

Evaluating Interorganizational Relationships

Keith G. Provan*

Eller College of Management

University of Arizona

Tucson, AZ, USA 85718

kprovan@eller.arizona.edu

Joerg Sydow

Institute of Management

Free University of Berlin

Germany

sydow@wiwiss.fu-berlin.de

* The names of authors are listed alphabetically indicating equal contribution. Major parts of this paper were written during the sabbatical leave of the second author to the University of Arizona. He is grateful to the Eller College of Management for providing access to its excellent facilities and to the German Research Foundation (DFG) for a generous travel grant.

To appear in: Copper, S., Ebers, M., Huxham, C. and Ring, P.S. (eds.): Handbook of Inter-organizational Relations. Oxford: OUP, forthcoming.

Despite the prevalence of interorganizational relationships, or IORs in organizational life and despite the vast amount of research that has been conducted on the topic (see reviews by Oliver, 1990; Alter and Hage, 1993; Oliver and Ebers, 1998; Baker and Faulkner, 2002; Borgatti and Foster, 2003; Brass, Galaskiewicz, Greve and Tsai, 2004), there is considerable confusion over exactly what outcomes are actually achieved. One major reason for this confusion is simply that evaluation is complex. It is difficult to determine with any precision what specific outcomes result from an IOR and what outcomes might have occurred in the absence of an IOR. The problem is compounded by the prevalence of different theoretical perspectives for explaining IORs. For instance, is the outcome financial as economists would claim, is it enhanced power and resource acquisition capability as resource dependence theorists would claim, or is it increased legitimacy as argued by those adopting an institutional theory perspective? Furthermore, the problem is complicated by questions about the appropriate level of analysis. Who generates and appropriates IOR outcomes? Is it the specific firm engaged in an IOR, the IOR dyad, a more complex network of IORs, or even the hub firm organizing a network of IORs?

Our intent here is not to resolve these fundamental differences in perspective. Nor will this be an exhaustive review of the literature on IOR evaluation, especially since the evaluative aspect is so prominent in many studies of IORs. Rather, we present a general discussion of the rationale for evaluation, and then discuss and categorize the various ways in which IORs have been evaluated over the years so that researchers, but also practitioners, will be able to address the important issue of evaluation in a more systematic way. Finally, we conclude with a discussion of the evaluation process, and how it might best be managed in light of current trends towards a collaborative approach to evaluation and the obvious path dependencies of evaluative practices.

Our work is guided by two basic assumptions. First, we assume that IORs are the product of purposeful choices by organizational managers, even if these choices are motivated in part by pressures to conform. Second, our focus is at the strategic level of the organization. Thus, we do not consider those relationships developed between the lower level participants of multiple organizations to further their own personal or departmental ends.

WHY EVALUATE IORS?

The simplest answer to this question is that evaluation provides a benchmark for judging success, which allows managers to decide if a particular relationship or type of relationship is worth maintaining. It also gives researchers a mechanism for meaningful comparison of IORs, facilitating decisions about whether or not the study of IORs even matters, and if so, what structures or processes seem most likely to contribute to IOR success. In this way, generalizable theory on the topic can be built. Thus, it is reasonable to expect that IORs can and should be evaluated, and that the formation of an IOR will actually lead to some sort of positive outcome.

In part, the question of why IORs should be evaluated depends on whether one considers the needs and perspectives of the researcher, key stakeholders, or the practicing manager. From the manager's perspective, IOR evaluation becomes a task of matching expectations with reality. What does top management expect to get from the IOR? Over what period of time? Have these expectations been met, either based on perceptions of goal accomplishment or on actual achievement using hard data? From a managerial perspective, evaluation procedures are not only used to establish the effectiveness of IORs but to launch, improve, or discontinue them. This action-oriented purpose is reflected in the long-established distinction between summative and formative evaluation (Clarke, 1999). Key stakeholders, like customers and shareholders, will also have expectations for the outcomes

of IORs. Engaging in IORs will most likely incur costs to organizational partners so stakeholders will want to know how new products, better service, and overall performance is affected. At least in the for-profit context, these expectations are likely to favor typical stakeholder demands for short-term results.

Beyond the rationalistic concerns of managers and other stakeholders, evaluation is both fashionable and expected, and for a very good reason. In an “age of evaluation” (Guba and Lincoln, 1989) or, more generally, in an “auditing society” (Power, 1997), there is an increased pressure on practitioners to legitimate their actions, including the formation and maintenance of IORs.

PERSPECTIVES ON EVALUATION

Evaluation has been characterized as “disciplined inquiry” (Cronbach and Suppes, 1969; Guba and Lincoln 1989). Hence, any assessing, auditing, or monitoring activity should be considered as evaluation, at least in a narrow sense, only if it follows formal procedures that are informed by scientific methods of collecting and analyzing information about programs, projects, planned interventions, organizations, IORs and the like. This ‘information’ may concern the structure, the process and/or the outcome of IORs and thus help researchers, as well as practitioners, to establish the value of IORs for an organization, an interorganizational network, or even more encompassing social systems like an organizational field or population.

This form-oriented and method-based understanding of evaluation seems to be widely shared not only among evaluation researchers (c.f. Clarke, 1999) but also among those interested in evaluating dyads or networks of IORs (Provan and Milward, 2001; for a review see Sydow and Milward, 2003). Nonetheless, a considerable debate continues about the appropriate scholarly foundations of evaluation and evaluation research. This debate is

centered on paradigm choice, determining the most suitable ontological, epistemological and methodological path for pursuing evaluation as a disciplined inquiry.

Positivist and Constructivist Paradigms

Though both evaluation research and research on IORs make use of a broad range of diverse paradigms, the debate between positivists and constructivists is certainly among the most pronounced and consequential. Positivists basically believe that organizational outcomes are both predictable and explainable and that these outcomes can be determined through use of appropriate scientific methods. The ontological assumption here is that there is an objective reality 'out there', existing independently of human perception and interpretation. Given the appropriate methodology, which is developed according to the standards set by the natural sciences, it should be possible to describe and explain this reality independently of the researcher, as is possible in the natural sciences (Clarke, 1999: 39). Positivists believe that this perspective should also be valid for evaluation research, and by extension, for research on IORs. For evaluating IORs, the positivist view is best illustrated by the abundant structural approaches that focus on objectively detecting allegedly stable patterns of interconnections and then, their behavioral and economic consequences.

Evaluation research started off in this positivistic tradition, now referred to as the first three generations of evaluation (Guba and Lincoln, 1989). Using this approach, an objective evaluation of a program, policy or practice is considered to be feasible, given a clear ex ante understanding of what constitutes a successful program, policy, or practice. The longstanding dominance of this paradigm in evaluation research, however, eventually led to criticism during the 1980s that the approach lacked creativity and contextual sensitivity. In response to this criticism, the positivist approach was finally supplemented, but not substituted, by a constructivist paradigm (Clarke, 1999: 38).

This more recent paradigmatic shift in evaluation research, often referred to as a switch to “fourth generation evaluation” (Guba and Lincoln, 1989), puts not less, but a different emphasis on how evaluation is conducted as disciplined inquiry. Constructivists believe that there is no one reality that can be established objectively, but rather, multiple, subjective, and fluid realities. In consequence, they acknowledge that evaluations are based on systematically ‘uncertain’ data that have multiple, contested or even unclear purposes that may be used to further the interests of some actors at the costs of others, and, hence, be considered as politically charged processes of exercising power and control. These realities can be best documented and, finally, understood by using ‘thick’ descriptions that require a method very different from structural or quantitative methods. Nevertheless, the claim for evaluations to be carried out as disciplined inquiries stands.

