Pragmatism, practice, and the boundaries of organization

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Abstract

The article uses a longitudinal qualitative analysis of key transitions in the relationship between Fiat Auto and a major supplier to challenge conventional approaches to the study of activities at the boundary between organizations. It shows, in particular, that scholars focused on the importance of “modular” product designs, on the spread of “learning by monitoring,” or that documents the role that social embedding plays in inter-organizational relationships have cast the debate as a sort of “horse race” between contending theoretical perspectives. This has led them to depict agents, to the extent they depict them at all, in mechanistic terms and, as a result, to obscure important contextual variation in patterns of organizational behavior. The article therefore proposes an alternative approach that incorporates a Deweyan pragmatist model of human action into contemporary practice theory (i.e. into the “practice turn in organizational sociology). The result—a “pragmatist and practice” approach to organizational analysis—allows us to demonstrate that it is mistaken to presume that any of the contending theories might be right in general and that some form of “methodological situationalism” is needed. And it enables us to show how scholarship investigating the shifting boundaries of organization can better understand when and how the artifacts, techniques and relations at the center of much contemporary theorizing are invoked—and thus have causal force—in organizational practice.

Keywords
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I. Introduction

What is happening at the boundaries of organization? How do agents simultaneously coordinate their activities with their co-workers—that is, with those embedded in the same formal organization—as well as with personnel employed elsewhere? These questions have come to the fore in the scholarly literature in recent years as it has become ever clearer that the large vertically-integrated producers described and theorized by Alfred Chandler (1977) and Oliver Williamson (1975; 1985) are gone, if not for good, at least for now. Indeed many have observed that the close of the previous century was marked by the rise of a “new logic of organizing” (Powell, 2001: 54) and by “more long-term collaborations—especially close information-sharing relationships with suppliers and collaborations around product development” than had been the case for many years previous (DiMaggio, 2001: 221). There is, moreover, considerable consensus as to the why of this broad secular shift: vertically integrated firms simply proved too inflexible in the face of radically increased market and technological uncertainty. However, there remain stark and persistent disagreements as to the how, and hence as to the shape of the variation we see internal to this “new production paradigm” (Whitford, 2005: 15). That is, there are important disputes as to how we ought best to explain the patterns of organizational boundary formation and negotiation that we see across industry today.

One prominent approach remains essentially true to the theoretical core of Williamson’s transactions-cost economics by arguing that rising uncertainty—which constitutes a change in what Williamson (1975: 9) referred to as the “environmental conditions”—has led companies to pursue novel technical solutions. Its proponents focus on diffusion of “modular” product architectures, thus claiming in effect that the patterns of boundary formation—and of relations within and across those boundaries—are a function of changes in the artifacts being exchanged (e.g. Dyer, 2000; Gereffi et al., 2005; Langlois, 2002; 2003; Sanchez and Mahoney, 1996; Sturgeon, 2002). A second group maintains that the organizational response to rising uncertainty has been mediated by pre-existing patterns of social relations, and therefore highlights the importance of firms “embedding” in communities—be those communities, local, regional, technical, associational, or of some other sort (e.g. Brown and Duguid, 1991; Granovetter, 1985; Gulati and Sytch, 2007; Saxenian, 1994; 2006; Uzzi, 1996; 1997). A third position, finally, disputes that the characteristics of artifacts and the qualities of the relationships across which they are exchanged are the determining factor, and maintains instead that the “long-term collaborations” and “close information-sharing relationships” that so mark the “twenty-first century firm” are grounded in a series of specific organizational techniques that have spread in the wake of the Japanese manufacturing revolution (Gilson et al., 2009; Helper et al., 2000; Sabel, 1994; 2006).
In this article, we tackle this same question: how one ought to understand the boundaries of organization? We do so, however, in a novel way. We make use of a longitudinal case study of key transitions at the boundary between Fiat Auto and a major supplier (pseudonymously dubbed TIER1). We confirm that the sorts of artifacts, techniques, and relations that sit at the center of most contemporary analyses do in fact shape interactions within and between the companies in question. But, we also show, while each of the three main approaches does successfully explain one of three distinct transitions in the governance of the relationship between Fiat and TIER1, none is able to explain all three. This is problematic, given that partisans of those approaches have proclaimed their theories to have some more general valence, and is rooted in those partisans’ adherence to a dominant mode of theorizing that would cast the debate as a sort of “horse race” between contending theoretical perspectives. This mode depicts agents, to the extent it depicts them at all, in mechanistic terms. And it has led contemporary scholarship on the boundaries of organization to obscure important contextual variation in actors’ use of artifacts, techniques and relations.

We therefore propose an alternative approach. We take heed of Orlikowski’s (2002: 249) documentation of the “essential role of human action in knowing how to get things done in complex organizational work.” We draw, in particular, upon insights developed in a practice approach that renders “social life [as] an ongoing production [that] emerges through people’s recurrent actions” (Feldman and Orlikowski, 2011: 1240). At the same time, however, we do not take simply that approach “off the shelf.” Rather, we develop it in light of Elkjaer and Simpson’s (2011) recent recognition that pragmatist social theory bears considerable “potential ... to productively inform the theorizing of ... organizational practices.” And we therefore ground our attention to practice in an explicitly pragmatist conception of action—a conception that relies heavily on John Dewey’s(1929) rejection of “spectator” theories of knowledge that “[deprive] reason in man of an active and creative office.” The result—a “pragmatist and practice” approach to organizational analysis—allows us to demonstrate that it is mistaken to presume that any of these contending theories might be right in general and that some form of “methodological situationalism” is therefore needed (Knorr Cetina, 1988: 21; Stark, 2009: 32). And it enables us to show how scholars investigating the shifting boundaries of organization can better understand when and how the artifacts, techniques and relations at the center of the main stories are invoked—and thus have causal force—in organizational practice.

Theoretical background, and an outline of the argument

Why is it a problem that the perspectives that currently dominate analyses of the boundaries of organization (and therefore also analyses of inter-organizational relations) tend to depict agents in mechanistic terms? It is a problem because the actors that organizational theorists wish to observe and theorize can—and do—themselves observe, theorize and act creatively to remake their own worlds. They are often well aware of the very theories that organizational theorists develop and promulgate (albeit sometimes in their translation into folk versions by management consultants and faculty and the like). Our own theories—or at least folk versions of—can therefore become endogenous to that which we wish to explain. This obviously makes prediction difficult. Still, it is of course important for organizational theorists to find ways to predict (or to prescribe) the sorts of things that might (or should) happen at the boundaries of organization, if perhaps only in general terms. These goals, we emphasize, are by no means eschewed either by pragmatists or by those who have taken the “practice turn” in organizational sociology (Simpson, 2009). Their (and therefore our) point is that it is worth grappling explicitly with the problem.
Our own proposed solution focuses on the same sorts of artifacts, techniques, and relations that animate conventional analyses. But we also bring an empirical focus on “what people actually do” with those artifacts, techniques, and relations in “their recurrent, situated practices” (Orlikowski, 2000). And we rely on a pragmatist understanding of human action that depicts those artifacts, techniques, and relations as means to what Dewey (1958 [1925]: 102, italics added) referred to as “ends-in-view,” where our reference to ends-in-view, rather than just to ends, is no mere linguistic turn. The idea—following Dewey—is first to distinguish explicitly between ends as results or consequences and the ends-in-view that serve more directly in the moment-to-moment activities of people in their daily lives (Whitford, 2002). And it is then to depict our agents as habit-followers that are not, however, “cultural dopes” (Garfinkel, 1964: 244) because we construe habits not as simple rote behavior but rather as custom. They are, as Dewey (1957 [1922]: 42, emphasis in original) explained, framed here as the “acquired predisposition to ways or modes of response, not to particular acts except as, under special conditions, these express a way of behaving.”

