

Reviewing the Evaluation Perspective: On Criteria, Occasions, Procedures, and Practices

Jörg Sydow

Free University of Berlin
14195 Berlin
Germany
Tel: 49-30-838-53783
Fax: 49-30-838-56808
Email: sydow@wiwiss.fu-berlin.de

H. Brinton Milward

University of Arizona
Tucson, AZ 85721
U.S.A.
Tel.: (520) 621-7476
Fax: (520) 626-5549
Email: bmilward@bpa.arizona.edu

May 26, 2003

Paper presented at the Special Interest Group (SIG) on Interorganizational Relations (IOR) within the 10th International Conference on Multi-Organisational Partnerships, Alliances and Networks (MOPAN), University of Strathclyde, Glasgow, June 27, 2003. This paper grew out of the Network Evaluation Subgroup that met within the Standing Working Group on Business Networks at the 17th EGOS Colloquium in Lyon, France, July 5-7, 2001. The paper profited significantly from the discussions there. Furthermore, we acknowledge the substantial input provided thereafter from Patrick Kenis.

1. Towards an Evaluation Perspective: Why is it Important?

The evaluation perspective is *not* a new theory of interorganizational networks. It does not compete with transaction cost economics, resource dependence or neo-institutional theory as explanations for network structure or behavior. It also does not compete with the emergent “relational view” (Dyer & Singh, 1998) in explaining the evolution and management of interorganizational networks. Rather, an evaluation perspective reflects the increasing need of researchers and practitioners to assess the performance of networks of organizations – how-ever performance is defined.

Network performance, if measured at all, has so far been captured at the organizational rather than the network level (see Oliver & Ebers, 1998; Gulati, 1998, pp. 306-310; Grandori, 1999, for reviews). Performance-oriented network research has so far focused the structures and processes that contribute to the overall success of an alliance or network under specific contingencies (such as technology intensity or environmental uncertainty). In contrast, the network evaluation perspective focuses on network outcomes themselves, and on how they are or should be measured *in praxi*. Examples of this include recent work on the development of a “preliminary theory of interorganizational network effectiveness” (Provan & Milward, 1995, 2001). However, this type of network evaluation research is still in its infancy. The same is true for the second line of research that, rather than proposing and applying new evaluation concepts and techniques, investigates how interorganizational networks are actually evaluated *in praxi* (Child & Faulkner 1998, pp: 152-161; Sydow & Windeler, 1998; Provan *et al.*, 2002; Sydow, 2002). Such descriptive and normative approaches to the evaluation of networks are very much complementary and likely to fertilize each other. For on the one hand, more knowledge of actual evaluation practices helps to develop more adequate evaluation techniques. On the other hand, the application of new evaluation concepts and techniques helps to understand the practical chances and pitfalls of network evaluation.

Network evaluation has become so important during the last decade or so for at least five reasons: *First* of all, and given the high failure rates reported not only by international accounting firms, but also by research studies, organizations are often overly optimistic about the benefits of network participation (Barringer & Harrison, 2000, p. 368). A thorough ex ante- and/or simultaneous evaluation could contribute to a more realistic attitude towards interorganizational networking.

Second, as the number of networked organizations increase, more organizations are confronted with the issue of assessing whether their engagement in a particular network pays

off. Would they be better off going it alone or perhaps participating in a different network? Moreover, the embeddedness of firms in interorganizational networks might have direct implications for their economic value. If Håkansson (1987, p. 10) is right in arguing that “relationships are one of the most valuable resources that a company possesses”, firms may lose a lot of their value if they are bought out of their relationships. At least, the value of these organizations would have to be established by taking their relational embeddedness into account (Katzy *et al.*, 2001). In addition, size may be a factor in determining network value. Human and Provan (2000) find that small organizations may not find network activities advantageous.

Third, empirical research shows that the announcement of joint ventures and contractual alliances has indeed an effect on firm value. In contrast to Human and Provan (2000), Das *et al.* (1998) found that announcements of technological alliances enjoyed greater abnormal returns in the stock market than marketing alliance announcements, whereby smaller partners in technological alliances appeared to benefit most (Merchant & Schendel, 2000; Kale *et al.* 2002; Meschi & Cheng 2002; as further examples of this kind of research). An in-depth case study of the BA/USAir alliance (Park *et al.* 1999) demonstrate that “promising” events which increased the likelihood of that alliance had a positive impact upon the value of the partner firms and a negative impact upon the value of their competitors. And Stuart *et al.* (1999) found that the prominence of strategic alliance partners has a positive impact upon the speed and valuation of IPO of the bio-tech start-ups they partner with. In the same industry, Gulati & Higgins (2003) found that relationships of young biotech firms with venture capitalists, investment banks, and pharmaceutical firms have a clearly beneficial impact upon IPO.

Fourth, apart from establishing the value of networking for a focal firm, evaluating the entire network has become increasingly important for state agencies and others who share an interest in more or less systematic efforts of network or “transorganizational development” (Cummings 1984). During these efforts, the assessment of the present state of network evolution is often fed back to the network participants in order to improve interorganizational communication and trust or, in more general terms, to change network structures and processes. In this respect, the evaluation of a network may serve as a safeguard to collective interests (Milward and Provan, 1998).

Fifth and finally, for some time now we have been living in an “age of evaluation” (Guba & Lincoln, 1989) or an “auditing society” (Power 1997) which, at an increasing rate in

both the private and the public sectors, requires the assessment of organizational and inter-organizational outcomes. This meets the increasing demand of internal and external stakeholders for clear performance indicators. Whether valid or not, performance indicators will be provided. The evaluation criteria used by the magazines to rank business schools may be invalid, but they are used by students to select the schools they wish to attend and by the winners in the competition to tout their preeminence and the losers to change their behavior for better or worse.

In what follows no comprehensive or even coherent framework for the evaluation of interorganizational networks will be presented. Rather the complexity of the evaluation issue will be explored (Section 2). With respect to the different theories of interorganizational relationships and networks, two reasons for the complexity will be analyzed in depth: the choice of evaluation criteria and the appropriate level of analysis (Section 3). Then, questions will be posed to stimulate future research on evaluating interorganizational networks (Section 4). The paper will conclude with some suggestions for how research should proceed (Section 5).

