The Anatomy of Network Failure

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Abstract
The following paper develops and defends a theory of “network failure” akin to theories of organizational and market failure that are prevalent in the contemporary social sciences. We hold that network failures are: (i) continuous rather than discrete outcomes; (ii) subject to redundant causation; and (iii) susceptible to corrective action. We pay particular attention to two under-theorized—if not undiscovered—types of network failure (i.e., involution and contested collaboration) and distinguish their respective sources (i.e., ignorance and opportunism). And we thereby identify and fill a major gap in the existing literature on network governance.

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I. Introduction

Network models and metaphors loom large in contemporary sociology. They have gained particular purchase in the growing subfield of economic sociology. And their most vigorous champions are in many ways pursuing a research agenda established by Walter Powell (1990) in his by now familiar call for a conceptual toolkit to make sense of organizational forms that seem to be “neither market nor hierarchy.”

According to Powell (1990: 301), the boundaries of the traditional firm have recently been blurred—in many cases beyond recognition—by collaborative ventures and other forms of exchange in which “the entangling of obligation and reputation reaches a point that the actions of the parties are interdependent, but there is no common ownership or legal framework.” Examples would include, but by no means be limited to, relationships between general contractors and subcontractors in the building trades (Eccles 1981), collaborative arrangements among high-technology enterprises in Silicon Valley (Saxenian 1994), the network management of investment bankers (Eccles and Crane 1987), and the decentralized production of durable and nondurable consumer goods (Schrank 2004; Uzzi 1996; Whitford 2005). Only by placing “network forms of organization” on a par with more familiar governance arrangements, Powell (1990: 301) argued, can we make meaningful sense of the “extraordinary diversity of economic arrangements found in the industrial world today.”

Economic sociologists have made many empirical as well as theoretical contributions to our understanding of network governance in the years since the publication of Powell’s article (see Grabher and Powell 2005; Podolny and Page 1998; Smith-Doerr and Powell 2005). However, they have not yet addressed the problem of network failure in a systematic or convincing manner. Powell’s call thus remains as yet only partially fulfilled.

Our point is most assuredly not that network failures are ignored in the existing literature but that they have for the most part been portrayed as puzzling features of the world rather than common features of transactional governance that must be systematically incorporated into a broader understanding of network forms of organization if Powell’s overarching, and by now widely shared, goal is to be achieved. Economists have developed theories of market failure. Organizational and management scientists have proffered theories of organizational failure. But to our knowledge the sociological literature offers no systematic theory of network failure.

This oversight is particularly surprising given the well-known and widely acknowledged vulnerability of collaborative arrangements. While inter-organizational networks allegedly foster learning, innovation, and cost-reduction, and thereby redound to the benefit of their various participants, they are neither universal nor particularly stable forms of governance (Podolny and Page 1998: 71). On the contrary, they are difficult to forge and hard to sustain—especially in high-value activities where resources, profits, and intellectual property are at stake.

In fact, the existing literature is replete with evidence of network failure. For example, Bruce Kogut (1989: 187) estimates that more than two-thirds of manufacturing joint ventures are terminated within a decade of their formation (see also Park and Russo 1996). The Boston Consulting Group concludes that well over half of the strategic alliances forged in the airline
industry are outright failures (Economist 1995, p. 60). And Sherrie Human and Keith Provan (2000: 361) find that more than 60 percent of the small firm networks they studied in the mid-1990s had evaporated by 1998.

Nor is network failure limited to the dissolution or collapse of already existing relationships. Some networks are stillborn (Leslie 2001; Leslie and Kargon 1996), and thereby constitute the relational analog to the “missing markets” (Papandreou 1994: 5-6) that have permeated and bedeviled mainstream economic theory for decades. Other networks “persist yet perform poorly,” and thereby come to resemble the “permanently failing organizations” (Meyer and Zucker 1989: 19) that are by now familiar features of the sociological landscape (Aldrich and Reuf 2006: 21).

There are similarities and differences between different types of network failure, but they have been treated in an entirely ad hoc and isolated manner—if they have been treated at all. In this paper, therefore, we develop and defend a comprehensive framework within which to understand and analyze: (i) the breakup of already existing relationships (i.e., network mortality) but also (ii) potentially profitable or productive networks that fail to emerge in the first place (i.e., network stillbirth) and no less importantly (iii) active networks that tend to underperform vis-à-vis their potential or expectations (i.e., network imperfections). In so doing, we hope to combat three gaps in the existing literature on network forms of organization: the selection bias engendered by analysts who focus on successful networks to the exclusion of their stillborn or unsuccessful rivals (Appold 1995: 28; Håkanson 2005: 457; Tarrow 1996: 396); the measurement error induced by analysts who at times implicitly treat organizational failure as the empirical manifestation of network failure (Stinchcombe 1962; Uzzi 1996; Zaheer and Mosakowski 1997); and the persistent myopia of mainstream economic approaches to the governance of production and exchange more generally (Storper 2005).

Why and to what effect are inter-organizational networks vulnerable? We address the question in five sections beyond this introduction. Section 2 discusses the methodological, theoretical, and public policy implications of network failure in general. Section 3 defines network failure. Section 4 draws an analytical distinction between varieties of network failure (i.e., involution and contested collaboration) and traces their respective roots to ignorance (or competency shortfalls) and opportunism on the part of network members. It also provides theoretically informed examples of “sustained network failures” in Europe, North America, and the developing world. And Section 5 discusses theoretical and policy implications. Section 6 briefly concludes.

II. Intellectual Context

A substantial and growing body of literature recognizes not only the empirical existence but the substantive contributions of inter-organizational networks (see e.g. Rauch and Casella 2003; Smith-Doerr and Powell 2005)). Network relationships allegedly constitute a legitimate alternative to both markets and hierarchies; foster learning, investment, and joint problem solving activity among their participants; and therefore appeal to actors in volatile activities “where both markets and environments change frequently and there is a premium on adaptability” (Smith-Doerr and Powell 2005). The prototypical examples of network governance have thus been drawn from fashion-sensitive sectors like apparel, footwear, film, and publishing;
rapid innovation-based industries like information and biotechnology; and cyclical activities like construction.

Contemporary efforts to portray network arrangements neither as hybrid varieties nor as a residual category but as “a distinctive form of coordinating economic activity” (Powell 1990, p. 301) have a number of laudable aspects, not least of all that they accord with the beliefs and practices of actors who are party to the transactions themselves. Qualitative interviews carried out by a host of different investigators in a variety of different regional, national, and industrial contexts suggest that investors and managers not only draw an explicit distinction between “special” relationships and “one-shot” deals but are well aware of the merits of the former (see also Lorenzoni and Lipparini 1999; Schrank 2004; Shane and Cable 2002; Uzzi 1996: 677; Whitford 2005).

But network analysts tend to treat the character of the relationship (i.e., special or one-shot) as their explanans rather than their explanandum, and in so going generate the apparent puzzle alluded to in the introduction: if the potential parties to special relationships are in fact “aware of the benefits deriving from partnering and networking” (Lorenzoni and Lipparini 1999: 331), why are they so reluctant to do so? After all, the extant literature suggests that more than half of all network relationships go belly up in short order, and that many more that would be functional nonetheless do not even get off the ground in the first place (Podolny and Page 1998).

