

**Clashing Fashions and Institutions:
Mid-Life Uncertainty in Innovation Diffusion**

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ABSTRACT

Organizational techniques are labels denoting linguistic prescriptions which organizations can implement to transform organizational inputs into organizational outputs. In Neoinstitutional theory, the theory of fashions in organizational techniques tends to explain the causes of these techniques' relative transience. By contrast, the theory of institutions in organizational techniques tends to explain the causes of these techniques' relative persistence. We use both theories of fashions and institutions to examine whether, why, and when over five-hundred organizational techniques persisted relatively permanently or disappeared relatively transiently. We do so by examining how the forces causing fashion transience, institutional persistence, or a combination of both, would affect these techniques' hazard rate of disappearance; that is, the average risk that organizational techniques disappear, depending on how long they have endured. The article concludes with a tripartite theoretical, methodological, and practical conclusion. It first points to the benefits of using theories of fashions and institutions together. Second, it highlights the advantages of a multi-innovation strategy involving the study of hundreds of diffusing innovations and their hazard rate. Third, it presents the managerial implications, for practitioners, of being capable of estimating the likelihood that a new organizational technique will become either a shorter-lived fashion or a longer-lived institution.

Organizational techniques are labels, such as Business Process Reengineering, that denote linguistic prescriptions which organizations can implement in order to transform organizational inputs into organizational outputs (Strang and Meyer, 1993). Such organizational techniques' prevalence in and around organizations renders them relevant for academics and practitioners alike (Brindle and Stearns, 2001). Many managers attempt to improve their organizations' practices by using a host of organizational techniques articulated, broadcasted, and sold by consultants and other suppliers of these techniques (Kipping & Clark, 2012). Educational institutions, whether business schools, corporate universities, or vocational programs also train many students to enact these many organizational techniques (Monahan, Meyer, and Scott, 1994). Consequently, many of these schooled employees become receptive to organizational techniques and put them to use (MacKenzie, 2009; Meyer, 2010).

Although students, managers, and employees typically value—and strive to acquire—techniques that endure over time, they can end up using relatively transient organizational techniques that emerge one year only to lose popularity a few years later (Abrahamson, 1996). For instance, a number of organizational techniques emerged at the turn of the nineteenth century, such as company churches, company towns, and sociological departments in business organizations, but they rapidly went out of fashion (Brandes, 1976). However, Brandes (1976) shows that some of these techniques, such as employee vacations, endured, so much so as to remain taken for granted to this day. This article investigates one key question: what explains whether, why, and when organizational techniques endure relatively permanently or disappear relatively transiently over time?

We raise this question because two specifications of general Neoinstitutional theory bear on organizational techniques' duration (Meyer and Rowan, 1977; Zucker, 1977; DiMaggio and Powell, 1983). We call these specifications "the theory of fashions in organizational techniques" and "the theory of institutions in organizational techniques".

The theories of fashions and institutions in organizational techniques approach the question of these techniques' transience and permanence in fundamentally different, yet complementary ways (Meyer and Rowan, 1977; Zucker, 1977; DiMaggio and Powell, 1983). The literature bearing on the theory of fashions rests largely on Abrahamson's (1996: 257) definition of fashionable organizational techniques as "a relatively transitory collective belief, disseminated by management fashion setters, that [an organizational] technique leads rational management progress." Fashion theorists, with some exceptions (e.g., Perkmann and Spicer, 2008), have either assumed, or focused on explaining, the relative *transience* in the emergence and disappearance of a rapid succession of fashionable organizational techniques (Abrahamson and Fairchild, 1999; Kipping and Clark, 2012). By contrast, the theory of institutions tends to rest on Hughes' (1936: 180) statement that "the only idea common to all usages of the term 'institution' is that of some sort of establishment of relative permanence of a distinctly social sort" (Zucker, 1977; Royston, et al., 2008). Neoinstitutional theorists, with some exceptions (e.g., Colyvas and Jonsson, 2011), have either assumed, or focused on explaining, organizational techniques' relative *persistence*; that is, institutionalized organizational techniques tend to persist for relatively long time periods until, in rare instances, new institutions can emerge, displace, or replace these older institutions. This, happens either in response to powerful

shocks exogenous to organizational techniques' fields or to intra-field contradictions (Powell, 1991; Barley and Tolbert, 1997; Greenwood, et al., 2008).