2. Understanding the Complexity of Network Evaluations: Preliminary Insights

The issue of network evaluation is, in many respects, more complicated than it seems. This insight is as relevant for the descriptive as for the normative or prescriptive approach to network evaluation. At least four problems have to be mentioned.¹ The *first* concerns the choice of the appropriate evaluation *criteria* (and indicators which allow individuals to measure them). Many other criteria than that of network efficiency may be relevant. The appropriateness of a certain evaluation criterion may depend, for example, on the occasion or purpose of network evaluation. If you use efficiency as your measure of performance, you may find yourself at odds with those who value responsiveness, effectiveness, accountability, or equity. Different evaluation practices and procedures may use different criteria and even exclude some other evaluation criteria right from the beginning. The appropriateness of a certain evaluation criterion may also depend on the type of network under investigation. It may be more important to use multiple criteria in public-private partnerships than in business networks where taxpayer money is used. With business networks, Doz & Hamel (1998) distinguish horizontal co-option alliances, vertical co-specialization alliances, and learning alliances. While co-option alliances, by which firms turn actual or potential competitors into

partners, are likely to be measured by their contribution to the alliance's market share or the reduction in competing standards, co-specialization alliances, that rely on the specific skills or resources the partners bring to the alliance, ought to be measured by "the value of the new opportunities they create compared with what partners could have achieved on their own" (Doz & Hamel, 1998: 81). Finally, the performance of learning alliances should primarily be measured in terms of degree of improved competences and capabilities.

Second, the issue of network evaluation can and should be approached on different *levels of analysis*. As stated above, by far most studies to date focus on the organizational level of analysis, i.e. consider the impact of interorganizational relationships or networks upon the performance of the single network participant. Provan & Milward (1995, 2001) provide one of the few studies which focus on the network level, but consider the level of the community even more important than that of the network or the network participant, other approaches include the level of individual managers and the regional level (e.g. Hanssen-Bauer & Snow, 1996). Or they add even more complexity by distinguishing between the evaluation of a single alliance, of the alliance strategy at the level of business units and of the alliance portfolio at the corporate level (Hoffmann, 2001). Again, the appropriate level(s) of analysis depend(s) to a large degree upon the purpose of network evaluation.

Third, network characteristics, i.e. the structural properties of networks, at some point in time and to some extent, are as much network *outcomes* as these outcomes are *inputs* into network processes. For instance, the degree of network integration or the level of multiplexity may be viewed as outcomes if some network coordinating practices are put into action. Many *publicly* funded networks that provide health or *social services* use integration as a surrogate for performance. In healthcare it is assumed that patients' illnesses will be treated more effectively if all of the doctors, nurses, and other professionals are kept apprised of what the others are doing. At the same time, structural properties, *such as the type of network integration*, may enhance or diminish network effectiveness. Therefore, outcome measures such as network effectiveness, suggested for the evaluation of public services networks (Provan & Milward, 1995, 2001) – as for the assessment of interfirm networks (e.g. Sydow & Windeler, 1998) – are not only outcomes, but also potential inputs in a complex process of network development, network evolution, or network structuration (see also Ring & Van de Ven, 1994). For example, integration is often cited as a cure for fragmentation and a lack of coordination in publicly funded networks. If in evaluating the network, the researchers find it well integrated, they tend to evaluate it as performing successfully. From an evaluation stand-

¹ Other problems are listed by Doz & Hamel (1998, pp. 66-72).

point, integration is a tautology. Thus, the distinction between antecedents and outcomes of networking may often not be possible or even if possible, be misleading (Monge & Eisenberg, 1987; Brass, 1995).

Fourth, the evaluation of networks, like any evaluation (cf. Guba & Lincoln, 1989), is a political, often collaborative process which has some unpredictable outcomes and creates a socioeconomic reality. Typically there are *multiple interests* of multiple stakeholders involved who, despite an asymmetrical distribution of power, have to collaborate to some extent in the evaluation process. Otherwise, many evaluations would not be possible. When developing evaluation procedures and practices, the evaluators, at least if looked at it from a structuration perspective (Giddens, 1984), necessarily refer to certain structural properties of the network and, thereby, reproduce or transform them. Thus, the evaluation of a network is a recursive practice and, as such, a constitutive part of network reality which is co-created by the very evaluation procedures and practices.

Two of these four issues will be explored in some more depth shortly: the choice of appropriate criteria and of the adequate level of analysis. These issues will be approached from the perspective of established theories of interorganizational relationships and networks. Before that discussion, some insights from the very few studies of the actual practice of network evaluation will be presented which underline the complexity of the issue at hand – and the simplicity, with which it is sometimes handled *in praxi*.

Network evaluation may be understood here “as a process of interaction in which managers [and other stakeholders], by reflexively monitoring the contextual embedded activities and their effects, try to control the outcome and, eventually, the process of organizing with respect to particular criteria” (Sydow & Windeler, 1998, p. 269). While this understanding is based upon the idea of “reflexive monitoring” (Giddens 1984) it goes beyond that when not only the reflexivity but also the formality of such evaluation practices and procedures is emphasized. As such, network evaluation is one of at least four generic types of network management practices (see Figure 1) which are recursively related. With respect to evaluation, this means that evaluation practices affect the other managerial practices while these, in turn, have an influence on how network evaluation is carried out. For instance, evaluation outcomes have a potential impact upon the selection and reselection of network members. On the other hand, the selected partners – not least their organizational evaluation practices – have a likely affect upon the procedures and practices of network evaluation.

