



Lean Enough: Institutional Logics of Best Practice and Managerial Satisficing in American Manufacturing

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Abstract

Rational choice theory has been widely criticized for its unrealistic assumptions that individuals have perfect information and computer-like information processing capability, which are used to maximize utility. Sociological institutionalism and the behavioral theory of the firm have developed complementary alternatives. I combine the two into a single model of information processing. Institutional logics are central to top-down (schema-driven) processes that focus attention and guide action. Satisficing—settling for good enough based on a given aspiration level—is critical to bottom-up (feedback-driven) information processing. Here I show that two practices associated with the postfordist logic of the capitalist firm—lean production and worker empowerment—are deeply institutionalized as best practice in the American manufacturing field. Based on interviews with 109 individuals in 31 firms, I demonstrate how moderate aspiration levels and conceptual schemas associated with formerly dominant fordist institutional logics both function to limit the adoption of best practice.

Keywords

aspiration levels, empowerment, fordism, institutional logics, lean management, learning routines, managerial cognition, postfordism, satisficing, technical inefficiency

Introduction

Rational choice theory, which provides the microfoundation of mainstream economics, has been widely criticized for its unrealistic assumptions that individuals have perfect information and computer-like information processing capability, which are used to maximize utility. The behavioral theory of the firm and sociological institutionalism have been developed as more realistic theories of behavior, and the former has been deeply influential on the latter. The two theories thus overlap in key respects and are otherwise highly complementary, but each has primarily emphasized distinct aspects of an alternative to the maximizing model of rational choice.

In a landmark book that is one of the founding documents of the behavioral theory of the firm, March and Simon ([1958] 1993) distinguished two logics of action. The logic of appropriateness is a form of rule-based behavior in which routinized responses are activated by common situations or role-based identities. The logic of consequences is an “analytic rationality” that is bounded in two ways. First, due to limited cognitive ability and the need to avoid information

overload, individuals adopt an “approximate, simplified . . . definition of the situation.” Second, individuals do not maximize but rather satisfice—settle for good enough—based on a given aspiration level. Cyert and March ([1963] 1992) added that information search is problem-driven—activated when short-run performance falls below a given aspiration level. Search is sequential—alternatives are considered one at a time—and stops once a satisfactory solution has been found.

These contributions influenced institutional theory via the concepts of bounded rationality, rule following, loose coupling, uncertainty avoidance, and conflicting goals (Argote and Greve 2007; DiMaggio and Powell 1991; Gavetti, Levinthal, and Ocasio 2007; Scott 2008). Sociologists developed these ideas by focusing on how wider institutional fields provide rules, cultural understandings, and sources of

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identification (DiMaggio and Powell 1983; Lounsbury 2007; Meyer and Rowan 1977; Thornton and Ocasio 2008). The subsequent behavioral literature has generally focused on internal and micro-organizational issues, not giving much attention to institutional fields, competing rationalities, or other cultural issues (Gavetti et al. 2012). Its core foci include aspiration levels and performance feedback, organizational routines and capabilities, and organizational adaptation and learning (Argote and Greve 2007; Gavetti et al. 2012).

Surprisingly, given a critical orientation toward rational choice theory within sociological institutionalism, the latter has not given sustained attention to satisficing, instead focusing on how cultural and other institutional forces shape the definition of the situation and the understanding of alternative courses of action. Some institutionalist contributions appear to implicitly adopt an assumption of maximizing behavior (e.g., Ansari, Fiss, and Zajac 2010; Fiss and Zajac 2004; Tolbert and Zucker 1983; Westphal, Gulati, and Shortell 1997). More commonly, institutionalists have simply not addressed the question of maximizing versus satisficing (e.g., Davis 1991; Galaskiewicz and Wasserman 1989; Haveman 1993; Lounsbury 2007; Mizruchi and Stearns 1988; Purdy and Gray 2009; Thornton and Ocasio 1999).

In this article, I seek to contribute to both traditions by developing institutional theory with a satisficing micro-foundation. Institutionalists have theorized that deviation from institutional prescriptions is possible primarily where goals or practices are contested (Friedland and Alford 1991; Goodrick and Salancik 1996; Thornton, Ocasio, and Lounsbury 2012) or where practices are unspecified or ambiguous (Edelman 1992; Goodrick and Salancik 1996; Greenwood et al. 2011). I integrate the concept of satisficing into institutional theory to show how managers may deviate from what is widely agreed to constitute best practice even where it is specified in great detail. Building on work by Ocasio and collaborators (Ocasio 2011; Thornton et al. 2012), I theorize aspiration levels as central to the operation of bottom-up (feedback-driven) information processing. Such bottom-up processes interact with top-down (schema-driven) processes, including institutional logics, which focus attention and guide action.

Behavioral theory emphasizes how learning occurs as organizations make changes when performance falls below a given aspiration level. People learn regarding not just strategies and competencies but also aspirations, which themselves may adjust in response to performance feedback (Cyert and March [1963] 1992; Lant 1992; Levinthal and March 1981; March and Simon [1958] 1993). This literature has focused on aspiration level adaptation and has not systematically theorized or investigated the question of variation in aspirations across individuals. However, in the literature, there are scattered comments on how powerful inertial forces might stabilize aspiration levels (Levitt and March 1988; Milliken and Lant 1991; Winter 2000). I draw on the latter to theorize a central role for individual-level variation in managerial aspiration levels.

Empirically, I show that two practices associated with the postfordist logic of the capitalist firm—lean production and worker empowerment—are deeply institutionalized as best practice in the American manufacturing field. The combination of these practices is widely considered to be the most technically efficient organizational form, being adopted by high-profile, global manufacturing leaders and pushed on suppliers by industrial customers, industry associations, and consultants. In the research I report here on component suppliers, while some managers fully adopted both practices, others selectively adopted only the most basic aspects of each, resulting in less efficient regimes with more limited learning capability than comparable factories. I show how moderate aspiration levels and conceptual schemas associated with formerly dominant, fordist institutional logics both function to limit the adoption of the most difficult to implement elements of best practice.

I begin by reviewing the literatures on institutional logics and satisficing to construct an analytical framework combining the two into a single model of information processing. I then discuss the research context, followed by a description of the data and method. The findings present a typology of lean production regimes, an in-depth analysis of the variable implementation of lean in matched pairs of similar factories, and some brief data that triangulate the findings from the view of industrial customers. I conclude with a summary of key findings, a consideration of alternative explanations, and a discussion of limitations and directions for future research.

Theory and Analytical Framework

Institutional Logics and Organizational Discretion

Institutional logics are socially constructed beliefs, goals, and practices that are based in the material practice and symbolic discourse of influential actors within an organizational field (Friedland and Alford 1991; Thornton et al. 2012). In many cases, a field is characterized by two or more institutional logics that each articulate and legitimate competing goals or practices. For instance, within mutual funds during the latter half of the twentieth century, a market performance logic focused on speculative investing emerged to compete with a professional trustee logic focused on long-term wealth preservation (Lounsbury 2007). Each was rooted in a distinct cultural tradition (Wall Street opportunism vs. Bostonian elitism), and both maintained legitimacy in the field. Competing, legitimated logics are particularly likely contexts where a wide range of occupations are players in a field and hence provide an occupational basis for the legitimacy of alternative rationalities, such as in health care or education (Greenwood et al. 2011).

In other cases, a single institutional logic becomes dominant within a field. This is particularly likely in the for-profit sector where leading innovations become accepted as best practice. A field can become settled around an overarching logic of best practice for an extended period until it is

destabilized by some force, such as an economic crisis or a new competing practice (Fligstein 1990). For example, by the 1920s in the United States, a dominant corporate strategy had emerged, a manufacturing logic focused on price stability, vertical integration, the unitary corporate form, and oligopolistic competition. During the Great Depression, a sales and marketing logic emerged—focused on product differentiation, new markets, and branding—dominating corporate strategy through the 1960s. By the 1970s, a financial logic was dominant: the multidivisional corporate form and a focus on evaluating product lines and divisions exclusively in terms of financial performance.