For evaluating IORs, we follow Clarke (1999: 40-41) in his quest for a rather strict separation of “the debate over the supposedly distinct and opposing methodological paradigms from the debate about the relative advantages and disadvantages of two types of research methods.” Evaluators should be aware not only of the full spectrum of research methods and the assumptions behind the positivist and constructivist approaches, but also they should have insight into how to choose between the two when conducting an evaluation. Evaluators of IORs should also know when, and under what circumstances, the two approaches can be combined in a single study (see Hassard, 1991, for an example).

Normative and Praxis Approaches

A second, related debate focuses on the question of whether evaluation research should simply describe and document actual evaluation practices, or rather, inform how evaluation should be done in a normative manner. Since surprisingly little is known about the actual praxis of evaluating IORs, we advocate an approach that builds on a descriptive

understanding of how IORs have actually been evaluated, both by researchers and in praxis (cf. Sydow and Milward, 2003).

Strangely enough, despite the economic importance attached to IORs and the obvious need to legitimize them in what has become an 'auditing society', IORs still do not often seem to be subject to a systematic evaluation by practicing managers (Bamford and Ernst, 2002). This is quite surprising given the importance and prominence of IORs, including the need to select and reselect interorganizational partners. Even instruments developed for practical use in supply chains and networks, like variants of the balanced scorecard (Kaplan and Norton, 1996), do not seem to be widely accepted for evaluating IORs. If IORs are evaluated, the procedures followed tend to be organization-focused, ad hoc, informal, and diverse. Empirical studies of actual IOR evaluation practices illustrate this clearly. Child and Faulkner (1998), for example, report on the evaluation practices of half a dozen joint ventures and collaborations and conclude that the partner's initial contribution to the alliance is mostly evaluated, if at all, using quite simple, informal, and inexact calculations. What is more, the specific evaluation approaches used were quite diverse, depending not only on the type of alliance, but also, on the partners' attitudes toward alliances and the way in which partners expected their relationship to be managed and evolve over time.

In another study, Sydow (2004) investigated a network of seven, and later twelve, medium-sized insurance brokers over a period of more than ten years. The complexity and formality of the evaluation procedures used by the brokers varied significantly over time. Specifically, formal evaluations were applied only infrequently in both earlier and later stages of network development. During the middle stages several rather simple and ad hoc evaluation methods were used.

In yet another study, the evaluation practices of a managed care network of more than 40 health and human service providers serving the mentally ill in one city was investigated. Provan, Isett, and Milward (2004) found that the network administrative organization focused primarily on measurable, organization-centered indicators, like speed of client intake and maintaining treatment plans, which were not necessarily closely tied to the network activity that was supposed to have been assessed.

In sum, those few studies that have reported practice-based approaches to IOR evaluation (see also Tyler and Steensma, 1999) reflect the fact that these approaches tend to be organization-focused, ad hoc, informal, and diverse in terms of the specific measures used. Therefore, they also document vast opportunities for methodological improvement. In sharp contrast to these purposefully descriptive, praxis-oriented studies, almost all other evaluation studies of IORs follow a more normative, theory-based approach. For that reason, the following discussion of relevant constructs and levels is almost exclusively based on this type of study, which predominantly follows the positivist paradigm.

RELEVANT CONSTRUCTS AND LEVELS

IORs have been evaluated by researchers in many different ways using a variety of constructs and at different levels of analysis. Because so many specific approaches and measures have been utilized by researchers, it is difficult to generalize about what constitutes an effective IOR or even how IOR evaluation should be conducted. If real progress is to be made in understanding what IORs can and cannot accomplish, researchers must be able to identify when certain measures and approaches might be more appropriate than others, rather than selecting measures and approaches based on availability of data or for reasons that may be unconnected to any particular theoretical rationale. A thorough review and synthesis of all the research done on IOR evaluation is beyond the scope of this

chapter. However, a more narrow examination of a range of IOR studies should help to provide a good understanding of the ways IOR evaluation has been done.

Our method here is to explore the various approaches that have been used to evaluate IORs, organizing them in several ways. First, we organize the approaches into the three commonly used categories for assessing effectiveness developed by Donabedian (1980): structure, process, and outcomes. These three categories are sequential, both in terms of time and complexity of evaluation, and each provides data and an understanding of effectiveness that is somewhat different. This categorization also implies that evaluating IORs, in *praxi*, has to consider the trade-off between more input- and more output-oriented measures of effectiveness. While practicing managers generally seek output-oriented indicators, these are often not available. Moreover, such indicators do not necessarily reflect system improvement, which is typically required in the case of formative evaluations. Under these circumstances, more input-oriented indicators are often preferable, even if their relationship to outcome indicators may be unclear.

Given the very different objectives, occasions, conditions, and approaches for evaluating IORs, the three categories we use thus provide a reasonable way of organizing thinking about IOR evaluation. It is important to note, of course, that the sharp distinction between categories and the strict sequentiality implied in our model are not entirely realistic, especially in light of the recursive interactions emphasized by a constructivist perspective.

Within each of our categories, we present and discuss evaluation approaches at both the organizational and network levels. We also demonstrate how each category of measure reflects one or more of the various theoretical perspectives that have been used to explain IORs. Though most IOR studies still address the organizational level, focusing on the organizational effectiveness attributed to IOR involvement, we are not alone in our

conviction that the network level of evaluation, or what has been referred to as network effectiveness (Provan and Milward, 1995), will increasingly complement work done at the organizational level or even at other levels of analysis (e.g. field or department). A complete IOR evaluation approach might well call for consideration not only of several structural, process and/or outcome indicators, but also measurement of these indicators at both the organizational *and* network (and other) levels. Such reasoning is very much in line with recent claims for a multi-level perspective on IORs in general, and on networks in particular (Brass et al., 2004).

Structural Indicators

Structural indicators of IORs are those that focus on the connections between organizations. Most cross-sectional research that addresses IOR evaluation utilizes the structural properties of the relationship as an independent variable. The assumption is that relational structure, which itself is an input-oriented measure of organizational or network effectiveness, leads to various outcomes. This is the basis of much of the research on network embeddedness. This work examines the extent to which organizations are structurally connected to the larger social system in which they operate, which in a “society of organizations” (Perrow, 1991), often consists of other organizations. The nature of these links is typically considered as long-term and trust-based, rather than resulting from a short-term economic calculus. The implicit assumption is that some ideal level of structural embeddedness is critical for effective performance (Uzzi, 1997; Rowley, Behrens and Krackhardt, 2000) and other outcomes, like charitable contributions (Galaskiewicz, 1997).

At the most basic level, a structural indicator simply reflects the existence of a link. Structure may also refer to the type of IOR, such as alliance versus joint venture (Gulati and Singh, 1998), dyadic versus multi-party joint ventures (García-Canal, Valdés-Llaneza and Ariño, 2003), the organizational level at which the link occurs (Bolland and Wilson, 1994),

and the variety of types of ties between partners, such as business versus friendship versus information sharing (Human and Provan, 1998). These more complex structural indicators can be utilized to evaluate organizations and interorganizational networks, even when only cross-sectional data are available. For instance, the existence of multiplex ties between partner organizations can be used as an indicator of network strength and likely sustainability (Provan et al., 2004), especially when compared with IORs based on only a single type of link.