Dewey’s point was to focus attention on the “lines of action” that introduces continuity into an activity, that enable people to respond coherently the near endless variety of potential decision-points they face in their lives. Following that, we hence intend a model of the actor that is rational, but in ways that are not so much calculative as reflective. That is, we expect actors to follow habits much of the time, but to find also that there will be times when a “line of action becomes more or less uncongenial because of the strain required to overcome difficulties (Dewey, 1913: 51). Those discontinuities, we also expect, will be endemic in a real world where “invasions from without and inventions and innovations that radically alter the course of life” may cause custom to break down (Dewey, 1996 [1908]: 30). In such “problem situations,” the Deweyan model expects that actors will be bound to “investigate what it would be better to have happen in the future” (Dewey, 1939: 66) and therefore to “examine ... [and] turn things over intellectually” (Dewey, 1938: 102).

This model has clear implications for the analysis of practice. If it is only in problem situations that we need think of actors as “choosing,” we can focus empirically on those situations. If we understand the behavior of the actors we observe in terms that frame them as reflexive experimenters who survey themselves and the situation for solutions to their problems, we ought not to expect them to know exactly what will resolve their problems. We should anticipate rather that they, like we, will try things out and we should be asking how and why they select the solutions to their problems that they do. But—and here the relevance of Dewey’s distinction between ends-as-consequence and ends-in-inquiry—we should remember that the ends that actually matter for rational action are “in empirical fact, ... projections of possible consequences.” (Dewey, 1958 [1925]), and that those ends may well be revised in light of actual experience. The ends-in-view is in this vision best seen as a sort of “means for directing action” (Dewey, 1957 [1922]: 225), while the “end actually reached is [therefore]... a test of valuations previously made” (Dewey, 1938: 60). The point, as Neil Gross (2009: 367) has nicely put it, is that we can anticipate that lines of action initiated may “lead actors to see themselves in new ways, to value different kinds of goods, and to become attached to problem solutions they [had not] imagined previously.”

The question that remains, of course, is “so what?” Since “theorizing practice is itself a practice, one that produces particular kinds of consequences in the world, for which we as theoretical producers are responsible” (Feldman and Orlikowski, 2011: 1250), we can best develop our answer to that question with reference to our empirical case. We do that across three main sections (beyond this introduction). In the next (II. Transitions), we introduce the three main approaches—modularity (artifacts), learning by monitoring (techniques), and embeddedness (relations)—most often used to explain patterns of inter-organizational collaboration in manufacturing industries.
As we do so, we also use our discussion of those approaches to identify and narrate three clear transitions in the governance of affairs between Fiat and TIER1. Intermingling the presentation of the extant literature through case is, we recognize, an unusual approach. But it is, we emphasize, done with purpose. It allows us: (i) to highlight the inadequacy in the study of the boundaries of organization of a “horse-race”-style narrative that places alternative theoretical approaches on the same conceptual plane (or track) and that thus requires a single (rather than situational) winner, therefore creating space for a more processual and situational approach; and (ii) to show that these transitions are inseparable from “invasions from without and inventions and innovations” (Dewey, 1996 [1908]: 30)—that is, from “problem situations”—therefore allowing us to weave seemingly alternative explanations into a single and superior analysis of the dynamics of inter-organizational collaboration in contemporary manufacturing industries.

In section II we undertake the first of these lines of argument. We begin by explaining how external pressures to increase return on investment (i.e. a problem situation) led Fiat and TIER1 to “modularize” the objects (the artifacts; in this case a "passive safety system) they were jointly designed and trading. And we explain why the companies expected to simultaneously reduce investment and the need for complex coordination between personnel at Fiat and at suppliers. That marks our first transition. Our second transition comes because new complexities and new problems quickly emerged in the wake of Fiat’s decision to devolve full responsibility for the design of the passive safety system TIER1. Their joint response was one consistent with the literature on “learning by monitoring”: the companies adopted some very specific organizational techniques—including especially to what Gilson et al. (2009) refer to as a “contract-for-innovation”—to manage those complexities. However, those organizational techniques turned out to have precisely the double edge predicted by those who argue that it is actors’ “embedding” in social relations that best explains patterns of inter-organizational collaboration. Fiat’s contract-for-innovation provided enough transparency and flexibility to paper over a problematic division of labor between Fiat and TIER1. But it also locked that division of labor in place for a while. It was only upended when a problem situation arose, and dissatisfied operational personnel were able to use more informal ties (relations) to each other to mobilize support for changes to that contract—which marks our third transition.

In the penultimate section of the paper (III. Pragmatism and Practice) we undertake our second line of argument. We show that none of the three perspectives offers much insight into the reasons why our third transition occurs only after a successful test of joint project (a crash test) that one might have expected to have cemented the existing division of labor in place, but that in fact allowed for its upending. This finding motivates our reanalysis of changes in governance at the boundary between Fiat and TIER1 in explicitly “methodologically situationalist” terms. In that re-analysis, we show the value of an approach that brings artifacts, techniques and/or relations into the narrative only as they serve empirically as means that actors use to hypothesize ends-in-view that might render problematic situations determinate, as something that often entails the use of those ends-in-view as means to mobilize support from other actors for their proposed solutions (that is, in efforts to coordinate their routines (habits) with others; see Cohen 2007). This alternative read, with its attention to situated practice and its reliance on a pragmatist conception of agency, improves upon the dominant approaches not so much by falsifying them as it does by identifying their scope conditions. And it therefore allows us to weave them together into a theoretically consistent narrative of the evolution of boundary between Fiat and TIER1. The concluding section (IV. Conclusion) recaps and draws some general conclusions.
II. Transitions

Our empirical narrative sacrifices breadth for depth by focusing on the evolution of the boundary between just two organizations, rather than giving a broader but less detailed account of negotiations between more parties. However, we are careful also to locate that focal relationship in the context of the evolution of the larger production network. The supplier in question, TIER1, is among the world’s leading automotive suppliers, operating in more than 20 countries, employing approximately 65,000 people worldwide and making an array of components not just for Fiat but for other assemblers as well. At TIER1, we conducted 14.5 hours of interviews across eight different individuals: we spoke with the plant director in 1999, with three managers in purchasing and quality at a satellite plant in 2002, and conducted long interviews with the company’s Fiat account director and with a program manager on two separate occasions in 2006. We have conducted 42 semi-structured interviews with 34 different persons employed by Fiat Auto. In the production network more generally, we have conducted an additional 65 interviews at 40 different first and second tier suppliers between 1998 and 2010 (beyond TIER1; some of these were suppliers to TIER1; others were peers). At Fiat, interviews have been conducted with a very broad array of personnel, including both senior managers (e.g. the Chief Technology Office; VP of purchasing) and with more operational staff (e.g. managers in charge of vehicle lines). At suppliers, we have generally sought out those responsible for the commercial relationship with customers and those in charge of component or system development.

These interviews have been conducted over the course of the years as part of a larger project (and sub-projects) tracing on the evolution of the production network that revolves about Fiat. The decision in this paper to highlight developments at the boundary between Fiat and TIER1, and therefore to exclude details from activity at other boundaries, reflects the specific theoretical goals we laid out in the previous section. We have, from our broader qualitative dataset, consciously selected the elements of a narrative that is “very special in the sense of allowing one to gain certain insights that [an analysis of] other organizations would not be able to provide” (see also Eisenhardt and Graebner, 2007; Siggelkow, 2007: 20) (or, at least, would not be able to provide as well). And while we do in the pages that follow bring comparative insights from our broader study to bear where relevant, we generally focus on just this one boundary. It is “very special” for our purposes because it is marked: (1) by evidence of a significant change in the division of labor concerning the engineering and design activities between Fiat and TIER1; (2) the presence of thick social relations between individuals within and across formal organizational boundaries are complex and “many-to-many,” so that different individual relationships may matter be more or less salient at a given moment; and (3) ready proof that the overarching mode of transactional governance in the inter-organizational relationship between Fiat and TIER1 varies across time, as do the artifacts and techniques that the two firms used to manage their collaboration.