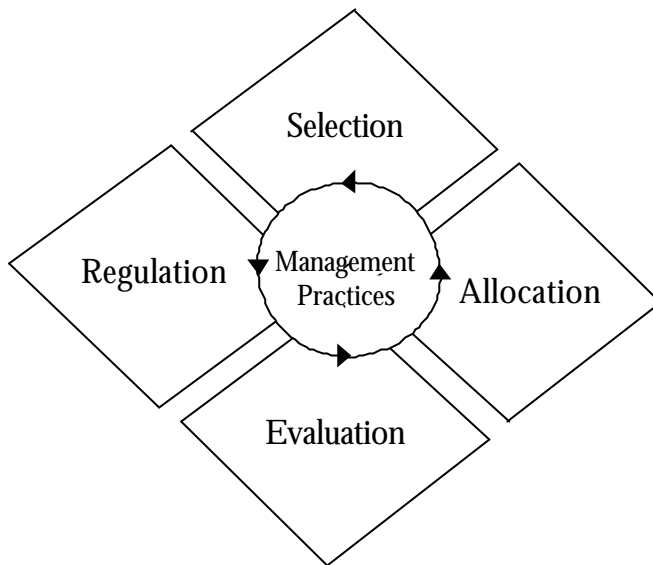


Figure 1: Four types of network management practices

To date, relatively little is known about the *actual evaluation practices* of organizations entering or running a network organization, not to mention their recursive interplay with other management practices. Among the few studies we know are the following two:

(1) Child & Faulkner (1998, pp. 152-161), who investigate the evaluation practices of half a dozen joint ventures and collaborations (including Rover-Honda and ICI Pharma), conclude that the partner’s initial contribution to the alliance is, if at all, mostly evaluated by simple, informal, and inexact calculations. More often than not, evaluation practices take up industry conventions, standard transfer prices, and usual day rates. Moreover, the evaluation praxis is quite diverse, depending not only on the type of alliance (joint venture vs. other collaborative efforts) but also “very much on the partners’ attitude toward alliances, and the way in which they expect them to be managed and evolve over time” (p. 158). Though it is difficult to generalize from such a small sample, it seems that “the more sophisticated the valuation process, the greater the risk of the development of a subsequent ‘them-and-us’ attitude among alliance members, to the detriment of good cooperative strategy” (p. 158). Child & Faulkner (1998, pp. 158-160) recommend taking into account not only the type of alliance and the attitude of the partners, but also including fixed assets, working capital, expertise, contact network, brand names, and technology transfer in the evaluation. Thus, evaluations should not stop short of intangible factors, but explicitly take them into account.

(2) Sydow (2002) studied a network of seven and later twelve medium-sized insurance brokers over more than eight years. The complexity and formality of the evaluation procedures used varied significantly over time. The case demonstrates that formal evaluations were less

useful in earlier and later stages of network development. For, while an informal reflexive monitoring of actions, events and their intended and unintended consequences is certainly necessary also at the beginning of cooperating a more formal evaluation may be detrimental to the process. At later stages of network evolution, because of ongoing reflexive monitoring, such an evaluation may not be that necessary. Moreover, the cases demonstrate that effective evaluation procedures may be of a rather simple design as long as they are used in a sensitive way.

(3) In a recent study of a nonprofit managed care network of more than 40 providers serving the mentally ill in one city, Provan, Milward and Isett (2002) found that the network administrative organization that funded the network monitored the performance of its four main providers on a variety of quality management measures and used them to evaluate their performance. Data collected four years apart found that the network increased its performance on these measures and increased the level of integration and collaboration in the network even though the 4 main providers held at risk contracts with the network administrative organization.

(4) A very prominent example of an interfirm network is the StarAlliance that grew out of bilateral collaborations of Lufthansa with United Airlines on the one hand and SAS on the other. In the meantime, the StarAlliance comprises more than a dozen members not only from Europe and America but also from Asia. Though the alliance is well-known for its professional network management, only two approaches are currently followed when it comes to evaluation on the network level: (1) In addition to customer surveys aiming at the individual member firms, client satisfaction with the alliance is measured on an annual basis with a survey instrument. (2) The same approach is followed with a so-called "Puls Taker" that surveys the attitudes of employees towards the StarAlliance.

In face of these initial attempts, more empirical studies are surely needed which investigate evaluation practices in interorganizational networks. These studies have to explore not only which criteria and procedures are constructed and used, on which occasions, but also

- who powerfully influences the construction and use of criteria and procedures, considering, for instance, the influence of a hub firm or external stakeholders on evaluation practices or the role of formal institutions
- when and how these criteria are actually put into practice in social interaction or when and how the respective evaluation procedures are actually used *in praxi*

- how their usage affects network practices and the evolution of the network, and
- how, in turn, network practices and network evolution affect the usage of evaluation criteria and procedures.

Even prominent studies, like the one of the Nordvest Forum in Norway by Hanssen-Bauer & Snow (1996), hardly document the evaluation processes, not to mention the effects of the evaluation on other network practices.

3. Evaluation from the Perspective of Established Theories: Criteria and Levels

The number of criteria, which can be used to assess the success of an alliance or network, is almost unlimited. Performance criteria on the network level may include all of the following: effectiveness, responsiveness, accountability, equity, fairness, justice (procedural or distributive), costs/benefits or value of relationships, client satisfaction, innovativeness (measured in terms of patents, for instance), changes in sales or costs, profitability, legitimacy, learning; adaptive capacity, strategic flexibility, relative dependency, increased or decreased risks, positive and negative externalities (such as public goods and reduced competition respectively), changes in power positions, financial criteria such as discounted cash flow generated, or – simply – survival.

Other, more relational criteria are: supplier/customer involvement or commitment, quality of relationships (including stability, level of trust, openness of communication), temporal and/or structural embeddedness of a particular relation, present balance of cooperation and competition, network climate or culture, contribution of a particular organization to the effectiveness, efficiency or reputation of the network; etc.

<i>Output Variables</i>	<i>Number of Appearances</i>	<i>Percentage of Appearances</i>
1. power/control	49	31.0
2. success	36	22.8
3. prevalence	35	22.2
4. stability	25	15.8
5. commitment	23	14.6
6. diffusion	22	13.9
7. persistence	21	13.3
8. cost/price	19	12.0
9. similarity	18	11.4
10. take-over	16	10.1
11. conflict	16	10.1
12. learning	15	9.5
13. political participation	15	9.5
14. make-or-buy	14	8.9
15. innovation	14	8.9
16. size	13	8.2

17. revenue	13	8.2
18. extinction	12	7.6
19. centrality	12	7.6
20. trust	12	7.6
21. opportunism	11	7.0
22. legitimacy	11	7.0
23. density	7	4.4

Figure 2: Outcome variables used in network studies (Oliver & Ebers, 1998, p. 556)

According to a meta-analysis of 158 articles published in OS, AMJ, ASQ, and ASR, 23 outcome variables have been used altogether (Figure 2). However, most of these are, as stated above, organization-level outcomes. The 2000 special issue of the *Strategic Management Journal* on strategic networks also concentrates on rents earned by single network firms, whether they result from the firms' own unique resource endowments or are derived from the network relationships in which they are embedded.