When utilizing longitudinal data, structural indicators potentially become much more valuable for IOR evaluation. For instance, work by Gulati (1995) examined the change in type of tie between partner organizations. He found that formal, equity-based ties were important as a testing ground for firms trying to work together. The experience gained from these previous ties then led to a shift in the structure of the relationship, from formal and equity-based, to more informal and trust-based. Following on this logic, an evaluation study that detected an abundance of more informal, interpersonal ties would indicate an advanced, rather than an early level of network evolution. This conclusion does, however, contradict the intuitive assumption that the development of IORs starts with informal, trust-based personal relationships that evolve into more formal, system-level relationships, or that the two types of relationships often co-exist (cf. Isett and Provan, 2005).

Structural measures often used for evaluating interorganizational networks, especially as they evolve, include changes in both density and multiplexity, as they develop from early formation to maturity (Human and Provan, 2000; Provan et al., 2004; Owen-Smith and Powell, 2004). *Density* is usually defined as the number of actual relationships in a network divided by the maximum number of ties that are possible. The point here is that as networks develop, effectiveness depends in part on building connections among organizations that either already are, or should be involved with each other in order to

accomplish both organization-level and network-level non-structural outcomes. In some cases, however, dense networks have been found to be associated with lower effectiveness than networks characterized by less density (Granovetter, 1973; Burt, 1992; Provan and Milward, 1995). *Multiplexity* refers to the number of different kinds of exchanges or different types of relationships between two or more actors. Multiplex relationships are often considered as more interactive, trustful, and stable (Kilduff and Tsai, 2003:33). Thus, increased multiplexity of an IOR would likely mean that the relationship would be stronger and more enduring than an IOR based on a single type of tie, which if broken, would terminate the relationship. Other structural constructs like centrality, reciprocity, or fragmentation may also be used to evaluate IORs, especially from a network perspective. All these indicators acquire a process quality if measured over time.

Process Indicators

Because performance-based outcomes are often difficult to obtain and assess, and because structural indicators often have limited utility as a dependent variable, process indicators are frequently utilized by researchers attempting to evaluate IORs. When evaluating individual organizations, process indicators typically focus on those actions and activities (rather than structures) that are likely to result in effective outcomes. They may also be viewed as first-order outcomes, whereas actual performance indicators may be seen as second-order outcomes. Following Donabedian (1980), process indicators refer to whether or not the appropriate processes, like learning, training, and methods of task accomplishment, are being followed. For instance, in health care, while patient cure and symptom-free recovery may be ideal end states, measurement may be problematic. Thus, process indicators are used, such as on-going training for nurses or developing and conforming to standardized procedures for disease management. Most organizational researchers would probably agree that process indicators are a critical component of IOR

evaluation, although these indicators typically represent only a partial rationale for justifying the formation of an IOR. While it may be somewhat difficult to specify exactly what measures are process indicators as opposed to outcomes, our review of the IOR literature suggests several; namely, learning, trust, fairness, legitimacy, and power. While these indicators may be viewed by some as sufficient reasons for developing an IOR, we argue that they best represent important intermediate indicators of IOR success.

Learning has been viewed as an important consequence of IOR involvement. By working closely with other organizations, a focal organization can develop new knowledge and information in a wide range of areas. This learning is often indirect and implicit, as when relationships built around one set of needs results in unintended learning in another area. Such learning is often the basis of mimicry (DiMaggio and Powell, 1983). Of course, learning may also be far more strategic, directly related to the reason for developing the IOR in the first place, such as forming an alliance to learn more about competitors, new products and services, or even administration (Hamel, 1991; Larsson, Bengtsson, Henriksson and Sparks, 1998). Thus, while learning certainly encompasses innovation and they are closely related, learning is much broader in scope.

Trust has been the focus of a large amount of research on IORs, especially since attention over the past 15 years has turned to the study of networks. Trust is a key element of “bonding” social capital, and is generally seen as being both critical for holding a network together and as an outcome of network involvement (Adler and Kwon, 2002). Although trust has proved a difficult to measure and the concept can be interpreted in a variety of ways (Rousseau, Sitkin, Burt and Camerer, 1998), its existence seems critical for IOR and network maintenance and success. It is a process indicator for IOR evaluation because it is a necessary condition for enabling organizations and their managers to work together in ways that can ultimately produce desired outcomes (cf. Zaheer, McEvily, and

Perrone, 1998). Few organizations in business seem likely to form IORs with the intention of creating trust as an outcome in its own right. Nonetheless, under the somewhat vague term of “community capacity building” (Chaskin Brown, Venkatesh and Vidal, 2001), networks of organizations in health and human services have been formed with the explicit goal of building trust as a way of ensuring that as-yet unidentified problems and needs can be addressed at some future time.

Fairness (or equity) is a process indicator that, like efficiency, is closely related to trust and assumed to play an important role in building sustainable IORs (Ring and Van de Ven, 1994). The broad literature on justice or, in more operational terms, fairness, usually distinguishes procedural from substantive or distributive fairness (Greenberg 1987). While the former is a process quality in a very narrow sense, the latter is more concerned with a fair or just distribution of the final value created in an IOR via negotiations. The still limited empirical research on interorganizational fairness focuses mainly on distributive fairness (e.g. Scheer, Kumar, and Steenkamp, 2003; Schreiner, 2005). According to this research a distribution of interorganizational value is considered as just or fair if the actors involved in the IOR receive benefits proportional to their contributions. Subjective needs and expectations influence this fairness perception, and positive inequality is assumed to have less problematic consequences for IORs than negative inequality. Since fairness depends upon subjective perceptions, it may simply be restored by re-evaluating the balance of the benefits and investments of a focal organization relative to its linkage partners, without changing the facts.

Legitimacy is another process indicator that is relevant for IOR evaluation. The issue of legitimacy of organizational action and form is a critical component of neoinstitutional approaches that define legitimacy as “a condition reflecting perceived consonance with relevant rules and laws, normative support, or alignment with cultural-cognitive

frameworks” (Scott, 2001: 59). Thus, legitimacy is considered to be a symbolic resource that is not possessed by an organization or network but is constituted in its relationships with relevant stakeholders. Similarly, Suchman (1995: 574) defines legitimacy as “a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs, and definitions.” Such systems may be anchored in the network, the organizational field, or the wider society that surrounds an organization or interorganizational network.

Institutional theorists often argue that legitimacy is an end in itself (Scott, 2001). But since our focus here is on IOR involvement as a strategic decision, considering legitimacy as a process indicator is appropriate. Legitimacy is critical to IORs internally, providing value and credibility to the relationship itself, thus encouraging involved partners to continue to work together. Legitimacy can be important externally as well, especially when a purpose of the relationship is to deal with outside groups on a collective basis. Quite often internal and external legitimacy do not go hand in hand, and are loosely coupled at best. This dilemma is highly relevant for evaluating IORs. While some evaluation procedures may comply with external conventions (e.g. international accounting standards), they may not be helpful in managing IORs internally (and *vice versa*). In practice, this implies that sometimes different, and not necessarily compatible, procedures may need to be used to address different legitimacy requirements.