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1 A list of interviewees (with identities masked) is available from the authors upon request. The interviews were conducted in three waves: 21 were conducted between 1998 and 1999; 20 were conducted between 2001 and 2003; and 74 were conducted between 2006 and 2010. Interviewee were identified and contacted in a variety of ways, ranging from cold calls to snowballing and were generally conducted in Italian (with translation here by the authors). When respondents were amenable, which they were in the vast majority of cases, interviews were taped and transcribed.
Modularizing

A modularizing transition in the governance of the relationship between Fiat and TIER1 came in the late 1990s, and was (naturally) consistent with the predictions of what we are here calling the modularity approach.2 Partisans of that approach hold essentially true to the core of transactions cost economics, in the sense that they expect (*ceteris paribus*) that uncertain, frequent and asset specific transactions will be governed by hierarchy (Langlois, 2002). This does not mean that such partisans remain fully aligned with Williamson’s (1975; 1985) theories of the M-form, but rather that they explain the broader trend towards vertical disintegration with reference to changes in product architectures, including especially the standardization of interfaces, that have eased the coordination of external sources of innovation in the product development process (see e.g. Langlois, 2002; Sturgeon, 2002). Drawing heavily on managerial and engineering literatures, this approach claims that modular product designs that allow parts (be they physical or conceptual) to be engineered in relative isolation from each other should enable “the design of loosely coupled, flexible, ‘modular’ organization structures” (Sanchez and Mahoney, 1996: 73, emphasis added). It therefore holds that governance forms are a function of transactional conditions, and that transactional conditions are themselves essentially a function of technologies. Modular products ostensibly incorporate the information needed for coordinating external sources of innovation in the product development process, hence render assets less specific, and therefore alleviate the need either for vertical integration or for “thick” ties between organizations.

The degree to which modular product designs have spread is the subject of not a little debate, including especially in the auto industry where there is great controversy over just how far modularity can be taken the design and making of something as complex as a car (MacDuffie, 2008; Zirpoli and Camuffo, 2009).3 For purposes here, however, the salient theoretical points are just two. First, it is easily demonstrated that many automakers have been intrigued by the idea, and that at least a few have made very substantial efforts to develop more modular product architectures. Helper et al. (2002: 6), for instance, report finding “substantial variation in OEM strategies for modularization, in decisions about module boundaries, in whether modularization extends into design, and in the degree to which modularization and outsourcing are always coupled.” They observe also that suppliers interviewed in the 1990s often cited “modularization” as a primary motivation for the wave of supplier mergers and acquisitions, and explained that it had led them to build “capabilities to take on full responsibility for module design and production” (see also MacDuffie, 2008; Ro et al., 2007). Second, there is general agreement now—and there was at the time—that Fiat in 1990s and early 2000s went further than most assemblers in their efforts to develop modular product architecture. (Camuffo, 2004; Zirpoli and Becker, 2011a; Zirpoli and Caputo, 2002).

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2 There are several definitions of modularity. Baldwin and Clark (2000) define modularity as a decomposition scheme that assumes independence between modules, with interdependencies confined within module boundaries. Modules therefore interact only across standardized interfaces. Ulrich (1995: 422) provided a somewhat different but also influential definition of modularity. In his definition, architectures are modular if there is a one-to-one mapping from functional elements to the physical components of the product, which specifies de-coupled interfaces between components. See also Sanchez and Mahoney (1996). In this article, we follow Baldwin and Clark’s (2000) definition.

3 Much empirical work on modularity has been industry specific (Fixson and Park, 2008; Fixson et al., 2005; Tiwana, 2008), with particular attention paid to the successes of modular product architectures in the mitigation of coordination problems in electronics (Baldwin and Clark, 2000; Sturgeon, 2002) and bicycle making (Galvin and Morkel, 2001). See Campagnolo and Camuffo (2010) for an overview.
Hence, when we say that the transition in question was in the first instance consistent with the modularity position, we mean: (1) that company leadership at both Fiat and TIER1 made a series of strategic decisions in the 1990s in response to a particular problem, in the sense that they were trying to relieve pressure from investors to increase their return on assets by reducing their owned asset base; (2) that modularity was seen to offer a solution because it would ostensibly allow the company to rely instead on assets held on suppliers books, at least once the artifacts had been modified to obviate the need for extensive—and sticky—day-to-day coordination of activities at the shared organizational boundary; and (3) these decisions did in fact lead to significant changes in the governance of the relationship between the two organizations.

There is strong evidence from our interviews for each of these propositions. We were told in interviews just after the turn of the new century that Fiat’s main strategic concern in the mid 1990s had been to “reduce [their] assets and overall development costs and, at the same time, to leverage external sources of innovation.” “It was for that reason,” another manager later told us in retrospect, that the automaker had decided “to use modules as a tool to go from a situation in which [they] had to coordinate 5000 components to a situation in which [they] could leave everything to five system suppliers once [they] had designed the interfaces.” We heard, moreover, a cognate story at TIER1, where Fiat’s turn toward modularity had been received enthusiastically since the company had already been making in-house investments in technologies intended to position itself as a global provider of “passive safety systems.” TIER1 management told us they were supportive of Fiat’s push towards complete systems outsourcing because they saw it as an opportunity “to learn about the process of system integration” in exchange for “component-specific knowledge that [they] had developed working with other car makers.” This enthusiasm, then, led the supplier to bid for, and eventually to win, the contract to provide the “occupant safety system” for Fiat’s “Project X.”

This joint turn towards modularity in the safety system was ambitious, for two reasons. First, a safety system is not physically modular like the electronic components that have featured in the development of the concept (e.g. like hard drives with well-defined interfaces). It consists of a series of components, including especially the air bags and seat belts, that protect the passenger in a crash. Those components, moreover, necessarily attach to and interact with other components and systems—ranging from the dash to the seats; airbags require sensors; and so on. At the same time, however, it is a fairly well-defined system. And, importantly, and the definition of performance—occupant safety—was clear enough that the companies had high hopes that its definition as a module would allow them to decompose “complex tasks into simpler portions to allow the tasks to be managed independently and yet work together as a whole without compromising performance” (Mikkola, 2006: 128). Second, Project X was launched in 2001 at a time of sales and financial difficulty at the Italian automaker, and was an especially important project. It was—to quote a Fiat project manager—the “milestone for the new Fiat deal,” in the sense (i) that the project broke with some past practices; and (ii) that the company hoped (and needed) Project X to come in on time, on budget, and well enough to produce a top selling car.

The acquisition of this contract marked a significant turn in governance of activities at the boundary between the two companies. TIER1 had purchasing an existing Italian supplier in the late 1980s, and had since then considerably expanded its presence in the Italian market—and hence its place in Fiat’s supply base. However, prior to the contract for Project X, TIER1 had only been a supplier of components in a relatively straightforward co-design relationship. TIER1’s R&D headquarters elsewhere in Europe would develop technologies, sometimes on their own initiative, sometimes in response to problems posed by clients, and would then hand them off to engineers at the company’s Italian division. Only then would those engineers customize those technologies for
more specific uses in specific Fiat applications (“application engineering”). And while the customization of components in a co-design relationship does require considerable back-and-forth and mutual adjustment, the lead firm—in this case Fiat—takes responsibility for the overall performance of the various systems that make up the car.