Outcomes at the network level, by contrast, have hardly been studied, neither in the public nor in the private sector (see Lehmann *et al.* 1994; Provan & Milward, 1995; Provan & Sebastian, 1998; and Sydow & Windeler, 1998; Human & Provan, 2000, respectively, for notable exceptions). The main reason for this is that outcome evaluation is very difficult and expensive to do. Networks have a joint production function which necessitates collecting data from every organization in the network and trying to figure out what impact each link in the production process had on the network outcome. If the network studied is in health care and involves clinical outcomes, the network may have to be studied for several years to see if improvement occurred. A study of community trauma networks found that it took on average 8 years for systems to improve and performance peaked at 13 years (Nathens, et al., 2001). Needless to say, this kind of evaluation requires a very patient client. In addition, clinical outcome studies are quite expensive. Nevertheless, a network-level approach is very useful for understanding network effectiveness but it is not of great utility in helping to improve the performance of the network that was studied. While difficult to perform, network-level evaluation is a useful complement an organization-level approach.

3.1 Criteria and Levels of Evaluation Derived from Theory

Different theories highlight different criteria of network performance and may even suggest indicators how to measure this performance. Figure 3 gives a rather comprehensive overview of popular theories of interorganizational networking and assigns the most important criterion of success to each theory. In addition, it shows – in brackets – the dominant level of analysis

of the respective theories. However, almost all of the theories mentioned are silent on the process of evaluating networks, for instance, on how these criteria are used in practice.

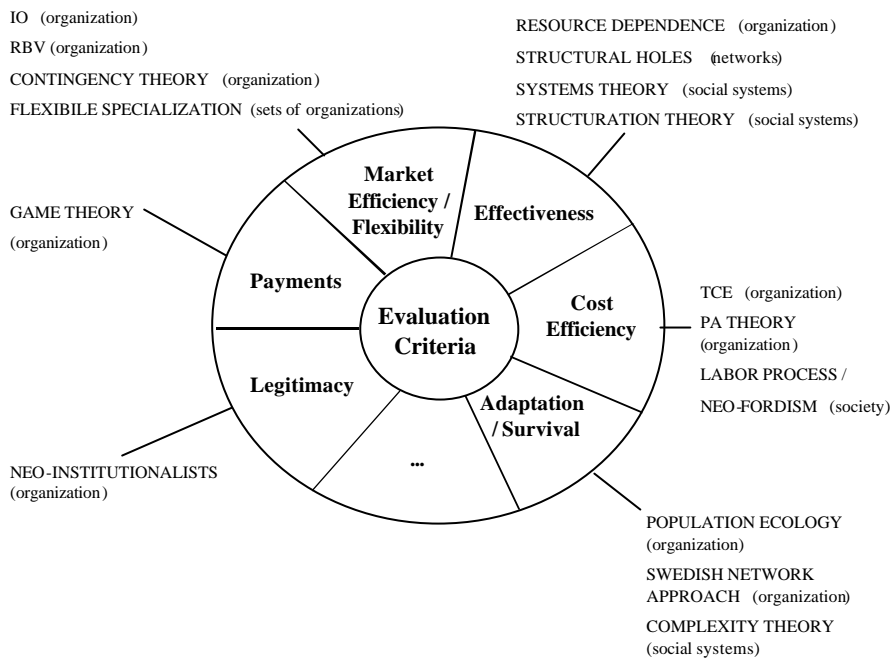


Figure 3: Evaluation criteria from the perspective of different network theories

Transaction cost economics, for example, suggests transaction costs as an efficiency criterion. That criterion would not only allow to establish the cost (in-) efficiency of networks over markets and hierarchies (Williamson 1991) but, at least in principle, also to compare specific forms of network governance with respect to their impact on transaction or coordination costs. This, however, would assume the choice of appropriate indicators for this kind of cost efficiency. Examples of possible indicators are the time consumed by negotiations before and after signing the contract, the complexity of the written agreement, and the efforts to handle conflicts resulting from a particular agreement.

3.2 Other Relevant Criteria of Evaluation

Not every possible criterion used for assessing (aspects of) the effectiveness of interorganizational networks is derived from an established theory of interorganizational networking, nor should it be. Some specific relationship- or network-related measures have been given at the beginning of this section, some others are given below.

The *first three* of the following build on the newly emergent discussion of customer and relationship value in industrial marketing and are hardly related to established network theories:

(1) “Expected relationship value” (ERV) which builds upon work by Jackson (1985) but goes beyond that by accounting for uncertainties and by including other tangible benefits than cash flows. Hogan (2001, p. 341) defines ERV as “the perceived net worth of tangible benefits to be derived over the life of the relationship” (Hogan, 2001, p. 341).

(2) “Value of cooperative business relations in industrial markets” (Werani 2000, study of 696 production firms in Austria):

- defined as estimated relational benefits minus relational costs
- customers and suppliers have different relational value concepts, i.e. they think that different value and cost drivers are important for the relationship value
- cost of coordination turn out to be of minor importance in this sample.

(3) “Channel relationship value as the sum of total benefits derived from a channel partnership, less the costs associated with the partnership, as determined by the customer partner” (Simpson *et al.*, 2001) – How are these concepts related to relational value or network value? Are they identical or simply more specific?

The *next five* measures, in contrast, have their origin in organization theory and structural network analysis:

(4) “Multiplicity” (Provan & Milward, 2001) refers to the number of different types of ties between organizations in a network and is likely to evolve when a network is working well.

(5) “Strategic alliance flexibility” (following Young-Ybarra & Wiersema, 1999, study of 91 information technology alliances):

- Two dimensions: modification of the network arrangement and ease of exit
- Influenced by: asset specificity and hostage arrangements (following transaction cost economics; positive effect on modification if they are “balanced”), and trust and dependence (following social exchange theory; only trust has a positive effect on strategic flexibility, while dependence has a negative effect)

(6) “Organizational Learning” (Powell *et al.*, 1996), i.e. internal as well as external learning, or “network learning” (Hanssen-Bauer & Snow 1996).

(7) “Fairness” (Grandori & Neri, 1999), distinguishing substantive and procedural fairness, whereby the former, *in praxi*, seems to be based upon fairly simple fairness heuristics.