While the topic of legitimacy has received a great deal of attention in recent years, work on the topic has focused nearly exclusively on the organizational level of analysis. The limited empirical work that has been done on IORs and legitimacy (Human and Provan, 2000) has, however, clearly demonstrated the importance of the construct for explaining network success and failure. The importance of legitimacy as a process indicator of the

effectiveness of IORs is also illustrated by the debate about codes of conduct and their role in organizing supplier networks, particularly in the shoe and clothing industry (Fichter and Sydow, 2002).

The final process indicator we will discuss is *power*. Power is a key consideration for resource dependence theorists (Pfeffer and Salancik, 1978), who argue that the formation of IORs is a critical way for organizations to enhance their power relative to others in their environment (Provan, Beyer, and Kruytbosch, 1980). Power has generally been defined as the capacity of one social actor to influence the actions and behaviors of others in intended ways. It is based on relative dependencies (cf. Emerson, 1962), especially concerning the control of resources (Giddens, 1984). Although power has often been used by network researchers as an outcome in its own right (Burkhardt and Brass, 1990; Oliver and Ebers, 1998), we consider power to be a process indicator for purposes of IOR evaluation. It is the outcome of the acquisition of power through a network or other form of IOR that subsequently increases capacity to attract scarce resources and to enhance competitiveness. This is especially true when power in an IOR is considered as functional and legitimate, as it is the case in many strategic networks (Sydow and Windeler, 1998).

Outcome Indicators

Consistent with early discussions of organizational effectiveness based on goal accomplishment (Perrow, 1961; Parkhe, 1993; Ariño, 2003), IORs can also be evaluated based on what they set out to achieve and eventually do achieve. We take a narrow view of outcomes, focusing only on innovation, financial performance, non-financial performance, and survival. In contrast to most structural and process indicators, these outcome indicators are often specified and determined by societal institutions such as regulatory bodies and national and international accounting standards. Thus, it may seem that managers have little flexibility when responding to these outcome demands. However, as noted by Oliver (1991)

and others, even these outcome indicators are subject to organizational and interorganizational influences and can be changed if collective action is organized. Moreover, the meaning and legitimacy derived from these outcome indicators is subject to at least some interpretation and modification, within as well as between organizations (cf. Sydow and Windeler, 1998).

Innovation has been viewed by many as an important outcome indicator for development of cooperative IORs, especially in those industries where knowledge plays a key role, change is rapid, and competitiveness is high. Much recent work in this area has focused on the biotechnology industry (Powell, Koput, and Smith-Doerr, 1996; Owen-Smith and Powell, 2004), with a focus on the introduction of new patents and new products. But the beneficial effects of IOR involvement for innovation has also been examined in industries as diverse as women's dresses (Uzzi, 1997), chemicals (Ahuja, 2000), and computer technology (Browning, Beyer and Shetler, 1995). One type of IOR that is considered to be of particular importance for innovation is the establishment and maintenance of relationships with key customers. Close ties to so-called "lead users" (Von Hippel, 1988), for example, are most likely to trigger product innovations, though IORs to other types of customers may also be a valuable source for both product and process innovations (Danneels, 2002). As an outcome measure, innovation (or innovativeness) *per se* is assumed to be an important indicator of the success of certain types of IORs. We take a more conservative view, considering innovation to be on the borderline between process and outcome indicators, since the extent to which innovation actually leads to improved organizational financial success and survival is not always clear.

Performance is something of the Holy Grail of IOR research. Most efforts to evaluate IORs either explicitly or implicitly discuss some aspect of organizational performance. While performance can be measured, there are two basic problems. First,

which measures of performance should be considered? Second, to what extent is an organization's performance attributable to its involvement with other organizations? The second question is difficult to answer, especially in the absence of a well-controlled experimental design of the sort that is mostly not attainable using field research methods. Nonetheless, the question can be answered to some extent by considering a combination of structure, process, and outcome measures. Specifically, in the absence of positive findings for many (but not all, as noted above) structural and/or process indicators of the IOR being studied, it seems unlikely that performance gains can be attributable to IOR involvement. Conversely, positive structural and process indicators would provide some evidence that conditions are in place for a positive impact of IOR involvement on organizational performance. Under these conditions, if outcome-based performance indicators are positive, it would be reasonable to conclude that the IOR had a major impact.

The first question, about types of performance, is no less challenging. We break performance down into two basic categories – financial and non-financial, although we recognize that distinguishing between output and process performance for IORs may also be useful (Ariño 2003). Financial indicators have been used in many IOR studies and include such measures as sales growth (Lee, Lee, and Pennings, 2001), hotel occupancy rates (Ingram and Roberts, 2001), firm growth (Powell et al., 1996), market share (Rowley et al., 2004), profitability (Geringer and Hebert, 1991), stock market value (Kale, Dyer, and Singh, 2002), relational rents (Dyer and Singh, 1998), transactional value (Zajac and Olson, 1993), and revenue growth (Baum, Calabrese, and Silverman, 2000). Some of these measures are theoretically well-reasoned, but difficult to operationalize. This is particularly true for relational rents that are derived from the emerging relational view of the firm. Relational rents are defined as “profits jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint

idiosyncratic contributions of specific alliance partners” (Dyer and Singh, 1998: 662). Other performance indicators, like occupancy rates, sales growth, or market share, are of a rather pragmatic nature, easy to measure but less indicative of the specific value of a single IOR or network. In general, researchers have found a positive relationship between IOR involvement and financial performance. However, the exact impact of the IOR on outcomes is often difficult to determine, and findings typically vary depending on the specific type of relationship structure being considered (i.e., strong versus weak tie, central versus peripheral, etc.) and the performance indicator used.

A performance measure of pivotal importance in IOR research is efficiency, emphasized by economic approaches in particular. Efficiency is generally defined as an input to output ratio but measured in a variety of ways. If distinguished from effectiveness at all, efficiency focuses on the question whether and with what input a given objective has been achieved, while effectiveness addresses whether or not the ‘right’ objectives are pursued (Barnard, 1938). More precisely, micro economics focuses on production (cost) efficiency as it may be affected by IORs (by less adversarial supplier relationships, for instance; see Sako, 1992). Institutional economics concentrates instead on the relative coordination or transaction costs of different organizational arrangements (Williamson, 1991), including the transaction (cost) efficiency of an IOR or, as referred to by transaction cost theorists, a ‘hybrid’ organizational form. The behavioral theory of the firm, in sharp contrast, focuses on goal (attainment) efficiency in a more general way (Cyert and March, 1963); for example, as perceived by the organizations that are involved in a joint venture (García-Canal et al., 2003).

What is common to all these measures of efficiency is that they relate the benefits of IORs to the costs they incur. Taking the cost of establishing, maintaining, and even ending IORs into account is extremely important as will be discussed in more detail below. Such

costs include not only increased time and resources spent on coordination efforts but potential loss of organizational autonomy, commitment to a certain path of development, diffused responsibility for outcomes, and non-recoverable investments, among others. In consequence, it should not be assumed that more involvement in IORs is necessarily better, but that cost considerations instead, lead to a curvilinear, reverse U-shaped relationship. Too little IOR involvement signals isolation and a lack of embeddedness with buyers, suppliers, and others in the organizational field. Too much IOR involvement is likely to result in excessive IOR maintenance time and costs, plus the problems of being over-embedded (Uzzi, 1997). While the costs of over versus under-involvement will, no doubt, vary across organizations and industries, the basic curvilinear pattern is likely to hold.