Moreover, this variation is not random. A substantial body of evidence suggests that the propensity to form collaborative arrangements varies across firms, regions, sectors, and time periods and that much—if by no means all—of the literature on network forms of organization is therefore tainted by selection bias (Appold 1995: 28; Håkanson 2005: 457). Do the purported advantages of networking derive from collaboration itself or from the characteristics and contexts of the organizations and individuals who are prone to collaborate in the first place? And how would one know?

Economic sociologists tend to criticize economists who assume that markets are natural and inevitable forms of exchange, to be encouraged wherever and whenever possible (Stiglitz 2002: 477; Vaughan 1996: 835). But they would seem to confirm rather than challenge the idea “that markets are the starting point” (Powell 1990: 298) when they focus on network success to the exclusion of network failure. It is problematic to treat networks as the exception in need of explanation rather than the rule from which deviations occur. While an implausible assumption of omnipresent networks is no better than the ahistorical fiction of universal markets, networks are no less obvious forms of governance than markets—or, for that matter, hierarchies—and their failures must therefore be theorized rather than assumed.

The problem is not simply that network analysts ignore the question of network failure, but that they frequently—and to our minds erroneously—treat network failure and organizational failure as interchangeable outcomes. Take, for example, Brian Uzzi’s (1996; 1997) influential study of inter-organizational relationships in the New York City garment industry. While Uzzi discusses relationships that anticipate and facilitate organizational founding in his qualitative analysis, and thereby admits that potentially productive relationships are at times prior to their organizational containers, he regresses organizational failure on network characteristics in his quantitative
analysis, and thereby implies that the death of the firm and the death of the relationship are coterminous. But the latter assumption is unwarranted, particularly in the fast-moving garment industry. In decentralized production models, “workers and employers often trade places” (Sabel and Zeitlin 1985: 174), and network relationships therefore tend to survive as well as anticipate their organizational foundations. “A New York City garment firm may die out with a family,” according to Michael Piore and Charles Sabel (1984: 269), “and an individual entrepreneur may drop back for a time into the ranks of the employees, but cultural and family ties make it unlikely that anyone who has begun working in the industry will leave it” (see also Schrank 2004; Waldinger 1984).

Nor is the apparel industry unique. The “flexible recycling” of interpersonal relationships occurs daily in Silicon Valley, for example, and ensures that entrepreneurial “life after death” is not only common but commendable (Bahrami and Evans 1995: 63; see also Child and McGrath 2001: 1138) And Arthur Stinchcombe (1962: 612) warns sociologists who might otherwise equate exit and failure that “in whole areas of the economy, for instance, the subcontracting trades in construction, frequently entering and leaving business is merely a normal device for maximizing return.” Eliding the distinction between network and organizational failure thus courts conceptual confusion that can lead to measurement error and selection bias.

Such conceptual confusion is if anything aggravated by organizational sociology’s tendency to treat different types of organizational failure in isolation from one another. For example, organizational ecologists explore the correlates of organizational mortality (Carroll 1984; Hannan and Freeman 1989). Public choice theorists address the problem of organizational stillbirth (Coleman 1970; Oliver 1980; Olson 1965). And proponents of the so-called new institutionalism purport to explain the prevalence of organizational imperfection (Meyer and Zucker 1989).¹

In short, the literature on organizational failure is itself diffuse and disjointed. Organizational sociologists have identified myriad threats to organizational origins, performance, and survival, and have thereby underscored the “ubiquity of problems in organized activity” (Perrow 1981), but they have made little effort to develop and defend a comprehensive theory, or even typology, of organizational failure.

The literature on market failure tends to assume that markets are somehow more “natural” than networks or hierarchies, and is therefore subject to legitimate sociological criticism (Polanyi 1957; Krippner 2001; Block 2003). It is however conceptually quite clear. “What is it we mean by ‘market failure’?,” asked Francis Bator (1958: 351) in his seminal mid twentieth century exposition of the concept. “Typically, at least in allocation theory, we mean the failure of a more or less idealized set of price-market institutions to sustain ‘desirable’ activities or to estop ‘undesirable’ activities.” While Bator traced the prevalence market failure to the pervasiveness of externalities, and thereby limited his discussion to the case of stillbirth, his descendants realized that transaction costs are no less threatening to Pareto efficiency and thereby developed a more encompassing analytical framework. Kenneth Arrow distinguished the “absolute” market failures that are attributable to externalities (and resemble stillbirth) from the “relative” failures

that are associated with transaction costs (and resemble imperfections) more than a generation ago (Arrow 1970; see also Papandreou 1994). And Williamson (Williamson 1971: 112-3) parlayed Arrow’s distinction into a theory of “market versus nonmarket allocation” that has been exercising sociologists ever since.

III. Defining Network Failure

A viable definition of network failure would therefore combine Bator’s conceptual clarity with the new economic sociology’s commitment to the “embeddedness of business in social relations” (Granovetter 1985: 497). So what do we mean by network failure? At least in organization theory, we (should) mean the failure of a more or less idealized set of social relations to sustain “desirable” activities or to estop “undesirable” activities. We are modeling our definition on Bator’s in part for its conceptual clarity, but mainly to direct attention toward mechanisms through which networks are—or are not—maintained and to highlight the sorts of normative considerations that lead us to care about network failure in the first place. Unlike current practice, in which networks are viewed as serendipitous outcomes that are all but immune to fertilization or corrective action, we emphasize that in their ideal typical form networks sustain desirable activities and that network arrangements therefore can and should be bolstered by public officials. Or at least they should insofar as there are answers to two questions: What does the ideal type look like? And what are the desirable activities to be encouraged and inhibited? Fortunately, both questions have received considerable attention and the existing literature therefore tells us what the ideal typical network relationship looks like and where it is likely to prove productive.

We begin with the ideal type. Smith-Doerr and Powell (2005: 12-13) divide the literature on network forms of organization into two broad streams: “structural” analyses that map patterns of interpersonal or interorganizational ties; and a “governance” approach more attuned to the content of those ties. The “structural perspective,” they write, identifies networks “in a broad range of circumstances, from markets to formal organizations” but fails to address “crucial questions of what factors contribute to the formation of networks and why do some networks prove beneficial and others do not.” It is therefore of little moment to our investigation of network failure. For that, one must look to the governance literature with its “more general definition of networks as a form of exchange or organization” (Smith-Doerr and Powell 2005: 13) and its willingness to take positions on issues of which forms of governance are and are not functional (desirable) in particular environmental conditions.

The governance approach borrows heavily from Mark Granovetter’s (1985) well-known critique of the “undersocialized” actors who populate Williamson’s work. But it has been no less heavily influenced by Powell’s (1990: 300) call to acknowledge that “certain forms of exchange are more social—that is more dependent on relationships, mutual interests, and reputation—as well as less guided by a formal structure of authority” than either markets or hierarchies. In this view, networks represent a distinct governance mode that is not a mere “mongrel hybrid” of the conventional types.