(8) “Adaptive capacity” (Staber & Sydow, 2002) is influenced by the level of multiplexity, redundancy, and loose coupling.

3.3 Summarizing Criteria and Levels

Given the multifaceted objectives of interorganizational relations and networks, probably multiple criteria have to be used to evaluate their effectiveness, on the network level as well as on all other relevant levels of analysis. This concerns more *micro levels* such as individual, group, organization, as it does concern more *macro levels* such as community, region, sector, society. In consequence, a multi-level approach to network evaluation has, in many cases, to be matched by a multi-criteria approach. Then each of these many criteria would have to be operationalized by one or several performance indicators.

In addition, in cases like the community mental health systems studied by Provan & Milward (1995) a multiple-constituency approach, while adding additional complexity, is clearly necessary in public sector networks where citizens are the stakeholders and citizens have different values based on their preferences for how they want their taxes used. With regard to this multi-constituency aspect, the descriptive stream of network evaluation research would have to explore how this aspect is handled *in praxi*. As stated at the beginning of this paper, an evaluation perspective reflects the increasing need of researchers and practitioners to assess the performance of networks of organizations – however performance is defined.

4. Which are the Most Interesting Questions?

Some *general* questions we consider relevant for developing a network perspective on evaluation are: What is the current state of the art in the field? Which are the relevant research trends? Which are the important studies of network effectiveness apart from Lehmann *et al.* (1994) and Provan & Milward (1995) in the public sector and Hanssen-Bauer & Snow (1996), Sydow & Windeler (1998), and Human & Provan (2000) in the private sector? What do we know about evaluating networks, and, more importantly, what should we know?

Elaborating an evaluative perspective, however, requires more *specific* questions to be answered. They concern the object under evaluation, the choice of criteria and indicators, the appropriate time horizon of the evaluation, those who do or should evaluate networks, and the

occasions for network evaluations. By far most of the following questions concern the choice of performance criteria and indicators. Such choices are very difficult to be made, but seem to be at the heart of every procedure of network evaluation, no matter whether it is developed in network research or practice, not matter whether it is derived from network or organization theory or managerial experience.

1. Which is/are the relevant level(s) of evaluation under particular circumstances? The network itself? Dyads? The organizations involved in a network? Or are even more *micro* levels such as organizational subsystems (e.g. business units, divisions, departments), groups/teams, projects, individuals, or single transactions also relevant? What about more *macro* levels such as business groups, communities, regions, industries, sectors, society?
2. As shown by Provan & Milward (1995), it may be vital to include more than these two levels of analysis. But which levels? Although the network and the network partner are surely central, some problems – such as the development of networking in a region (cf. Saxenian, 1994; Hanssen-Bauer & Snow, 1996) or the impact of interfirm networking on individual managers or workers (Hanssen-Bauer & Snow, 1996) – may require the inclusion of additional levels of analysis.
3. If a multi-level approach to evaluation such as the one used by Provan & Milward (1995) in their study of four community mental health systems and by Hanssen-Bauer & Snow (1996) in their study of a regional learning network organization is considered to be useful, how can such an approach consider the interaction between these different levels of analysis?
4. Is it important to take into account that the value of a focal interorganizational relationship depends upon secondary relationships (and *vice versa*)? (cf. Anderson, 1995).
5. Organizations are often characterized by a “performance paradox” (Meyer & Gupta, 1994). That is, measures of performance are observed to be only loosely interrelated, and performance increases measured at subsystem levels do not necessarily translate into a better organizational performance. Does this paradox also apply to networks?
6. Partners sometimes enter and exit an alliance or network with high frequency, i.e. the object of evaluation is rather unstable (cf. Hess *et al.*, 2001). This is particularly the case in virtual organizations and other “dynamic networks” (Miles & Snow, 1986). What does this imply for evaluation procedures and practices?

Questions Concerning the Evaluation Criteria

1. Taking up the traditional distinction of Anderson (1990), should the possible evaluation criteria be more input- (harmony among partners, morale, productivity) or more output-related (marketing or financial measures of performance), i.e. more transactional or transformational (see also Human & Provan, 1997, pp. 386-387)? Or should both be combined under specific circumstances (Anderson, 1990)?
2. Is there a generally appropriate measure of network effectiveness, efficiency, equity, value, responsiveness etc., or does its appropriateness depend on network size or stage of network evolution or some other contingencies? While Ring & Van de Ven (1994) model the recursive relationship between efficiency and equity, how do these performance indicators relate in practice?
3. What are “relational rents” (Dyer/Singh, 1998), and are they a relevant evaluation criterion? What are potential indicators for measuring these rents?
4. What does “network effect” (Uzzi, 1996) really mean? Can it be measured? Should it be measured and, thereby, disclosed to the network partners? What about the “partner-contribution value” (Child/Faulkner, 1998)?
5. What are “common benefits” (Khanna *et al.*, 1998), how should they be measured and how are they related to “private benefits” of network learning (see Inkpen, 2000, for a critical comment)?
6. What are the costs of networking? Do they include not only transaction costs but also learning costs and opportunity costs as suggested by Ring (1999)? What about the social costs because “networks do have their darker sides” (Ring 1999, p. 252)?
7. Does it make sense to use a set of evaluation criteria such as suggested by the “balanced score card” (Kaplan and Norton, 1996), for instance (e.g. Merkle, 1999)? Since the conventional balanced score card, due to its mainly internal focus, does not seem to support interorganizational processes (Frimanson & Lind 2001), should one construct and apply a kind of “cooperative scoreboard” (Hippe, 1997, pp. 227-240) which highlights not only the impact of cooperative relationships upon financial performance, customer satisfaction, internal processes and learning (Spekman *al.*, 2000) but is also applicable at the network level? Should relational capital be a fifth, separate performance measure indicating the value of relationships (Hoffmann, 2001)?

8. Should the performance of an alliance or network be assessed on the basis of perceptual or unobtrusive measures or, as Mohr & Spekman (1994) and many others recommend, on both? How to deal with difference which arise between perceptual or unobtrusive measures in case they arise?
9. Should the perceptual measure indicate “satisfaction” or rather be descriptive like a “network climate” index?
10. How useful is it to consider interorganizational relationships or even the participation in a particular interorganizational network as “investments” (Ford *et al.*, 1996), and this despite all the obvious methodological problems involved?
11. Which role plays the network environment in legitimizing particular evaluation criteria?