In sum, the theory of fashions has assumed, or focused on explaining the causes of, the relative transience of certain organization techniques that have diffused, rendering it challenging to explain why certain techniques persist relatively permanently (e.g., Perkmann and Spicer, 2008). By contrast, the theory of institutions has assumed, or focused on explaining the causes of, other techniques' relative persistence, rendering it challenging to explain why certain techniques disappear relatively transitorily (e.g., Colyvas and Jonsson, 2011). Using these complementary theories together can potentially serve to simultaneously study both relatively transient and persistent organizational techniques. Moreover, as we discuss in the conclusion to this article, both this article's theoretical and analytical contribution may extend to innovations other than organizational techniques. We turn to these analytical contributions next.

We advance a different analytical strategy to address the question of whether, why, and when innovation diffusion results in relatively transient fashion or relative persistent institutions. We call this strategy a "multi-innovation" analytical strategy, which supplements the extant "mono-innovation" strategy.

The mono-innovation strategy emerged because data about the diffusion of even a single innovation-diffusion episode can be hard to find. Due to this data limitation, the extant mono-innovation strategy in diffusion research has generally involved studying one diffusing innovation at a time (Strang and Soule, 1998). More specifically, ever since the pioneering work of Coleman, Katz, and Menzel (1957), in order to test different theories of innovation diffusion,

scholars have typically looked at either the rate and network paths of the diffusion of single innovations (e.g., Burt, 1987). Likewise, scholars studying broadcast diffusion have focused on how specialized organizations broadcast one innovation to many organizations that adopt it (e.g., Van den Bulte and Lilien, 2001). Extensive reviews of thousands of such mono-innovation diffusion studies have tried to find generalizations across these studies. In particular, Rogers and Schoemaker's (1971) review of twelve-hundred diffusion studies, as well as all subsequent reviews of this genre, tend to find only a few generalizations; this, because the idiosyncrasies of institutional fields of diffusion exert differential influences on fashion dynamics and their outcomes, as well as differential influences on institutionalization dynamics and their outcomes (Downs and Mohr, 1976; Strang and Soule, 1998).

Rather than a mono-innovation strategy of examining the diffusion of single innovations, belonging to different types, across many institutional fields, our multi-innovation strategy involves studying the diffusion of hundreds of innovations, belonging to the same type, across a single institutional field. This multi-innovation strategy allows us to examine simultaneously, not only the impact of fashion forces that could cause relative transitoriness in many diffusing organizational techniques' duration, but also the impact of institutional forces that could cause relative persistence in many diffusion techniques' duration as well. To do so, our study's multi-innovation strategy examines 579 organizational techniques. We examine the hazard rate of organizational techniques' disappearance; that is, the average risk that organizational techniques disappear, depending on how long they have endured. We then test the theory of fashions and institutions bearing on organizational techniques by deriving hypotheses from

them about how fashion and institutional forces would differentially affect diffusing techniques' hazard rate of disappearance.

This article has six sections. The first, theory section, contrasts the explanations from theories of fashions and institutions in diffusing organizational techniques' transience or persistence. This section theorizes three hypotheses specifying how the forces causing fashion transience, alone, institutional persistence, alone, or a combination of both, would affect diffusing techniques' hazard rates of disappearance. The second section describes the data and methods used. A third, analysis section describes our multi-innovation strategy for studying the diffusion of innovations, based on their hazard rate. Section four present results of the analysis and section five discusses these results. The paper concludes with a tripartite theoretical, methodological, and practical conclusion. It first points to the benefits of using theories of fashions and institutions together. Second, it highlights the advantages of a multi-innovation strategy involving the study of hundreds of diffusing innovations and their hazard rate. It highlights these advantages not only for studies of innovative organizational techniques, but also for studies of a host of other types of innovations. Third, it presents practical managerial implications of being capable of estimating the likelihood that new organizational techniques, as well as other types of innovations, will become either shorter-lived fashions or longer-lived institutions.