But what is this distinct mode? Joel Podolny and Karen Page (1998: 59) define a network form of organization as “any collection of actors that pursue repeated, enduring exchange relations
with one another and, at the same time, lack a legitimate organizational authority to arbitrate and resolve disputes that may arise during the exchange.” This definition includes “a wide array of joint ventures, strategic alliances, business groups, franchises, research consortia, relational contracts, and outsourcing agreements,” and excludes employment relations and “most pure market arrangements such as short-term contracts or spot market transactions.”

But as Podolny and Page also observe, for most sociologists these structural attributes are just a beginning. Sociologists have emphasized that network governance ought not to be accorded to “some limited set of labels for formal organizational arrangements,” and have sought instead to investigate the substantive conditions under which economic relations emerge and endure in the absence of legitimate organizational authority. As a result, sociological understandings tend to characterize network governance in terms of some “distinct ethic or value-orientation on the part of exchange partners” that renders it irreducible to market or hierarchical forms premised on a more adversarial posture (Podolny and Page 1998: 60). And at their best, they manage also to show that those ethics and values are rooted in the larger social or institutional milieu.

Thus, Brian Uzzi (1997: 61) discusses “embedded” ties that represent “a unique logic of exchange that results from the distinct social structure of organization networks and the microbehavioral decision-making processes they promote.” This logic is characterized by “actors who] follow heuristic and qualitative decision rules rather than intensely calculative ones, and [who] cultivate long-term cooperative ties.” This generates a governance structure in which “calculative risk and monitoring systems play a secondary role, information transfer is more fine-grained, tacit and holistic than the typical price data of pure market exchanges, and joint problem-solving arrangements promote voice rather than exit.”

Similarly, Sebastiano Brusco (1992; 1982; 1990; 1999)—renowned as one of the “discoverers” of the Italian industrial districts and the “Emilian model” of network governance—emphasized that social institutions underpin the balance of cooperation and competition upon which the global successes of those networks of small firms has been based. Brusco remarked in a 1988 lecture to Americans that he “hated” people who ascribed the cooperative ethic of the industrial districts to the notion that “Italians are easy-going people who like working together” (cited in Natali 2007: 204). Brusco agreed that firms in the districts did indeed live by different “rules of the game” inside the district than they did outside, but he was emphatic that many of those rules were explicitly propagated, legitimated and enforced by business associations, unions and other regional institutions.

If the ideal type is defined in terms of a distinct—usually more trusting—logic of exchange undergirded by social or institutional procedures that reorient the “rules of the game,” when is network governance desirable? “The best way to organize,” Scott (1981: 89) writes, “depends

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2 This can then be distinguished from a “pure market” on the one hand, as “relations are not enduring, but episodic, formed only for the purpose of a well-specified transfer of goods and resources and ending after the transfer,” and from a hierarchy in which “relations may endure for longer than a brief episode, but a clearly recognized, legitimate authority exists to resolve disputes that arise among actors” (Podolny and Page 1998: 59).

3 Obviously, in actually existing market societies, meaningful systems of exchange tend to constitute or rely upon mixtures of governance regimes. We use the expression “network governance” to refer to systems in which networks—rather than hierarchies or markets—tend in fact to dominate the transactions for which they are most
on the nature of the environment to which the organization relates.” This insight from contingency theory has deeply influenced analyses of the functional conditions for network governance, making it central to understanding what sorts of desirable activities are encouraged by network governance. In their recent contribution to the *Handbook of Economic Sociology*, for example, Smith-Doerr and Powell (2005: 18) observe that craft-based industries serve very unstable and highly differentiated demand segments and therefore eschew formal organizational arrangements in favor of more flexible short-term relationships that can be rapidly reconfigured. Importantly, these flexible arrangements tend not to be arms-length ties of market governance; rather, the need to recombine on a project-by-project basis leads them towards a more complex intermingling of competition and collaboration that improves the distribution of resources and leads to superior—and often more egalitarian—economic performance.

Similarly, though driven less by uncertainty of demand than by what amounts to uncertainty of input supply, network governance is characteristic of “fast-paced fields, where knowledge is developing rapidly, the sources of expertise are widely dispersed, and there is uncertainty about the best approach to a problem” (Smith-Doerr and Powell 2005). Particularly when “technical knowledge is tacit in character—an indissoluble mixture of design, process, and expertise [and thus] not effectively transferred by licensing or purchase, ... firms seek out partners with technological complementarities.” They do so because “collaboration can shorten the time it takes to bring new ideas to market, while access to a broad network of cooperative R&D provides companies with a rich portfolio of diverse information sources” (Smith-Doerr and Powell 2005: ##).

Unstable demand and/or dispersed and rapidly changing knowledge thus represent the necessary baseline conditions for network governance to be desirable. But they by no means guarantee its emergence. Some transactions are in fact best left to the market or internalized in hierarchies (Powell 1990: 328)—a fact that can be obscured by the sometimes triumphalist rhetoric of the network literature. And transactions that are compatible with network governance in theory are at times susceptible to network failure in practice. If network governance is to stably obtain, therefore, two additional problems—which might be called *opportunism* and *ignorance*—must first be resolved.

Neither problem is unknown in the current literature. Opportunism has received a great deal of attention, particularly in the voluminous literature on trust, and is especially salient when networks are contrasted to market governance, as “repeated, enduring exchange relations” require of course that parties forgo some exit rights, even though doing so exposes them to hold-up and other such problems. Firms therefore need to know which potential exchange partners are themselves willing to reciprocally renounce their exit options.

But this is not all that is required for successful network governance.⁴ Applying insights from competence theories of the firm to dispersed production regimes make clear that ignorance is as appropriate (just as one can speak of market governance dominating a system in which there are of course also firms).

⁴ Some of the more sophisticated work on trust has emphasized that it is a multidimensional concept. Sako and Helper (1998) for example distinguish between competence, contractual, and goodwill trust. This takes us in the direction we want to go but we wish to emphasize that successful network governance depends not only on trust but
much a threat to network governance as is opportunism. The threat of ignorance comes to the fore most clearly when networks are contrasted to hierarchies, and it gains import insofar as the professionals, managers, and workers who animate and populate networks and hierarchies can be seen essentially as “information-processing systems” (Stinchcombe 1990: 32). When transactions are complex, and the services or goods to be obtained are not well specified, exchange partners need to know whether their interlocutors will in fact be able to deliver on their promises. The monitoring inherent in hierarchical governance is in many cases precisely about keeping track of who is knowledgeable enough to do what. It is thus designed to resolve this problem, but it is also costly and so constrains the competencies that can feasibly be maintained in-house (which is what generates the pressure for network governance in the first place).

Network failure thus derives not only from opportunistic behavior on the part of the transacting parties but also from the honest ignorance of both transacting parties—that is, from bad deals made in good faith by actors who were simply unaware of the often yawning gap between competencies in the network and industry-wide best practices.

