Chapter 2
Policy Networks and Policy Analysis: Scrutinizing a New Analytical Toolbox

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1   The Network Perspective in Social Theory

A new catch word diffuses over the landscape of science and is more and more frequently encountered in a number of disciplines. The term "network" seems to match a growing need for the de-mystification of complexity in nature and society. Microbiologists are describing cells as information networks, ecologists conceptualize the living environment as network systems, and the newest fashion in computer science is neuronal networks with self-organizing and learning capacities. The term network is on the way to becoming the new paradigm for the "architecture of complexity" (compared to hierarchy as the old architectural paradigm of complexity: see Simon 1973).

However, at least in the social sciences, network thinking is not completely new. An antecedent was certainly provided by the German sociologist Georg Simmel, who presented an original theoretical stimulus for the network idea drawing upon formal sociology (for this interpretation see Rogers 1989: 167-168). Other precedents came from French structuralism. In his famous *Structural Anthropology*, Claude Lévi-Strauss conceived society "as a network of different types of orders"; and he suggested that these orders themselves could be classified according to different organizing principles, "by showing the kind of relationships which exist among them, how they interact with one another on both the synchronic and diachronic level" (Lévi-Strauss 1969: 312). It would

not be difficult to find further dispersed roots of the network idea. The abundance and variety in which network concepts occur in contemporary social sciences, however, indicates a new quality. Networks as new forms of social organization are currently studied in the sociology of science and technology (see, for instance, the concept of actor networks in Callon 1986), in the economics of network industries and network technologies (for the concept of market interdependencies see Katz/ Shapiro 1985), and in different approaches of business administration (cf. Thorelli 1986 and Powell 1990).

Network thinking conveys its own picture of the world, its particular epistemological background. In contrast to the mechanical view of the world emerging in the 17th century and the bio-organic view originating in the 19th century, the network perspective implies a new perception of causal relations in social processes. The mechanical view of the world established the idea of linear causality explaining social states and events as determined by external forces. The bio-organic perspective shaped the notion of functional causality in which societal subsystems contribute to prerequisites and needs of a global social organism. Both the mechanical and biological world pictures conceived systemness and societal control as something beyond individual actors. Essentially, this perspective is changed in the network view of society. The core of this perspective is a *decentralized concept of social organization and governance:* society is no longer exclusively controlled by a central intelligence (e.g. the State); rather, controlling devices are dispersed and intelligence is distributed among a multiplicity of action (or "processing") units. The coordination of these action units is no longer the result of "central steering" or some kind of "prestabilized harmony" but emerges through the purposeful interactions of individual actors, who themselves are enabled for parallel action by exchanging information and other relevant resources. This perspective - like the older perspectives, too - is shaped by time and by the information age, and thus is more or less influenced by information and communication theory.[1]

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1   According to Krippendorff (1989: 443), the science of control and communication (i.e., cybernetics) "is fundamentally concerned with organization, how organization emerges and becomes constituted by networks of communication processes, and how wholes behave as a consequence of the interaction among the parts". In such an approach, purpose and intelligence would be seen as "distributed (not centralized) and imminent in the way people interact or communicate with one another regardless of whether parti-

Although network thinking will have considerable impact on future social theory building in general, this chapter is certainly not the place for a general "philosophical" discussion. Based on the assumption that the network perspective will be, indeed, also fruitful for political analysis, we will focus our discussion on the specific use of network concepts in policy analysis. We will try to show that an important advantage of the network concept in this discipline is that it helps us to understand not only formal institutional arrangements but also highly complex informal relationships in the policy process. From a network point of view, modern political decision making cannot adequately be understood by the exclusive focus on formal politico-institutional arrangements. Policies are formulated to an increasing degree in informal political infrastructures outside conventional channels such as legislative, executive and administrative organizations. Contemporary policy processes emerge from complex actor constellations and resource interdependencies, and decisions are often made in a highly decentralized and informal manner.

2   The Discovery of Networks in Policy Making

In the literature of public policy making, the observation of network configurations can be traced back to the late 60s and early 70s, although the real take-off of network studies occurred only in the decade following. Since this time, an increasing number of authors have considered this term as a reasonable descriptor for a cluster of new facets in modern policy making. To be fair, some facets like informality and decentralization were clearly not new to political scientists. Many aspects were even core elements in pluralist theories of policy making (for such an interpretation see Jordan 1990). There is no doubt that one of the major criticisms of hierarchical, instrumentalist and formalist conceptions of politics came from pluralist theory. Bentley (1967) and Truman (1971), two of the most well-known thinkers of this current of theory, for instance, place great emphasis on a somewhat "fluid perspective" of the political process. They frequently pointed to the existence of horizontal relations between government, administration and organized interests. One should

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cipants are fully aware of them". Cybernetics would shift attention from control *of* to control *within*.

not forget that it was Bentley (1967: 261) who coined the notion of government as a "network of activities".