Non-financial performance indicators include such measures as quality of product or service, customer satisfaction, and faster response times (cf. Zaheer et al., 1998), as well as broad indicators of overall economic development (Saxenian, 1994). While some of these indicators are used by researchers of business firms, especially in service industries, many more are used to assess IORs in public and nonprofit contexts. In addition, much of the work in this area has focused at the network level, rather than at the organization level. For instance, Provan and Milward (1995) found that more centrally controlled networks for provision of mental health services were more effective than networks that were highly integrated, but decentralized. Overlapping cliques of providers were also found to result in more effective client outcomes than when cliques were more fragmented (Provan and Sebastian, 1998). In business, work on industrial districts and economic clusters has found evidence that increased network activity among organizations has a positive effect on economic development and employment (Saxenian, 1994; Brenner and Fornahl, 2003).

Survival is, of course, a very long-term outcome indicator. Not surprisingly then, most of the research on organizational survival has been conducted by population

ecologists. These researchers tend to downplay the strategic actions of individual organizations to form relations with others as a survival mechanism. Nonetheless, survival has been found to be enhanced by the development and maintenance of IORs (Wiewel and Hunter, 1986; Baum and Oliver, 1991), even though the survival rate of specific types of IORs, such as joint ventures, is often not very high (Park and Ungson, 2001, for a review). Thus, the mere formation of an IOR, which is a structural indicator, cannot necessarily be viewed as a viable way of assessing IOR effectiveness on the outcome side. For example, some types of IORs, especially joint ventures and strategic alliances, are only set up for a limited period of time. Thus, while their termination may indicate failure from a structural perspective, their termination may actually be the result of the effective accomplishment of desired, but short-term performance outcomes (Hennart, Dong-Jae and Zeng, 1998).

Figure 1 summarizes the key structural, process, and outcome indicators we have discussed (in reverse order) and relates them to the relevant theoretical perspectives that have been used to explain IORs. For the particular definition of each construct, its assumed relevance and causal embeddedness depend on the economic, organization or network theory used to interpret and understand the construct.

Insert Figure 1 here

Interrelationships Between Indicators and Across Levels

Almost all the indicators outlined in the figure can be used for evaluating IORs at both the organizational and network levels of analysis, although the specific measures used may differ somewhat. For instance, one can focus on the impact of IORs on the survival and legitimacy of organizations, just as one can do for interorganizational networks, though empirical data on the latter has been rare and difficult to obtain (see Human and Provan,

2000, for an exception). Innovation, learning, and other process indicators can also be measured at each of these two levels of analysis, although again, data collection and even interpretation are likely to be more problematic at the network level. Finally, structural indicators are relevant for evaluating IORs at both organization and network levels, although here, the differences are perhaps greater than for process and outcome measures. For instance, examples of organization-related structural measures would be degree centrality and multiplexity, while other structural measures, like density, betweenness and closeness centrality, and structural holes must be measured and interpreted at the network level. The point here is that despite the usefulness of a broad range of structural, process, and outcome indicators that can be utilized to evaluate IORs in general, specific indicators need to be carefully selected. While some may be relevant for both levels, or even for levels 'below' the organizational and 'above' the network level, others may be far more appropriate for evaluation of IORs at the organization level, but not at the network level, and vice versa. Which indicator is appropriate depends much on the research question and the purpose of the evaluation, as well as the theory behind it.

Interrelationships also occur, and in fact, are likely, among IOR evaluation indicators. We have presented each indicator as though they were separate, although in practice, it is often difficult to disentangle the effects of one on the other. For instance, outcome measures of performance, including resource acquisition, financial performance, efficiency, and survival certainly contribute to the legitimacy of IORs. However, they are neither a sufficient nor a necessary condition to explain why IORs exist, at least not if considered from a neo-institutionalist perspective (Scott, 2001). Like all constructivist approaches, this perspective accounts for the possibility that legitimacy may precede more performance oriented measures of IOR effectiveness at either organizational or network levels. It may also be that for some types of IORs, legitimacy occurs independently of

performance, especially when the relationship itself is costly. The same sort of interrelationship (or absence of one) is also likely among other IOR evaluation indicators, including innovation and learning, trust and fairness, and structure, especially regarding their tie to more performance-based outcome measures.

Considering Cost and Risk

Even where there is consensus on the importance of IOR evaluation and the methods to do it, evaluation indicators themselves only provide a partial picture of actual IOR effectiveness. In particular, the process of forming and maintaining an IOR is itself time-consuming and costly, in terms of human resources, capital, and opportunity costs (Ring, 1999). While it is beyond the scope of this chapter to introduce a full discussion of IOR costs and how they should be weighed when assessing IOR effectiveness, it is important that they be considered by both researchers and practitioners as part of the evaluation process.

Besides the more obvious cost of time and resources, IOR partners also incur costs through the potential loss of decision autonomy (cf. Pfeffer and Salancik, 1978; Provan, 1983). Since strongly connected organizations are characterized by outcome interdependence, decisions made by one member of an IOR will affect the other, sometimes in ways that are detrimental to performance. In this way, positive structural and/or process indicators may actually have a negative impact on outcome measures. With regard to non-recoverable investments it should be noted that long-term and trusted IORs are particularly likely to require transaction- or relation-specific investments that cannot fully be recovered for use in other relationships (Håkansson, 1987; Williamson, 1991). These investments alone may commit an organization, or even a network of organizations, to a certain path of development that cannot easily be abandoned, though management may recognize that it leads into a 'lock-in' (Arthur, 1994).

A final example of costs that potentially outweigh the benefits of an IOR is the diffused responsibility for outcomes that is typical for decentralized forms of organization in general and for interorganizational relationships in particular. The coordination costs of IORs are especially apparent when attempting to build the multiple interorganizational relationships that characterize those forms of networks that require multilateral cooperation among many organizations. Despite their potential benefit to involved organizations (Browning et al., 1995; Human and Provan, 2000), these network relationships are especially complex to coordinate and manage. As a result, costs may outweigh benefits, especially measured using outcome indicators, for many years. Overall, the point here is that the costs of establishing and maintaining an IOR must be considered in any evaluation effort and balanced carefully against more positive evaluation criteria.

Outcome-oriented measures like efficiency and effectiveness, or financial and non-financial performance, are sometimes supplemented, both in practice as well as in research, by risk considerations. Though cooperative IORs are often used in order to reduce organizational risks (Oliver, 1990; Alter and Hage, 1993), they are themselves risky. Das and Teng (1996), in particular, refer explicitly to IORs when they discuss the difference between relational and performance risk, both of which have to be considered in a risk-sensitive evaluation of IORs. Relational risk relates to the question of whether organizations establish and maintain a truly cooperative IOR, where such process indicators as trust, learning, and fairness take place with little fear of opportunism. Performance risks have to do with the likelihood of achieving the performance, or outcome objectives of a joint venture or another type of strategic alliance, given full cooperation. Das and Teng suggest that equity-based IORs (as to be found in partial ownership agreements and joint ventures) are adopted to control relational risks, while relationships that do not involve any equity transfer or creation of a new entity are established in order to minimize performance risks.