The dual origins (or potentially redundant causation) of network failure, and its roots in competency shortfalls and problems of opportunism first became clear to us when we jointly reflected upon our independently conducted interviews with buyers and suppliers in the decentralized production of durable and nondurable goods like auto parts, machinery, and apparel (see especially Schrank 2004; 2005; Whitford 2005). When asked why their various relationships would underperform or go belly up, we realized, our respondents sometimes used colloquial expressions like “he screwed me” or “they screwed up.” But there is an interesting, if subtle, difference between “screwing” your exchange partner and “screwing up.” After all, the former necessarily implies opportunism and the latter need imply nothing more than a lack of competence or inability to solve a joint problem. When asked to clarify which of the two labels applied in which particular case, however, our respondents would often demur. They could not say with any certainty whether they had been victims of competency shortfalls or deliberate self-dealing and in their eyes it didn’t matter. Either way, they had to find new parts, new processes, or perhaps even new exchange partners.

But from a theoretical and public policy standpoint the answer—the difference between screwing and screwing up—matters enormously. Opportunism is likely to arise where informal or formal institutions fail to nourish trust, confidence, and loyalty and is likely to dissipate where norms of reciprocity and good faith are pervasive. Kinship relations, ethnic networks, and religious communities have frequently been portrayed as bulwarks of community and reciprocity. But there are many others including political parties, trade associations, and labor unions that are potentially more susceptible to policy intervention. By way of contrast, competency shortfalls are likely to emerge where formal and informal institutions fail to align company strategies or foster also on formal or informal institutional mechanisms designed to pull needed information into the transactional space in the first place.

See Hodgson (1998) for the distinction between competence and contractual theories of the firm. See Lawson (1999) for an extension of the competence theory of the firm to the region and thus to one important kind of dispersed production regime. Lawson does not speak of ignorance per se. He shows rather that various efforts to explain learning and regional dynamism can be brought together under the umbrella of “competence.” The problem of “ignorance” is the terminology we have adopted to describe the naive—but not necessarily nefarious—failure to recognize, find or exploit the competencies required for competitiveness in relevant activities.
the growth of skill and technical capacity and are likely to diminish where productive assets—broadly defined—are widespread. Strategic alignment, skill, and technical capacity are frequently fostered by the same organizations and institutions that build trust—i.e., trade associations and labor unions—but they are also the product of public institutions like schools, vocational and training institutions, development banks, and industrial extension services.

We shall argue that this distinction is theoretically revelatory, in that it shapes our very understanding of how networks operate, and important normatively in that it can illuminate potential policy responses to network failure. It suggests that a network failure can be usefully understood as a situation in which network governance would be desirable were it to obtain (e.g., unstable demand and/or dispersed and rapidly changing knowledge), but in which social, cultural or institutional control mechanisms do not adequately squelch opportunism and/or have not ensured contracting parties access to and knowledge of appropriate competencies. These control mechanisms underpin the particular “ethics of exchange” that allow economic relations to emerge and endure in the absence of legitimate organizational authority, and although they require reference to a particular case (or class of cases) for their exact specification, one can still classify types of network failure in terms of problems that have (or have not) been resolved.

IV. Types of Network Failure

Ideal-typical network governance is stable precisely because it simultaneously ensures that the parties to a collaborative relationship are competent in their tasks and unlikely to behave opportunistically. Recall Brusco’s (1999: 22) point the “rules of the game in industrial districts” are not simply written by history but are necessarily embedded in systems of associations and related institutions. They also include a “basic rule governing ... cases of collaboration” that so clearly underscores the attention both to opportunism and to competencies that it is worth quoting at length (italics added to accentuate these dual concerns).

Two agents who work together [in an industrial district] on a continuous basis will never fully take advantage of the market power that is available to them, owing to their reciprocal interdependence.... Each of them will take into consideration the survival needs and success opportunities of the other; both are tied to profit margins, and to the ability to keep their respective technological standards high and to retain the best and most skilled workforce.

Sabel’s (Helper, MacDuffie and Sabel 2000; 1994; 2005) work on learning-by-monitoring sounds a similar theme drawing instead on the global diffusion of collaborative Japanese manufacturing practices. Sabel forcefully underscores that network governance can be underwritten and even founded by a sort of virtuous interplay of safeguards against opportunism and search for relevant competencies. He begins with the observation that once giant manufacturers are navigating the uncertainties of deeply fragmented markets by decentralizing production to smaller (but not necessarily small in an absolute sense) suppliers. He then argues that this has led some to recognize that they have a strong new incentives and opportunities to learn both from and about their suppliers, who in turn have new incentives and opportunities to
learn from and about the customers. As these firms accept that the federation has left them unable to determine just what to build and how best to build it without the help of others, they must learn about (monitor) each other’s relative competencies as they explore what to do next.

Schrank’s (2005: 53) discussion of the “inseparability of production and marketing” in the international apparel trade similarly underscores the reciprocal relationship between confidence and competence, and highlights their continued and arguably growing relevance in the era of global production. While developing country apparel producers have to “demonstrate their willingness and ability to meet exacting price, quality, and delivery standards before they can develop stable, informative relationships with foreign buyers, they need to develop stable, informative relationships with foreign buyers if they are to learn how to meet the price, quality, and delivery standards in question” (Schrank 2005: 53). Northern apparel buyers like Nike, Target, and the Gap face a parallel dilemma, however, for they “must find trustworthy, reliable suppliers before they can source from overseas, but they must devote time, energy, and not infrequently capital to untested relationships with unknown partners before their suppliers are deemed trustworthy and reliable” (Schrank 2005: 53). Network production is often inaugurated, therefore, by exchange partners who have preexisting or ongoing social relationships; but its growth and continued viability are premised on continued monitoring and exchange of productive information.

Such monitoring is generally not aimed so much at ferreting out opportunism as it is at building and searching for competencies, but it does have the welcome side effect that the parties glean numerous clues about each other’s reliability along the way. The dynamic is akin to the structured yet creative search for, and construction of, coordination games in what wrongly appears to academic observers (who assert the knowability—or at least estimability—of interests prior to interaction) to be a thicket of potential prisoners’ dilemmas (where suboptimality is the inescapable outcome, barring external intervention). This generates a sort of “studied trust” (Sabel 1993), as the parties’ initial experimentation with positive-sum collaboration paves the way for new experimentation down the road. More importantly, it leaves each party more confident in the reliability of the other, stimulating investments in new competencies that are bolstered by mutual confidence that hold-up is relatively unlikely.

If virtuous circles of the sorts outlined by Brusco, Sabel, and Schrank are indeed responsible for the stability of network governance, what happens when the virtuous circle turns vicious? Must there be rapid devolution either to market or to hierarchical governance? This certainly does happen, and to the degree that the literature on networks of governance has spoken of network failure, this is often what is meant.

In their early discussion of network failures, for instance, Podolny and Page (1998) make reference to the fact that strategic alliances tend to result in failure. The erstwhile alliance of Daimler-Benz and Chrysler—touted as a “merger of equals” less than a decade ago—comes easily to mind. In 1998 Peter Martin wrote that absent “a successful merger of the minds, the transaction could rapidly sour.” And sour it did, devolving first to hierarchy as Daimler’s

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6 Sabel (2005) argues that although these new organizational forms were “pioneered in Japan,” they “can be built in widely different cultures’ and have since been ‘mastered and sometimes improved” by, for example, “the Americans, Danes and Irish.”
German managers took control due to contempt for competencies at Chrysler and because they were “reluctant to see the makers of Mercedes associate with the makers of Dodge.” This led in turn to a lawsuit by Chrysler shareholders who accused Daimler of misleading investors as to the German firm’s true intentions at the time of the merger’s origin. 7 The players eventually returned to market governance as Daimler unwound the acquisition to Cerberus Capital Management in May 2007.