A serious shortcoming of pluralist thinking, however, was its rather mystified image of world complexity: political life seemed to be fluid, amorphous and in constant change.[2] It was neo-corporatist theory and neo-institutional approaches which confronted pluralist visions with the pre-dominance of hierarchy, restricted access, selectivity and compulsory group structures in the political organization of modern societies.[3] The interest of neo-corporatism, however, focused more on the "general architecture" of nations and sectors with respect to group structures and relationships with the state. Networks between policy actors like government, administrative agencies and organized interests, gained the attention of neo-corporatist scholars only in the early and mid-1980s.[4]

One of the first authors who explicitly used the term network from a "post-pluralist" and neo-institutionalist perspective, was Rokkan (1969). Rokkan can be credited with emphasizing the importance of policy making structures besides conventional electoral-parliamentarian channels. For Rokkan, bargaining networks between corporate bodies and the government were not adverse or antagonistic elements of political decision making structures but complementary channels to conventional structures which created stability by integrating potential veto powers into the policy process.[5]

Another area where policy networks have been observed are studies of policy making in some restricted sectors or policy studies at the sub-governmental level. An influential study in this direction was Heclo and

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2   Cf. Bentley's view of social life where "... activities are all knit together in a system .... they brace each other up, hold each other together, move forward by their interactions, and in general are in a state of continuous pressure upon another" (1967: 218). A similar picture is painted by Latham (1964: 48f.) on "public policy" making which he sees as an expression of equilibrium reached in group struggles, in a universe of "groups which combine, break, federate and form constellations and coalitions of power in a flux of restless alterations."

3   For the main texts of neo-corporatist theory see Schmitter/ Lehmbruch (1979) and Lehmbruch/ Schmitter (1982).

4   Kriesi (1982), Lehmbruch (1985), Atkinson/ Coleman (1985) and Traxler/ Unger (1990).

5   "At least in matters of internal policy it can rarely if ever force through decisions solely on the basis of its electoral power but has to temper its policies in complex consultations and bargains with the major interest organizations. To guard against difficulties and reversals in these processes of bargaining the government has over the years built up a large network of consultative boards and councils for the representation of all the relevant interests" (Rokkan 1969: 107-108).

Wildavsky's (1974) analysis of the British Treasury Department. In this book, the notion of the "policy community" was introduced to describe a phenomenon which was closely related to policy networks. Heclo and Wildavsky defined the policy community as a cluster of personal relationships between major political and administrative actors in a policy area. Among these relations, they especially emphasized the role of mutual trust, and governmental sectors were portrayed as closed village communities knitted together by confidence, common calculations and specific "climates". Interestingly, in this context the authors used the network notion for the "criss-crossing" relations within the executive community together (Heclo/ Wildavsky 1974: 389).

A network study focusing more on local governments was published by Friend, Power and Yewlett (1974). In contrast to the former use of the network idea, in this book the network concept was applied in a rather formalized context with some explicit references to social network approaches. One of the basic categories of the theoretical approach applied in this study was a multiple actor system operating in the formulation and implementation of a public policy. Networks in this context were seen as sub-elements of the "policy system" which was defined as a set of organizational and inter-personal arrangements dealing with decision problems related to a given policy (Friend et al. 1974: 26). Such relations between policy actors included not only linkages based on hierarchical authority patterns but also informal relationships such as interpersonal communication. The communication structure among people acting in policy systems was called a "decision network".

A further study on sectoral policy making can be found in Heclo (1978), a widely cited and influential article. The innovative aspect here was the focus on *issue specific* policy networks. This perspective was seen in contrast to elitist approaches in American policy making which explained governmental strategies by the interaction and exchange between a rather small and exclusive set of actors (i.e., the famous "iron triangle" between congress, administrative agencies and lobbying groups). To extend this restricted picture, Heclo introduced the concept of "issue networks" designating large and intricate webs comprising numerous

policy making actors.[6] In these networks, governmental and administrative responsibility was seen to be increasingly dispersed among large numbers of policy intermediaries - very similar to Bentley and Truman's vision. It is important to note that Heclo also pointed to an observation similar to Rokkan's with respect to the parallel emergence of new, informal political decision and coordination structures beside party systems and parliamentary channels.[7]

A version of the policy network concept that focuses more on individual actors in concrete policy processes has been introduced by Hanf and Scharpf (1977) in a reader on horizontal coordination in policy making. This book explicitly draws some links between the formal network concept, interorganizational analysis in organizational sociology, and the use of these approaches in policy research. In the introduction Hanf writes:

> In its most basic sense, the term 'network' merely denotes, in a suggestive manner, the fact that policy making involves a large number and wide variety of public and private actors from the different levels and functional areas of government and society. By stressing the 'interrelations' and 'interdependence' of these individual actors, the term also draws attention to the patterns of linkages and interactions among these elements and the way in which these structure the behavior of the individual organizations. As far as the individual organizations are concerned, they are embedded in a particular set of relationships, the structure of which constrains the action options open to them and the kinds of behavior they can engage in as they go about their particular business (Hanf/ Scharpf 1977: 12).

A common theme in this book is how specific network configurations operate more successfully than others in policy making. Different network structures are seen as supportive or critical for coordinated efforts to reach a common policy objective within a collectivity of actors. Interestingly, already in this book Scharpf expressed the conviction that networks of interorganizational dependence could be identified by network analytical tools more precisely. This would eventually lead to an equally precise identification of prescriptive patterns of required coordination structures

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6   Heclo (1978: 102): "Issue networks ... comprise a large number of participants with quite variable degrees of mutual commitment of dependence on others in their environment; in fact it its almost impossible to say where a network leaves off and its environment begins."

7   Heclo (1978: 117) insists that "... the growth of specialized policy networks tends to perform the same useful service that it was once hoped a disciplined national party system would perform."

between organizational units in interorganizational policy formation and implementation (Scharpf 1977: 363).