MANAGING THE EVALUATION PROCESS

Deciding on appropriate indicators and level of analysis are only two among many decisions to be taken by researchers or practitioners in evaluating IORs. Especially for practitioners interested in learning whether or not their IOR efforts have been useful, the evaluation process also involves a number of other decisions. These include the identification of suitable opportunities, influential stakeholders, relevant evaluation questions, and appropriate time horizons; the choice of appropriate benchmarks for comparison of evaluation findings; decisions concerning the most suitable methods of data gathering and analysis; the format and process for ultimately presenting the results of any IOR evaluation back to stakeholders; and a determination of who should play the role of the evaluator and to what extent those who are evaluated should actively participate in the evaluation process.

Our discussion here concerning management of the evaluation process only touches the surface of these practical problems, because there still is a significant lack of “theory of evaluation” (Clarke, 1999) in this method-driven field, not to mention the complete absence of a theory of evaluating IORs. However, many insights for managing the IOR evaluation process can be gained by drawing an analogy to designing research projects. As stated at the beginning of this chapter, evaluation is a disciplined inquiry and, as such, an undertaking that differs from other types of research more in terms of intention (i.e., establishing the effects of IORs or to improve them) rather “than in the nature of its design or the method of its execution” (Clarke, 1999: 2). As noted earlier, however, much depends on the paradigm followed when conducting evaluation research.

Experimental and Quasi-Experimental Designs

The ideal design for an evaluation study is an experiment. In particular, the randomized experiment has often been referred to as the ‘flagship’ or ‘gold standard’ of

evaluation research that, because of its very design, insures internal validity and allows causal inferences (Clarke, 1999; Rossi, Lipsey and Freeman, 2004). However, in real-life settings like organizational and interorganizational arrangements, conducting such randomized experiments is seldom feasible because it is too costly and time-consuming, difficult to control over a specified period of time, or ethically problematic (Clarke, 1999: 45-47). In addition, organizational managers are unlikely to be willing to have their decisions guided or influenced by the needs of researchers to establish ideal experimental conditions.

For these reasons, nonrandomized quasi-experimental designs are recommended as the best alternative to randomized experiments for conducting evaluation research (see Clarke, 1999: 47-54, and Rossi et al., 2004: 237-264, for details). For evaluation research on IORs, this approach could mean several things. First, researchers could conduct cross-sectional evaluation of IOR effectiveness based on data collected from organizations (or networks) after a systematic site selection process (cf. Provan and Milward, 1995). An alternative to this approach that is commonly used in IOR research at the organizational (rather than network) unit of analysis is to collect data from samples of organizations operating within the same narrowly defined industry or tightly bounded organizational field.

Second, researchers could examine the impact of IOR activity on structure, process, and/or outcome indicators longitudinally for the same set of organizations (cf. Gulati and Gargiulo, 1999; Human and Provan, 2000; Owen-Smith and Powell, 2004; Provan et al., 2004). Given a large enough sample, various control variables can be introduced in an attempt to isolate the impact of IOR activity. Practitioners could also evaluate the impact of IOR activity on their own organization over time, even though statistical controls would obviously not be possible.

What is least helpful for making meaningful progress in the study of IORs are research methods that rely on cross-sectional analysis of convenience samples that cross industry or organizational field. These studies can provide useful general data on relationships between IORs and evaluation indicators, but the absence of causal links and the variance in organizational mission often makes it difficult to determine from these studies what the impact of an IOR really is. In general, progress in developing a better understanding of IORs is most likely conducting evaluation research based on quasi-experimental designs. While this approach also has its shortcomings, it provides a reasonable compromise for IOR researchers.

Methods: Towards Collaborative Evaluation?

Over the years, more responsive, participative or collaborative approaches to evaluation have become popular (Guba and Lincoln, 1989; Clarke, 1999; 17-21). These approaches depart even more from the ‘gold standard’ of evaluation studies, the randomised experiment. They consider individual as well as corporate actors not as ‘objects’ of evaluation studies that are conducted by a distant evaluator, but as subjects that take an active part not only in data gathering, but also, in data analysis. This could even extend to the development of evaluation questions and the design of the evaluation study, including establishing the appropriate level of analysis and selecting suitable structure, process, and output-oriented indicators.

The reasons for this trend towards more participative and collaborative approaches are many, but the most important one is certainly that this kind of evaluation approach is more likely than others to have an immediate (formative) impact on the development of the system, program or relationship in question. That is, from the practical perspective of organizational managers involved in an IOR, the concern for utilizing an evaluation study’s results for purposes such as ‘improvement’ of the system, program, or relationship, is

established first and drives the evaluation process. Involvement of organizational actors may also be helpful to better capture the political context of evaluations and, thereby, further enhance the utilization or action orientation of the study's results. In the case of broader collaborative arrangements such as interorganizational networks, some kind of collaboration in setting up a joint evaluation study seems almost unavoidable. In consequence, evaluators have to understand the functioning of networks, not only of (isolated) organizations.

Evaluation as a Path-Dependent Process

One aspect of particular importance in managing the evaluation of IORs is the insight that evaluation procedures are usually path-dependent. The notion of path dependency was originally coined in economic studies of technology (David, 1985; Arthur, 1994) and goes well beyond the truism that history matters. Path dependency is defined as a self-reinforcing process that is triggered by a small or big event, gains momentum due to increasing returns, learning, and coordination effects, and then leads to inertia, persistence, and finally, a 'lock-in'. In the case of an IOR, it may be that a particular evaluation method that was chosen to respond to demands made by a stakeholder group, becomes institutionalized, or 'locked in', even after the stakeholder demands have ended.

Probably more than other managerial tasks, evaluation procedures should be considered as being potentially path-dependent. Once a certain procedure has been chosen, switching to an alternative becomes less likely, especially since the evaluation procedure will generally have required significant organizational investments and as it becomes commonplace due to frequent use. In addition, the value of a certain procedure increases once it has produced data that are accepted by organizational members as legitimate and can be used for comparison and improvement. As a consequence, the direction, or path chosen by managers or researchers for evaluating IORs is likely to be continued, even though the

original methodology chosen may be sub-optimal. The path dependency is not only likely to occur with regard to a particular procedure or method, but also with respect to the paradigm underlying the procedure or method chosen. “Making the switch” (Guba and Lincoln, 1989: 74-78), from a positivist to a constructivist paradigm for example, may be particularly difficult for researchers as well as for practitioners, given the common belief in the ‘scientific’ method and the (alleged) objectivity, validity, and reliability of its methods.

Nevertheless, from time to time an “evaluation of evaluation” (Clarke, 1999: 13-14) seems advisable that does not restrict itself to the consideration of the benefits and cost of the evaluation process (including its opportunity costs), but looks instead into possible path dependencies that may be sub-optimal. Such a meta-evaluation would increase the chance of questioning common and almost routinely applied evaluation procedures and paradigms. The consequence of detecting the eventual path dependencies of IOR evaluation practices would be to ‘unlock’ the previously chosen path and create a new path that may more closely match the needs of the organization or the interorganizational network.