Network failures need not of course devolve eventually to market governance. They may also be followed by the creation or expansion of hierarchies. Postcommunist Eastern Europe provides many examples. After all, David Stark (1996) not only anticipated the birth of a “distinctively East European capitalism” in the mid-1990s but self-consciously embraced “a network-centered approach in which not markets, nor states, nor isolated firms but social networks are the basic units of analysis” (see also Stark 1993:303; Stark 1996: 1017). “When the future is highly uncertain,” he wrote, “it is far from clear at T1 whether your assets will be interdependent with mine at T2. In such situations, in addition to the dualism make or buy (hierarchy or market) there is an alternative—cooperate” (Stark 1996:1021). Stark explicitly took issue with Marxist and modernization theorists who viewed the boundary blurring he had identified in Eastern Europe as “transitional” in nature (Stark 1996: 1022) by portraying it instead as an “ongoing” feature of the “discordant” postsocialist world. However, his critics disagree. Lawrence King (2001) invokes more recent data that suggest that multinational corporations (MNCs) have purchased the most valuable enterprises in Eastern Europe, placed their former managers on their payrolls, and thereby abandoned the collaborative arrangements anticipated by Stark for lucrative employment contracts designed in part “to eliminate the incentive for opportunistic behavior by managers before their control is firmly established” (King 2001: 502). Safeguards of this sort prove particularly valuable in the underdeveloped environs of Eastern Europe, where competencies (e.g., “relatively cheap, but skilled and educated, labor” (King 2001: 535) are more common than confidence.

But is devolution to market or hierarchy the only possibility? If the “network form of organization” is genuinely to be more than a bastard offspring of market and hierarchy, its failures cannot reduce in all cases simply to market or hierarchy. We need a conception that views network failure as more than simply the absence of network governance. Can we envision scenarios in which confidence is high but competencies are lacking? Or, conversely, in which competencies are plentiful but confidence is scarce?

On our reading of the extant literature, the answer to both questions is a definitive “yes,” but that commonalities between the resultant organizational forms have until now gone essentially unrecognized. There are, in short, network analogs to the “permanently failing organizations” described by Meyer and Zucker (1989) or the “relative” market failures discussed by Arrow (1970). It is possible to identify economic relations that emerge and endure (if not “permanently” then at least for a long time) in the absence of legitimate organizational authority but that neither fully encourage the desirable nor adequately inhibit the undesirable.

7 Financial Times (May 15, 2007), p. 14 “Happily never after merger, like marriages, fail without a meeting of the minds.”
These “permanently failing networks” are of two basic types. “Involution” occurs where there are institutional safeguards against opportunism but where exchange partners have for one reason or another become overly dependent on each other and have therefore failed to absorb the information they need to maintain their competencies in a world of intense innovation and competition (Geertz 1963; Grabher 1993; Uzzi 1996; Uzzi 1997). “Contested collaboration” occurs where the organizational field⁸ is endowed with desirable competencies but exchange partners lack safeguards against mistrust, miscommunication, and opportunism, leading them to monopolize information in ways that undermine their ability to jointly compete in the uncertain and fast-moving markets for which network governance is ostensibly best suited (Whitford and Enrietti 2005; Whitford, Simmons and Helper 2007).

Recognizing differences in types of network failure not only improves upon the currently regnant approach, which tends to treat network failure in an ad hoc manner if at all, but simultaneously militates against the obvious temptation to treat network failure as a straightforward product of bounded rationality. Rationality is bounded, of course, but bounded by what? We specify the principal constraints on rationality—i.e., an inability to recognize and distinguish between failures that are fundamentally derivative of opportunism on the one side, and those that are ultimately rooted in the systemic ignorance of relevant competencies on the other. This both helps to account for instances of network failure in general, and opens the door to specific policy interventions designed to improve network performance.

Our argument here depends on two claims. First, we must show that each of these types — involution and contested collaboration — actually represents an instance in which network governance regularly survives even as it underperforms for long periods of time in the absence of corrective action. Second, we must show that both their endurance and their failure can (and should) be rooted in the relative presence and absence of social, cultural or institutional mechanisms that mitigate opportunism and ensure the continual acquisition and exposition of competencies.

IV.A. Involution

Our take on network failure presupposes that network participants are ultimately involved in information processing (Stinchcombe 1990). Whether they are making decisions about the latest styles in New York menswear, writing software for a new videogame in Tokyo, or machining auto parts in a component supplier in Mexico, they are in essence putting information to use. Members of an ideal-typical network therefore have ready access to relevant information, without which even the most transparent or loyal exchange partners would suffer competency shortfalls.

We label networks that are relatively free from opportunism but encumbered by a lack of key productive information “involuted” networks. Involuted networks suffer from a paucity of

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⁸ DiMaggio and Powell (1983: 148) define an organizational field as “those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products.” The organizational field, DiMaggio and Powell note, is wider than the networks of organizations that actually interact, in that it refers to the totality of relevant actors. We would here infer “relevance” to mean the actors who could reasonably be brought into the network.
competence rather than a paucity of confidence. Their stakeholders are not necessarily opportunistic but they are devoid of at least some important competencies. And in the best known cases their competency shortfalls are, ironically, a product of their loyalty.

Take, for example, the industrialists described by Gernot Grabher (1993) in his analysis of “the weakness of strong ties” in the Ruhr Valley. This heartland of the German coal, iron, and steel complex suffered greatly in the late twentieth century, as the industry was rocked by demand shortfalls, plant closings, and unemployment. While local observers blamed the crisis on the end of postwar reconstruction, the growth of foreign competition, and the declining income elasticity of demand for steel, they were unable to account for the region’s failure to redeploy resources into new sectors and activities. Grabher resolved this puzzle by recognizing that the crisis was fundamentally regional and thus only contingently sectoral.

Specifically, Grabher showed that the tightly coupled Ruhr Valley industrialists suffered from three distinct network lock-ins. First, they were “functionally” locked into interpersonal relationships with their exchange partners (Grabher 1993: 260). Core firms shared their investment plans with their local suppliers and the latter therefore dispensed with “boundary spanning functions” like research, development, and marketing activities designed to attract new customers. Second, they were “cognitively” locked into a “groupthink” mentality (Grabher 1993: 262). They viewed all crises as cyclical rather than secular and therefore ignored the need to redeploy assets out of coal, iron, and steel and into more sustainable activities over time. And, finally, they were “politically” locked into the government of North Rhine-Westphalia. Capital, labor, and their political representative developed “a strong alliance supporting the coal, iron, and steel complex” and thereby inhibited a “timely reorganization of the Ruhr” (Grabher 1993: 264).