A policy network referring not to interrelations between concrete actors but more to linkages between broad social categories - such as the state, whole societal sectors and social coalitions - has been advanced by Katzenstein (1978). His "policy network" is a kind of political meta-structure integrating different forms of interest intermediation and governance, forming a symbiotic relationship between state and society in policy making. In the context of a study of foreign economic policy Katzenstein writes:

> The governing coalitions of social forces in each of the advanced states find their institutional expression in distinct policy networks which link the public and the private sector in the implementation of foreign economic policy. The notion that coalitions and policy networks are central to the domestic structures defining and implementing policy rests on the assumption that social life is structured not exclusively of course, but structural nonetheless by just those formal institutional mechanism (Katzenstein 1978: 19).[8]

Within this general idea of policy networks as a kind of broad societal governance structure, we will locate and develop our definition of the concept in section four of this chapter.

In the last decade, a few studies also emerged which applied quantitative network methods in policy network studies. Laumann and Pappi's (1976) community power book clearly was one of the first applications of advanced structural methods. Their interest, however, primarily focused on elite structures rather than on policy analysis. Empirical application of network analysis and structural methods with a focus on policy processes and domains emerged only within the 80s. Some of the rare examples are Laumann and Knoke's (1987) analysis of structural properties and exchange relations in the US health and energy policy domains, Schneider's (1988) analysis of the West-German policy process of the Chemicals Control Law, and Pappi and Knoke's USA-Germany comparison of exchange relations in the labor policy domain (Pappi 1990; Pappi and Knoke in this volume). A further example, finally, is Mandell's (1984) application of network analytical methods to the interorganizational implementation of a policy program. Apart from these few studies, the repercussions of formal structural models and methods on the "qualitative stream" of policy analysis have been marginal.

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8   For an empirical application of Katzenstein's policy network concept for cross-national comparison see Katzenstein (1987).

Therefore, the quantitative studies certainly do not point to a general trend of methodological thoroughness in the analysis of policy networks. The majority of policy network studies, instead, focused more on conceptual variation and qualitative description. Examples of particularly well-known British applications in local government and government-industry relations are Rhodes (1981, 1986),[9] Sharpe (1985), Wilks/ Wright (1987) and Wright (1988); and for neo-corporatist theoretical reasoning certainly Lehmbruch (1985) and Atkinson/ Coleman (1985, 1989) have to be mentioned.[10] Most of these studies have their own perspective, and the meanings and connotations that were given to the term network, are still ambiguous. But despite such fuzziness, the idea of the policy network clearly has gravitated to a position of central importance. It became an accepted descriptor for policy making arrangements characterized by a predominance of *informal, decentralized* and *horizontal* relations in the policy process.

Moreover, parallel to the development of the policy network idea a number of other concepts were proposed which sometimes described very similar or even overlapping phenomena. Such concepts are, for example, the policy sector (Benson 1982), the policy domain (Laumann/ Knoke 1987), the policy topic's organization set (see for this concept Olsen 1982), the policy (actor) system (see, for instance, Sabatier 1987), the policy community (Jordan/ Richardson 1983, Mény 1989), the policy game, the policy arena and also the policy regime. The network concept and all these other policy concepts are variations of a basic theme: the idea of public policies which are not explained by the intentions of one or two central actors, but which are generated within multiple actor-sets in which the individual actors are interrelated in a more or less systematic way. However, each of the different policy concepts emphasizes a special aspect: for example, the institutional structures in decision making processes are highlighted by the arena and regime perspective; the conflictual nature of policy processes, again, is emphasized by the game perspective. The arena concept, in contrast, concentrates on conflict *and* institutional integration, and the community, system and sector perspec-

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9   For a more detailed overview of British works with the network concept see also the recent article of Rhodes (1990).

10   Other examples in the application of the network concept in policy making are Zijlstra (1978/79: 359-389); Rainey/ Milward (1983: 133-146); Trasher/ Dunkerley (1982: 349-382); Trasher (1983: 375-391). For an overview see also Windhoff-Héritier (1985: 85-212).

tives emphasize a kind of structural closure within actor configurations, the presence of boundaries and certain integrating forces which give identity to the structural whole - even if this is only some form of inter-relatedness or interdependence of network actors.

What we have seen in this part is an entire range of different but, for the most part, complementary views which use the network concept for a description of structural and institutional arrangements in policy making, in which ongoing cooperation of autonomous but interdependent actors is emphasized. To arrive at a more explicit definition of policy networks in the next part, we allow ourselves to *reculer pour mieux sauter* in order to reveal the underlying trends of this upcoming concept.

3 Conjunctures and Transformations: The Emergence of Network Thinking in Policy Analysis

Despite some success in diffusing the policy network notion, it has not yet gained a clear, analytically distinctive meaning. In the main, it is used metaphorically to shed light on some specific empirical observations. This coining of a new metaphor during the 70s did not come about by coincidence but is related to at least three more general transformations:

1. transformations in the *political reality*, or in other words, in the reality of policy making as recognized by competent observers;
2. transformations in *conceptual and theoretical developments* in the political sciences in general and in policy analysis in particular;
3. the development of a *methodological apparatus* for structural analysis which in turn was the result of a more "structural approach" in the social sciences in general.

In the following, we will look at each of the three phenomena in more detail.