Although most studies examining a historical shift from one dominant logic to another have implied that “the ascendance of a new logic results in the dismantling of the previously dominant logic because of their fundamental incompatibility,” competing logics typically have some degree of compatibility and may be combined into hybrid forms of practice (Greenwood et al. 2011:332). Even if they have lost legitimacy in favor of a newly dominant logic, formerly dominant logics may continue to hold some influence in a field to the extent that alternative visions, goals, templates, or understandings continue to exist, albeit outside of mainstream practice and discourse. Formerly dominant logics may continue to influence action either as a result of deliberate cognition (DiMaggio 1997), via conscious and strategic appeal to the historical legacy of prior institutional orders (Schneiberg 2007), or more automatically, if a conceptual schema associated with a formerly dominant logic continues to exert a powerful influence on the cognition of an individual (Thornton et al. 2012).

Existing theory suggests it is only where there are competing logics or where prescribed practices are ambiguous that organizational discretion or deviation is possible. For Goodrick and Salancik (1996:3), “when players agree on what is appropriate to do, practice is completely determined. Either alternative practices will be unimaginable or engaging in them will undercut the legitimacy organizations need to operate.” Similarly, Greenwood et al. (2011:334) argued that “when logics are ambiguous and lack specificity, organizations are provided with relatively more discretion . . . specificity constrains managerial discretion.” And according to Thornton et al. (2012:44), “without multiple institutional logics available to provide alternative meanings, deviance would be unthinkable for individuals and organizations.”

Behavioral theory offers a way to rethink deviation from institutionally prescribed practices in a way that expands the explanatory capacity of logics theory. Studies have shown that legitimacy may be gained by the strategic, partial adoption of a prescribed practice (Ansari et al. 2010; Edelman 1992; Fiss and Zajac 2004; Kennedy and Fiss 2009). This literature has emphasized partial implementation when adoption of a practice is motivated by catching up to others versus early, proactive adoption (Kennedy and Fiss 2009) or lack of fit with the organization (Ansari et al. 2010). It has not considered whether a low or moderate aspiration level might

also cause a manager to engage in partial adoption of a practice. It seems fruitful, however, to have a closer look at behavioral theory on satisficing.

Satisficing and Aspiration Levels

Following some leads by March and collaborators (Cyert and March [1963] 1992; March and Simon [1958] 1993) and the model developed by Levinthal and March (1981), a working hypothesis in the literature has been that if performance exceeds aspirations, they will adjust upward, and if performance is below aspirations, they will adjust downward. This proposition has received some limited empirical support. Lant’s classroom simulation games found that aspirations regarding sales goals adapted in response to performance feedback (Lant 1992; Lant and Montgomery 1987). In a statistical study of sales targets in a large financial services company, Mezas, Chen, and Murphy (2002) found that current aspiration levels were anchored in previous aspiration levels and small adjustments were made in response to performance of the firm and its competitors. In other cases, the assumption of aspiration-level adaptation has been built into the statistical model used for empirical analysis (e.g., Baum and Dahlin 2007; Greve 1998).

Although these studies provide some support for the hypothesis of aspirational adjustment, the satisficing literature has also noted powerful inertial forces that stabilize aspirations “in spite of discrepancies with realized outcomes” (Milliken and Lant 1991; Winter 2000:998). First, cognitive factors can function to stabilize aspiration levels. Belief systems and interpretive frames “are generally resistant to experience” (Levitt and March 1988:324) and indeed may be used to interpret “performance feedback in ways that allow the organization to stay inert” (Greve 1998:58). Commitment to existing interpretive frames engenders resistance to change (Grinyer and McKiernan 1990; Milliken and Lant 1991) and hence can stabilize aspirations.

Second, experience-based factors can generate resistance to change and thus stabilize aspiration levels. Extended experience with a given practice can lead to psychological investment and strong commitment to previously made decisions (Greve 1998; Milliken and Lant 1991). Similarly, accumulated experience with a practice generates competencies specific to that practice, which can result in perceived high costs of switching, even to an ostensibly superior practice (Levitt and March 1988). Further, in real-world practice, managers have competing priorities and multiple demands on their time; in a context of immediate demands for output, it is difficult to find time to dedicate to upgrading and learning (Winter 2000).

Finally, informal learning based on incremental adaptation to experience typically leads to the stabilization of routines and hence habitual behavior (Cyert and March [1963] 1992; Levitt and March 1988; Nelson and Winter 1982; Winter 2000). Sustained and overt organizational learning requires the establishment of what have variously been called

learning routines (Levitt and March 1988), metaroutines (Adler, Goldoftas, and Levine 1999), dynamic capabilities (Gavetti 2005), or routines for change (Nigam, Huising, and Golden 2016). In the absence of well-established learning routines, short periods of upgrading spurred by a problem with production (or institutional pressures) will be followed by a period of routinized production (Winter 2000). Whether a period of overt learning is subsequently activated is a function of the interaction between performance, aspirations, and institutional pressures.

The foregoing discussion suggests that several inertial forces operate to stabilize aspirations. Variation in executive attention (ability to process multiple goals) and attentional vigilance (ability to sustain concentration) across individuals (Ocasio 2011) suggests further that cognitive and experiential forces of inertia will also vary across individuals. Such variations in attention are likely rooted in deeper personality traits, perhaps most importantly conscientiousness (achievement striving, competence, self-discipline) and openness (to new ideas, flexibility of thought, imagination) (Digman 1990; John and Srivastava 2001). Individual variations in conscientiousness, openness, and attention will produce variations in psychological commitment to existing beliefs, psychological investment in existing practice, the impact of competing priorities on managerial focus, and so on.

Aspiration Levels and Framing the Situation

If managers have low or moderate aspiration levels, they will be resistant to institutionally prescribed practices that are particularly difficult to implement. Low or moderate aspiration levels not only generate resistance to certain practices, but can also shape how an outcome or situation is framed (Milliken and Lant 1991).

A discrepancy between local practice and institutionalized best practice may be rationalized along the lines of “Our situation is different” (Winter 2000:988). The question of fit between a prescribed practice and a local organizational context, then, can be influenced not simply by technical, political, or cultural concerns (Ansari et al. 2010) but also by aspiration levels. Even where a practice is an objective fit with an organization, managers with low or moderate aspiration levels may frame practices that are difficult to implement as a misfit with their local organizational context. Like attributing failure to an external cause (Milliken and Lant 1991), such rationalization provides a way to avoid cognitive dissonance and maintain the appearance of competence.

Whether a prescribed practice is perceived as a good fit—or rationalized as a misfit—with the local context, then, is in part a function of the manager’s aspiration level. Ocasio and collaborators’ (Ocasio 2011; Thornton et al. 2012) information processing model can easily accommodate aspiration levels. Individuals understand and frame any situation via both top-down attentional processes and bottom-up environmental stimuli. Institutional logics provide a central source

of top-down attention processing. In their brief discussions of bottom-up information processing, Ocasio (2011) and Thornton et al. (2012) discussed selective attention to and salience of environmental stimuli. As discussed previously, executive attention and attentional vigilance shape the impact of inertial forces on aspirations. By extension, aspiration levels should be central to how environmental feedback is processed. So long as existing practice generates performance that meets a given aspiration level, practices that are expected to improve performance further but are difficult to implement may be framed as a poor fit with the local context.

