



Strategic, structural contingency and institutional explanations in the adoption of innovative manufacturing practices

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Abstract

The main argument in this paper is that in order to understand the phenomenon of how innovative manufacturing practices diffuse we need to invoke theoretical arguments other than the ones that are conventionally used. In particular, neo-institutional arguments can shed light on the determinants of manufacturing practice adoption and implementation. We juxtapose both theoretically and empirically three different theoretical perspectives that can be used to address the phenomenon: strategic contingency, structural contingency and neo-institutional arguments. A preliminary empirical test of the three competing perspectives is tested in a sample of 164 manufacturing plants. We find that the institutional perspective explains much more of the variance in the practices adopted and implemented by the plants than either the structural contingency or the strategic contingency theories. This motivates future research using some of the less familiar theoretical approaches.

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1. Introduction

From time to time, operations management (OM) scholars have made empirical observations which imply that managerial action sometimes defies economic rationality:

1. Factories are managed wrong, they were managed wrong in the 1960s and not much has changed since then (Skinner, 1969, 1996a).
2. Managers may feel an urge to “do something about JIT and total quality management (TQM)”, whether

this makes sense strategically or not (Dean and Snell, 1996, p. 464).

3. TQM spread very rapidly in the 1980s and 1990s despite the “mixed results and high-profile failures” (Powell, 1995, p. 17).

Underlying the three observations described above lies an explanation that on its face seems to deny a number of key aspects and assumptions of economic profit-maximization rationality, one of the cornerstones and basic assumptions in OM research. Now, if we accept the position that one of the tasks of the OM scholar is to learn to understand and explain empirical phenomena, it behooves us to search for an explanation. In doing this, we clearly need to invoke

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theories somewhat different from the ones we have traditionally used.

Theories used in OM research have traditionally—albeit often implicitly—been based on *closed rational systems theory* (Scott, 1998 [1981]) as well as applied microeconomics and organization economics (Banker and Khosla, 1995). More recently, *open rational systems* explanations, such as offshoots of the structural contingency theory, have been introduced (e.g., Kotha and Orne, 1989). In typical empirical studies, we often look at the different aspects of organizations such as manufacturing plants by breaking them down in a reductionist manner into their constituent parts, and then analyzing them—through methods akin to *comparative structural analysis* (Woodward, 1994 [1965])—to determine how variance in specific structural arrangements and organizational routines (e.g., manufacturing practices) correlates with operational and economic performance. This approach closely parallels input-heterogeneity arguments of applied organization-economic perspectives such as the resource-based view (Wernerfelt, 1984) and the related capability-based view (Teece et al., 1997). Not surprisingly, the resource-based view has gained much attention in OM theorizing as of late (e.g., Amundson, 1998; Schroeder et al., 2002; Vastag, 2000).

In order to address the phenomena described above, however, we must step outside the realm of strict profit-maximizing economic rationality. To this end, institutional theory has much to offer.

2. What is the institutional argument?

For our purposes, we define *institutionalized practice* as “a set of organizational routines that becomes perceived as economically valuable even in the absence of empirical evidence of its economic effectiveness.”¹ Hence, the focus here is on how man-

ufacturing practices become institutionalized, that is, perceived as valuable and worth pursuing, despite lack of direct evidence. A case in point, the diffusion of lean manufacturing is, at least in part, properly viewed through an institutional mimicry lens: mimickers attributed Toyota’s success to its manufacturing system and upstream supply network management, and hence tried to mimic the manufacturing system long before the link to economic performance was firmly established. The same can be said of TQM and other manufacturing practices.

When we search for institutional explanations in the extant OM literature, we conclude that a number of authors have claimed that institutional explanations and application of institutional theory in the OM literature are scarce and empirical work is virtually nonexistent (Banker and Khosla, 1995; Choi and Eboch, 1998; St. John et al., 2001). At the same time, these authors have identified the potential value of institutional theory in OM research.

Now, the claim that institutional explanations in OM are scarce begs many questions.² After all, every research endeavor in management research invokes an institutional argument of sorts. For instance, the principles of economic rationality and profit-maximization *are* institutions, that is, institutionalized principles that define economically rational action (DiMaggio and Powell, 1991). Hence, all empirical OM research that examines the determinants of high performance invokes an institutional argument. Indeed, those of us who have applied transaction cost economics or evolutionary economics in our work have also applied specific economic variants of the institutional theory (Scott, 2001 [1995], pp. 28–33).

Because institutional explanations come in a plethora of shapes and forms with little agreement on the specifics (DiMaggio and Powell, 1991; Scott,

¹ This definition bears resemblance to Selznick (1957). The main departure from Selznick here is that Selznick’s approach is essentially a sociological one, ours is economic. Another point of departure is the level of analysis; Selznick (1957) was mainly concerned about how *organizations* become institutionalized, “infused with value beyond the technical requirements of the task at hand” (p. 17). We are primarily interested in individual manufacturing practices which parallels the micro-organizational focus of the neo-institutionalist approaches (DiMaggio and Powell, 1991).

² When OM scholars such as St. John et al. (2001) state that institutional explanations in OM are scarce they refer to theories of *organizational isomorphism*, examinations of the distinctly sociological mechanisms through which organizations become to resemble one another over time (DiMaggio and Powell, 1983). A key element in the isomorphism argument is that business organizations seek *legitimacy* in addition to economic efficiency, and the focus is on “the ways in which institutional mechanisms [constrain] organizational structures and activities” (Scott, 2001 [1995], p. 75). Theories of isomorphism are just a small fraction of institutional theory.

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