3.1   Transformations in Political Reality

At the end of the 70s, the *policy network* became an appropriate meta-
phor for responding to a number of empirical observations with respect
to critical changes in the political governance of modern democracies.
This was in some way a reaction to simplified and reductionist versions
of modern political organization which lacked, for instance, concepts for
institutional differentiation and fragmentation as well as the notions for
complex interdependencies between state and society. These changes
could be summarized as follows:

-   The emergence of the *organized society*: the increase in the impor-
    tance of organized collectivities in social and political life is paral-
    leled by a general rise in the number, importance and interdependen-
    cy of collective actors and organizations; more and more resources
    are produced by or come under the control of organized collectivities;
    more and more social affairs are shaped by decisions and actions
    of collective and corporate actors.[11]
-   A further important change can be observed in the trend towards
    sectoralization (Wildavsky 1974; Kenis 1991: chap. 2) which is often
    also more generally discussed as increased *functional differentiation*
    (Mayntz et al. 1988). Policies, programs, and agencies have increas-
    ingly to be defined in limited, functionally differentiated terms. In-
    creased societal complexity and a growing interdependence between
    many actors is closely related to growing sectoralization and function-
    al differentiation.
-   Sectoralization and the emergence of more and more organized inter-
    ests and corporate actors means both increasing intervention and
    participation by more and more social and political actors in policy
    making. Jordan and Richardson labeled this trend "overcrowded poli-
    cy making" (Richardson/ Jordan 1983: 247-268).
-   Increased *scope of state policy making* and the proliferation of state
    intervention targets (so-called "policy domains") are other important
    facets of modern society.[12] In this context, Heclo (1978) speaks of
    "policy growth" and emphasizes that despite growing state involve-

11   For this general trend see Presthus (1962); Coleman (1974, 1982); Perrow (1989: 3-19).
     For an increased dominance of institutions in policy making see Salisbury (1984: 64-76).
12   For an empirical long-term perspective of the growth of state functions see Taylor (1983).

ment, the pool of state resources did not expand extensively enough. Effects and tensions resulting from this gap have been discussed as political overload or "governance under pressure".[13]

- With policy growth, many political scientists observed the *decentralization* and the *fragmentation of the state*. In the last decade, it has been frequently said that the state is not a monolithic whole but a set of relatively discrete institutional apparatuses that vary across industries, sectors, societies, and over time (Evans/ Rueschemeyer/ Skocpol 1985; Kenis 1991). These phenomena may have existed for a long time but tended to be overlooked because many of these institutional units (such as committees and boards) work rather through informal frameworks than through national councils and legislatures.

- Closely related to this decentralization of the state is the observation of a *blurring of boundaries between the public and the private*. Key words for these tendencies are "informal administrative action" (Hucke 1982: 130-140; Hanf 1982: 159-172), informal influence processes in policy formation, "quasi-legislation"; "soft-law"; or "state-sponsored self-regulation".

- A similar or closely related trend is pointed to in some recent studies on *private governments* (Nadel 1975: 2-34; Ronge 1980; Streeck/ Schmitter 1985) which take as an explicit starting point the fact that in many policy fields public tasks no longer can be fulfilled without the cooperation of private collectivities. A cooperative state evolves which delegates or supports organized self-regulation instead of a state traditionally viewed as the guiding, planning and regulating apex taking total responsibility for society.

- *Transnationalization of domestic politics* is another facet of contemporary politics. Today, national policy processes are deeply embedded in international policy environments and policy interdependencies. The membership of nation-states in supranational organizations and the international concertation of summits, places not only constraints but often directly influences national policy choices.[14]

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13 For a discussion of the overload phenomena in policy analysis see Brodkin (1987: 571-587).

14 Jacobson (1979). For the relationship of nation-states as corporate actors to supranational organizations as international actors see Kenis/ Schneider (1987) and Schneider/ Werle (1990). With regard to regime configurations see Keohane (1984).

- Increased *interdependency and complexity* of social and political affairs leads to the growing *importance of* access to *information* for the coordination and control of political and social affairs, a trend which could be compiled under the label *informatization*. Closely related to this is obviously the growing need for scientific expertise in the policy making process, a trend that has sometimes been described as the *scientification of politics*.[15]

Societal differentiation, sectoralization and policy growth lead to political overload and "governance under pressure" (see Jordan/ Richardson 1983). Increasingly unable to mobilize all necessary policy resources within their own realm, governments consequently become dependent upon the cooperation and joint resource mobilization of policy actors outside their hierarchical control. Policy networks should therefore be understood as those webs of relatively stable and ongoing relationships which mobilize dispersed resources so that collective (or parallel) action can be orchestrated toward the solution of a common policy problem.

3.2   Conceptual Adjustments and Innovations

In view of these manifest changes in the political structures of contemporary society, political scientists were challenged to adjust their conceptual apparatus. Consequently, many of the observations discussed have been reflected in the development of new research programs or research *problematiques* in policy analysis. The major shift at this level can be summarized by a transformation in societal governance from *hierarchical control* to *horizontal coordination* (Hanf/ Scharpf 1977); Franz 1986: 479-494; Ostrom 1983: 135-147). Enlightened policy analysts have observed a change from a "state-centrist" or "government-focused" view of political and social processes to an image which has often been called the centerless or polycentered society (Mayntz 1987: 89-110; Willke 1983; Schuppert 1989). A shift in focus from formal organizational or constitutional structures to informal arrangements in the policy literature is related to this conceptual transformation. A detailed description of the historical transformation in political governance would go beyond the

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15 For the trend of increased scientific policy advice see Plowden (1987) and Smith (1987: 61-76).

scope of this chapter. However, a short illustration of the major shifts within policy literature may provide some hints about the major turning points of this adjustment.