ORGANIZATIONAL TECHNIQUES

Neoinstitutional theory and reseach generally, particularly as they bear on fashions and institutions in organizational techniques, reject the assumption that they diffuse because

organizations learn, by using these techniques, of their superior technical performance (e.g., Rogers, 2005). Neoinstitutionalists, instead, assume that organizational techniques' performance remains highly ambiguous (e.g., DiMaggio and Powell, 1983). Under these conditions of ambiguity, organizations cannot adopt and implement techniques because they learn directly of their technical performance. Rather, organizations do so in order to conform to widely disseminated beliefs that frequently-imitated organizational techniques are technically performant (c.f., Meyer, 2010).

Rational beliefs. According to Neoinstitutional theory, organizational techniques have a propensity to diffuse when they conform to generalized societal beliefs that these techniques should be adopted (Strang and Meyer, 1993; Meyer, 2010). Theories of the institution of organizational techniques, for instance, suggest that these techniques diffuse when they are believed to be rational. Meyer and Jepperson (2000: 102) defined rational beliefs as “the cultural accounting of society and its environments in terms of articulated, unified, integrated, universalized, and causally and logically structured schemes.” Such rational beliefs take on much more specific and powerful forms when instantiated in beliefs about organizational techniques. They are specific beliefs about how organizational techniques should transform organizational inputs efficiently into effective outputs. Accordingly, techniques believed to perform efficiently and effectively have a greater propensity to diffuse (Strang and Meyer, 1993) and techniques believed to perform inefficiently and ineffectively have a greater propensity to be rejected (Abrahamson and Fairchild, 1999).

Rational beliefs are incorporated into organizational techniques through what Strang and Meyer (1993) called “theorization”. Theorization has two parts: first, “... the development

and specification of abstract categories” and second “the formulation of patterned relationships such as chains of cause and effect” in discourse (p.104). Organizational techniques’ linguistic labels, such as Business Process Reengineering, denote Strang and Meyer’s (1993) “abstract categories” distinguishing different techniques. Organizational techniques’ prescriptions are linguistic descriptions of Strang and Meyer’s (1993) “chains of cause and effect” that transform organizational inputs into organizational outputs. Rational beliefs are integrated into linguistic theorizations.

In short, what we call “organizational techniques” are linguistic entities. They are linguistic labels denoting rationally theorized linguistic prescriptions for transforming organizational inputs into organizational outcomes (Strang and Meyer, 1993).

Progressive beliefs. By contrast to the theory of institutions in organizational techniques, the theory of fashions in such techniques stresses not only the existence of societal beliefs in rationality, but also of societal beliefs in progress (Abrahamson, 1996). These progressive beliefs also take on much more specific and powerful forms when instantiated in beliefs about organizational techniques. They are progressive beliefs that, over time, organizational techniques believed to be rational should be replaced by techniques believed to be more rational; that is, by rational organizational techniques that are believed to be newer and more performant techniques, by comparison to older and less performant ones. Consequently, progressive techniques have greater propensity to diffuse (Strang and Macy, 2001).

The next, three parts of this article derive three hypotheses from extant Neoinstitutional theory. The first part examines the theory of fashions as it pertains to diffusing organizational

techniques' relative transience. It uses the theory of fashion, in isolation, in order to conceptualize and hypothesize how the market for organizational techniques engenders a succession of relatively-transient organizational techniques resulting in an increasing hazard rate in the persistence of these techniques. The second part examines the theory of institutions as it pertains to organizational techniques' relative persistence. It uses the theory of institutions, in isolation, in order to conceptualize and hypothesize how insitutional forces of taken for grantedness cause relative persistence in organizational techniques and a decreasing hazard rate in these techniques' persistence. The third part uses fashion and institutional theories of organizational techniques, in conjunction, in order to conceptualize and hypothesize whether, when, and why organizational techniques' diffusion tend to be more or less transient or permanent, and how this effects their hazard rate.

