metaphoric depictions of networks as threads, nets of connections to the development of more structural representations through sociograms.

Extending the relational orientation, Wasserman and Faust (1999:4) identified four additional principles of models built using social network theory: independence of actors; relations or ties comprising the flow of resources and/or enabling of individual actors by networks; and the generation of long-lasting ties and networks by social structures..

Social network theory views social relationships in terms of nodes and ties. Nodes are the individual entities or actors within the network and the ties refer to the nature of the relationship that occurs between the actors. One of the key points of differentiation for social network theory to other theories is that emphasises the connections between actors/entities, rather than their individual characteristics (Scott, 2001). Social Network theory therefore adopts a structural perspective that posits that the structure of the network and a person's position in the network can enhance or constrain their actions and opportunities. That is, that the positions of the actors, the type and nature of their relationship with the other actors in the network, determines the outcomes (Borgatti, 2003; Kildulff and Tsai, 2003). The perspective of social network analysis – which comprises both method and theory – therefore mitigates against studying any single relationship in isolation from the network of which it is part. This is because the dyad, or relationship between two actors, is the building block of a network, but is itself conditioned by the network. Accordingly, Wellman, Carrington and Hall (1988) characterised social network theory not so much as competing directly with other approaches to identifying causality as:

> … reforming basic questions. Thus, social network theorists have proposed, for example, substituting world systems theory for single state modernization theory, network communities for neighbourhood communities, political networks for psychologistic interpretations of collective behaviour, and vacancy chain analysis or individualistic analyses of social mobility (48).

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[1] Leximancer – 10 network authors for USA, UK, Europe and Australia were asked to identify 10 most influencial network papers, analysed using Leximancer, content thematic. Findings were presented to IRSPM Interactive Panel

Although the social network literature is extensive, spanning multiple fields of interest and disciplines (Borgatti and Halgan, 2011) it is possible to distil some formative theoretical contributions derived from this approach Granovetter's (1973) seminal work on the *strength of weak ties* offers unique insights and explanation into the notion of network relationships, positions and impact. Examining the role of informal ties (relationships) played in securing employment, Granovetter theorised that it was the weak ties (loose connections) between people, rather than their close relationships that got them jobs. That is, loose ties provided opportunity to access new and novel information that was not available from strong ties. This work advanced a theory of information diffusion and communication across networks that helped to explain their function and importance. According to Granovetter the information that passes through a network is dependent on the strategic goals of individuals and their gatekeeping positions within the network. Moreover, his week ties thesis demonstrated how individuals in these critical boundary spanning roles help to connect people and groups that might otherwise be isolated.

Drawing on these notions of relational strength a body of theory around cohesion and clustering has also developed. Cohesion theorists argue that densely embedded networks that have multiple (type and frequency) connections are more advantageous because they are closed and therefore allow for consolidation of thinking, commitment and action (Walker, Kogut and Shan, 1997). That is, dense networks comprised of strong and frequent connections foster cohesion and collective action. However, following Granovetter (1985) it is also contended from this perspective that strong ties add little value in the search for information (ideas, knowledge, resources) because all the actors in the core have access to the same intelligence, and therefore, redundant.

Structural Hole theory has been presented by Burt (1992) as an alternative theoretical perspective. Structural Hole theorists posit that networks are open social structures in which advantages re derived from the ability of network actors to position themselves strategically so as to bridge holes/gaps in connections and therefore quickly learn about, garner and leverage off entrepreneurial opportunities. It is argued that people and organisations that bridge these structural holes tend to have better access to newer information and resources, and thus enjoy relatively better performance than their counterparts. For example, in a study of 77 members of the Canadian Mutual Fund industry, Zaheer and Bell (2005) found that not only did a firm's network structure affect their performance, but that firms that bridged structural holes derived superior performance outcomes.

Following Granovetter, Linton Freeman (1979) examined the role of an individual's position in a network on his or her power and outcomes within the network. The positional measures of individual centrality that he developed continue to be used by contemporary network analysts.

In addition, and dynamic networks and dynamic-network modelling (Topper and Carley 1999; Carley, Lee, and Krackhardt 2001; Carley 2002), attention has been directed to . Core-periphery

An additional, yet related and substantial area of social network theory is subsumed under the *Social Capital* banner. In general terms, social capital is defined as the stock of active connections among people; the trust,

mutual understanding, and shared values and behaviours that bind the members of human networks and communities together, and make collective action possible (Putnam, 1993; Stone, 2000). As Burt laconically stated the social capital proposition is that "Better connected people do better".

Need to bring this in - Bridging, bonding and linking social capital.

Echoing social network theory, Coleman identified social capital as something inherent in the structure of relations between actors
Lin (1999) developed a network theory of social capital.