Research Setting

Institutional Background: From Fordism to Postfordism in American Manufacturing

Within the United States, a fordist logic of production was dominant roughly from the late 1920s when Ford’s River Rouge complex was completed to the long crisis (declining productivity, inflexibility, labor unrest) of the 1970s (Aglietta [1976] 2000; Vidal 2015). The fordist logic consists of a template for work organization and a closely related template for labor control. The template for work organization is traditional mass production (Hounshell 1984; Vidal 2015): forecast-driven, large batch production, emphasizing process standardization and economies of scale. The template for labor control is scientific management or taylorism (Jürgens, Malsch, and Dohse 1993; Littler 1982): individual work on fragmented tasks.

After a period of experimentation with various models in the 1970s and 1980s (Appelbaum and Batt 1994), during the 1990s a dominant model of postfordist production became deeply institutionalized in the American field. Following the global dominance of Toyota, the Toyota production system—subsequently dubbed lean production—came to be widely seen as *the* model of world-class practice (Kochan, Lansbury, and MacDuffie 1997; Smith 1997). The postfordist template of work organization, lean production, consists of demand-driven, flow production, emphasizing process standardization, economies of flexibility, and continuous improvement.

The postfordist template of labor control is worker empowerment, in the form of employee involvement, teamwork, and cross-training. Consultative employee involvement involves actively seeking input from workers without giving them effective decision-making authority (Levine and Tyson 1990). Substantive involvement includes the devolution of real decision-making authority. In response to the 1970s crisis, substantive participation was championed in American management discourse and the practice of leading companies (Fantasia, Clawson, and Graham 1988; Smith 1997). The American model of lean subsequently incorporated substantive participation, and worker empowerment continues to be advocated by lean gurus and manuals, such as Liker’s (2004) “14 principles of the Toyota way.”

Best Practice: Lean with Substantive Worker Empowerment as a Learning Routine Package

Both Adler et al. (1999) and Winter (2000) argued that the lean practice of continuous improvement is a preeminent learning routine. However, the institutionalization of such learning capability requires adopting the correct configuration of complementary practices. Robust evidence shows more comprehensive configurations of lean produce better performance than individual practices (Lowe, Delbridge, and Oliver 1997; Luria 1996; MacDuffie 1995; Oliver et al. 1994; Oliver and Wilkinson 1992; Pil and MacDuffie 1996). Similarly, substantive employee involvement has the strongest and most consistent effect on productivity (Cotton et al. 1988; Levine and Tyson 1990; Miller and Monge 1986).

The lean learning routine package includes the following practices. First, true continuous flow creates a fragile, bufferless system that makes problems easily surface (MacDuffie 1995). Second, value stream mapping must be used proactively and regularly. Also included are third, substantive empowerment to drive continuous improvement and finally, a relentless emphasis on process standardization. The combination of process standardization with substantive worker empowerment means that when innovative solutions are found by teams of workers, they are diffused throughout the organization, facilitating organization-wide learning (Adler and Cole 1993). The emphasis on standardization means that worker empowerment must be limited to collective autonomy, that is, involving workers in group decisions, thus precluding high levels of individual autonomy (Klein 1991).

Data and Method

The case analyzed here is the durable goods sector of American manufacturing, focused on supplier firms in the U.S. Midwest (Wisconsin, Michigan, Illinois). According to my field work log, I interacted with 486 individuals from 59 organizations over a total of 332 hours. I conducted semi-structured interviews with 109 individuals in 31 firms (totaling 163 hours). Seven of the firms are multinational prime contractors that each do over \$1 billion in sales per year, 22 are small and midsized component suppliers, one is a large component supplier that also produces a line of brand-name products, and one is a painter. The primes sell air conditioners, engines, trucks, and agricultural, lawn, recreational, and industrial equipment. The suppliers sell a variety of metal forgings and fabrications, plastics, and subassemblies to industrial customers across a wide range of durable goods industries, from cars to computers. The interviews included 47 managers and engineers, 59 workers, and three union business agents. The management/engineer/business agent interviews were typically around two hours each, with some going over five hours in multiple sessions, and the worker interviews were typically half an hour, with some extending to an hour. I received plant tours in almost all cases.

I also conducted 169 hours of direct observation on 59 occasions. For a period of seven months, I followed two union suppliers, including interviews with four managers across seven occasions, interviews with 14 workers, including two union presidents, observation of a local union meeting, and full participation in 20 labor-management committee meetings. At one of these factories, I engaged in a training exercise on the shop floor regarding standard work instructions. I also followed a non-union supplier over a three-year period, including interviews with four managers and six workers, participation in a half-day “Lean 101” training for workers, and observation of a supplier development project, run by a large industrial customer, over nine sessions totaling 33 hours.

I also observed two half-day meetings of the Wisconsin Manufacturers’ Development Consortium (WMDC), including seven multinational prime contractors, one supplier representative, and the Wisconsin Manufacturing Extension Partnership (WMEP); 15 two-hour “Supplier Networking” meetings associated with the WMDC; seven meetings of prime contractor unions and the Wisconsin Regional Training Partnership (WRTP); and six other meetings involving the WMEP and WRTP.

My prolonged engagement in the field facilitated extensive triangulation and “member checking” (Lofland et al. 2005), allowing me to increasingly adopt the role of an expert and talk shop with managers, engineers, and workers, providing a built-in validity check on my emerging interpretations. All of this gives me considerable confidence that my findings are not presentational accounts but accurate reflections of actual practice, in Becker’s (2001) sense that extended observation of people in their operational contexts allows the qualitative researcher to gain deep familiarity with the people being studied and their understandings, concerns, and behaviors. The focus of this article is on managerial orientations and behaviors; elsewhere I have analyzed worker orientations (Vidal 2007a) and labor-management interactions (Vidal 2007b).

The 31 firms were *not* picked based on their operational strategy—that is, whether they adopted lean production—but were picked based on industry and location in the supply chain, using cold calling and snowballing techniques. My goal in picking the cases was to get a reasonably broad cross-section of factories in the components subsector of durable goods manufacturing. My interviews with the primes focused largely on supply chain management and interviews with the suppliers on work organization. The focus of this article is work organization in the 22 component suppliers who adopted lean, although I also draw from interviews in the prime contractors, who are customers of the suppliers I observed. With a few exceptions, the interviews were recorded and transcribed. The transcriptions were then coded into Nvivo qualitative software for analysis. To make sense of my rich qualitative data, I engaged in a form of analytic induction (Ragin 1994), sorting the data into types and seeking to understand their similarities, differences, and causal

conditions through iterative rounds of progressively refining empirical categories and theoretical concepts. All factory names in the following are pseudonyms.

Findings

Institutionalization of Lean as Best Practice

Table 1 lists many high-profile prime contractors that have publicly embraced lean and are key customers of the suppliers I observed. It also lists a range of industry associations that have explicitly adopted lean as best practice for modern manufacturing. Lean practitioner gurus, consultants, business associations, and government agencies have all converged around and worked to diffuse a well-specified model of lean production. The principles of lean discussed previously are pursued via a package of concrete practices, as indicated in Figure 1, which presents the “House of Lean” as developed by the Wisconsin Manufacturing Extension Partnership. This figure is widely reproduced in various forms by any number of consultants, associations, and agencies. A search on Google Images for “House of Lean” generated 15 identical versions of this figure produced by other consulting organizations and no fewer than 70 versions that were nearly identical to it.¹

A Typology of Lean Production Regimes

The findings revealed two approaches to lean and two approaches to teamwork. On lean, 11 of the 22 factories adopted the entire set of practices in Figure 1, an approach I refer to as *lean-as-system*. The distinguishing features of this approach are first, the use of true continuous flow (“cellular flow”) driven by customer demand (“pull/kanban”) to surface problems and second, frequent use of value stream mapping (“VSM”). The other 11 factories, which I call *lean-as-toolbox*, used a subset of the lean tools but did not adopt continuous flow driven by customer demand. And rather than using value stream mapping on a regular, ongoing basis, they used it infrequently, for major reorganizations.