So, when it was a co-design relationship, Fiat personnel were expected to maintain the know-how necessary to design the entire system (at least in its broad contours) and to make decisions about performance tradeoffs when there were interactions between components supplied by TIER1 and the rest of the vehicle—including of course interactions with components designed by other suppliers. With Project X, by contrast, these three tasks were devolved to engineers employed by TIER1. And this, as a TIER1 interviewee explained, meant that the “passive safety system” was to be sold to Fiat as a “black box”—a term that is industry shorthand for systems or components the internal workings of which the buyer need not understand because they can for practical purposes be represented entirely in terms of their input, output, transfer and performance characteristics (Clark and Fujimoto 1991). Fiat was then to pay TIER1 relatively well for its services, but would be able to hold them “responsible for obtaining 5 stars [the maximum] on the Euro NCAP crash test.” The Euro NCAP test was used both because it has substantive marketing value and because it provides an independent assessment of the safety performance. It therefore offered a means of measuring the success—or the lack thereof—of the occupant safety system and therefore of the performance of the party responsible for its design.

**Learning By Monitoring**

The second significant transition in the governance of the relationship between TIER1 and Fiat in the years studied comes shortly after the first, and is one that stands in contrast to a key prediction made by partisans of the modularity approach. The modularity approach predicts that the real work in “black boxing” the safety system can done up front in the development of the architecture—and collaboration is needed there. But, once the black-boxing decisions have been made, the modularity of the product architecture should either reduce the need for Fiat personnel to coordinate activities with suppliers; or, in the event that efforts to black-box fail and it turns out that the input, output, transfer and performance characteristics specified do not prove adequate to their task, the decision should be reversed in light of poor results (since the those results are easily measured). In empirical fact, however, neither of those outcomes came to pass. Instead, despite what all agree were extensive efforts to revamp the company’s product architecture, coordination problems with suppliers persisted. And this—as those adhere to the “learning by monitoring” approach would predict—led the two companies to turn to precisely the sorts of organizational techniques that Charles Sabel and collaborators depict as the functional core of the decentralized and networked firms of the twenty-first century (Gilson et al., 2009; Helper et al., 2000; Sabel, 1994; 2006).

Partisans of this approach argue that the decentralization of production that has so transformed global manufacturing industries was neither caused by, nor even especially enabled by, the advent of technologies that would allow for more modular product architectures. It is not technologies, they argue, that have engendered the easier coordination that might explain companies’ reduced need for the protections of hierarchy. Yet they differ also with those who argue that the effective spread of collaborative network production requires the formation of the sorts of culturally imbued thick trusting relationships often seen as characteristic of Japanese-style subcontracting. They contest the modularity view by arguing that the relentless need for innovation that
characterizes so many final markets means that firms who might be so foolish as to fix standards do so at their peril, since to do so “leaves open too many possibilities for competitive improvements that would cumulatively undermine the initial interface” (Gilson et al., 2009: 447). They offer a challenge to the embeddedness view as well, by pointing out that the degree to which companies have decentralized production indicates that firms must be relying on more than just those parties with which they have long-standing relationships. It is simply too unlikely that so many will have lucked into trusting relations with partners that happen to be at the cutting edge of the technologies they need at a given moment.

Sabel and collaborators’ argue that the successes of Japanese-style subcontracting that got so much attention in the 1980s were radically misinterpreted by many social scientists. They dispute those who saw those successes as dependent on a particular cultural milieu, arguing that they were in fact built around specific and codifiable, organizational techniques that originated in engineering practice, drifted into managerial practice, and that have since been distilled and translated globally (Sabel, 2006). They point out that those techniques have not just been widely diffused by pilgrimages of western managers to Japan in the 1980s and 1990s, but have been actively spread by Japanese producers only too eager to bring their own suppliers up to speed. They therefore hold that the trend towards vertical disintegration is best explained with reference to the spread of “lean practices” like benchmarking, root cause analysis, and the like, and note that many of those practices have even by codified in Gilson et al. (2009: 431) refer to as “contracts for innovation”—contracts that “[braid] explicit and implicit contracting to support iterative collaborative innovation by raising switching costs.” In combination, the argument goes, these techniques “increase the mutual transparency of the actors to each other, revealing to each how rigorously and cooperatively the others scan for solutions in addressing joint problems of design or quality” (Gilson et al., 2009: 448). This in turn allows for a sort of “studied trust” (Sabel, 1993) that enables parties to “contribute to the redefinition of interface specifications for new products by building on their experience in manufacturing existing models” (Gilson et al., 2009: 447).4

Applied to our case, the position predicts that Fiat and TIER1 would likely fail to standardize interfaces well enough to render the passive safety system modular. It predicts that the parties, like other firms in their industry, would turn then to the sorts of organizational techniques they could easily glean and translate from the Japanese experience to govern their affairs. And this is in fact exactly what we found. Engineers at Fiat and TIER1 quickly found that the decision to “black box” the design of the passive safety system was harder than predicted, even despite the clear goal (i.e. the five star rating on the Euro NCAP test). Indeed, as an interviewee at TIER1 explained, they found themselves trying to coordinate activities across what had become a complex supply network jointly governed by Fiat and TIER1, since this guiding objective had in fact to be translated into sub-objectives that were beyond the control of any single party: “If the seat doesn’t work right in the crash test, you don’t get 5 stars. If the supplier of the coverings for the door or the dash— which is a very important interface—doesn’t develop his component right, the airbag won’t come out when it should.” And so on. Those contingencies, he continued, affected not just TIER1 but other players who had interests that ran beyond just the performance of the safety system. For example, changes to door coverings would have to be cleared not just with a specific supplier selected by Fiat and perhaps also with a second-tier supplier of materials, but also with Fiat’s marketing department given that they affect the “look and feel” of the vehicle.

4 See e.g. Gilson, Sabel and Scott (2009) Sabel (2006); Helper, MacDuffie and Sabel (2000); and Sabel (2004) for a full explication of the position.
These complex interactions had not—as it turned out—been ironed out in the development of the architecture (as, ostensibly, they were to have been). This generated problems that were qualitatively different than the sorts that TIER1 had previously experienced. The supplier’s engineers, after all, had come into Project X from a co-design relationship that had been straightforward enough that they had been able to manage through relatively simple informal communications and consolidated inter-organizational routines, where design and engineering responsibilities could be established during the pre-offer phase on the basis of what our interviewee at both Fiat and TIER1 describe as “gentlemen’s agreements.” In that world, interviewees explained, the responsibilities were relatively clearly delineated. System supply, by contrast, was far more complex and was also new to them. It required them to coordinate their activities with many more players and—as one engineer at TIER1 complained—left them with little recourse when things went awry: “when things don’t work it is very hard to know who is at fault; it is very rare that you know this at the end of the project.”

The response was that the parties developed a “contract for innovation” that, they hoped, would explicitly but flexibly codify the roles that each actor was to take in the management of those interdependencies. That contract, called a “RASI,” consists of a matrix where the rows list activities to be carried out within a given component/system development project (the “whats”). The columns carry the names of the suppliers involved or potentially involved into the project (the “whos”). And the cells define the roles in accordance with four letters. R means the “who” in that column “is responsible” (e.g. for the complete engineering and design of a component or system in the case of TIER1; for the seats in the case of another; etc.); A means the listed party “has to approve” (e.g. TIER1 might have to judge and approve another supplier’s design and engineering activity before the latter is completed). S means the party “has to offer support” (e.g. technical information); and those with an I “must be informed” (some suppliers have the right to be informed in order to avoid miscoordination in concurrent engineering activities; but they are not given formal voice to respond). Note that with the exception of the “R”—which tends to land with system suppliers—the “approval”, “information” and “support” indications are characterized by some sort of reciprocity: a “duty” for one corresponds to a “right” for another.