Questions Concerning the Evaluation Subject

1. Who is interested in the evaluation of networks? Should internal or external stakeholders, or both be interested, as Lorange & Roos (1993) suggested some time ago? And who has a legitimate interest in the evaluation of networks?
2. Given that networks have more than two members and that the members’ views on network effectiveness criteria differ, whose evaluation perspective is most relevant? Does the member with the most power have their measure(s) of network effectiveness put into practice?
3. Can the network itself be an evaluator? This can certainly be the case when a new member is evaluated not only by one or several members of the network but by the network as a whole. But how can the network – as a collective actor – assess a new member?
4. Given the fact that “sometimes performance is asymmetric” (Gulati, 1998, p. 307), i.e. that one organization achieves its objectives while the other does not, which member of the network defines the success of an alliance? And what impact does the measuring of network efficiency and effectiveness have upon the power position of the network members? In more general terms, is it correct that “economic evaluation should not be isolated from power issues” (Sydow & Windeler, 1998, p. 275)?
5. Typically, network organizations outsource most of their activities. How can such an organization preserve its ability to assess whether the externalized function is performed

well? What characterizes an “evaluative capability” (Stuart *et al.*, 1999)? Is this an individual, an organizational, or a network capability?

Procedures for Evaluating Networks.

An evaluation procedure, in our view, would not only include defining the object of evaluation, the appropriate criteria and indicators, and the subject who evaluates networks, but also the time horizon *before the evaluation begins* (see Figure 4).

Object	Criteria	Horizon	Subject	Occasion
<ul style="list-style-type: none"> • network participant • network • parts of a network (e.g. dyadic relations) • portfolio of relations from the view of a hub firm or a business unit • network effect 	<ul style="list-style-type: none"> • efficiency • effectiveness • equity or justice • risk • indicators of the distance between partners, gain in reputation or competence, strategic flexibility, adaptive capacity, etc. • expected contributions • responsiveness • accountability 	<ul style="list-style-type: none"> • short-term • medium-term • long-term 	<ul style="list-style-type: none"> • network • partner • bank • accountant • consultant • analyst • agency • ... 	<ul style="list-style-type: none"> • entry or exit of a partner • restructuring of the network, business process reengineering • network development • acquisition or IPO of a network firm • regular monitoring of the partners' contributions

Figure 4: Relevant components of network evaluation procedures

A particular combination of these components would constitute a particular evaluation procedure as it might be found *in praxi* or developed in network research. In addition, one should think about:

1. Can or should a process be organized in which individuals, by means of intensive interaction and negotiation, collectively construct the criteria of effectiveness by which the network is ultimately judged (Herman & Renz, 1997; Forbes 1998, pp. 194-196, with respect to organizational effectiveness)? How does such a construction process affect the value sharing in the network? If it is true that “bargaining and negotiation appear to play a larger role in value sharing than does accurate assessment of the value created” (Anderson, 1995: 348), what then is the role of network evaluation in this process?
2. When is a formal evaluation or assessment of network effectiveness appropriate? When may it be supportive of, when detrimental to network development? When should we,

therefore, refrain from evaluating and, instead, stick to a more informal monitoring of network outcomes and network processes?

3. What, in more general terms, is the relationship between network evaluation and network evolution (Ring & Van de Ven, 1994; Doz, 1996; Sydow, 2002)? Does it make sense to conceive organizing and evaluating as recursively related? That is, network effectiveness or other evaluation criteria are “not only a result, but also a medium of organizing” (Sydow & Windeler, 1998, p. 272).
4. And last but not least, what is the cost of the (non) evaluation of an interorganizational relationship or network?

Further Questions

Finally, one may ask:

1. Which are the most relevant occasions on which the value of a dyadic relation or a network of relations has to be established?
2. Which are the most difficult problems in evaluating networks? Measuring the “network effect” (Uzzi, 1996) that comprises the value added by networking? Is a causal attribution of payments possible?
3. Even more fundamentally, how is an evaluation of networks possible, given that one should expect a high level of disagreement about suitable criteria, since networks are not conceived “as homogenous and unitary entities, but as dispersed and fractured social practices” (Sydow & Windeler, 1998, p. 273)?
4. What does it imply for evaluation procedures that the boundaries of networks are usually blurred?

5. How Can we Proceed From Here? - Also a Summary of the Discussion in Lyon

Three major conclusions can be drawn from the discussion of network evaluation issues at the EGOS Standing Group on Business Networks which first met at the EGOS Colloquium in Lyon, July 5-7, 2001.

First, there is widespread agreement among network researchers that network evaluation procedures and practices should focus on the network rather than only on the network participant level of analysis. While the organizational level of analysis certainly is and continues to be important not only in the private sector, there are several occasions where it

should be supplemented by an evaluation of the network. For instance, when a firm has the choice of entering one of several distinct networks it may not be possible to evaluate the net effect of joining these networks on the focal firm. Under these circumstances a rather general assessment of the overall functioning of these networks may be useful. In the non-profit sector, the community, industry, and cluster are particularly relevant levels of analysis. Nevertheless, in this sector the evaluation of the network as such may also be in order. For instance, as in the mental health networks studied by Provan & Milward (1995), more centrally integrated networks produced higher levels of client satisfaction than less centrally integrated networks.

Second, on all these levels, but on the level of the network in particular, not only network output performance (such as goal attainment) but also (more input-oriented) network characteristics, i.e. structural properties of the network, may be suitable measures. This is particularly true when output measures are not available. But even if they are, it may be prudent to include such properties which, through complex and almost intractable network processes, are somehow linked to network outcomes. If performance criteria are available they can seldom be measured directly. Rather, stakeholders interested in network outcomes have to rely on performance indicators only. However, the relationship between criteria and indicators is as little understood as the role of network processes mediating between network characteristics and network outcomes.

Third, the assumption that there is no optimum criterion (or indicator) of network effectiveness is also widely shared among network researchers. On the one hand, the choice of an appropriate effectiveness criterion which is often directed towards future action is troubled by uncertainty. On the other hand, the criteria depend necessarily upon the purpose of the evaluation (Kenis, 2001). For instance, while a certain measure of network effectiveness may be perfectly suitable for discovering better means of network integration it may be much less effective for legitimizing the status quo. The particular purpose of the evaluation, by the way, also influences where – in the face of an upcoming evaluation – the boundary of the network should be drawn, i.e. which individual and/or corporate actors should be included and which should be excluded.