Grabher labels the “pathological homeostasis” that results from such lock-in “involution” and holds it responsible for the Ruhr Valley’s delayed and costly adjustment. It is noteworthy, however, that the Ruhr Valley industrial complex did eventually adjust (Grabher 1993: 269); it did not disappear, and it therefore constitutes—and justifies the explicit conceptualization of—a permanently failing network.

Others have identified similar dynamics in distinct industrial and national contexts. For instance, Sabel (1994: 144) finds that by focusing on local rather than global benchmarks Japanese information technology and machine tool suppliers “got better and better at a losing game” in the late 1980s. “Improving faster than IBM on what IBM was doing when it dominated its industry is plainly no longer a world-beating strategy when IBM is no longer dominant” (Sabel 1994: 144).

Similarly, Janine Nahapiet and Sumantra Ghoshal (1998: 260) argue that “organizations high in social capital may become ossified through their relatively restricted access to diverse sources of ideas and information.” Brian Uzzi (1996) gives their hypothesis added credibility by identifying a curvilinear relationship between the “embeddedness” of buyer-supplier interactions and individual supplier mortality in the New York apparel trade. And Bill McEvily and Alfred
Marcus’s (2005: 1051) recent survey of 234 job shop manufacturers revealed that “capability acquisition was lower when a firm was highly dependent on its lead customer for sales.”

The aforementioned findings are perhaps best accounted for by Grabher’s notions of functional and cognitive lock-in. After all, Uzzi’s apparel contractors and McEvily and Marcus’s component suppliers are locked into particular relationships with particular buyers who espouse and reproduce particular worldviews. But contractors and suppliers are no less likely to fall victim to the “political lock-in” that derives from strong ties to public officials than to the functional or cognitive lock-ins that are produced by (and in conjunction with) their exchange partners. Take for example Schrank’s (2005) analysis of apparel suppliers in the Dominican Republic. While established manufacturers in the capital of Santo Domingo reaped the rewards of government protection and subsidy, and therefore resisted the onset of globalization in the 1980s, their arriviste challengers in the secondary city of Santiago had no such support, and therefore carved out a place for themselves on the global assembly line—and thereby assumed pride of place in the country’s manufacturing economy by century’s end.

Nor is the Dominican Republic exceptional. Manufacturers throughout the developing world are learning that protection had a cost as well as a benefit. Take, for example, the Mexican furniture manufacturers studied by Piore et al (2001). They forged and exploited strong ties to Mexico’s dominant party during the era of import-substituting industrialization. But they found themselves caught off-guard and entirely unprepared when trade and political liberalization arrived in the late twentieth century. While they expected their low labor costs to give them a foothold in the North American market, and tried to build bridges to foreign buyers, they instead lost their own market to low cost Asian imports—with little to no compensatory market expansion north of the border.

Why were the Mexican furniture makers unable to take advantage of globalization? According to Piore et al., they lacked not only capital but also information. They knew nothing about North American tastes and styles and had trouble adapting to northern quality standards in particular. The latter is particular relevant to our framework, for quality problems are as easily rooted in a lack of information as they are in a lack of capital. Manufacturers often blame a lack of capital for their travails. “But as one of the managers explained,” in many respects, “it is no more expensive to produce a relatively high quality piece of furniture than a low quality one” (Ruiz Duran 1998). One can only do so, however, if he or she knows what constitutes “quality” in the new market, and how to get there, and one doesn’t learn these things when one is locked into the old market.

In the case of Mexican furniture, moreover, the costs of the relevant information and competency shortfalls were enormous. A cluster of 3,000 small and medium sized enterprises had been reduced in size by two-thirds by the time North American consultants were brought in to rectify the situation. And similar patterns of deindustrialization have been observed throughout the developing world.

conception of network success requires also some conception of network failure. While we have criticized scholars who implicitly or explicitly assume that organizational failure is synonymous with network failure, we are open to the possibility that the former is a symptom of the latter.
IV.B. Contested Collaboration

Again, our take on network failure presupposes that network participants are ultimately involved in information processing (Stinchcombe 1990) and that participants to an ideal-typical network therefore have ready access to relevant information about partners’ abilities and willingness to share information. They are thus able to quickly locate the complementary competencies that militate against vertical integration in fast changing and uncertain markets. But what happens when networks suffer a paucity of confidence rather than of competence? Certainly, as averred above, vicious cycles that generate network stillbirth or rapid breakdown are entirely possible. But it is hardly the only possibility. Evidence from American durable manufacturing industries makes clear that underperformance traps—that is, partial network failures—occur as well.

In the American Midwest as elsewhere, once giant manufacturers have almost universally responded to the new environment by retrenching to their so-called core competencies in design, marketing and assembly. They now rely for much of their “real” manufacturing on a series of smaller suppliers, both domestic and foreign, creating what Whitford (2005) has elsewhere argued to be a “new old economy.”10 In the face of greater market uncertainty and a speedup in the rate of technological change, it became de rigueur for even successful companies to downsize, outsource, and radically revamp their organizational structures as if the economy were in perpetual crisis.

But this restructuring was not of a piece. To quote Powell’s (Powell 2001: 65) broader synthetic essay thereon: “outsourcing and subcontracting can represent a double-edged sword: on the one side, a move toward draconian cost-cutting and sweating labor; on the other, a step toward relational contracting in which trust and joint problem-solving are key.” As the very choice of words makes clear, which is chosen cannot but have profound consequences for companies, employees, and the regions in which they are embedded.

Moreover, there is consensus that it is a real choice. Consternation in the 1980s over whether the core principles of “networked” Japanese systems of manufacturing could be imported was clearly overblown.11 These principles, including what many consider to be their core element—collaborative relations between firms—proved far less intrinsically embedded in Japanese society than had been feared (see e.g. Kenney and Florida 1993; Womack, Jones and Roos 1991). Indeed, as DiMaggio (2001: 222) observed, a context of ever shorter product cycles, regionally differentiated markets, and competition for sophisticated technologies has led companies to externalize functions and to place “a far greater and more systematic functional burden…on relationships than was customary in the recent past.” These complementarities at the level of the organization can encourage a virtuous circle driven by “learning by monitoring” and what Walter Powell (2001: 35) refers to as the “new logic of organizing.”

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10 In the United States, the best known aspect of the is of course its declining employment share, concentrated in three steep downturns (1979-1982, 1989-1992, 2000-2003), but to focus only on this mistakenly overlooks not only that manufacturing remains quite important to the American economy, still employing some 14+ million. The deindustrialization of the 1980s was actually a part of a very fundamental reorganization of the American productive model. See Whitford (2005)

11 The prolonged Japanese recession in the 1990s (and beyond) notwithstanding, there is a clear consensus that some, but certainly not all, of the central tenets of the Japanese production model were, and are, simply better able to meet the demands of highly uncertain markets. Toyota remains, after all, the most profitable manufacturing company in the world.
Looking particularly at patterns of inter-organizational relationships that perhaps most define the networked firm at the core of that logic, there are many notable cases of large American manufacturers that have restructured their operations to rely considerably more on their suppliers, and have in many cases remained dependent on the skills and technologies of companies concentrated in the American Upper Midwest (Helper and Levine 1992; Helper, MacDuffie and Sabel 2000; Veloso 2000). Focusing on what many believe to be the central feature of that model—collaborative and long-term relationships between large firms and their suppliers—Jeffrey Dyer (2000) even described Chrysler (prior to the merger with Daimler) as having its own *Keiretsu*.