It is a class of tool that had existed for many years (and that comes in many varieties; others use, for instance, a RACI or a RASCI, where the “C” is for “consulted”). Matrices of this sort are so common in project-based work that they should be seen as a semi-standard tool (Meredith and Mantel, 2012). And yet, its invocation in our case is nonetheless significant, for two reasons (beyond just its identification as one of the techniques that animate the Learning-by-Monitoring story). First, nothing of the sort had previously mattered in the governance of a relationship that had had highly consolidated inter-organizational routines established across many years of co-design, and it therefore marked a potential transition in practices of governance at the organizational boundary. Second, the writing of the RASI was very much a joint exercise, sustained on the one hand by Fiat engineers’ recognition that TIER1 personnel had knowledge that they needed, and on other by TIER1 personnel’s perception that the dedication of Fiat managers and engineers to the writing up of the RASI with them represented a sign of commitment to the relationship. Indeed, in empirical fact, the completion of the RASI in question not only took more than six months of joint work between TIER1 and Fiat personnel. It required them to identify the management tools (e.g. inter-functional teams, co-location, etc.) necessary if they were to implement some semblance of black box sourcing, and to negotiate the content of the “letters and boxes” across an array of suppliers.

The process was far from easy: a TIER1 interviewee explained, for instance, that they might say to Fiat “look, in our opinion it’s not right that we be responsible here, because the dashboard
supplier is involved and there we ought instead to give approval”; but that then required the involvement of Fiat and negotiations with the dash supplier and likely some second tier suppliers as well. For example, “if the passenger side airbag has a cover that is not integrated in the dash, we are responsible for the cover. If instead, like is often the case today, the dash itself has an integrated opening the responsibility for the opening of that hole in a crash is the dash supplier. The responsibility in that case passes from the maker of the airbag component module to the maker of the dash module. The normal modus operandi is to make these sorts of changes in conjunction with Fiat.” Still, the parties made clear that they felt that this heavy investment in an organizational tool was necessary in light of what a TIER1 interviewee described as “Fiat’s big problem at the time,” which was that neither Fiat nor TIER1 really understood “how to manage the development of a system that had been completely outsourced.”

To summarize, the turn to the techniques of Learning by monitoring grew out of a recognition—on the part of engineers at both Fiat and at TIER1—that they did not quite know how to jointly manage system supply, but that they did know where to learn how to manage system supply. They all traveled in an engineers’ milieu in which such techniques and tools had, in the wake of the Japanese manufacturing revolution, spread far and wide. They knew of semi-formalized tools like the RASI. They had just not previously identified a need to invest the time in its customization to the task at hand. Glitching in their joint turn towards modular system supply had generated—again in the words of a TIER1 interviewee—”a clear desire at Fiat ... to decide the responsibilities of the system supplier.” But, at the same time, that desire could not be satisfied without the cooperation of multiple parties since there was a “shared need to decide what the key technical moments were because either Fiat or TIER1 had to be responsible for each activity.” Hence, “in the initial writing of the RASI with Fiat’s technical division, [TIER1] jointly designed the matrix and decided where to assign responsibilities.” Because it was TIER1 that held the detailed knowledge of component design and thus of potential interactions, the supplier shaped not only the distribution of letters across cells, but also the very structure of the matrix (and therefore shaped the decomposition of activities and thus the feasible set of divisions of labor across sub-objectives).

Embedding

The third transition in governance at the border between Fiat and TIER1 comes in the wake of a signal event. In 2005, after a successful crash test conducted for the purposes of observing system performance, Fiat and TIER1 engineers held a “debriefing” to consolidate lessons learnt and to draw best practices they might extend to future projects. In that meeting (which was not the first such debriefing), TIER1 and Fiat engineers openly recognized that nobody knew quite why the system had worked. A TIER1 engineer told us that they revealed that they had made many of the decisions on tradeoffs even though “they did not control the design of all the subsystems involved” and were not “responsible (or even competent) for the design of the chassis, the engine layout and packaging of components and systems that affect the performance of the occupant safety system.” That revealing, he said, led Fiat engineers to decide that “they could not leave to serendipity the fate of the next occupant safety system.” And, once Fiat and TIER1 brass were brought into the equation and after some further negotiation, TIER1 and Fiat finally and fundamentally revisited the base RASI. Overall responsibility for the performance of the safety system was returned to the automaker—with some attendant costs and investments in know-how—while TIER1 became responsible once again only for the development of parts and components.
It is not surprising that a qualitative shift in the form of relational governance would occur in the wake of such a major test. But it is curious that such a shift would occur in the wake of a successful test—since an ostensible feature of a modular product architecture is precisely that the purchasing firm need not entirely understand why something works so long as it can for practical purposes be represented in terms of its input, output, transfer and performance characteristics (Clark and Fujimoto, 1991). The return of “responsibility” to Fiat obviously represents a clear rejection of the modularity approach, given that black-boxing the system was rejected notwithstanding its apparent and measurable effectiveness. The learning-by-monitoring approach fares better. It is certainly telling that the RASI per se was not scrapped. Indeed, not only did the renegotiation of the boundary between Fiat and TIER1 amount in practice to the re-writing of the RASI, but Fiat continued to use the broader mapping of interdependencies developed with TIER1 to govern the design of safety system across a multitude of firms. It is notable moreover that the existence of a “debriefing” for purposes of benchmarking after a milestone event like a crash test is—like the RASI—part and parcel of the “new pragmatic disciplines” so central to the “learning by monitoring” position (Sabel, 2006). And yet, the fact that “responsibility” for the overall performance of the passive safety system was not returned to Fiat until after a successful test still bears explanation.

That explanation, to our read, requires reference to what Granovetter (1985: 484) dubbed the “embeddedness” of economic action. The many scholars who take this approach argue that social and personal relations are not “frictional” but are rather constitutive of economic activity. Granovetter wrote, for instance, that we should expect complex transactions to occur across organizational boundaries more often where there is a “stable network of relations,” not just at “top levels” but “at all levels where transactions must take place.” His reasoning was straightforward (and bolstered by evidence): such relations tend to spill “over into sociability” and are thus often flanked by “standards of expected behavior that not only obviate the need for but are superior to pure authority relations in discouraging malfeasance” (Granovetter, 1985: 496, 498). His insight, since, has been used by Uzzi (1996; 1997: 54) and others to show that a strong social overlay—an “embedded” tie—between actors across organizational boundaries can “reduce product development risk” insofar as those ties help actors to safely “identify and execute coordinated solutions to organizational problems” (see also e.g. Dyer and Nobeoka, 2000). And, when applied to our case, it is an insight that directs our attention towards the informal working and social relationships between managers and engineers that served to lubricate complex transactions in ways that sometimes bolstered and sometimes circumvented the semi-formal directives laid out in the RASI.

The RASI, as it turned out, had given enough formalization to roles and responsibilities to make Fiat’s black-boxing of the safety system barely workable. But the negotiation of those roles and responsibilities at a particular point in time had also fixed them in ways that not only reflected, but also reinforced, assumptions about the functioning of that strategy. We were told by a TIER1 manager, for example, that “the projects that followed were essentially based on refinements more or less agreed upon but always ‘imprinted’ by that first RASI.” This was because the number of components and suppliers was so large that it would have been unworkable to define a new RASI for each new project. Instead, “what usually happens is that there is a RASI defined as the ‘mother’ for all major systems, and this is then refined along with Fiat to meet the needs of a particular project.” The “mother” RASI in question here was one with a structure heavily influenced on the one side by strategic decisions made on high by executives at Fiat deeply committed to the development of a modular product architecture; and on the other by TIER1 leadership in Germany similarly committed to developing the capacity to provide ever more complete safety systems not just to Fiat but other assemblers as well. The resultant mother RASI was hence explicitly designed to ensconce a modular logic into the distribution of organizational roles across the production
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network. It was, in short, intended not just to enable but also to constrain. It served to coordinate the many roles and responsibilities in complex product design, but also to systematically channel particular actors into particular roles.