On empowerment, management in 10 of the factories had implemented or were systematically working on implementing substantive participation, including the devolution of real decision-making authority throughout their production workforce. In the other 12 factories, management adopted only consultative participation for all or the vast majority of their production workforce.

Figure 2 presents a typology of lean production regimes based on a combination of the foregoing two dimensions. Table 2 presents basic details on the plants within each type.

Eight of the 22 factories adopted a *high-involvement lean* regime: *lean-as-system* with substantive participation. This is a deeply complementary regime. Continuous flow and

Table 1. Field-Level Diffusion of Lean.

Adopted by:
<ul style="list-style-type: none"> • Toyota, Chrysler, Ford, GM, Volvo • Case New Holland, Caterpillar, John Deere • Harley-Davidson, Oshkosh Truck • Dell, Hewlett Packard, IBM, Samsung • Boeing, Lockheed Martin, General Electric • Numerous others
Endorsed by:
<ul style="list-style-type: none"> • National Association of Manufacturers • Society of Manufacturing Engineers • National Association for Job Shops and Small Manufacturers • Institute of Industrial Engineers • Association for Manufacturing Excellence
Technical assistance provide by:
<ul style="list-style-type: none"> • Industrial customers • 60 local centers of the Manufacturing Extension Partnership, National Institute of Standards and Technology • Cottage industry of private sector lean consultants

frequent value stream mapping provide the technical basis for systematic continuous improvement while substantive participation provides the most propitious basis for organizational learning because workers gain critical information from their everyday experience on the shop floor and a culture of substantive participation leads to worker-driven continuous improvement. The combination of continuous flow, substantive empowerment, and regular value stream mapping constitutes a learning routine package.

The remaining three regimes are not complementary. Three factories adopted a *lean standardization* regime: *lean-as-system* with consultative participation. They focus on using lean tools to standardize processes throughout the plant, using value stream mapping to realize some degree of ongoing improvement in workflow and process standards. But due to lack of substantive participation, continuous improvement is entirely management driven. Two factories adopted an *autonomous lean* regime: *lean-as-toolbox* and substantive participation in the form of individual autonomy, which limits the ability to implement high levels of process standardization necessary for *lean-as-system*. Finally, nine factories adopted a *lean enough* regime: *lean-as-toolbox* with consultative participation. They are *lean enough* insofar as adopting the basic set of lean practices has yielded substantial performance improvements that have satisfied both their own management and industrial customers, even though they are far less lean, flexible, or innovative than the *lean-as-system* factories.

Managerial Deviation from Institutionalized Best Practice: Analytical Considerations

In a bottom-up process, managers with moderate aspiration levels become satisfied with performance improvements achieved by adopting the easiest-to-implement practices and then frame their local context as a misfit with the more

¹Search conducted on 16 July 2015.

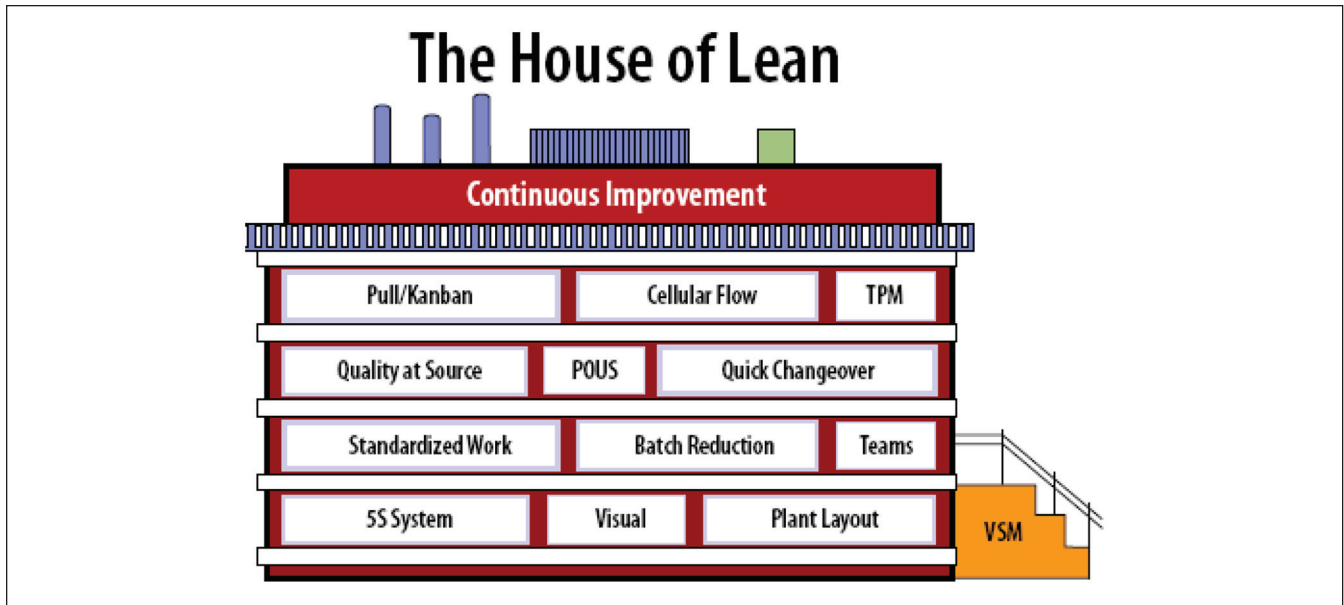


Figure 1. The postfordist template of work organization.
 Note. Developed by the Wisconsin Manufacturing Extension Partnership.

	LEAN-AS-SYSTEM	LEAN-AS-TOOLBOX
SUBSTANTIVE EMPLOYEE INVOLVEMENT	High-involvement lean	Autonomous lean
CONSULTATIVE EMPLOYEE INVOLVEMENT	Lean standardization	Lean enough

Figure 2. A typology of lean production regimes.

complex and difficult practices. Managers would be unlikely to explicitly invoke a low aspiration level as the reason for deviating from prescribed practice, instead rationalizing elements of best practice as a poor fit with their local factory context. To highlight the role of unarticulated aspiration levels, my analytical strategy is to present matched pairs of effectively identical factory contexts, where one manager fully adopted the best practice while another invoked a misfit, with the implication being that a managerial description of a misfit reflects a moderate aspiration level.

In considering satisficing on lean-as-toolbox versus lean-as-system, the goal is to match factories in terms of the objective fit of lean-as-system with a particular factory context. Most important in this regard are product volume (high/mid/low), product mix (high/low), product strategy (engineer-to-order, make-to-order, or make-to-stock), and physical technology, as these are the dimensions that

present the most variation in technical parameters relevant to lean. High-mix, low-volume is widely understood by practitioners to be an extremely challenging context within which to implement lean. I match three pairs on these four dimensions.

In terms of consultative versus substantive participation, it is less important to have close matches in terms of product volume, mix, and strategy because these structural characteristics have little bearing on the question of whether decision-making authority can be devolved to workers. However, I can and do match two pairs on technology and workforce skill sets. Perhaps the most important issue bearing on the empowerment question is the size of the workforce; pursuing a strategy of systematic substantive participation across a workforce will be more difficult in a factory of 500 versus 50 workers given the managerial need to control labor to ensure profitable output. I thus start by comparing two factories

Table 2. Plant Characteristics.