CONCLUSIONS

This chapter has been an attempt to provide an overview of how interorganizational relationships have been evaluated, drawing on the perspectives of both researchers and practicing managers. The vast majority of research on IOR evaluation has been positivist in orientation, and our discussion here has reflected that dominant perspective. However, we have also discussed constructivist views, thereby including the subjective, political and fluid aspects of organizational life and, thus, attempting to broaden how researchers might ultimately think about IOR evaluation and how IORs might best be assessed.

It seems obvious to conclude that IORs are an extremely common and important part of organizational life that can and should be evaluated. We have discussed the fact that researchers of IORs have utilized a number of key structural, process, and outcome

measures for evaluating IORs at two levels of analysis: the organization and the interorganizational network. What is less clear is which of these evaluation indicators should be utilized, under what conditions each might be most appropriate, and how and if structure and process indicators interact to affect outcomes such as performance and survival. What is also unclear is how these two (and possible other levels of analysis) interact, and thus, whether they should be taken into account simultaneously for purposes of IOR evaluation.

We have also addressed the practical considerations faced by managers trying to evaluate whether or not to engage in a particular IOR and which of several IORs might contribute most to overall organizational effectiveness. This discussion focused on costs versus risks, the various approaches to measurement that might be considered, including the value of more participative and collaborative approaches, and the path-dependent nature of the IOR evaluation process.

Despite the lack of consensus about which approaches should be used and exactly what each implies, it is clear that IOR evaluation is extremely important for advancing both the study and practice of organizations and interorganizational networks. This chapter has been an effort to demonstrate this importance while presenting the range of measures, perspectives, and issues that make the topic so challenging to study.

REFERENCES

- Adler, P.S. and Kwon, S.-W. 2002. Social capital: Prospects for a new concept. In: *Academy of Management Review*, 27 (1): 17-40.
- Ahuja, G. 2000. Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly*, 45: 425-455.
- Alter, C. and Hage, J. 1993. *Organizations Working Together*. Newbury Park, Calif.: Sage.
- Ariño, A. 2003. Measures of strategic alliance performance: An analysis of construct validity. *Journal of International Business*, 34 (1): 66-79.

- Arthur, W.B. 1994 (ed.): *Increasing Returns and Path Dependency in the Economy*. Ann Arbor: University of Michigan Press.
- Baker, W.E. and Faulkner, R.F. 2002. Interorganizational networks. In Baum, J.C.A. (ed.). *Companion to Organizations*. Oxford: Blackwell: 520-540.
- Bamford, J. and Ernst, D. 2002. Managing an alliance portfolio. *McKinsey Quarterly* (3): 28-40.
- Barnard, C. 1938. *The Functions of the Executive*. Cambridge, Mass.: Harvard University Press.
- Baum, J.A.C. and Oliver, C. 1991. Institutional linkages and organizational mortality. *Administrative Science Quarterly*, 36: 187-218.
- Baum, J.A.C., Calabrese, T. and Silverman, B.S.. 2000. Don't go it alone: Alliance networks and start-up performance in Canadian biotechnology. *Strategic Management Journal*, 21 (3): 267-294.
- Bolland, J.M. and Wilson, J.V. 1994. Three faces of integrative coordination: A model of interorganizational relations in community-based health and human services. *Health Services Research*, 29: 341-366.
- Borgatti, S.P. and Foster, P.C. 2003. The network paradigm in organization research: A review and typology. *Journal of Management*, 29 (6): 991-1013.
- Brass, D.J., Galaskiewicz, J., Greve, H.R., and Tsai, W. 2004. Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal*, 47: 795-817.
- Brenner, T. and Fornahl, D. 2003 (eds). *Cooperation, Networks and Institutions in Regional Innovation Systems*. Aldershot: Elgar.
- Browning, L.D., Beyer, J.M., and Shetler, J.C. 1995. Building cooperation in a competitive industry: SEMATECH and the semiconductor industry. *Academy of Management Journal*, 38: 113-151.
- Burkhardt, M. E. and Brass, D. J. 1990. Changing patterns or patterns of change: The effects of a change in technology on social network structure and power. *Administrative Science Quarterly*, 35:104-127.
- Burt, R. 1992. *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Chaskin, R.J., Brown, P., Venkatesh, S., and Vidal, A. 2001. *Building Community Capacity*. New York: Aldine de Gruyter.
- Child, J. and Faulkner, D. 1998. *Strategies of Cooperation*. New York: Oxford University Press.
- Clarke, A. 1999. *Evaluation Research: An Introduction to Principles, Methods and Practice*. London: Sage.
- Cronbach, L.J. and Suppes, P. 1969. *Research for Tomorrow's Schools: Disciplined Inquiry in Education*. New York: Macmillan.
- Cyert, R.M. and March, J.G. 1963. *A Behavioral Theory of the Firm*. Englewood Cliffs, N.J: Prentice-Hall.
- Danneels, E. 2002. The dynamics of product innovation and firm competencies. *Strategic Management Journal*, 23: 1095-1121.
- Das, T.K. and Teng, B.S. 1996. Risk types and inter-firm alliance structures. *Journal of Management Studies*, 33: 827-843.

- David, P.A. 1985. Clio and the economics of QWERTY. *American Economic Review*, 75 (2): 332-337.
- DiMaggio, P.J. and Powell, W.W. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48: 147-160.
- Donabedian, A. 1980. *Explorations in Quality Assessment and Monitoring*. Ann Arbor, MI: Health Administration Press.
- Dyer, J.H. and Singh, H. 1998. The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23: 660-679.
- Emerson, R.M. 1962. Power-dependence relations. *American Sociological Review*, 27:31-41.
- Fichter, M. and Sydow, J. 2002. Using networks towards global labor standards? *Industrielle Beziehungen – The German Journal of Industrial Relations*, 9 (4): 357-380.
- Galaskiewicz, J. 1997. An urban grants economy revisited: Corporate charitable contributions in the Twin Cities, 1979-81, 1987-89. *Administrative Science Quarterly*, 42: 445-471.
- García-Canal, E., Valdés-Llaneza, A. and Ariño, A. 2003. Effectiveness of dyadic and multi-party joint ventures. *Organization Studies*, 24: 743-770.
- Geringer, J.M. and Hebert, L. 1991. Measuring performance of international joint ventures. *Journal of International Business Studies*, 22: 249-264.
- Giddens, A. 1984. *The Constitution of Society*. Cambridge: Polity.
- Granovetter, M. 1973. The strength of weak ties. *American Journal of Sociology*, 78: 1360-1380.
- Greenberg, J. 1987. A taxonomy of organizational justice theories. *Academy of Management Review*, 12 (1): 9-22.
- Guba, E.G. and Lincoln, Y.S. 1989. *Fourth Generation Evaluation*. Newbury Park: Sage.
- Gulati, R. 1995. Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38: 85-112.
- Gulati, R. and Gargiulo, M. 1999. Where do interorganizational networks come from? *American Journal of Sociology*, 104: 1439-1493.
- Gulati, R. and Singh, H. 1998. The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances. *Administrative Science Quarterly*, 43: 781-814.
- Håkansson, H. 1987 (ed.): *Industrial Technological Development: A Network Approach*. London: Croom Helm.
- Hamel, G. 1991. Competition for competence and interpartner learning within international strategic alliances. *Strategic Management Journal*, 12: 83-103.
- Hassard, J. 1991. Multiple paradigms and organizational analysis: A case study. *Organization Studies*, 12: 275-299.
- Hennart, J.F., Dong-Jae, K. and Ming, Z. (OR Zeng???) 1998. The impact of joint ventures status on the longevity of Japanese stakes in U.S. manufacturing affiliates. *Organization Science*, 9 (3): 382-395.