The relative formalization of roles and responsibilities proved a double-edged sword. The TIER1 and Fiat engineers who were actually responsible for the design of the system were, in the terminology of the embeddedness perspective, “multiply embedded” (Meyer et al., 2011). They were located in their respective corporate networks, which meant that they had some incentive to make the proposed structure work. However, at a more operational level, most of the work was done by TIER1 personnel located in Italy who tasked primarily with “application” engineering on projects for Fiat. Their careers were therefore heavily tied into the fortunes of Fiat and they therefore retained longstanding relationships with Fiat engineers at multiple levels, including especially with the numerous players involved in what is called the “platform team.” The members of the platform team, meantime, had seen their lives complicated considerably by the shift from component to system supply. It had not just radically increased the number of people and organizational units at Fiat with which they had to coordinate activities; it had forced them to manage relations with third party suppliers over which they had little contractual power, no substantial history across which to have developed trust, and in many cases no technical superiority.

The upshot, we were told, is that they found the RASI to be an enormously helpful management tool—it usefully structured when, where and how they were to turn to Fiat for help managing those relations. But it had not obviated the need for recourse to their informal ties in the pursuit of workarounds. Indeed, it had in some ways made them even more important than they had been before by making a problematic product architecture barely workable. So engineers at Fiat and TIER1 could turn to each other for spot favors when needed. And, when TIER1 engineers did finally decide to reveal that they did know why the crash test had worked, they could feel safe doing so because they were in the presence of parties with whom they had longstanding working relationships and who, they thought, would recognize them as technically competent and would therefore believe their revealed ignorance to reflect systemic rather than individual deficits.

III. Pragmatism and Practice

We have argued thus far that each of three prominent approaches to the study of inter-organizational relationships captures the essence of one—but only one—of three significant changes in practice at the boundary between Fiat and TIER1. We are obviously convinced that this is a problem, and hope the reader is too. But we suspect that proponents of those theories would likely defend themselves. Those who take the “modularity” position might argue that Fiat and TRW merely sought to develop a modular architecture; that they failed to develop that architecture; that they had access to trust as an alternative, if second best, means to govern their affairs; and, as a transactions-cost theorist might expect, that they only therefore turned to that trust to govern those affairs. Partisans of the “learning-by-monitoring” approach, for their part, would surely dismiss our first transition as the mere result of mistakes made by managers caught up in a pro-modularity managerial rhetoric that was sweeping the automotive industry at the time; and they would point out that the renegotiation of roles and responsibilities was ultimately channeled through the RASI. Champions of the embeddedness approach, meantime, have recourse to our evidence that informal relationships and trust were a constant, and might note that those
relationships helped Fiat and TIER1 to get product out the door even despite their inability to re-align parties’ roles and responsibilities until after our third transition.

We think: (i) that such objections miss the mark; (ii) that they do so because they insist on a “horse-race” theoretical paradigm; (iii) and that this suggests that those approaches are fundamentally miscast as alternatives.5 If we hew, by contrast, to the methodological situationalism characteristic of pragmatist theorizing (Knorr Cetina, 1988; Stark, 2009), we can see that the defenses available to those dominant approaches suggest that they are better cast as allies of sorts against Williamson (1975; 1985) and Chandler (1977)—some revolutionaries and some reformists, perhaps, but allies nonetheless. The dominant approaches are, in fact, jointly attacking the once-standard presumption that returns to scale and the dangers of opportunism, hold-up and other “agency problems” would all but inevitably lead firms to integrate vertically. Partisans of the modularity approach are our reformists: they show how technological advances allow actors to encode once-tacit knowledge in artifacts, rendering private information superfluous. The others are our revolutionaries: theorists of learning-by-monitoring document an important and novel series of organizational techniques that obviate some of the more rigid safeguards of classic hierarchy; and studies of embeddedness attack the undersocialization of Williamson’s actors and remind us that those same informal social relations that were so consequential internal to the Chandlerian firm (see e.g. Cyert and March, 1963) also ease goings-on between the more porous organizations that characterize the current era.

This potential for an alliance between these supposed foes—and hence the utility of our methodological situationalism—comes clear when we re-examine why it is that Fiat and TIER1 revisited their division of labor only at the conclusion of a successful crash test. Those who subscribe to the modularity approach expect managers to read such successes as evidence that artefactual solutions are at least potentially feasible, and predict that they will rationally endeavor to further bend the product architecture to meet the needs of an existing (and otherwise optimal) organizational architecture. A focus on organizational techniques, for its part, does direct our attention towards the semi-formalized moment of “debriefing” in which TIER1 engineers were able to air their concerns. But while that moment is exemplary of the companies’ adherence to the principles of “learning by monitoring,” it was only enabling of change; it does not tell us why that change came only after success. The embeddedness perspective, meantime, is quite right that attention to trust and social relations is required if we are to explain why TIER1 engineers were willing to reveal that they did not know exactly why the crash test had worked. But again, those relations were merely enabling. TIER1 engineers had for some time recognized a mismatch between product and organizational architecture, and the embeddedness perspective does not tell us why they awaited the conclusion of a successful test to voice their concerns.

How, by contrast, might we explain goings on at this particular boundary between Fiat and TIER1 in light of our own theoretical commitments? That is, what is our understanding when we re-examine those transitions in terms that inject a reflexive pragmatist actor into theories of organizing as developed across the “practice turn” in organization studies (Orlikowski, 2000; 2002; Simpson, 2009)? One key, as we explained in the introduction, is to focus on the use of artifacts, techniques and relations “in the situated, recurrent activities of human agents” (Orlikowski, 2002: 253), and to be aware that those artifacts, techniques and relations “structure [their] users actions” only when they

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5 See especially Sabel and Zeitlin (2004) and Gilson, Sabel and Scott (2009) for a clear exposition of the claim that the approaches ought to be seen as alternatives.
are used “in recurrent social practices” (Orlikowski, 2000: 408). The other key, got by coupling our own adherence to the practice turn in organizational sociology with the methodological situationalism of pragmatism, is to direct our attention towards “problem situations,” where actors generally guided by “habits” in their moment-to-moment activities are likely to find that “customs fail to give required guidance” amid “invasions from without and inventions and innovations [from within that] radically alter the course of life.” (Dewey and Tufts, 1932: 197)

The implication, given our approach, is that the putative causal dynamics that underpin the modularity, learning-by-monitoring, and embeddedness approaches become more than just hypotheses about the likely actions of organizational actors under uncertainty, a sort of grist we can use to test our own theories. They become themselves hypotheses that the actors themselves might use—if in “folk” versions—to act. Indeed, there is good evidence that our interviewees were themselves thinking about the effects that a turn towards modularity might have; about the implications of different organizational techniques; and about the ways in which their social ties smooth business dealings. And so we can think of transitions in the relationships between Fiat and TIER1 not just as tests of the different approaches that are useful for scholarly purposes; they are also situational tests conducted by the actors themselves. Indeed, it is not surprising that those tests occurred when established ways of doing things had somehow broken down and there was occasion for the actors to explore the means available to them, to project the likely consequence of those means, to act in the hopes of transforming a “problematic situation into a determinate situation” (Dewey, 1938: 117), and—going forward—ultimately to assess the consequences of their valuations previously made.

Our first transition, seen in this light, directs our attention to the “problem situation” that occasioned some reconsideration of established practice. Interviewees—across Fiat and at a multitude of suppliers (not just at TIER1)—agreed with a sentiment expressed to us by Fiat’s director of global sourcing. That director notably used passive voice to describe “pressures” in those years, citing the need for companies to “become global manufacturers, to improve the quality of their products, and, above all, to lower production costs.” These pressures are nothing if not Dewey’s “invasions from without,” the sorts of things that might lead managers in the industry to break with established habit and routine and to experiment with alternatives. And that is in fact what happened. It was in response to those invasions that managers at Fiat began exploring the idea that Fiat might “use modules as a tool to go from a situation in which [they] had to coordinate 5000 components to a situation in which [they] could leave everything to five system suppliers once [they] had designed the interfaces” It was also in this context, and reacting to these same pressures, that TIER1 higher-ups began to expand globally and to look for ways to amortize investments in know-how garnered from working with other manufacturers.