Despite their inherent benefits, it was also recognised that networks can have a dark side (Porter,   ). Using the extended functionality offered by SNA, a growing body of researchers and theorists have gone beyond these largely descriptive hypotheses to establish initial theoretical insights into their structural typography and other (Raab and) Lauchs and Keast (   ) police corruption.

Inter-organisational Networks

The study of inter-organisational relations (networks) (IOR) commenced in the 1960s with the growing realisation that organisations were not isolated entities but part of a larger environmental system. Conditions within the external environment, such as the availability of resources, economic factors or changing governmental policies, were understood to impact on organisations and lead to changes in their behaviour. To secure a level of control or certainty over their environment, organisations entered into a range of exchanges and arrangements such as joint ventures, consortia – many in current langue would be defined as networks. As Hasenfeld (1983) noted, it was not just the business sector that was affected by environmental changes, public and community sector agencies also entered into exchange relations, and longer term arrangements to secure necessary resources and ensure, longevity and prosperity.

Resource Dependency Theory proposes that actors lacking essential resources will seek to establish relationships others in order to ensure flow of resources. Within this perspective, organisations are viewed as coalitions altering their structure and patterns of behaviour to acquire and maintain needed external resources and secure a level of certainty in uncertain environment. Networks

Social Exchange Theory also begins with the assumption that as operating domains become more populated, more interdendent on each other – therefore a central task is to reduce the uncertainties. More complex the problem domain,

Therefore there is a sharp contrast between relational exchange theory and RDT: - enter into arrangements to help them achieve their own objectives. RET, the relationship is the result of organisations recognising the

interdependence of problems in the domain and the benefits of developing reciprocal relationships aimed at solving them. – focus on relationships – not the exchanges,

RDT is consistent with ecological and institutional theories of organisations, where

Resource based view (

In their seminal work Håkansson and Snehots (1989) presented a network approach to business strategy by contrasting the basic assumptions of the traditional business strategy with that of network theory.

Policy and Governance Networks

The literature in the theory of the governance network – focuses primarily on the complexity of decision-making and the problems of reaching acceptable outcomes for societal problems because of the involvement of many actors. This more institutional perspective of networks emerged during the 1970s, arising from a move away from the 'rational actor' to more process models of decision making. A body of work, developed across a number of jurisdictions focused on the role of policy communities in shaping policy and policy outcomes. For example, the notion of policy networks or communities (Richardson and Jordan, 1979; Rhodes,); iron triangles (Heclo and Widavsky, 1974) and politikverflechung (political entanglement) Scharpf et al, (1978).

Stability & continuity

Researcher from this early tradition drew upon predominantly qualitative material to develop typologies of policy network types, related network structures to resource dependences and explored links between network structures, policy outcomes and policy continuity. Marsh and Rhodes (1992) for example, gave particular emphasis on the structure of the network, showing how the structure of the network affects policy outcomes, and in so doing, identified a continuum of types of policy networks ranging from 'policy communities' at one end to 'issue network' at the other. They postulated that tight policy communities involving powerful interests controlling key resources tend to produce policy continuity. By contrast, looser issue networks, characterised by more limited control over resources, are often faced with open contests with interest groups outside the network, and this tends to produce policy discontinuity.

Critics of the structural approach, such as Dowdling (1994) gave greater weight to interactions between agents, such as bargaining and resource exchanges, over structure as determinants of outcomes.

Governance networks

Initially emerging somewhat separately to the UK and USA policy network literature is the notion of networks as a new form of governance arising in situations where there are high levels of interdependence between organisations and where hierarchical forms of command and control are no longer the most effective methods for policy

development or implementation (Kooiman, 1993; 1996; Kickert et al, 1997). In this context governance is seen as signifying

> … a change in the meaning of government, referring to a new process of governing; a changed condition of ordered rule; or the *new* method by which society is governed. … It refers to self-organising, interorganisational networks (Rhodes, 1997:35).

From this perspective networks are viewed as a distinctive form of governance – contrasting with hierarchy and market (Thompson et al, 1991). Kickert et al (1997b) defined governance networks as " (more or less) stable patterns of social relations between interdependent actors, which take shape around policy problems and/or policy programmes" ( ).

Accordingly, theorists operating from this perspective tend to focus on a wider set of actors than just those overtly engaged in policy making. Political science – power

Considine (2005) described the governance networks paradigm as a breakthrough in public administration and organisational theory because it provided a means by which to tackle problems in a multidimensional and locally flexible way.

Torfing (2005) identified the need to a shift to second generation governance network theory.