In the first phase, policy analysis was heavily influenced by the technological and methodological optimism produced by the dominant behavioralist paradigm[16] in political science during the 50s and 60s: it was generally believed that the application of newly developed "scientific methodologies" (e.g. operations research, statistical decision theory, communications theory, computer simulation, cost-benefit-analysis, cybernetics, econometrical models) would increase instrumental, informational and organizational capacities to control societal processes.[17] This produced long shelves of political planning literature and led, especially in countries which were governed by social-democratic parties, to a veritable "planning euphoria".

In the second phase, the planning ideology was hurt by the so-called "real world". It became increasingly questioned whether societal development could be purposefully guided by political instruments. Many experiences showed that good intentions and sophisticated plans during the reformist years were confronted by difficulties that emerged in the implementation and realization of policy programs (Mayntz 1979: 55-81). Such disillusion with the planning approach led to the emphasis on extra-governmental conditions of success and failure of governmental programs. These were specific context structures in implementation target fields, such as actor or interest constellations which supported or hampered the successful implementation of given policy programs. In the context of this literature, it was observed that program implementation often operates through horizontal and non-hierarchical forms of coordination and

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16   For an excellent analysis of this relationship see Somit/ Tanenhaus (1967). One of the key behavioralist articles of faith was that data or findings should be quantified and, finally, stated as mathematical models or propositions. In contrast to old-fashioned institutionalism, it was believed that this would enable the modelling and prediction of *real* social and political processes. The authors take opinion polls and survey techniques as an example: "These provided instruments for developing vast new bodies of data. Research in this area was greatly facilitated by advances in mathematical statistics and the increased availability of electronic computers to perform what had previously been impossibly tedious computations" (Somit/ Tanenhaus 1967: 51).

17   Symptomatic for this believe is Lasswell/ Lerner's (1951) collection in which new methodologies such as probability methods, mathematical modelling and sociometrics techniques are presented as "research procedures" for "policy sciences". Instructive for the German case is Scharpf (1973) who presents cluster analysis and MDS as techniques for policy analysis and planning.

that even within the public sector, implementation structures are not always hierarchically structured (cf. Mayntz 1983).[18]

Now, we seem to have entered the third phase which responds to the problems and difficulties that manifested themselves during the implementation debate. It became apparent that the formal distinction between policy formulation (planning) and policy implementation is often fairly artificial. This is especially the case when central target actors cooperate in the implementation process in exchange for participation in program formulation. Especially in such cases, it makes no sense to study policy phases separately. A similar problem here is the exclusive focus on state intervention and public policy programs in the solution of societal problems. Problems which in some countries are solved or "processed" by state policies may be solved in other countries by self-regulation through para-state organizations or privately organized collectivities. In addition, there may be societal problems which have not yet been perceived as being relevant by private and public organized actors and consequently do not arrive on any policy agenda.

In order to fully understand the conditions under which societal problems are processed by governmental and non-governmental activities, policy research thus had to expand its narrow focus from "public policies" to "societal governance" in general (Anderson 1976: 191-221; Marin 1990). Due to this widened perspective, policy research has to include not only the analysis of general social structures and societal institutions that condition and regulate this governance process but also the specific dynamics and "auto-dynamics" (see Mayntz 1985 and Mayntz/ Nedelmann 1987) of societal development in general as the object of governance. Policy analysis thus needed to broaden its analytical focus to include whole societal domains and the dynamic dimension of policy making (learning, positive and negative feedback, etc.) as well. In sum, policy analysis could restrict its research object not only to processes *within* a given and established institutional order, but they also had to integrate the *problematique* of how an institutional order emerges in a highly decentralized *and* interdependent world.

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18   See also, for instance, Mayntz (1979a: 634): "As for central control, the public sector is never a fully integrated hierarchy but must rather be seen as a highly differentiated macro-system of organizations, a network which is more or less hierarchized by virtue of existing vertical lines of communication, but which is basically made up of relatively autonomous elements."

3.3 The Development of Methodological Tools

The third transformation with some influence on "structural thinking" in policy analysis is the development of new methodological tools. Today these concepts, methods and techniques enable empirical studies of complex structures in the policy making processes which would not have been possible twenty years ago. Such concepts and methods for structural analysis emerged at the end of the 60s and spread widely during the 70s:

- In the *sociology of organizations* and in administrative science, this was the development of the early "organization set" concept, "resource and power dependency" approach and the "interorganizational relations" approach.[19] In contrast to previous approaches where categorical variables played the exclusive role, here relational variables become more important (Wellman 1983: 155-200; 1988: 19-61).
- Parallel to the development of these concepts and approaches stressing the relational character of social phenomena, a number of social scientists began to apply mathematics to the *formalization and analysis of relational configurations*. The most important methods were graph theory, matrix algebra, multidimensional scaling and structural classification methods such as cluster analysis and block modelling.[20]
- In turn, the development of these *new mathematical and statistical procedures* for relational analysis has undoubtedly been influenced by the development of computer technology in the 60s and 70s, in particular by the speedy diffusion of microcomputing since the end of the 70s.[21]

Currently, network analysis is considered one of the major research tools for structural analysis. Network researchers study elite structures in local

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19 For overviews see Whetten (1981: 1-28); Glaskiewicz (1985: 281-304). Important contributions are Levine/ White (1961: 583-601); Emerson (1962: 32-41); Evan (1972: 181-200); Benson (1975: 229-249); Metcalfe (1976: 327-343). First application of network analysis in inter-organizational analysis was provided by Aldrich (1979) and Aldrich/ Whetten 1981: 385-408).