At the same time, however (and this is the key point) both sides were aware that their decision to redesign the artifacts to be exchanged was but one of many potential means by which Fiat might “leverage external sources of innovation” and, at the same time, lower production costs (relative to vertical integration—which was seen as off the table in light of its evident and recently demonstrated limits in the face of market and technological uncertainty). Modularity was an ends-in-view. It was a hypothesis that the actors in question surmised might allow TIER1 might amortize investments by coordinating a larger share of the value chain; but they might also, for example, have expanded horizontally rather than vertically. Modularity was just one “projection of possible

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6 Note the similarity between our emphasis on “habits” and practice theorists’ focus on “recurrent activities.”
consequences” (Dewey, 1939: 60). As it turned out, it was the one that did guide the allocation of goals and responsibilities across the production network for some time, despite the fact that Fiat and TIER1 never did quite manage to develop the modular product architecture that was ostensibly to simplify coordination. Yet though that failure did occasion many new “problem situations,” it never did generate a full breakdown of work flow across the organizational boundary.

Why not? A pragmatism and practice approach is again instructive, as it helps to understand why engineers at the operational level might initially revert to the more informal coordination and workarounds that had characterized previous practice despite a guiding ends-in-view that would have them looking to redesign the artifacts in ways they hoped would later ease coordination. Those means, after all, were readily at hand. They were a stopgap that would not—and did not—obviate actors’ need to “investigate what it would be better to have happen in the future” (Dewey, 1939: 66). And our approach therefore offers a plausible explanation for the finding that this end (consequence) and this initial valuation of the effects of that means did not lead them to fully revise a division of labor between the parties that was essentially modular. It frames the changes made as Dewey’s “inventions and innovations from within.” And it identifies the evident failure of artefactual means to deliver the end-state projected either by Fiat or TIER1 as precisely the sort of indeterminate situations that might generate creative use of means available in social situations, including for example the selection of a means—like the RASI and associated organizational techniques—that actors could plausibly expect to combine with artefactual changes already made to solve their problems.

Again, the RASI did improve coordination. But it did not deliver—as its result—the shared end-in-view towards which it had been developed and mobilized. It too had served as ends-in-inquiry, as a hypothesis. And again, we saw engineers at the operational level simply returning to established ways of doing things. They returned, habitually, to established practices and thus to informal ties they knew to be effective means by which to generate the sorts of short-term workarounds they had long used to enable the ongoing design of components and systems. In short, they did what they knew—and what they knew to work—to get product out the door. Which brings us, finally, to our critical third transition. Why did TIER1 engineers reveal that they could not fully explain why the system had succeeded on the Euro NCAP test, given that the situation was not intrinsically a “problem” for all parties and that established and established recurrent practice was potentially a feasible solution? The “debriefing” did create a problematic situation for TIER1 engineers. They had to say something. Still, scores of interviews at both Fiat and suppliers have made it clear that Fiat’s heavy turn towards outsourcing and ensuing downsizing of its technical staff had left enough gaps in the company’s technical expertise that they might easily have maintained the status quo, had they so chosen (see especially Whitford and Zirpoli, 2011; Zirpoli and Becker, 2011a; b). Their decision to act otherwise thus requires explanation.

An adequate explanation must make sense of the ways in which a kernel of collaborating engineers—working across organizational boundaries—were able to alter recurrent practice beyond just their own bailiwick. Our interview material, seen through a pragmatist lens, offers such an explanation. We have all the pieces for a story in which TIER1 engineers were: (i) frustrated by the failure of valuations previously made to resolve the problems at hand; (ii) felt they had exhausted the available means to their chosen-ends-in-view; and (iii) thus elected—borrowing Orlikowski’s (2000: 423) words—to consider “changing their ends.” The idea that actors select not just the best means to a given ends, but that they might also creatively propose alternative ends(-in-view) as their response to problems is a characteristic feature of a Deweyan pragmatist theory of action. And while we recognize that many sociologists may see this as a dangerous proposition since it might be
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misunderstood to mean that pragmatists promulgate a sort of “free-floating” conception of agency, one in which anything can happen at any time, this is a misplaced worry. That is not how propositions of this sort were understood by Dewey or by those who have followed him in their theorizing (see e.g. Joas, 1993; 1996; Kilpinen, 2003; Whitford, 2002).

Rather, the pragmatism and practice approach we advocate here demands that the analyst (in this case us) situate actors in time and in social space, that s/he document the means available to them, and that s/he recognize that actors’ do not posit ends-in-view willy-nilly (i.e. actors do not float free). We therefore demand that means—the possible solutions when “customs fail to give required guidance” (Dewey and Tufts, 1932: 197)—themselves be in the situation. It is their use, their mobilization, their invocation, that is potentially creative. And in recounting our own case material, we have hence been careful to describe the artifacts, techniques and relations used across the three transitions, and thus to document the sorts of means those actors used to govern their efforts to jointly design and produce passive safety systems for automobiles. But, in order to draw the contrast between our own and opposing approaches reliant on spectator theories of knowledge, we have so far framed those means in the narrative as alternatives to the same end-in-view—as alternatives by which Fiat and TIER1 might over time, smoothly design and produce a safety system in which TIER1 maintained responsibility for its overall performance. We did hint in our discussion of the third transition that techniques and relations were salient in the companies’ decision to reconfigure roles and responsibilities, but argued that the approaches that conventionally invoke those techniques and relations in their explanations could not tell us why they were invoked—or how they were invoked—in that reconfiguration.

Yet without a reflexive and creative actor, we could go no further. A pragmatism and practice approach is therefore needed to understand why a successful test could lead Fiat and TIER1 to reconfigure their roles and responsibilities. Success on the test had been “serendipitous” (our translation of the Italian term used by a TIER1 engineer)—and was used serendipitously (creatively) by TIER1 engineers. They hypothesized an alternative line of action using existing means, but to an alternative ends-in-view. They recognized that their growing sense that it had been a mistake to turn towards black box sourcing was at odds not just with the positions taken by their respective company leaderships who had not—like them—seen that efforts to standardize interfaces and the RASI had not proved effective. They had been drawing on their close ties to operational personnel at Fiat in efforts to find workaround to the many coordination problems that would arise (lest they be blamed for those failures). They knew from those relations that there was a sense internal to Fiat that something was strategically amiss. A combination of falling sales and consistent overruns and delays in projects had left Fiat on the edge of bankruptcy in 2004, and had created some turnover in Fiat’s technical and strategic leadership (Volpato, 2008). The occasion of a serendipitously successful test, in this context, allowed TIER1 engineers to mobilize those relations and to push for a reconfiguration of roles that would leave TIER1 engineers in charge of component design but free them from responsibility for overall system performance.

