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**An examination of a reciprocal relationship
between network governance and network
structure**

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Agenda

- Introduction
- Theoretical framework
 - Network structure
 - Network governance
 - Dhanaraj & Parkhe 2006
 - Provan & Kenis 2008
- Research question: A reciprocal relationship between network governance and network structure?
- The case study
- Findings

Introduction: The landscape of networks

- Powell: Neither market nor hierarchies → networks, an entirely new logic of economic exchange (1990)
- Powell, Koput & Smith-Doerr: “Sources of innovation [...] are commonly found in the interstices between firms, universities, research laboratories, suppliers, and customers” (1996: 118)
- The embeddedness of networks (Mitchell 1969, Granovetter 1985): These sources of innovation are in a “...sea of informal relations” (1996: 120)
- Basic question: How can a company govern these networks in order to benefit? / What structure is appropriate in order to benefit?

Loosely coupled networks

- The study deals with *loosely coupled systems* (Orton & Weick 1990) – not alliances, joint ventures and other kinds of primarily dyadic relations
 - Network structure a hot topic (Coleman 1988, Burt 1992, Uzzi 1997, Ahuja 2000, Capaldo 2007 etc.)
 - Network governance / orchestration understood as:
 - “...how to design, manage, and control networks in order to reduce uncertainties and improve competitive position” (Provan et al. 2007: 482, quote from Grabher & Powell 2004, p.xiii)
 - “Coordinate, direct, influence and manage” (Dhanaran & Parkhe 2006: 659)
- less studied.**

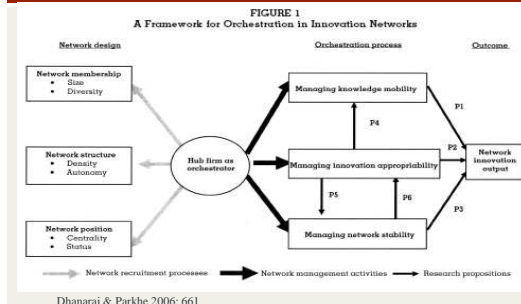
Provan & Kenis: Network governance

Key Predictors of Effectiveness of Network Governance Forms

Governance Forms	Trust	Number of participants	Goal consensus	Need for Network-Level Competencies
Shared Governance	High density	Few	High	Low
Lead organization	Low density, highly centralized	Moderate number	Moderately low	Moderate
Network administrative organization	Moderate density, NAO monitored by members	Moderate to many	Moderately high	High

(Provan & Kenis, 2008: 237)

Dhanaraj & Parkhe: Orchestrating innovation networks



Research gap

- According to Dharanaj & Parkhe (2006), the main part of the network literature has dealt with structures and relations, thus neglecting the actual processes, leaving a 'major gap'
- Focus of present study: An extension of the above gap in order to look at the two-way relation between NG and NS
 → Research question: Does network structure influence network governance, and vice versa, does network governance influence network structure?
- Analytical vs. empirical concepts

Provan & Kenis: Network governance

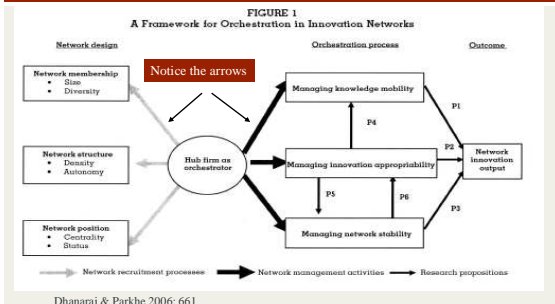
Key Predictors of Effectiveness of Network Governance Forms

Governance Forms	Trust	Number of participants	Goal consensus	Need for Network-Level Competencies
Shared Governance	↘	↘	↘	↘
Lead organization				
Network administrative organization				

• Choice of network governance mode depends (in part) on network structure (number of participants and trust).
 • Hence, a one-way relation from network structure to network governance

(Provan & Kenis, 2008: 237)

Dhanaraj & Parkhe: Orchestrating innovation networks



The case study I

- A Danish inter-organisational innovation network, in the energy sector (2006-2007)
 - Development of products and services on the basis of implementation of smart metering in Danish households
 - Participants from a range of major actors within the Danish energy sector (utilities, telecommunication, software developers, hardware developers, developers of energy saving devices etc.)