Plants	Plant Characteristics				Approach to Production		
	Main Products	Processes	Ownership	Production Employees	Union	Labor Control	Work Organization
<i>High-involvement lean</i>							
1. Custom Seats	Leather and vinyl seats	Sewing, upholstery, assembly	Public, branch plant	220	Yes	Substantive participation	Lean-as-system
2. Designer Railings	Handrail systems and parts	Fabrication, assembly	Private, branch plant	90	No	Substantive participation	Lean-as-system
3. Industrial Pumps	Industrial pumps	Machining, assembly	German parent	35	No	Substantive participation	Lean-as-system
4. Inspired Castings	Steel castings	Investment casting	Private, branch plant	500	No	Substantive participation	Lean-as-system
5. Mini Metalfab	Metal fabrications	Fabrication, assembly	Private, independent	27	No	Substantive participation	Lean-as-system
6. Mini OE	Wire wheels/brushes	Assembly	German parent	105	Yes	Substantive participation	Lean-as-system
7. Performance Brakes	Hydraulic disc brakes	Machining, assembly	Private, branch plant	250	Yes	Substantive participation	Lean-as-system
8. Second-Tier Specialist	Industrial cylinders	Machining, assembly	Public, branch plant	80	Yes	Substantive participation	Lean-as-system
<i>Lean standardization</i>							
1. Custom Blinds	Blinds, components	Plastics molding and extrusion, stamping, assembly	Private, branch plant	640	No	Consultative participation	Lean-as-system
2. Deep Stampings	Deep draw stampings	Stamping, secondary ops, assembly	Public, branch plant	300	No	Consultative participation	Lean-as-system
3. Lost-Foam Castings	Aluminum castings	Die and investment casting	Public, branch plant	180	Yes	Consultative participation	Lean-as-system
<i>Autonomous lean</i>							
1. Hydraulic Systems	Hydraulic systems	Machining, fabrication, assembly	Private, branch plant	90	Yes	Substantive participation	Lean-as-toolbox
2. LV Gaskets	Engine gaskets	Fabrication, assembly	Public, branch plant	300	No	Substantive participation	Lean-as-toolbox
<i>Lean enough</i>							
1. Complex Iron Castings	Iron castings	Sand casting	Private, independent	120	Yes	Consultative participation	Lean-as-toolbox
2. Major Castings	Aluminum castings	Die casting	Public, branch plant	650	No	Consultative participation	Lean-as-toolbox
3. Metalfab Plus	Metal fabrications	Fabrication, stamping, assembly, machining	Employee stock ownership plan, independent	450	No	Consultative participation	Lean-as-toolbox
4. Plastic Containers	Plastic containers	Thermoforming	Private, independent	220	No	Consultative participation	Lean-as-toolbox
5. Precision Metalfab	Metal fabrications	Fabrication, assembly	Private, independent	110	No	Consultative participation	Lean-as-toolbox
6. Spindles and Machining	Spindles, hubs	Machining, assembly	Private, independent	30	No	Consultative participation	Lean-as-toolbox
7. Tiny Plastic Parts	Plastic parts	Injection molding	Private, branch plant	400	No	Consultative participation	Lean-as-toolbox
8. Tubefab	Mufflers, air filters	Stamping, assembly	Public, branch plant	150	No	Consultative participation	Lean-as-toolbox
9. Zinc Castings	Zinc castings	Die casting	Private, branch plant	32	Yes	Consultative participation	Lean-as-toolbox

Note. Factories coded *lean-as-toolbox* adopted batch reduction, quick changeover, 5S and standardization, quality at the source and total productive maintenance, point-of-use storage, and visual management, with infrequent use of value stream mapping. Factories coded *lean-as-system* adopted all of the foregoing practices along with demand-drive continuous flow (pull/*kanban*) and frequent use of value stream mapping.

with 300 production workers. I then compare a factory with 500 production workers with a smaller factory (120 workers) to demonstrate the systematic, wide adoption of substantive empowerment in the more difficult context of a 500-strong workforce.

A Bottom-up Process of Satisficing on Lean: Two Matched Pairs

Designer Railings and LV Gaskets are both low-mix, mid-volume metal fabricators who sell make-to-stock subassemblies through catalogs, with most of their business consisting of around 600 to 800 parts. Yet Railings adopted a high-involvement lean approach while Gaskets adopted an autonomous lean approach.

The plant manager at Railings described the implementation of their first cell:

It used to be we cut the product over in the saws and we bent it over in the benders, and we flattened it over in the press department, and then we sent it back to get it trimmed over here . . . it was a 10 or 12 step process that . . . literally weeks to get through the shop. And we got it to the point where we cut it, we bent it, we flattened it, we trimmed it, and we put it in a box, almost as fast as I just said that. . . . We got it down to less than a minute a piece. And it was continuous flow.

This manager candidly discussed a number of challenges they were facing, but he was clear in his intention to continue implementing continuous flow principles throughout the factory. His first cell has been

a phenomenally successful lean manufacturing operation. I have less successful ones, but still successful. I've got one that's coming up that has been very successful initially, and I think has the opportunity to double our productivity, if we execute on it, which we will. So we've made a lot of little islands of: this works better, this works better, this works better. Getting the whole workforce on board has been a challenge.

Value stream mapping exercises and other lean tools are run in each cell until all the problems are all worked out. They then turn to the next product family to cellularize it into a continuous flow.

In contrast, while facing effectively identical operational issues, the plant manager at Gaskets used lean as a toolbox rather than a system. The company had adopted basic lean practices to improve workflow, but the manager suggested that continuous flow was not practical for their local factory context:

Plant manager: You know one-piece flow, to a large extent here, is a dream. Primarily because we're in a situation where—oh, I'm going to guess—let's say I've got 8,000 pieces of tooling, okay? I've got presses that were purchased anywhere from 1945 to 2004.

Researcher: Right. I guess I should have maybe said continuous flow rather than one-piece, because I know that's always kind of a dream in most shops.

Plant manager: It's also a lot better in the textbook than it is, you know, in reality. I'm sure you've done the continuous flow experiment they do with all of the lean manufacturing and things like that.

Researcher: Lean 101, um-hmm.

Plant manager: It looks good and it works well, but you know, right in the middle of it you're not stopping because you've got to make 300 of something else.

This manager framed his local context as too complicated and invoked pressing demands for immediate output as reasons for not being able to adopt continuous flow. Now, this factory experienced considerable performance improvements by using lean as a toolbox, and it was maintaining strong and steady business. The manager received bottom-up feedback that his lean-as-toolbox approach was producing performance improvements apparently sufficient for his aspiration level. Nonetheless, this factory context is effectively identical to that of Designer Railings regarding work organization issues. Railings implemented lean-as-system despite having comparable processes and product strategies and mixes and facing similar complexities and demands, strongly suggesting that the Gaskets manager's invocation of a misfit between lean-as-system and his factory reflects a moderate aspiration level.

The second matched pair involves Custom Seats, a high-involvement lean factory, and Hydraulic Systems, an autonomous lean factory. While the primary operations are different in the two factories—sewing and upholstery versus machining and fabrication—they face largely identical work organization issues because they are both high-mix, low-volume, engineer-to-order shops with skilled and semi-skilled workers producing complex subassemblies.

The managers at Seats described their ongoing efforts to implement continuous flow in their low-volume area despite encountering substantial problems. One manager noted that the goal is to have it “all brought into one continuous flow environment, in theory.” He then elaborated on their efforts to realize this:

We've cellularized both those areas and we've created, we were able to find commonality of product families. . . . We created standard work and work instructions that help us distribute the work amongst the four positions differently, depending on what we're producing. . . . And you know, the complexity in bringing all that together: get it in, get it built, get it out; now get the next one in, get. . . . Bringing it all together is really taking an army of support. It's really, we're really struggling with that.

In continuing to press forward, another manager from the same factory displayed a similarly high aspiration level:

We have gone through a number of . . . attempts to solve the issue of high-mix, low-volume. And I'd say we're probably, in the last 18 months, two years, we're probably on our fourth version of trying something different. And what that is is really just a continuous improvement process that says, okay, we got together as a team, we looked at some, we put something out there, how's this working? Try it. Gees, that didn't work. Well, like, what didn't work about it? Get back together again, look at something else, make an adjustment here, make an adjustment there, or in some cases revamp the whole thing.