To be clear, those engineers’ decision to reveal their ignorance to their operational counterparts at Fiat was a situational gamble. It was a hypothesis in response to a problem, a trying out of courses of action no less than was the decision by those higher-up to turn towards black-box sourcing some years previous. It might not have worked, and some newly problematic situation would have perhaps later occasioned some very different solution. Still, in the particular case, the TIER1 engineers in question believed that their counterparts at Fiat might in turn use that test as an occasion to mobilize “upstairs” and to endeavor to convince their own superiors to abandon the company’s strong turn towards “black-box sourcing.” That belief, as history has had it, was verified
for safety system design. And, in a story that to tell properly would take us well beyond the scope of our narrative here, its verification contributed to a broader mobilization across the production network. Indeed, a series of events, ranging from that crash test, to a successful redesign of a dash module, and beyond—all in response to problems engendered by modularity—generated enough resistance and mobilization that changes in practice did spread across a company the boundaries of which have continued to evolve amid a continued such stream of negotiations and contestations involving a multitude of actors across a multitude of firms.\(^7\)

**IV. Conclusion**

In this article, we have sought to contribute to the “practice turn” in organizational theory by showing how a pragmatist action theory allows theorists to engage “with ‘how’ practice emerges in real-time rather than [with] ‘what’ practices are in use” (Simpson, 2009: 1343). We began with a substantive question, by asking what is happening at the boundaries of organization in a world rent by the demise of the vertically integrated hierarchy of yesteryear. We then used our study of transitions in the relationship between Fiat and TIER1 to show that the question was—and, curiously, was not—well answered by the three approaches that currently dominate the literature on inter-organizational relations. In particular, we showed that the “modularity,” “learning-by-monitoring,” and “embeddedness” perspectives respectively provide explanations for three transitions at the boundary between Fiat and TIER1, but that none of the three approaches could explain all three transitions. The evidence at first seemed to show that the learning by monitoring perspective might suit the empirical context of the automotive industry better than does modularity. However, reference to embeddedness—ostensibly an alternative explanation—was then required to understand why TIER1 was able to convince Fiat to reconfigure roles and responsibilities in light of a successful crash test.

We used this piecemeal story, in which different approaches seem to apply at different times, to show that scholars would do well to pay more attention to the role that human agency can and does play in the dynamic evolution of the production networks that now dominate so many industries, including especially the automotive industry. We have also sought to advance the practice turn in organizational by exploring the implications of the observation that actors who find that particular technologies (or, in our case, artifacts, techniques and relations) do not serve their ends do sometimes abandon those technologies (that is, those means) and instead “think about changing their ends” (Orlikowski, 2000: 423). We argued, in the specific, that the explicit incorporation of Deweyan pragmatism into practice-based theorize encourages the analyst: (i) to reject “spectator” theories of knowledge that “[deprive] reason in man of an active and creative office” (Dewey, 1939: 60); (ii) to observe the “ends” of action are, “in empirical fact” ends-in-view or “projections of possible consequences,” and are not the consequences themselves; and (iii) to recognize that end states “actually reached” are in effect tests of the validity of those projections (“tests of valuations previously made”). The result, a pragmatism and practice approach, thereby generates a framework that leaves space in the analysis for creative action without, however, rendering its agents as somehow “free-floating.”

\(^7\) See Volpato (2008) or Whitford and Zirpoli (2011) for discussions of the broader evolution of the automaker and the associated network of suppliers.
Using this approach, we have shown that the sorts of causal dynamics identified in the dominant approaches are not just known to the actors, but are *used* by those actors as they postulate solutions—means-to-ends-in-view—that they hope will render problematic solutions determinate. We can therefore conclude that the question of scope for the three approaches with which we are in dialogue—the circumstances in which their hypotheses ought to hold true (Walker and Cohen, 1985)—is endogenous to the objects of analysis. Or to put it in more general terms, our rejection of spectator theories of knowledge shows the utility of thinking reflexively about organizational theory more generally by demonstrating that it contains within itself tools we can use not just to understand when different approaches might apply, but also when they are likely to be applied in empirical practice by those we observe. What remains to show, of course, is why this finding matters. Or, in explicitly pragmatist terms, “what concrete difference will it being true make in anyone’s actual life” and “what experiences will be different from those which would obtain if the belief were false” (James, 1907: 142).

The answer, to our read, is twofold. First, we should note that the pragmatist approach to the study of organization that we have laid out here stands in marked contrast to the invocation of pragmatism in the writing of Charles Sabel, with whose theories we are in dialogue here. Sabel (2006, emphasis added) describes the techniques of learning by monitoring as “pragmatist in the sense of the philosophy of Peirce, James and Dewey: they systematically provoke doubt, in the characteristically pragmatist sense of the urgent suspicion that our routines—our habits gone hard, into dogma—are poor guides to current problems,” and he therefore argues that there is a type of “deliberately innovative organization” that is itself “pragmatist” and that can be contrasted to the classical Weberian-Simonian-Chandlerian-Williamsonian hierarchy (see also Gilson et al., 2009; Helper et al., 2000). We hold, by contrast, that it makes little sense to describe one routine or one type of organization as more or less “pragmatist” than another. Pragmatism, as classically understood and as we intend it here, is a philosophical tradition focused primarily on the linking of theory to practice. So to describe something observed in practice as more pragmatic than something else is to reify.

We make this point, to be clear, not to frame our contribution as one that somehow defines a “correct” side of a duel between pragmatists, as a (very unpragmatist) demand for purity among the disciples. Our point is rather to underscore the utility, to paraphrase Feldman and Orlikowski (2011), of going beyond just theorizing pragmatism.8 It is to practice what we are preaching by taking care to distinguish between our theory and our metatheory. We recognize that Sabel and collaborators’ aim is to highlight the significance of techniques obscured by a dominant theoretical framework that had demanded greater fixity of routine than we generally see in the world of organizations today, and that their invocation of the term amounts to a shorthand claim that the techniques of learning by monitoring are the sorts of techniques that a partisan of pragmatist mode of theorizing might conclude best in light of a study of organizing today. But we think it is nonetheless a shorthand that misleads. It suggests that it is the techniques themselves that are pragmatist; what is more usefully (and conventionally) seen as pragmatist is the means by which the analyst documents and theorizes their practical utility for actors in concrete problem situations.

This is not an innocuous conflation. The techniques of learning by monitoring employed between TIER1 and Fiat did serve to reorder routines and to generate a moment that TIER1 engineers could use to provoke some doubt. But to suggest that they somehow mark the quintessence of a new and more decentralized production paradigm is to fall prey to what Dewey

8 Feldman and Orlikowski (2011) entitle their article “Theorizing practice and practicing theory.”
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Whiford and Zirpoli

(1929) referred to as the “quest for certainty.” It risks blinding the analyst to the fact, for instance, that those techniques were but one of a series of means available to the actors in our story and that they were thrown over for—or at least combined with—some recourse to the informal and interpersonal in response to subsequent problems. Which remembering brings us to our second fold and back to the question with which we opened the article. It shows that a pragmatism and practice approach does more simply than reframe the contemporary discussion as to what is happening at the boundaries of organization as a debate about theoretical scope. It underscores, in particular, that it is a discussion had not just in the halls of the academy nor even just in the higher reaches of the corporate world where strategy is ostensibly made. It is one that is also had and contested across the day-to-day interactions and practices of the many actors who must live those boundaries in their day-to-day, and that is often even had and contested in terms that can be translated easily enough into, or from, the more abstract conceptual language of academic debate.

The perils of the “quest for certainty,” moreover, bedevil the world of practice no less than they do the world of high theory—for the two are never entirely separate. Indeed, words offered by a manager we had interviewed during Fiat’s initial turn towards modularity, when re-interviewed after the company’s turn back away, are striking. In retrospect, he opined, it had been “naïve to believe you can integrate a system without holding an in depth and detailed knowledge of the components that are going to affect the performance of the whole car.” Or to put it another way: what had once been obvious had become naïve; yet, at the same time, what had once been naïve had also become obvious.

To bring pragmatism into a practice approach to the study of organization is not just to note that those whom we study are reflexive. It is to find ways to encourage that reflexivity. It is to recognize not just that we can use the observation of scholarly practice to test our own theories, but that those we observe may themselves be testing those same theories—if only in folk versions—in their day-to-day practice. And it is to remember always that all answers are provisional, that the “best” approach is always contextual, but also that better-in-context is the only “better” that one—practically—ever really needs.
References