20 Harary/ Norman/ Cartwright (1969); Coxon/ Jones (1983); Everit (1983: 226-256); Arabie/ Boorman/ Levitt (1978: 21-63).

21 Very instructive in this context is an article by Coleman (1965) which, however, still reflects the age of mainframe computers. In the meantime, the use of computing technologies in the social sciences has radically changed - and this transformation is just beginning. Only recently has UCINET package and the SONIS system for personal computers appeared. Another network package available for PCs is GRADAP.

communities, actor networks in national policy domains, interrelations between economic firms, and even structural configurations at the world system level. In a state-of-the-art review on the innovative trends in sociology in the 80s, Collins (1986: 1351) considered network analysis one of the five most important innovations for the sociology of the future:

> Network research began as an empirical field, and it has only gradually begun to go beyond description and methodology to acquire some generalizable theory. But although the application of network analysis to theoretical problems is in its infancy, it holds considerable potential, perhaps even of a revolutionary sort.

We are convinced that these methodological tools comprise a great potential for policy research which has not yet been systematically and comprehensively explored. The tools are there but the community of craftsmen is still very small.

4 Types and Dimensions of Policy Networks: A Tentative Definition

In this section, we want to propose a "policy network" concept or definition which, first, accounts for the previously made observations about the changing patterns of policy making and second, is meaningful for contemporary policy analysis on the one hand and for network analysis on the other. We are convinced that the *notion* or the *concept* of *policy networks*, given that it is not used exclusively formally (i.e., as a set of relations of any kind) or metaphorically (e.g. as a synonym for crisscross could be a common point of reference and could have an integrative function. We propose to reserve the concept for a *specific class of policy making structures* with specific attributes. In a complex political world, everything could be represented in graphs or networks - even hierarchies and markets. In order to produce a theoretical surplus, the term network should thus be reserved for specific organizational modes of policy making (cf. Mayntz 1980: 8). Analogous to the use of networks in new institutional economics[22] and in the literature of governance (cf. Schmitter 1989 and Hollingsworth 1990) these structures could be lo-

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22 Cf. Williamson (1985) and North (1990). See also footnote 31.

cated somewhere beyond or between[23] "policy markets" and "policy hierarchies":

Policy markets may be imagined as completely competitive party systems in which political parties "formulate policies in order to win elections, rather than win elections in order to formulate policies" (Downs 1957: 28). Another market version is Landes and Posner's interest group approach in which legislation is seen as a good supplied by the government or parliament to groups that outbid rival seekers of favorable legislation. Payment takes the form of votes, campaign contributions, etc. Legislation is thus "sold" by the legislature and "bought" by the beneficiaries of the legislation (Landes/ Posner 1975: 877).

The other extreme is policy hierarchies as ideal types of bureaucratic policy making. This means, on the one hand, the electoral hierarchy as a chain of principal-agent relationships from the "people" down to parliament and executive. On the other hand, the parliament-executive-administrative chain is also a hierarchy. Policies are formulated within the parliament by majority voting. The executive and administrative branches are mere implementing agents of those policies.

Policy networks should be conceived as *specific structural arrangements* in policy making. Policy networks are new forms of political governance which reflect a changed relationship between state and society. Their emergence is a *result* of the dominance of organized actors in policy making, the overcrowded participation, the fragmentation of the state, the blurring of boundaries between the public and the private, etc. Policy networks typically deal with *policy problems* which involve complex political, economic and technical task and resource interdependencies, and therefore presuppose a significant amount of expertise and other specialized and dispersed policy resources. Policy networks are mechanisms of political resource mobilization in situations where the capacity for decision making, program formulation and implementation is widely distributed or dispersed among private and public actors.

A policy network is described by its actors, their linkages and by its boundary. It includes a relatively stable set of mainly public and private corporate *actors*. The *linkages* between the actors serve as communication channels and for the exchange of information, expertise,

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23   Networks as social configurations beyond markets and hierarchies are discussed by Powell (1990), whereas Williamson (1985) understands networks as an organizational form *between* markets and hierarchies.

trust and other policy resources. The *boundary* of a given policy network is not primarily determined by formal institutions but results from a process of mutual recognition dependent on functional relevance and structural embeddedness.

Policy networks should be seen as integrated hybrid structures of political governance. Their *integrative logic* cannot be reduced to any single logic such as bureaucracy, market, community or corporatist association, for example, but is characterized by the capacity for mixing different combinations of them. It is the mixture and not the individual logic per se which accounts for its functioning. This characteristic of policy networks reflects and even generalizes Katzenstein's (1987) policy network idea, which he described in the West German case as a combination of party competition, cooperative federalism and corporatist concertation or interest intermediation. The concrete mixture of different logics which may be present in a specific policy network is an empirical question. A policy network thus could combine domains that are largely self-regulated, but also those where the responsible corporate actors are closely engaged in ongoing bargaining relationships with the state and other corporate actors in corporatist and pluralist patterns. It is thus perfectly thinkable that a policy network has corporatist, pluralist and self-regulatory regions or "provinces" - and it integrates these different modes of political organization. Since the whole complex consists mainly of relatively autonomous action units, the dominant decision rules and decision styles are rather "bargaining" (Scharpf 1989) or "sounding-out" (Olsen 1972) than "confrontation". The logic of confrontation is inherent in voting which polarizes either/or relationships, forcing all the participants into one camp or the other. Bargaining, in contrast, is based more on the logic of "sounding-out", stressing common interests and unanimity. Since the capacity of collective action is very dispersed in networks, the decision making and strategy formation in a network context is thus very time-consuming.