The efforts of these managers contrast with that of the manager at Hydraulic Systems. Based on a one-off value stream mapping exercise, Systems has adopted cellular-type layouts, but these are still scheduled based on a forecast (i.e., as a push system). The manager decided not to work toward implementing continuous flow/pull system because, he explained, even if it were applicable to his factory in theory, in practice it would be very difficult in his particular factory:

It's difficult for me at times: heard it, seen it. I've seen it work. I've seen it work at John Deere, up at Horicon. I mean, but when something stops, and getting the resources to fix that problem, ours is, we're so, with the number of product, you know and then like operators moving around, it's much more difficult. You know like when that person has that particular problem there, we focus resources on that statement. It isn't, like you say, they're not interdependent, you know, because it's not a continuous flow.

He elaborated further by noting that they are busy enough that they do not have extra resources to be committing to continuous improvement: "When you're rocking and you're busy, even for that worker, he's out there running that machine and he's making parts, he isn't really taking a step back as much saying, 'Wait a minute, this is a better way of doing it.'" Pressing demands for immediate output precluded finding the time and resources to engage in upgrading.

The manager at Systems described a bottom-up process in which his factory experienced significant performance improvements by adopting lean-as-toolbox, and he did not feel external pressure to attempt to implement the more advanced but difficult lean practices. Now, given that this factory is "rocking and busy" and does not experience external pressure to become leaner, there is a rationality to the manager's position. Nonetheless, Seats and all the other high-involvement lean factories I visited were also rocking and busy. While the manager of Systems was able to defend his deviation from the best practice according to a plausible rationality, the comparison with Seats, having the same product strategy/mix and a similar mix of skilled and semi-skilled operations, strongly suggests his reasoning reflects a moderate aspiration level.

A Top-down Process of Logic Blending on Lean: One Matched Pair

Second-Tier Specialist is a high-involvement lean factory, whereas Tubefab is a lean-enough factory. While Specialist

has a higher proportion of skilled workers (machinists) versus a smaller proportion at Tubefab (light gauge sheet metal welders), the two factories face highly similar work organization issues as both are low- to mid-volume, make-to-order shops producing complex subassemblies, doing a mix of custom and to-print work.

Despite these similarities, Specialist has reorganized their entire factory into three cells, while Tubefab implemented some assembly cells but maintained functional departments for presses and tube fabrication. The plant manager at Specialist explained how he used substantive participation to continuously improve the cells, including implementing *kanban* systems of inventory and production control:

A *kaizen* event is typically a multiple-day event. It may not all get completed within that time period, three for four days. But at least you're identifying everything that needs to get done, itemize the tasks. You have a goal you're trying to solve, e.g. maybe we're setting up a *kanban* system for the raw inventory for Cell 2, or we might be doing a setup reduction on a [CNC lathe]. It's very specific and you know what you're trying to do, you're trying to reduce your setup times by 50 percent. And you get a group of people from first and second shift, hopefully, to work together for that event.

Despite a number of problems—most importantly, resistance from the workforce and union regarding cross-training and devolved responsibilities—this manager had reorganized the entire factory into cells and was working toward having continuous improvement driven by self-directed teams. In contrast, the plant manager at Tubefab was taking a much more selective approach to lean. In response to a question about his use of value stream mapping, he stated:

On certain products we've done it. We haven't done it on every product we have. We've picked product families and done some, like on that international bracket family, we did a map. And there we definitely, the move is to get, we'd like to get some presses over in assembly because we could dedicate them to doing those press operations and you could probably justify it because it doesn't take a large press. In some cases it makes a lot of sense; in others, you know, I think it makes theoretical sense, but when you start looking at all the real-life issues that you have out in the plant of how do you move a press and dedicate it to this one cell, you get into some other issues.

This manager's reference to the divergence between continuous flow in theory versus the complexities of his factory echoes the previous cases of managers with moderate aspiration levels. But when discussing the issue further, he invoked the fordist principle of maximizing output on individual machines (i.e., economies of scale) as a primary source of efficiency:

To feed a cell that runs continuously—like our highest volume cell, it runs continuously at about 140 parts an hour—to make every component, there's one, two, three, four, five; there's five pressed components in there. So that's only 900 parts an hour

that you need to make. It's not even that, it's only 700 parts an hour that you need to make. And generally straight-sides can run 1,200 to 2,000 parts an hour depending on the size of the part. *So you're only utilizing that press to half capacity* [italics added]. You know, so unless you had, say, one press feeding two cells somehow, it would be a challenge, you know.

This manager articulated a clear, fordist rationality, demonstrating commitment to this interpretive frame. This, however, contradicts a core principle of lean, which, as the Specialist manager explained, requires managers to give up the traditional mass production principles:

In the past you would have measures such as *optimum up time on a machine* [italics added], you know, how much is that machine running. Who gives a shit? Do what needs to be done to get the orders out, don't make extra inventory unless you absolutely need it, because you can't replenish those particular parts within the lead times you need to get your product to your customer. It's a moot—train your workers so they move to where the work is and perform the work you need, don't have them doing work that doesn't need to be done right now.

This case shows that managers may be committed to or influenced by interpretative frames associated with the formerly dominant logic, shaping the way they frame the local situation. Again, this factory has experienced significant performance improvements by implementing a lean as a toolbox and blending basic lean practice with traditional fordist practices and is doing healthy business, so there is little pressure for this manager to alter his practices to become closer in line with the postfordist logic of best practice.

A Bottom-up Process of Satisficing on Substantive Empowerment: One Matched Pair

LV Gaskets, an autonomous lean factory, and Deep Stampings, a lean standardization factory, are both metal forming operations with around 300 production workers, each including a smaller number of skilled workers (die setters and toolmakers, respectively) and a majority of operators.

The plant manager at Gaskets framed substantive participation in terms of individual-level autonomy because it was consistent with his company's corporate policy of participatory management:

Employees know their own 25 square feet, which was sort of a "Don't mess with them; they probably know the best way to do it." You know, it doesn't mean because you're an industrial engineer you're really going to be able to go in and say, "Matt, you ought to do it this way." You know, Matt may not be at all comfortable doing it that way.

While Gaskets was therefore not standardizing processes across individuals and cells and still had a lot of nonstandard processes due to the adoption of an individual-autonomy

approach to substantive participation, they were doing extensive continuous improvement activities:

Basically what we do is, we'll put a team together, we'll decide what the *kaizen* is going to be on, okay? . . . A team is normally 7 to 10 people. We try to get somebody from all of the shifts in the plant. . . . We'll get everybody sat down, we'll do some brainstorming and suggest that, "Okay, this is the area we're looking at." . . . We'll try and generate some distinct goals as to what we want to do: you know, generate x number of ideas, or save x number of dollars or, you know, whatever it might be.

Once we get that all kind of laid out then it goes one of a couple directions. If it's a 5S *kaizen*, the people get out on the floor and just start getting involved and, you know, start cleaning and throwing things away and labeling things and that sort of thing. If it's a production *kaizen*, we may do everything from videotaping the operation so that they can study it, and just having people kind of hang out there for a while that they're not familiar with the operation. Hopefully we come back with a bunch of ideas of where we want to go.

These statements demonstrate a high aspiration regarding the use of lean continuous improvement tools.

Although Stampings is also a metal forming company with an identical number of production workers, its management adopted only consultative participation. They operate cellular-type layouts that include a team with a lead toolmaker, an operator, and two finisher/packers. When I asked if he had increased the amount of input that the workers can give, the manager replied:

Maybe a little bit. Again, our, how do I say it? We work pretty hand-in-hand with our toolmakers out there. And some, we only have one scheduler for all our presses. So they aren't afraid to come in and talk to him and say, "Hey, it would be a lot easier if you'd run this first and this second," or, "Why are we running so few? Can't we run some more?"