THE THEORY OF FASHION IN ORGANIZATIONAL TECHNIQUES

The theory of fashions in organizational techniques suggests that organizations, on the supply-side of a market for fashionable techniques, articulate, broadcast, and sell, to demand-side organizations, discourse casting organizational techniques as rational and progressive (Abrahamson, 1996; Strang, David, and Akhlaghpour, 2015). Demand-side organizations demand this discourse in order to communicate to their stakeholders that they are using rational and progressive techniques (Zbaracki, 1998; Staw and Epstein, 2000; Strang, 2010). When demand-side organizations do so, their stakeholders support these organizations because they believe they are well managed, by virtue of using techniques at the cutting edge of technical progress (Staw and Epstein, 2000; Wang, 2010).

In order to maintain the belief in technical progress over time, progressive techniques, believed to be newer and superior, must repeatedly replace techniques, believed to be older and relatively inferior. Therefore, the market for organizational techniques must engender a continuing series of organizational techniques—each of which is believed to be at the cutting edge of technical progress—until it is replaced by the next cutting-edge technique. Abrahamson and Fairchild (1999), for instance, found that the Management by Objective fashion gave way to the Job Enrichment fashion, which subsequently was replaced by the Quality Circle fashion, followed by the Total Quality, Business Process Reengineering, and Six-Sigma fashions respectively. A large number of studies have also found evidence supporting the notion that fashion mechanisms influence the diffusion of many different types of organizational techniques: Quality Circles (Strang, 1997); Business Process Reengineering (Benders, Van den Berg, and Van Bijsterveld, 1998); Matrix Organizations (Burns and Wholey, 1993); Quality Circles (Cole, 1985; Cole, 1999); Autonomous Work Groups (Benders, Huijgen, and Pekruhl, 2002); Lean Production (Benders and Van Bijsterveld, 2000); Total Quality Management (De Cock and Hipkin, 1997; Staw and Epstein, 2000); The Balance Scorecard (Braam, Benders, and Heusinkveld, 2007); Supply Chain Management (Harry, 2000); Knowledge Management (Hislop, 2010); Self-Managed Teams (Marja, 2005); On-Line Learning (Pratt, 2005); Six Sigma (Richard and Offodile, 2005); Pay-For-Performance (Rost and Osterloh, 2009); Knowledge Management (Scarborough, 2002); Enterprise Resource Planning (Thomas and Miguel, 2001).

We describe next how, according to the theory of fashion in organizational techniques, the supply and demand sides of the market for organizational techniques interrelate to engender the diffusion of transitory and progressive organizational techniques, *ad seriatim*

(Abrahamson, 1996; Meyer, 1996; Hirsch, 2000; Peterson and Anand, 2004). The theory of fashions suggests that the market for fashionable organizational techniques exerts two kinds of forces causing transience in organizational techniques (Abrahamson, 1996). The first force is exerted by demand-side organizations: governmental, nonprofit, and for-profit organizations. Progressive beliefs cause these demand-side organizations to demand a transient series of ever-more, progressively-theorized organizational techniques.

The second force is exerted by supply-side organizations: consulting firms (Kipping and Clark, 2012), business media (Nijholt, 2010), industry associations (Greenwood, Suddaby, and Hinings, 2002), and educational institutions (Meyer, 2010). Supply-side organizations meet demand by articulating, broadcasting, and selling a series of progressively theorized organizational techniques. They do so by continuously debunking older organizational techniques and producing, broadcasting, and selling to demand-side organizations a series of lucrative, newer, and purportedly superior techniques (Abrahamson and Fairchild, 1999). The supply and demand sides of the market for fashionable organizational techniques, therefore, jointly provoke the transitory emergence and disappearance of a series of organizational techniques that replace each other in very short order.