In spite of such limitations, networks have some important virtues. In situations where policy resources are dispersed and context (or actor) dependent, a network is the only mechanism to mobilize and pool resources. An example is "tacit knowledge" such as details and primary experience in a policy program, a form of information that is difficult to codify and to transmit. It is stored in an inexplicit form in the minds of the decision makers who have primary experience within their domain (Starbuck 1970: 318). Such information, in fact, is only accessible

through cooperation and exchange. Nobody can be forced to provide intangible information. Implementation processes which depend on the mobilization of such resources, cannot be governed by hierarchical command-and-control relations.[24]

Comparative advantages and disadvantages of policy networks seem to be higher costs in policy formulation (coordination costs, decision costs) but significantly lower costs in policy implementation (monitoring costs, controlling costs). In situations where a given policy task structure implies high interdependencies and where the necessary policy resources are highly dispersed, policy networks seem thus to be more efficient and effective than hierarchical policy configurations.

Policy networks also may be analytically related to the different phases of policy development such as issue definition, agenda-building, policy formulation and implementation. Not every problem or issue will be transformed into a problem of public policy. In order to be considered as a problematic state or situation that could be tackled by policy intervention, a problem has to be placed on the government agenda. Agenda-building may pass over discussions in the public and in mass media, but very often policy issues are raised and defined within restricted networks of habitually involved actors. These actors, or parts of them, may also formulate and implement a given policy. But networks that remain integrated over time, encompassing the entire policy process, cannot be generally expected. There may be other situations in which formulation and implementation networks differ sharply from the network of issue initiators. The stability or change of policy networks in terms of access, repositioning and exit of actors within policy cycles, is an empirical question and cannot be determined *a priori*. If there are structural types of policy networks with clear differences in performance or not, is an interesting question for further research. To identify and measure such structures, network analysis could be a valuable structural tool. In the final section, therefore, we will investigate the question of usefulness of network analytical approaches for the study of empirical policy networks.

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24 Bohnert/ Klitsch (1980) argue, for instance, that nobody can be forced to provide good information.

5   Network Analysis and the Empirical Study of Policy Networks

Policy Analysis and *Network Analysis* are two relatively coherent families of social research with an important potential for cross-fertilization. Policy analysis, as expressed by Dye (1976: 1), "is finding out what governments do, why they do it, and what differences it makes".[25] Network analysis includes the broad array of methodological tools for the analysis of relational configurations and structures.[26] Although there has been almost no communication between the two disciplinary fields until now, we think that both of these research domains are highly relevant to each other. On the one hand, for network analysts, policy research could become an interesting and relevant "application domain". Policy analysts, on the other hand, could find in network analysis a powerful toolbox to be able to grasp and analyze highly complex structures, relational configurations and actor systems in modern politics.

Network analysis does not provide an "explicit theory" by itself - although it may have a strong affinity to some particular social theories.[27] Some describe this approach as a method looking for a theory (see, for example, Collins 1988). In our opinion, network analysis is no theory *in stricto sensu* but rather a toolbox for describing and measuring relational configurations and their structural characteristics. For a number of theories, such structural arrangements are important elements.

From this perspective there seem to be at least six different applications of network analysis in the study of policy networks:

1. One possible research strategy has been described by Scharpf (1973, 1977) and could be labeled the *normative* or *prescriptive* use: here, network analysis would be used to compare prescriptive networks

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25 Overviews on policy analysis are given in Dye (1976); Windhoff-Héritier (1987) and Feick/ Jann (1989).

26 For a methodological introduction to network analysis see Knoke/ Kuklinski (1982); Pappi (1987); Burt/ Minor (1982); Marsden/ Lin (1982); Berkowitz (1982). For overviews, trend reports and valuative accounts see Alba (1982: 39-74); Barnes (1979: 403-423); Scott (1988: 109-127).

27 Since measurement and description is always "theory-loaded", network analysis also contains implicit theories. These are especially theories which emphasize the importance of structure for the understanding of social phenomena. For the discussion on the theoretical status see: Laumann/ Knoke (1987: 83-109), Anderson/ Carlos (1976: 27-51), Poucke (1979/80: 181-190), Burt (1982), and Mathien (1988: 1-20).

which map the "objective need" for coordination and cooperation in a policy process (prescriptive patterns of coordination, prescriptive task structure and "objectively required" policy interactions) with existent patterns of exchange and collaboration in *empirical* networks. A further step would be the development of indicators for the "goodness of fit" or "misfit" between both networks. The guiding idea is to detect structural obstacles, failures or stalemates in policy networks.

2. In another strategy, the description and measurement capacities of network analysis would be used for *cross-network comparisons* in order to develop (or test) hypotheses explaining the effect of aggregate characteristics of the policy network on specific interactions. This can be accomplished by cross-national policy network comparisons or by comparisons between different national policy domains or policy processes. This strategy concentrates on building empirical indicators to measure network characteristics (for example, density, connectedness, centralization, asymmetry, fragmentation, etc.) and on building models relating these structural characteristics to the performance or, more generally, the outcomes produced by specific policy networks. Such a hypothesis, for example, could be that the more asymmetrical the exchange or influence network is structured, the higher the capacity for collective action.