Yet as Powell (2001) also notes, a closer look shows that the “reception and diffusion” of the new logic of organizing is in fact a very “complex story.” Altering the existing mode of interaction entails considerable costs. This is especially the case for companies and regions where entrenched hierarchy and arms-length relations were “at one time a recipe for success, and so there is both more resistance to new ways of doing things and greater difficulty in creating novel practices than in a new organization built from scratch.” And in fact, Helper and Sako (1998) document increasing trust between American automakers and their suppliers but observe also that trust between American automakers and their suppliers lags far behind the levels of trust that those same American suppliers have with their Japanese customers.

The issue, as Whitford (2005; see also Whitford, Simmons and Helper 2007) documents, drawing on interviews with large manufacturers and their suppliers, is that the “double-edged sword” cited by Powell (1990; 2001) is at play not just between relationships but also within them. That is, the modal case of the customer-supplier relationship in American durable manufacturing is deeply *contested*, and is as a result systematically intermediate between the arms-length and collaborative poles.

Large customer firms that have decentralized production and come to depend on their suppliers help those same supplier firms to meet performance standards of their own design (e.g., cost, quality, and delivery) by communicating openly about the production process. Suppliers open their doors (and books) to their customers’ consultants and purchasing agents, while their assembler customers open their doors to supplier engineers. But because relations are tense, both sides hedge their behavior in light of fears of mistrust, miscommunication, and opportunism on the part of their interlocutors.

This is particularly so in the context of the institutions and incentives found in the American “Liberal Market Economy (Hall and Soskice 2001) (e.g. antitrust regulations that inhibit coordination, labor laws that decentralize or disable collective bargaining, a litigious approach to dispute resolution). These leave once vertically integrated manufacturers with (often legacy) organizations designed to inhibit rather than foster the growth of embedded relationships between purchasing agents and suppliers for fear that these same relationships enable malfeasance.12 But this of course means that suppliers have good reason for caution in the

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12 For example, it is common for purchasing agents are rewarded for short run cost savings regardless of their long term impact, and the rewards include promotions that inhibit the growth of the very personal relationships that might otherwise facilitate the emergence of less contradictory forms of collaboration.
sharing of process information and of investing in new product development on the promise of business down the line. Suppliers muddy the waters with misleading or even deceptive cost information. They withhold cost saving at time 1 in order to meet new targets at time t + 1. And they at times forego offers of concrete assistance from their customers for fear of compromising information, even as this makes it riskier for their customers to depend on them. And this in turn feeds the divisions and dysfunctions found in all multidivisional enterprises, including the at times incompatible goals of their purchasing and manufacturing divisions.

All of this gives everyone greater reason to treat particular subcomponents as commodities and emboldens “marketeer” factions who believe that the best way to lower costs is to jump from underbidding supplier to underbidding supplier to take advantage of excess capacity in global markets, effectively blocking—but not necessarily entirely undermining — the virtuous circle of ideal-typical network governance. Effective competition in the high-wage world all but requires that assemblers (customer firms) attempt to compete in quality conscious markets that require some modicum of network governance, and the concentration of competencies in historic manufacturing regions have at this point led to a mutual dependence that generates instead a sort of stasis and contestation driven by a combination of inter- and intra-organizational conflict. Neither side can readily exit; but neither side trusts the other enough to really collaborate.

V. Why we need a general theory of network failure

Network governance fails when exchange partners either screw each other or screw up. They screw each other when formal and informal institutions fail to inhibit opportunism; they screw up when such institutions fail to facilitate the search for new information beyond the network. When the institutions in question simultaneously inhibit opportunism and facilitate search, network governance becomes viable—at least insofar as it is desirable. However, when such institutions neither mitigate opportunism nor facilitate search, network production is all but impossible and stillbirth or breakdown—that is, absolute network failure—occurs.

Table 1 presents a summary distillation of the argument. First, ideal-typical networks like the ones identified in the northwestern quadrant presuppose a search for new information and safeguards against opportunism among existing exchange partners. Second, absolute network failures like the ones found in the southeastern quadrant are products of a combination of ignorance of relevant information and opportunism among existing exchange partners. Third, involution is an outgrowth of ignorance and competency shortfalls and occurs largely due to isolation of various sorts, as in the cases identified in the southwestern quadrant. These occur regardless, and at times perhaps because, of the level of trust or good faith in the network. And, fourth, contested collaborations like the ones found in the northeastern quadrant result from a high degree of search carried out by exchange partners who behave opportunistically.

Our main contribution in this article has been to show the salience of the off-diagonal or discordant pairs. When formal and/or informal institutions tend either to mitigate opportunism or to facilitate search, but not both, we enter the world of partial or relative network failure. We have argued that search-cum-opportunism engenders a particular variety of network failure that
we label contested collaboration. Exchange partners have an incentive to continue working together but hedge their behavior, and thereby forego the full benefits of network production, in light of the possibility of opportunism. By the same token, however, a failure to search will engender involution no matter how many safeguards there are against opportunism—and in extreme cases precisely because there are safeguards against opportunism.

Table 1: Varieties of network failure.

<table>
<thead>
<tr>
<th>Ignorance and competency shortfalls among network players</th>
<th>Low</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>Ideal typical networks e.g., Italian industrial districts, Silicon Valley, etc.</td>
<td>Contested collaboration e.g., durable goods in the upper Midwest</td>
</tr>
<tr>
<td>High</td>
<td>Involution e.g., Ruhr Valley [where involution is product of strong ties]; Latin America [where involution is product of protectionism]</td>
<td>Network stillbirth/breakdown e.g., Daimler-Chrysler, Eastern Europe</td>
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Our typology of network failure is designed not only to advance the network perspective in economic sociology but to simultaneously point to policy interventions designed to address actually existing network failures. When network failures are rooted in opportunism, one would be interested in creating and taking advantage of confidence-building measures and institutions including trade associations, peak business associations, cartels and cooperatives, mediation services, and alternative dispute resolution procedures. For network failures rooted in ignorance or isolation, by contrast, one would focus on building and exploiting educational and training institutions including not only vocational and technical schools but also industrial extension services, overseas marketing agencies, and supplier development programs.

The successful apparel makers in the Dominican city of Santiago provide an example of the latter. They not only pooled their resources to hire a representative in New York City in the 1970s, and thereby lured foreign partners (Schrank 2005), but continued to search for new
information as their network grew in the 1980s and 1990s. By the late twentieth century, they had not only established but started to exploit publicly subsidized training programs designed to disseminate best practices (e.g., modular production, full package production, etc.) throughout their industrial estates.

However, the capital’s involuted producers have not taken advantage of the opportunity for vocational education and training. While publicly sponsored training programs are by now found throughout the country, and are therefore available to apparel makers in Santo Domingo as well as Santiago, their enrollments and impact have been decidedly higher in the latter than the former. In fact, the industrial estates found in and around Santiago not only play host to more training courses than their rivals in the capital on an annual basis but simultaneously boast longer courses with more intensive curricula. The average course in Santiago is 69 hours long, for example; in the capital, by way of contrast, it is 11 hours long.