- Human, Sherrie E. and Provan, Keith G. 1997. An emergent theory of structure and outcomes in small firm strategic manufacturing networks. *Academy of Management Journal*, 40: 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.
- Ingram, P. and Roberts, P.W. 2000. Friendship among competitors in the Sydney hotel industry. *American Journal of Sociology*, 106:387-423.
- Isett, K.R. and Provan, K.G. 2005. The evolution of interorganizational network relationships over time: Does sector matter? *Journal of Public Administration Research and Theory*, 15: 149-165.
- Kale, P., Dyer, J. and Singh, H. 2002. Alliance capability, stock market response, and long term alliance success: The role of the alliance function. *Strategic Management Journal*, 21 (3): 217-237.
- Kaplan, R.S. and Norton, D.P. 1996. *The Balanced Scorecard: Translating Strategy into Action*. Boston: Harvard University Press.
- Kilduff, M. and Tsai, W. 2003. *Social Networks and Organizations*. London: Sage.
- Larsson, R., Bengtsson, L., Henriksson, K. and Sparks, J. 1998. The interorganizational learning dilemma: Collective knowledge development in strategic alliances. *Organization Science*, 9: 285-306.
- Lee, C., Lee, K., and Pennings, J.M. 2001. Internal capabilities, external networks, and performance: A study on technology-based ventures. *Strategic Management Journal*, 22:615-640.
- Oliver, C. 1990. Determinants of interorganizational relationships: Integration and future directions. *Academy of Management Review*, 15: 241-265.
- Oliver, C. 1991. Strategic responses to institutional processes. *Academy of Management Review*, 16: 145-179.
- 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.
- Owen-Smith, J. and Powell, W.W. 2004. Knowledge networks as channels and conduits: The effects of spillovers in the Boston biotechnology community. *Organization Science*, 15: 5-21.
- Park, S.H. and Ungson, G. 2001. Interfirm rivalry and managerial complexity: A conceptual framework of alliance failure. *Organization Science*, 21: 37-53.
- Parkhe, A. 1993. The structuring of strategic alliances: A game-theoretic and transaction-cost examination of interfirm cooperation. *Academy of Management Journal*, 36: 794-829.
- Perrow, C. 1961. The analysis of goals in complex organizations. *American Sociological Review*, 26: 688-699.
- Perrow, C. 1991. A society of organizations. *Theory and Society*, 15: 725-762.
- Pfeffer, J. and Salancik, G.R. 1978. *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper & Row.

- 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.
- Power, M. 1997. *The Auditing Society – Rituals of Verification*. Oxford: Oxford University Press.
- Provan, K.G. 1983. The federation as an interorganizational linkage network. *Academy of Management Review*, 8:79-89.
- Provan, K.G., Beyer, J.M. and Kruytbosch, C. 1980. Environmental linkages and power in resource-dependence relations between organizations. *Administrative Science Quarterly*, 25: 200-225.
- Provan, K.G., Isett, K.R., and Milward, H.B. 2004. Cooperation and compromise: A network response to conflicting institutional pressures in community mental health. *Non-profit and Voluntary Sector Quarterly*, 33: 489-514.
- 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: 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: 453-463.
- 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.
- Rossi, P.H., Lipsey, M.W. and Freeman, H.E. 2004. *Evaluation: A Systematic Approach*. 7th Edition. Thousand Oaks: Sage.
- Rousseau, D.M., Sitkin, S.B., Burt, R.S. and Camerer, C. 1998. Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23: 393-404.
- Rowley, T.J., Behrens, D., and Krackhardt, D. 2000. Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semi-conductor industries. *Strategic Management Journal*, 21: 369-386.
- Sako, M. 1992. *Prices, Quality and Trust: Inter-Firm Relations in Britain and Japan*. Cambridge: Cambridge University Press.
- Saxenian, A. 1994. *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.
- Scheer, L.K., Kumar, N. and Steenkamp, J.B. 2003. Reactions to perceived inequity in U.S. and Dutch interorganizational relationships. *Academy of Management Journal*, 46 (3): 303-316.
- Schreiner, M. 2005. Firms' reactions to evaluation of inter-firm relationships: The impact of efficiency and fairness. Working Paper. University of St. Gallen, Switzerland.
- Scott, R.W. 2001. *Institutions and Organizations*, 2nd Edition. Thousand Oaks, CA: Sage.
- Suchman, M.C. 1995. Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20: 571-610.

- Sydow, J. 2004. Network development by means of network evaluation? Explorative insights from a case in the financial service industry. *Human Relations*, 57: 201-220.
- Sydow, J. and Milward, H.B. 2003. Reviewing the evaluation perspective: On criteria, occasions, procedures, and practices. Paper presented at the 10th Conference on Multi-Organizational Partnerships, Alliances and Networks (MOPAN), University of Strathclyde, Glasgow. <http://www.wiwiss.fu-berlin.de/w3/w3sydow/>
- Sydow, J. and Windeler, A. 1998. Organizing and evaluating interfirm networks: A structurationist perspective on network processes and outcomes. *Organization Science*, 9: 265-284.
- Tyler, B.B. and Steensma, H.K. 1998. The effects of executives' experiences and perceptions on their assessment of potential technological alliances. *Strategic Management Journal*, 19: 939-965.
- Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42: 35-67.
- Von Hippel, E. 1988. *The Sources of Innovation*. New York: Oxford University Press.
- Wiewel, W. and Hunter, A. 1985. The interorganizational network as a resource: A comparative case study on organizational genesis. *Administrative Science Quarterly*, 30: 482-496.
- Williamson, O.E. 1991. Comparative economic organization: The analysis of discrete structural alternatives. *Administrative Science Quarterly*, 36: 269-296.
- Zaheer, A., McEvily, B. and Perrone, V. 1998. Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science*, 9: 141-159.
- Zajac, E.J. and Olsen, C.P. 1993. From transaction cost to transaction value analysis: Implications for the study of interorganizational strategies. *Journal of Management Studies*, 30: 131-145.

Figure 1

Focus and Theoretical Roots of Important IOR Effectiveness Constructs

Construct	Focus	Theoretical Roots	Theories (Examples)
(1) Survival	<p>Outcome</p> <p style="text-align: center;">↓</p> <p>Process</p> <p style="text-align: center;">↓</p> <p>Structure</p>	Economics	<ul style="list-style-type: none"> ▪ Micro Economics ▪ Transaction Economics
(2) Financial and Non-financial Performance			<ul style="list-style-type: none"> ▪ Financial Economics ▪ Resource-based View
(3) Innovation		Organization Theory	<ul style="list-style-type: none"> ▪ Theories of Innovation
(4) Legitimacy and Learning			<ul style="list-style-type: none"> ▪ Neoinstitutionalism ▪ Structuration Theory, Theories of Learning
(5) Trust and Fairness		Network Theory	<ul style="list-style-type: none"> ▪ Developmental Theories ▪ Evolutionary Theories
(6) Structure of relations between organizations			<ul style="list-style-type: none"> ▪ Social Capital Theories ▪ Structural Embeddedness