Koppenjan – assemblies /

Management tensions

Service Delivery Networks (theories used to understand service delivery

The implementation and delivery of public programs and services through various networked forms (comprised of government, community and increasingly private sector) is now a pervasive feature of many counties (Agranoff and McGuire, 2001; Ferlie and Andresani, 2006; Considine and Lewis, 2003; Lips,). Such networks have been variously described as: providing networks (Baradach, 1994), provider groups (Benson, 1982), managed networks (Addocott et al, 2006, 2007) and service implementation networks (Provan and Milward, 1995) and collaborative networks. Here networks are used instrumentally as mechanisms to get things done. Particularly the work of Provan and Milward, local governance Agranoff, Keast and Ferlie . From these efforts, better understand how networks may be designed, structured and operated/managed.

The key point of differentiation of service networks, centres on their specific focus, which is the provision of a service that members of the group co-produce in some way. From this perspective, the network has, as its primary function the role of linking, coordinating and facilitating joint work for improved social outcomes (Church et al, 2001). The underpinning assumption, held by academics and practitioners, is that by integrating services through a network of providing agencies, clients will gain the enhanced outcomes derived from wrap around services and reduced duplication (Provan and Milward, 1995). Mostly coordinative networks

Alongside, this instrumental orientation for networked modes of service delivery are more altruistic motivations. As Heide and Miner (1991: 266) pointed out : " … altruism rather than exogenous requirements produces the best basis for forging effective ongoing interactions between organisations. Keast's (2011) review of 10 years of network

work in Queensland (Australia) also highlighted that some members participate in and form networks, not because they have to but because "… it is the right thing to do'.

Networks and the
individuals in them are studied in public management to
understand (1) whether networks exist and how they function
(Mandell 1988; Scharpf 1978); (2) how people function
in networks as managers, that is, what skills and managerial
techniques are used in diverse types of networks
compared to hierarchical organizations (Gage and Mandell
1990; Agranoff and McGuire 2001); and (3) what impact
networks have on decision making, policy outputs and
outcomes, and democratic values of governance (Provan
and Milward 1995; Agranoff and McGuire 2003).
By the mid-1990s, network research had become evident
in prestigious journals in the public administration
Three Traditions of Network Research 543
field. Fueled especially by concern over government reinvention
and the hollowing out of the state (with more
workers on private and nonprofit payrolls to actually deliver
services), scholars in the United States produced a
variety of articles and books that focus on managing the
networks that have become increasingly important delivery
systems for public services (Agranoff and McGuire
1998; O'Toole 1997a; Provan and Milward 1991, 1995,
2001). Meanwhile, a parallel literature developed in Europe
(Kickert, Klijn, and Koppenjan 1997; Mayntz 1993;
Marsh and Rhodes 1992).

Within this theme/tradition – there have been theoretical developments – types, performance and management.

Network management Network Performance and Outcomes. In a field geared toward instrumental concerns, researchers considered important performance questions, such as how particular characteristics of public management networks affect relationships with management outcomes and policy performance. Provan and Milward (1991) argue that the idea of a service-implementation network is closely tied to the notion of implementation structure, and institutional-level factors, such as professional norms in the form of a treatment philosophy for human services clients, are positively related to favoring network involvement. Their model of network effectiveness includes elements of the network structure and context. In a subsequent study of four cities' community mental health programs (1995), they demonstrate how interorganizational networks centralized around a primary

coordinating agency—which they call a *network administrative organization*—produce better outcomes for the system's mental health clients than systems with more diffuse network structures. Raab & Provan – effectiveness Later, Provan and Milward (2001) argue that highly dense and centralized networks work well in public service delivery if environmental and institutional norms support cooperation and collaboration among participants in the network.

Also highlighting the structural features of local economic development networks, Agranoff and McGuire (1998) argue that the density of networking in local economic development departments is positively related to the adoption of economic development policy.

In another piece, Agranoff and McGuire (2001) suggest a series of important questions in public management network research, including identifying for network management the

possible critical functional equivalents to traditional management processes and the cohesive elements that hold networks together. They offer initial answers based on an extensive review of existing research and their own lengthy fieldwork in economic development, community services, and social services networks. Their recent book, *Collaborative Public Management* (2003), summarizes

their work on economic development networks over the past decade, answering how networks are managed and describing the links among players, strategies used by networks, and policy instruments adopted to promote economic development. In response to earlier works, which presumed a relatively

simple and linear relationship between network configurations and service-delivery performance, O'Toole and Meier (1999) posit an interactive, nonlinear approach that reflects complex depictions of public management and its influences. In their examination of public management networks and education program performance, Meier and O'Toole find that "performance improves in districts where superintendents engage in more network interactions, even if one controls for a variety of factors that affect this performance…." (2001, 291). An article two years later analyses educational performance over five years in more than 500 U.S. school districts and notes that the results "consistently show network-managerial impact on the most salient performance measure in Texas, whether in linear or nonlinear specifications" (Meier and O'Toole 2003, 697). Thus, their work demonstrates in testable, large-*N* studies that network management makes a difference to ganizational

and policy outcomes.

Dark Networks

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