While some toolmakers gave their input, management prioritized standardization over worker input:

Actually it's a good thing and a bad thing because our designers will complain that . . . every toolmaker wants things different. And it is a problem. I mean we need to kind of hold our ground and say, "No, this is the standard, this is how we're going to do it."

These comments suggest satisfaction with and commitment to existing practice: taylorist standardization, designed by the engineering department.

Beyond the "good toolmakers," this manager simply did not attempt to develop a culture of worker-driven continuous improvement or engage the operators—the bulk of the workforce—in consultative or substantive participation. His explanation was that some workers do not *want* the responsibility:

You know, if you have a sharp operator who has an aptitude and an interest and maybe has been here awhile, and depending if the toolmaker is willing to mentor that person, you know, they'll let them do more. They'll look over their shoulder. But you have other operators, they just want to operate, you know, "Just let me do my job. I could care less about how that tool works or what you do," and that works too.

This manager considered existing practice good enough and used the reticent workforce as a reason for not adopting more employee participation. Although he displayed commitment to taylorist standardization, which suggests the influence of a cognitively durable fordist schema, this did not lead him to view workers exclusively as sources of physical labor (like the manager at Complex Iron Castings discussed in the following). He would allow worker participation in individual cases, but he was satisfied with and committed to existing practice. In contrast, management at Gaskets, with 300 production workers, and Inspired Castings (discussed in the following), with 500 production workers, also faced widespread reticence from the workforce but worked successfully toward changing the attitudes of the workers. By framing their situation as difficult but still manageable, these managers forged ahead to develop a culture of continuous improvement. The comparison suggests that the Stampings manager's reasoning reflects a moderate aspiration level rooted in a commitment to existing practice and to the old logic of taylorism.

A Top-down Process of Logic Blending on Substantive Empowerment: One Matched Pair

Inspired Castings is a high-involvement lean foundry with 500 production workers, whereas Complex Iron Castings is a lean-enough foundry with 120 production workers. These two factories are highly similar insofar as they are both foundries using expandable mold casting processes (as opposed to permanent mold processes such as die casting) to make extremely complex castings working on a make-to-order basis at low to mid volumes.

Inspired built a new facility based entirely on continuous flow concepts, getting their total throughput time from six weeks at their older factory to three days at the new one. The owner/vice president, who had a very-hands approach, explained that the initiative for continuous improvement is "better coming up from the shop floor . . . because then they can fix it and all that. And a lot of times we'll put the problems back and challenges back to them: 'Here, solve this problem.'" Inspired sought to involve as much of its production workforce as possible in substantive participation, which may take a range of forms: "On a small scale, [a team] can start something up [in] the cell and they can work on something themselves, or . . . the whole plant can work on it, or set up a team that's separate on that."

My discussions with the personnel manager further revealed the worker-driven, self-directed forms of participation occurring at this foundry. When I asked her about employee involvement in problem-solving teams, she replied:

Personnel Manager: Well, you can have many going on at one time, and I wouldn't even be aware of them. Some of the employees in Module 1 at one point in time had a real interest in the grind area and knew how they could streamline it and make it better. They talked to the plant manager. "Fine, go ahead. Start working on it." They'd come in and work on things here and there.

Researcher: They'd just come in and do it on their own?

Personnel Manager: Um-hmm. And then they came up with some programs to really help the process, implement it, reduced times drastically, you know, in setups and things like that to standardize stuff.

The emphasis on substantive participation in this foundry contrasts greatly with the situation at Complex Iron Castings, where there were no efforts to involve workers in any form of participation other than providing ideas when asked. The plant manager in this foundry indicated that they were involved in cross-training within cellular-type layouts, but these did not involve continuous flow or formal continuous improvement:

Plant Manager: I won't necessarily add a cell that's a, you know, a group doing from core-make through cast and clean.

Researcher: Okay. And so have you found that, have you been able to apply some of those lean principles then?

Plant Manager: Oh, we're, it's been a constant effort.

Researcher: Are you doing things like *kaizen* events?

Plant Manager: No, not formally.

Any continuous improvement efforts were initiated by managers and engineers. They have teams, but these are largely in name only and not used as a basis for continuous improvement. When I asked about employee involvement or teamwork, he replied: "The molding lines are teams. . . . The meeting might be, you know, 'We're starting this job,' and they go over the process so that everybody knows what they're supposed to be doing and have at it, you know."

This manager saw workers primarily through a fordist-taylorist lens in which they are for manual but not intellectual labor. What he needs from workers is:

Number one you need to be able to hang in there. Number two is that once you get that started you've got to keep going. So you've got to pace it. . . . You don't want to stop; if you stop then you'll have a defective casting. And you don't want to pour any faster than that because then you'll run over.

This manager's position on empowerment was reinforced by the fact he did not experience bottom-up stimuli for improving his flexibility and delivery beyond what has been achieved with a lean-enough regime. In contrast, Inspired Castings adopted substantive participation in an effectively identical context and as a result achieved better flexibility and continuous improvement.

Satisficing on Both Sides of the Subcontracting Relation

Purchasing managers are generally concerned only with output and not internal supplier performance. A supplier development engineer from a multinational prime contractor explained: "If you're a buyer or whatever you're getting measured on the performance of your suppliers. Why would you care? As long as they're meeting their cost, delivery and quality goals, you're looking good, you're suppliers are looking good, why would you care?" I was told numerous stories by supplier managers about how purchasing agents are often concerned only with getting parts of sufficient cost, quality, and delivery, with little regard for how these targets are achieved. At the end of the day, purchasing agents are there to get parts of good quality at the right price and the right time, and it is beyond their departmental purview how exactly these targets are met. As a manager in one supplier explained, "You've got purchasing people doing the buying, they're not really looking at processes and what can they do to shave 50 cents off here or 50 cents off this part. They're just ordering parts." A manager in a different supplier concurred: "Once a part is being made and there's no problems with it, and it's going through, you know, they're getting their parts on time and it's working fine, I think there's little incentive for them to say, 'How can we improve the process?'"

A different supplier development engineer explained that suppliers often meet customer targets through non-lean, inefficient methods such as intensive sorting (for quality), pre-building stocks (for delivery), and even sacrificing their own margins (for costs). Typically, small suppliers do "not have the ability to hire specialists, i.e. most of their managerial personnel are generalists expected to 'wear many hats.' . . . So, when a customer sets performance standards in front of them, they usually address them in general rather than specialized ways." Again, this suggests that demands for immediate output override concerns for fully adopting best practice, which is time and resource consuming. Nonetheless, suppliers I observed often maintained customers for decades, supplying complex parts and meeting customer targets but without necessarily using the leanest/most efficient practices to do so. In the hectic world of small and midsized factories, managers often settle for good enough. As the first supplier development engineer quoted above elaborated:

We've dealt with some suppliers. . . . And they basically don't have the resources to work on that [upgrading project], and

some of that's legitimate, and I can understand that. But there also can be an element of passive resistance. . . . I have no doubt that when you're moving your factory around you're going to use a lot of resources. That's completely understandable. But . . . it's very easy to say that that's going to take up all your resources [focusing on one problem so they cannot address another problem], and that's kind of a form of passive resistance.

These brief statements indicate that industrial customers are aware of satisficing in suppliers and purchasing managers are not typically concerned with this, so long as their parts are coming on time at sufficient levels of quality and price.