3. A third application of network analysis is its use in the construction and testing of *formal models* on policy making processes. In this research strategy, network analysis is employed in the *operationalization* of formal models. An example would be the model developed by James S. Coleman on exchange processes within systems of action.[28] The application of such a model demands plenty of information about structural dependencies and resource flows within a set of policy actors. This information can be collected and the required model indicators can be constructed using network analytic tools.[29]

4. A further application is the use of network analysis to *test hypotheses* of *theories* on *policy making* which include structural propositions.

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28 A short outline of the model contains Coleman (1986: 85-136). For a more extended elaboration see Coleman (1990).

29 For applications of the Coleman model see Marsden/ Laumann (1977: 199-250); Pappi/ Kappelhoff (1984: 87-117); Laumann/ Knoke (1987). For the application of Laumann and Knoke's data to another model see Stokmann/ van den Bos/ Wasseur (1989).

Corporatist theory, for example, assumes specific relational configurations between large and monopolistic associations, their members and the state - in contrast to pluralist theory which supposes different structural arrangements in the policy process.[30] Additionally, governance theories differentiating between hierarchies and market-like relations[31] contain implicit propositions on structural configurations which can be identified and described more precisely with the help of network analysis.[32] For instance, it could be used to decide whether an empirical structure of cooperation and information exchange represents hierarchical control instead of market coordination - or, more importantly, it could *discover* any other empirical forms of cooperation including hybrid mixtures of different governance forms.

5. A fifth application would be the use of network analytical methods for the identification and reconstruction of complex policy games, i.e., relations or patterns of strategic actions between a set of actors in the formulation and implementation of a policy. In this approach, network analysis would be used as a measurement tool for game-theoretical models. Network sampling methods could be used to specify boundaries of games,[33] to identify aggregate or collective actors[34] and also, to some extent, to identify some of the relationships between players which are constitutive for a given game (e.g. information structures on mutual payoffs).

6. Network analytic methods could also be used to reconstruct network dynamics in terms of structural transformation or stability. By replicating policy network studies at different points in time, for example, the conditions under which the whole set of actors and its status differentiation stays stable or changes, could be studied. Interesting

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30 For an operationalization of corporatist and pluralist structures of interest intermediation see Schmitter (1974).

31 Hollingsworth/ Lindberg (1985); Campbell/ Lindberg/ Hollingsworth (1991); Schmitter (1989: 173-208).

32 An example is Marsden's (1983) analysis of power structures *within* exchange systems.

33 A n-person game or several interconnected games could be delineated by the identification of clusters of actors which take each others action as mutually relevant (cf. Laumann et al. 1982).

34 "Aggregate actors" in the sense of Scharpf (1990), which are treated as single players in game theoretical models, could be identified with clique-identification methods, cluster analysis or blockmodels. For an application of an empirical identification of collective actors see Marsden/ Laumann (1977).

questions in this analysis would be the entry of new actors, their repositioning and the exit of actors.[35]

This list of application possibilities is by far not exhaustive. It only contains some hints for directions in which a cross-fertilization of policy studies and network analysis might develop.

6 Conclusion

The motivation behind the development of the ideas in this chapter was the feeling that a complementarity exists between first, the description of the contemporary policy making processes, second, the emerging policy network idea which acquired increasing conceptual currency during the 80s, and, third, innovations in methodological tools for analyzing structural configurations. However, this complementarity is still in the state of a potentiality. For the most part, the scholars working in these fields did not yet combine and integrate their efforts enough. The starting point of the chapter was that we believe that such an "alliance" or integration could lead to a better and much more precise description and understanding of contemporary policy making.

The aim of the chapter was to propose a policy network definition which could support this conceptual and methodological integration process. It was not intended to add one or two new facets to the variety of existing network metaphors, but to contract and explicate the number of real phenomena on which these conceptual developments are based, as well as to uncover the key propositions and the essential links and nodes within the existing conceptual diversity. Moreover, we tried to sketch out the methodological toolbox already available for the analysis of highly decentralized and intermeshed policy making actor configurations and some possible research strategies. Consequently, the policy network concept proposed here could offer some operational steps for an integration of conceptual and methodological efforts within in the empirical analysis of policy networks.

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35 This could be done, for instance, by a kind of "broken-tie analysis" which Palmer (1983) applied to interlocking directorates.

Admittedly, a policy network concept which is operational for the empirical analysis, is not without problems and difficulties. Identifying actors, links and boundaries in networks structures demands sophisticated techniques and large efforts in data-gathering. Such large-scale investments in empirical political analysis is not accepted by everybody within the scientific community since not all systematic structural inquiries lead to breathtaking empirical and theoretical results. Often they confirm more intuitive and "soft" observations of qualitative analysis which also can be obtained by low-budget research. However, it should not be overlooked that an intuitive grasp of actor configurations is rapidly exhausted when the number of actors involved increases. Even a genius researcher would be unable simultaneously to grasp the structure of an actor system with more than a handful actors involved. And often the links between actors are not only *multiple* but also *multiplex*. Theoretical concepts which acknowledge that social and political reality is complex and highly intermeshed, should not confine their analysis to the repetition that "everything is connected to everything" but should engage into efforts to measure and map such political or social structures with satisfactory precision. For an approximation of such long-term goals, we also want to conclude - as it is done so often - that still much research is needed to exploit the combined potential of policy analysis and network analysis in the study of public and private policy making.

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