Future research on network evaluation should not only be static but also process-oriented in order to better understand the relationships between emergent and designed network properties on the one hand and network outcomes on the other. This implies that longitudinal studies are needed in a field of study which has been dominated by snapshots of

network characteristics and outcomes. In addition, it should be directed towards a better understanding of the relationships between effectiveness criteria and indicators which can be measured in a more valid and reliable way. Finally, those evaluating networks should be sensitive towards the enlightenment function of evaluation procedures. This function describes the likelihood that any network evaluation may produce insights which are unexpected but nonetheless useful for improving the performance of networks. In this respect as well, evaluating networks is necessarily a learning process.

References

- Anderson, E. (1990). "Two firms, one frontier: on assessing joint venture performance." Sloan Management Review, 32: 19-30.
- Anderson, J.C. (1995). "Relationships in business markets: Exchange, episodes, value creation, and their empirical assessment." Journal of the Academy of Marketing Science, 23: 346-350.
- Barringer, B.R. and Harrison, J.S. (2000). "Walking the tightrope: Creating value through interorganizational relationships." Journal of Management, 26 (3): 367-403.
- Brass, D.J. (1995). "A social network perspective on human resource management." In: Ferris, G.R. (ed.): Research in personnel and human resource management 13. Greenwich, Conn.: JAI Press: 39-79.
- Child, J. and Faulkner, D. (1998). Strategies of cooperation. New York: Oxford University Press.
- Cummings, T.G. (1984). "Transorganizational development." In: Staw, B.M. and Cummings, L.L. (eds.). Research in organizational behavior 6. Greenwich, Conn: JAI Press: 367-422.
- Das, S., Sen, P.K. and Sengupta, S. (1998). "Impact of strategic alliances on firm valuation." Strategic Management Journal, 41 (1): 27-41.
- Doz, Y. (1996). "The evolution of cooperation in strategic alliances – Initial conditions or learning processes?" Strategic Management Journal, 17 (special issue): 55-83.
- Doz, Y. and Hamel, G. (1998). Alliance advantage. The art of creating value through partnering. Boston: Harvard Business School Press.
- Dyer, J.H./Singh, H. (1998). "The relational view: Cooperative strategy and sources of inter-organizational competitive advantage." Academy of Management Review, 23 (4): 660-679.
- Forbes, D.P. (1998). "Measuring the unmeasurable: Empirical studies of nonprofit organization effectiveness from 1977-1997." Nonprofit and Voluntary Sector Quarterly, 27 (2): 183-202.
- Ford, D., McDowell, R. and Tomkins, C. (1996). "Relationship strategy, investments, and decision making." In: Iacobucci, D. (ed.). Networks in marketing. Thousand Oaks: Sage: 144-176.

- Frimanson, L. and Lind, J. (2001). "The Balanced Scorecard and learning in business relationships." In: Håkansson, H. and Johanson, J. (eds.). Business network learning. Amsterdam: Pergamon: 33-52.
- Giddens, A. (1984). The Constitution of Society. Cambridge: Polity.
- Grandori, A. (1999). "Interfirm networks: Organizational mechanisms and economic outcomes." In: Grandori, A. (ed.). Interfirm networks: Organizational and industrial competitiveness. London: Routledge: 1-14.
- Grandori, A. and Neri, M. (1999). "The fairness properties of interfirm networks." In: Grandori, A. (ed.). Interfirm networks: Organizational and industrial competitiveness. London: Routledge: 41-66.
- Gulati, R. (1998). "Alliances and networks." Strategic Management Journal, 19: 293-317.
- Gulati, R. and Higgins, M. (2003). "Which ties matter when? The contingent effects of inter-organizational partnerships on IPO success." Strategic Management Journal, 24: 127-144.
- Guba, E.G. and Lincoln, Y.S. (1989). Fourth generation evaluation. Newbury Park: Sage.
- Håkansson, H. (1987)(ed.). Industrial technological development: A network approach. London: Croom Helm.
- Hanssen-Bauer, J. and Snow, C.C. (1996). "Responding to hypercompetition: The structure and processes of a regional learning network organization." Organization Science, 7 (4): 413-427.
- Hennart, J.F., Kim, D.-J. and Zeng, M. (1998). "The impact of joint venture status on the longevity of Japanese stakes in U.S. manufacturing affiliates." Organization Science, 9 (3): 382-395.
- Herman, R. and Renz, D. (1997). "Multiple constituencies and the social construction of non-profit organization effectiveness." Nonprofit and Voluntary Sector Quarterly, 26 (2): 185-206.
- Hess, T., Wohlgemuth, O. and Schlembach, H.-G. (2001). „Bewertung von Unternehmensnetzwerken: Methodik und erste Erfahrungen aus einem Pilotprojekt.“ Zeitschrift Führung+Organisation, 70 (2): 68-74.
- Hippe, A. (1997). „Interdependenzen von Strategie und Controlling in Unternehmensnetzwerken“. Wiesbaden: Gabler.
- Hoffmann, W. (2001). Management von Allianzportfolios. Stuttgart: Poeschel.
- Hogan, J.E. (2001). "Expected relationship value." Industrial Marketing Management, 30: 339-351.
- Human, S.E. and Provan, K.G. (1997). "An emergent theory of structure and outcomes in small-firm strategic manufacturing networks." Academy of Management Journal, 40 (2): 368-403.
- Human, S.E. and Provan, K.G. (2000). "Legitimacy building in the evolution of small-firm networks: A comparative study of success and demise." Administrative Science Quarterly, 45: 327-365.
- Inkpen, A.C. (2000). "A note on the dynamics of learning alliances: Competition, cooperation, and relative scope." Strategic Management Journal, 21 (7): 775-779.