The problem is therefore not the absence of a formal institution, but rather the lack of informal norms and institutions that would predispose Santo Domingo suppliers to fully exploit the formal institutions that already exist. Why would rational entrepreneurs avoid potentially beneficial programs? Schrank (2005) traces the answer to the capital’s traditional isolation from world markets. The capital’s manufacturers have traditionally had a politically reinforced stranglehold on the protected, and therefore lucrative, local market and have resisted the onset of globalization. An effective government response would thus aim not so much to create training programs in the capital as it would convince the capital’s producers to take advantage of training programs and the broader array of institutions designed to facilitate—rather than resist—globalization.

The is precisely where the glass in Santo Domingo begins to appear half full rather than half empty. After all, the capital is not entirely devoid of the social requisites of network production. Santo Domingo producers have traditionally been isolated from the wider world. They thus lack competencies, but they are tightly coupled to each other. This gives them a social foundation on which to build. If they could use their cohesion not to resist but to embrace globalization, they might well build better relations with foreign buyers, develop new skills and capacities, and thereby enter a virtuous circle of confidence and competence akin to the one found in Santiago.

The policy implications are clear and extend well beyond the Dominican Republic. Potential suppliers who have been isolated from world markets for years not only need to learn, which they can do through industrial extension and training programs, but also need to “learn to learn” (Levitt and March 1988: 332), which is arguably more difficult—especially for large or privileged producers who have traditionally been able to sidestep competition and search. It follows that government efforts ought to focus not only on creating viable training programs but also on encouraging potentially ignorant or wary employers to use them. Recognizing that producers in partially failing networks by definition have something to build on helps to identify relevant carrots (i.e., specific subsidies) as well as sticks (e.g., de-protection).

Identifying contested collaboration also directs interventions. Contested collaborators are bedeviled by opportunism and self-dealing, but they are also by definition rich in competencies. The government’s role is therefore to temper opportunism so as to allow the exchange partners to
fully take advantage of their competencies. How might one do this? Whitford (2005) draws on a case study of the Wisconsin Manufacturers’ Development Consortium (WMDC) to outline one possible avenue. The WMDC was established as a consortium of seven durable manufacturers forged with the support of the Wisconsin Manufacturing Extension Partnership (WMEP) in 1998.  

Interestingly, this strategy began with an institution of the sort in which the region was already rich. It was in a sense designed simply to ensure the growth of competencies in component supply firms. However, by delivering training and consultancy services around issues like cost and inventory reduction, delivery and cycle times, and product quality through a consortial public-private partnership, it used the parties’ joint interest in maintaining competencies to mitigate opportunism in a number of different ways. First, membership in the consortium serves as a signal of the buyer’s commitment to the collaborative model and thereby undercuts suspicions on the part of their component suppliers. Second, WMEP personnel can serve as “honest brokers” to their associates in the WMDC and thereby ameliorate buyer-supplier conflict when it does arise. Third, the consortial structure encourages collective investment in human resource and supplier upgrading and thereby resolves the free rider problem that otherwise might inhibit their growth. And, fourth, it facilitates information flow and transparency and thereby makes self-dealing all the more difficult to sustain. While by no means resolving contested collaboration, interventions of this sort help collaborationist factions in both buyers and suppliers to work together across fluid organizational boundaries but to face down opposition from marketeer factions in their home organizations.

The point is most assuredly not to belittle the problems faced by durable manufacturers in Wisconsin and the Upper Midwest but to note that some of these problems are tractable precisely because the region continues to play host to enormous competencies. The very competencies that are compromised by opportunism and bad faith, in fact, give their bearers an incentive to combat such behaviors, though their willingness and ability to do so are sharply circumscribed by government policy. Despite many hitches and continued struggle, local industrial policy has been used to combat one form of partial network failure in Wisconsin. But similar outcomes have been engendered by corporatist institutions—both local and national—in other contexts (Hall and Soskice 2001; Herrigel 2004; Herrigel and Wittke 2005).  

The point is to draw a distinction between absolute and relative network failure and, having done so, identify the primary source of network failure in ways that facilitate useful intervention. Members of partially failed networks by definition have something to build on, be it competency or cohesion, and the state’s task is therefore to do the building. What that building will entail may differ markedly, either nominally or substantively, depending upon the answer. But only by asking the right questions—are they screwing each other or screwing up?—can we begin to transform partially failed networks into virtuous circles of competence and confidence.

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13 The original consortium has since evolved on the one hand to include a smaller but more intensive consortium of some of the original members, and on the other to include a larger but somewhat less consortial set of manufacturers working with the manufacturing extension partnership to deliver “OEM-led supplier development” in collaboration with elements of the state technical training apparatus.

14 See also Whitford and Enrietti (2005) for a discussion of contested collaboration and debates over industrial policy in the Piedmont region of Italy (where the Italian automotive industry is centered).
VI. Conclusion

In this paper we have shown that the conceptual toolkit to make sense of organizational forms that seem to be neither market nor hierarchy is, though advanced, still incomplete. If network governance is in fact more than the bastard offspring of market and hierarchy, it should be possible to understand its failures in as rich a way as can be—and has been—done for those classical modes of governance. In so doing, our goal has been more programmatic than dispositive. We have sought to (i) identify a hole in the existing literature on network governance; (ii) explore the potential payoff to filling the hole; and (iii) discuss and defend one possible plug. We believe that in so doing we have at the very least laid some of the groundwork for a subfield-wide discussion of network failure that will propel economic sociology forward in both theoretical and practical terms.

But we hope also to have taken a first substantive step in that discussion with our own general theory of network failure. This theory is relatively straightforward. Network governance is functional for particular types of transactions, in particular those that are characterized by uncertainty and/or instability and are thus facilitated by improved search for relevant competencies and safeguards against opportunism. Where uncertainty and instability are less daunting, or search and safeguards are absent, networks are unlikely to prevail. In the former case, they are unnecessary, and transactions are most functionally pursued in either markets or hierarchies. In the latter case they are impractical, and networks can be expected either to break down or to be stillborn.

But what happens when transactions feature uncertainty or instability and exchange partners have access to either safeguards or search but not both? Safeguards without search are characteristic of involuted networks. Exchange partners are bound by cohesive social ties, and therefore continue to pursue network relations, but lack the necessary competencies, and therefore underperform. By way of contrast, searches without safeguards are characteristic of contested collaboration. Exchange partners have abundant competencies and therefore continue to trade with each other. But they lack safeguards on opportunism and therefore hedge, deceive, and in general fail to exploit the full advantages of the network form.

By acknowledging the differences between the two varieties of partial network failure, social scientists and policymakers can gain greater purchase on network governance and perhaps even transform collaborative relations from serendipitous but exceptional outcomes to politically manageable processes. In so doing, they would not only be advancing the realm of economic sociology but would perhaps be opening the door to more dynamic and perhaps even humane productive processes. This would seem to be a worthy goal for all concerned.

References


The Anatomy of Network Failure
Schrank and Whitford
DRAFT