Discussion

This article has demonstrated that some manufacturing managers do not adopt what is widely regarded as best practice even where such practice has been deeply institutionalized and specified in great detail. Institutional logics provide a central source of top-down, schema-driven attention processing. Some managers used a conceptual schema from the formerly dominant fordist logic of practice to frame their situation. The fordist principle of maximizing output on individual machines was invoked as a reason for not adopting the postfordist principle of continuous flow production, and the fordist-taylorist principle of restricting workers to manual labor was invoked as a reason for not adopting the postfordist principle of worker participation in decision making. In a bottom-up, experience-driven process, moderate aspiration levels led managers to frame certain practices as a misfit with their local context or to otherwise be satisfied with current practice. Managers invoked the complexity of their local situation as making best practice impractical, competing demands of operating a factory as precluding the ability to dedicate resources to upgrading, and satisfaction with existing practice as making further upgrading unnecessary. Although these rationales were based in experience and as such provide some justification, other managers in effectively identical factories did not rationalize partial adoption but pushed forward with full implementation of best practice.

Alternative and Complementary Explanations

As shown in Table 2, within my qualitative sample, firm size and production technology (i.e., fabrication, machining, casting, and assembly) are all represented within the polar types (high-involvement lean and lean enough), suggesting these characteristics provide little explanatory leverage on variations in lean regimes. While there is also wide variation within each regime regarding product type, there is one pattern related to product complexity: factories where the primary products can be produced in a single operation (here: thermoformed plastic containers and injection molded parts) are clustered among lean-as-toolbox regimes. Plants with simple products that can be produced in a single operation or

small number of steps have less need for a comprehensive package of complementary lean practices regarding workflow (i.e., continuous flow and regular value stream mapping). Among the high-involvement lean plants, all combinations of ownership type are represented; however, privately held, independent plants are overrepresented among lean-enough regimes, suggesting parent companies can play an important role in disseminating knowledge and capability. Finally, four of the eight union plants are among the eight high-involvement lean regimes. Unions may push to increase training and employee involvement, which in turn encourages the adoption of a comprehensive package of lean practices to utilize the empowered employees (Vidal 2007b).

Independent Choices Regarding Lean and Empowerment

My data show that although there are complementarities to be gained by fully adopting both best practices, the decision about whether to fully adopt one can be made independently of the decision about whether to fully adopt the other. As reflected in Figure 2, all four combinations are possible: A manager could decide first to adopt either lean-as-system or lean-as-toolbox and in either case adopt substantive or consultative participation. Likewise, a manager could decide first to adopt either substantive or consultative participation and in either case adopt lean-as-system or lean-as-toolbox. All are viable regimes.

Although the decision regarding each logic can be made independently, there are three situations in which an interaction effect is produced. First, a regime of substantive empowerment with collective worker autonomy greatly facilitates lean-as-system because empowered workers can drive continuous improvement. Second, and opposite of the first, a regime of consultative participation means the fragility of lean-as-system must be diligently managed by management rather than empowered workers, as in the case of Deep Stampings discussed previously. Finally, a regime of individual autonomy will conflict with standardization requirements of lean-as-system, as in the case of LG Gaskets discussed previously.

Limitations and Future Research

The analysis has some limitations and suggests several directions for future research. First, I presented a qualitative analysis that strongly implies three of the lean regimes have substantially more limited capabilities than the fourth—high-involvement lean—but I did not present quantitative performance data. My findings are consistent with organizational learning theory, which has highlighted what I have called high-involvement lean as a premier organizational learning routine (Adler et al. 1999; Winter 2000), and with the empirical literature on lean, showing that comprehensive

packages of practices including empowered workers are the most efficient and flexible (Adler and Cole 1993; MacDuffie 1995; Oliver et al. 1994; Oliver and Wilkinson 1992).

Future research could more directly measure the performance differences between types—including labor productivity, flexibility, and continuous improvement capability. Institutional theory suggests that lean and empowerment will be dominant logics until a more efficient package of practices is developed and comes to dominate the field. Future research might longitudinally test the durability of the lean types. More generally, research could examine the durability of good-enough regimes within competitive fields.

Second, because the importance of aspiration levels only crystallized during a relatively late stage in the data analysis, after I had completed the interviews and exited the field, I was not able to probe deeply on this set of issues. Because it seems unlikely that managers would directly admit that a low or moderate aspiration level is the reason for deviation from a prescribed practice, it will remain difficult to get direct data from the field on aspiration levels regarding best practice. However, researchers could probe more deeply on the questions of how, why, and under what conditions some managers rationalize deviation from best practice.

The literature review highlighted experiential and cultural factors that contribute to satisficing and might stabilize aspiration levels. Building on information processing model of Ocasio and collaborators (Ocasio 2011; Thornton et al. 2012), experiential factors contribute to the stabilization of aspirations in a bottom-up manner related to experience, while cultural factors associated with meaning systems, logics, and schemas might also stabilize aspiration levels in a top-down process. Taking experiential factors first, my analysis found that competing priorities and demands (Winter 2000), along with commitment to existing practice (Greve 1998; Milliken and Lant 1991), were key factors managers emphasized when deviating from best practice. Future research could examine more systematically how these and the other factors highlighted by the literature are related to variation and stabilization of aspirations. Other factors include perceived switching costs (Levitt and March 1988) and the stabilization of routines following a period of upgrading (Cyert and March [1963] 1992; Levitt and March 1988; Nelson and Winter 1982; Winter 2000).

Turning to cultural factors, the literature suggests that commitment to existing beliefs contributes to satisficing and might stabilize aspiration levels (Ansari et al. 2010; Grinyer and McKiernan 1990; Milliken and Lant 1991). My analysis put the main emphasis on either logic blending or moderate aspirations without systematically examining their interaction. However, some of the cases, in particular Tubefab and Deep Stampings, suggested that existing interpretative frames and aspiration levels jointly produce satisficing behavior. This is a promising area for future research. Does commitment to existing interpretive frames lower aspiration

levels? Is commitment to existing frames a function of the aspiration level? Is the framing of a situation always a combination of schemas and aspiration, or does their relative weighting vary across contexts or individuals?

My study was suggestive of but did not provide direct evidence on the stability of aspiration levels. To do this, a longitudinal, qualitative case study would be required to examine the relative stability of aspirations—and the factors that contribute to their stabilization or adjustment—over time in one or more organizations. The matched-pairs design presented in this article would help facilitate explicit comparisons regarding the factors impacting aspiration levels and the rationalization of deviation from best practice. Additionally, the literature review suggested that psychological factors are likely to underlie variation in aspiration levels across individuals. Research could further unpack the concept of satisficing by examining the role of executive attention and attentional vigilance (Ocasio 2011) along with more fundamental personality traits in contributing to and accounting for individual variation in aspiration levels.

Finally, while most institutionalist research has examined adoption as a binary variable, my study aligns with a small number of studies that have found partial adoption of a prescribed practice (Edelman 1992; Fiss and Zajac 2004; Kennedy and Fiss 2009). Kennedy and Fiss (2009) found that early adopters of TQM were motivated by potential economic gains and implemented it more fully while later adopters were concerned with potential economic losses and less thorough in their implementation. In relation to my findings, this opens a question of whether a low or moderate aspiration level underlies the reactive motivation of avoiding an economic loss and hence being a late adopter.

Ansari and collaborators (2010) proposed that partial implementation results from the fit of a practice with an organization. They distinguished technical fit (compatibility with existing technologies), cultural fit (compatibility with existing beliefs), and political fit (with competing interests) within the organization. My findings complicate the notion of fit, suggesting that whether a practice is deemed a technical, cultural, or political fit is in part a function of the manager's aspiration level. In place of a notion of fit in which organizational cultures are largely seen as objective givens to which prescribed practices must be adapted, future research might examine how fit is defined—perhaps constructed—based on the interaction of cultural and experiential factors. Quantitative performance data could be used to examine the role of incremental performance improvements and satisficing in shaping the definition of fit. Theoretically, partial implementation might be a form of inefficiency rather than a strategic adaptation to cultural or political constraints. This raises important questions for the sociology of markets, which should make the efficiency and discipline of markets an empirical question and to which an institutional theory of satisficing might make a powerful contribution.

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