The case study II

- Data collection, over a period of two years
 - Qualitative:
 - Observations from numerous meetings, workshops and work at the focal organisation
 - Interviews (15 with central actors),
 - Archival data
 - Quantitative: Insight into network structure (who knew whom prior to these network events):
 - Questionnaire for all individuals involved in the network (32 individuals from 18 organisations – 31 answers)

Network meeting I

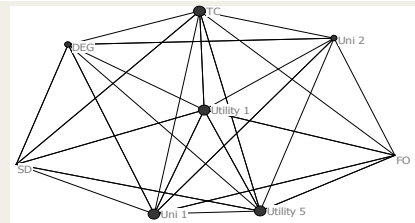


Figure 1: Network structure at the March 2006 meeting. Size of nodes based on degree measure in Netdraw (program associated with Ucinet (Borgatti, Everett & Freeman, 2002)).

Network meeting II

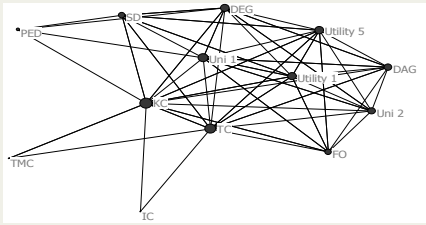


Figure 2: Network structure at the August 2006 meeting. Size of nodes based on degree measure in Netdraw (program associated with Ucinet (Borgatti, Everett & Freeman, 2002)).

Network meeting III

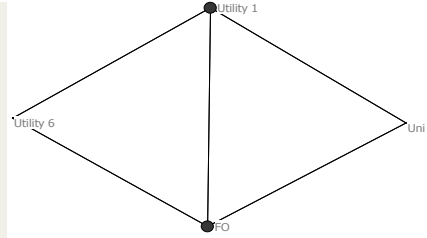


Figure 3: Network structure at the September 2006 meeting. Size of nodes based on degree measure in Netdraw (program associated with Ucinet (Borgatti, Everett & Freeman, 2002)).

Network meeting IV

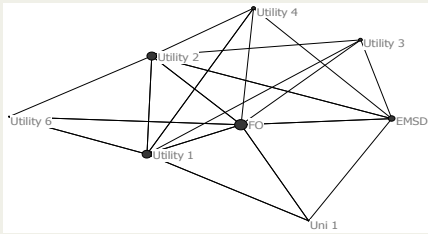


Figure 4: Network structure at the February 2007 meeting. Size of nodes based on degree measure in Netdraw (program associated with Ucinet (Borgatti, Everett & Freeman, 2002)).

Findings I: Network governance and structure characteristics

Construct	Meeting			
	March 2006	August 2006	September 2006	February 2007
Governance	Shared	NAO	Lead	Lead
Trust density	Moderate	Relatively low	High	Relatively high
Goal consensus	Low	Low	High	Moderate
No of participants	Relatively high	High	Low	Moderate
Need for network level competencies	Low	Low	Relatively high	Moderate
Recruitment/governance actions	Researcher and focal organisation	Focal organisation and NAO	Focal organisation	Focal organisation
Network stability	N/A (initiation of network)	Moderate	Low	Moderate
Innovation appropriability (free riding, trust, procedural justice, knowledge mobility)	Participants concerned	Participants concerned	Limited concerns	Limited concerns
	Low	Low	High	Relatively high

Findings II

The case revealed a number of empirical relations, and it can be argued that an analytical relation should be acknowledged in a theoretical framework

- a) Recruitment processes
- b) Innovation appropriability → network stability → network structure
- c) Change of network governance mode can change the relational embeddedness, i.e. network structure