- Jackson, B. (1985). Winning and keeping industrial customers. Lexington, KY: Lexington Books.
- Kale, P., Dyer, J. and Singh, H. (2002): Alliance capability, stock market response, and long term alliance success: the role of the alliance function. In: Strategic Management Journal 23 (8): 747-767.
- Kaplan, R.S. and Norton, P. (1996): The balanced scorecard: Translating strategy into action. Boston, Mass.: Harvard Business School Press.
- Katzy, B.R., Sydow, J., Aston, D. and Helin, R. (2001). "Zur Bewertung vernetzter Unternehmen – Netzwerkbeziehungen und der Wert der Royal Numico N.V." Zeitschrift Führung+Organisation, 70 (2): 99-107.
- Kenis, P. (2001). How to select criteria for evaluating networks? Paper presented at the Standing Group on Business Networks, 17th EGOS Colloquium, Lyon, France, July 5-7, 2001.
- Khanna, T., Gulati, R. and Nohria, N. (1998). "The dynamics of learning alliances: Competition, cooperation and relative scope." Strategic Management Journal 19 (3): 193-210.
- Lehman, A.F., Postrado, L.T., Roth, D., McNary, S.W. and Goldman, H.H. (1994). "Continuity of care and client outcomes in the Robert Wood Johnson Foundation program on chronic mental illness." Milbank Quarterly, 72: 105-122.
- Lorange, P. and Roos, J. (1993). Strategic alliances: Formation, implementation, and evolution. Cambridge, Mass.: Blackwell.
- Meschi, P.-X. and Cheng, L.T.W. (2002). "Stock price reactions to Sino-European joint ventures." Journal of World Business, 37: 119-126.
- Merchant, H. and Schendel, D. (2000). "How do international joint ventures create shareholder value?" Strategic Management Journal, 21 (7): 723-737.
- Merkle, M. (1999). Bewertung von Unternehmensnetzwerken. Dissertation. University of St. Gall, Switzerland.
- Meyer, M. and Gupta, V. (1994). "The performance paradox." In: Staw, B.M. and Cummings, L.L. (eds.). Research in organizational behavior 16. Greenwich, Conn.: JAI-Press: 306-369.
- Miles, R.E. and Snow, C.C. (1986). "Organizations: New concepts for new forms." California Management Review, 28 (2): 62-73.
- Milward, H.B. and Provan, K.G. (1998). "Measuring network structure." Public Administration, 76(2): 387-407.
- Mohr, J. and Spekman, R.E. (1994). "Characteristics of partnership success: Partnership attributes, communication behavior, and conflict resolution techniques." Strategic Management Journal, 15: 135-152.
- Monge, P.R. and Eisenberg, E.M. (1987). "Emergent communication networks." In: Jablin, F.M., Putnam, L.L., Roberts, K.H. and Porter, L.W. (eds.): Handbook of organizational communication. Newbury Park, Calif.: Sage: 304-342.
- Nathens A.B., Jurkovich G.J., Maier R.V., Grossman D.C., MacKenzie E.J., Moore M, Rivara F.P. (2001) "The Relationship between Trauma Center Volume and Outcome." Journal of the American Medical Association, 285(9): 1164-1171.

- Oliver, A.L. and Ebers, M. (1998): "Networking network studies: An analysis of conceptual configurations in the study of inter-organizational relationships." Organization Studies, 19 (4): 549-583.
- Park, J.-H., Zhang, A. and Park, N.K. (1999). Strategic alliances and firm value: A longitudinal study of the British Airways/USAir alliance. Unpublished Paper. City University of Hong Kong.
- Power, M. (1997). The auditing society – Rituals of verification. Oxford: Oxford University Press.
- Powell, W.W., Koput, K.W. and Smith-Doerr, L. (1996). "Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology." Administrative Science Quarterly, 41: 116-145.
- Provan, K.G. and Milward, H.B. (1995). "A preliminary theory of network effectiveness: A comparative study of four community mental health systems." Administrative Science Quarterly, 40: 1-33.
- Provan, K.G. and Milward, H.B. (2001). "Do networks really work? A framework for evaluating public-sector organizational networks." Public Administration Review, 61(4): 414-423.
- Provan, K.G. and Sebastian, J.G. (1998). "Networks within networks: Service link overlap, organizational cliques, and network effectiveness." Academy of Management Journal, 41 (4): 453-463.
- Provan, K.G., Milward, H.B. and Isett, K.R. (2002). "Collaboration and integration of community-based health and human services in a nonprofit managed care system." Health Care Management Review, 27(1): 21-32.
- Ring, P.S. (1999). "The cost of networked organizations." In Grandori, A. (ed.): Interfirm networks. London and New York: Routledge: 237-262.
- Ring, P.S. and Van de Ven, A.H. (1994). "Developmental processes of cooperative interorganizational relationships." Academy of Management Review, 19: 90-118.
- Saxenian, A. (1994). Regional advantage. Cambridge, Mass.: Harvard University Press.
- Simpson, P.M., Siguaw, J.A. and Baker, T.L. (2001). "A model of value creation – Supplier behaviors and their impact on reseller-perceived value." Industrial Marketing Management, 30: 119-134.
- Spekman, R.E., Isabella, L.A. and Macavoy, T.C. (2000). Alliance competence – Maximizing the value of your partnership. New York: Wiley.
- Staber, U.H. and Sydow, J. (2002) "Organizational adaptive capacity: A structuration perspective." Journal of Management Inquiry 11 (4): 408-424.
- Stuart, T.E., Hoang, H. and Hybels, R.C. (1999). "Interorganizational endorsements and the performance of entrepreneurial ventures." Administrative Science Quarterly, 44: 315-349.
- Sydow, J. (2002). "Network Development by Means of Network Evaluation? – A Case From the Financial Services Industry". Paper presented at the Standing Group on Business Networks, 18th EGOS Colloquium, July 4th-6th, 2002, Barcelona, Spain.
- Sydow, J. and Windeler, A. (1998). "Organizing and evaluating interfirm networks: A structurationist perspective on network processes and effectiveness." Organization Science, 9 (3): 265-284.

- Uzzi, B. (1996). "The sources and consequences of embeddedness for the economic performance of organizations: The network effect." American Journal of Sociology, 61: 674-698.
- Werani, T. (2000). „Der Wert kooperativer Geschäftsbeziehungen in industriellen Märkten.“ Die Unternehmung, 54 (2): 123-143.
- Williamson, O.E. (1991). "Comparative economic organization: The analysis of discrete structural alternatives." Administrative Science Quarterly, 36: 269-296.
- Young-Ybarra, C. and Wiersema, M. (1999). "Strategic flexibility in information technology alliances: The influence of transaction cost economics and social exchange theory." Organization Science, 10 (4): 439-459.