How would these dual fashion forces of supply and demand affect organizational techniques' hazard rate of disappearance? When techniques have lasted only a few years, demand-side organizations and their stakeholders find them progressive. The demand for these techniques is high, as are the benefits which supply-side organizations reap from articulating, broadcasting, and selling them. The early hazard rate of organizational techniques' disappearance should tend to be relatively low. However, the greater the number of years

techniques endure—that is, the greater their duration—the greater the likelihood that the fashion market’s forces will militate against their persistence, causing these techniques to disappear. In particular, almost from its inception, fashion theory has recognized that there is little that fashion setters despise more than institutional persistence or custom; this happens because persistence blocks the emergence of new, lucrative fashionable forms that could replace these persistent forms (Thomas, 1908). Therefore, the more organizational techniques endure, the more supply-side organizations actively cause them to disappear, and the greater their hazard rate. In sum, the theory of fashion in organizational techniques, considered independently from the theory of institutions, suggests that,

Hypothesis 1: The hazard rate of organizational techniques’ disappearance increases with their duration.

THE THEORY OF INSTITUTIONS IN ORGANIZATIONAL TECHNIQUES

The theory of fashion in organizational techniques stresses transience in these techniques. By contrast, the theory of institutions in organizational techniques stresses persistence in organizational techniques as they transit from being proto-institutions, to semi-institutionalized organizational techniques, to fully institutionalized techniques (Tolbert and Zucker, 1996; Greenwood, Suddaby, and Hinings, 2002).

Lawrence, Hardy, and Phillips (2002: 281) define “proto-institutions” as “new practices, rules, and technologies that transcend a particular collaborative relationship and may become new institutions if they diffuse sufficiently.” The originators of proto-institutions, as Tolbert and Zucker (1996: 182) put it, “are likely to be comparatively few in number, limited to a

circumscribed set of similar, possibly interconnected organizations facing similar circumstances, and to vary considerably in terms of the form of implementation.” Case-study evidence supports this characterization of proto-institutions (Lawrence, Hardy, and Phillips, 2002; Powell, et al., 2014; Colyvas and Maroulis, 2015).

The case-study evidence also suggests that proto-institutions do not diffuse automatically beyond what Tolbert and Zucker (1996: 182) called the “circumscribe set of organizations” that invented them. They do, however, have the potential to do so. For this to happen, first, organizations, such as consultancies or scientific organizations, have to theorize proto-institutions (Powell, et al., 2014). That is, these organizations have to translate proto-institutions into organizational techniques; they have to attach to proto-institutions clear linguistic labels denoting codified linguistic prescriptions. Second, these organizations have to broadcast broadly the theorized language of these organized techniques. Third, if they do so, these techniques may then diffuse widely among organizations that receive these communicative broadcasts and use these techniques (Meyer, 1986; Meyer, 2010).

The literature on proto-institutions is clear that even if proto-institutions become theorized as organizational techniques and diffused widely, then their full-fledged institutionalization is by no means inevitable (Tolbert and Zucker, 1996; Greenwood, Suddaby, and Hinings, 2002; Powell, et al., 2014). However, a number of Neoinstitutional studies reveal institutionalization processes causing a variety of diffused organizational techniques to last over time: Domestic Partner Benefits (Briscoe and Safford, 2008), Investment Tax Credits (Mezias, 1990), ISO 9000 Qualification Certificates (Guler, Guillén, and Macpherson, 2002), or Sexual Harassment Grievance Procedures (Dobbin and Kelly, 2007), for instance. It is the passage of

time that causes such diffused and semi-institutionalized organizational techniques to become increasingly taken for granted and institutionalized, to the point that—as Zucker (1983: 25) observed—“alternative[s] may be literally unthinkable.” For instance, giving employees vacations is so taken for granted to this day that we rarely recognize it as an organizational technique any longer.

In sum, the theory of institutions in organizational techniques suggests that the greater an organizational technique’s duration, the more it becomes taken for granted (Zucker, 1977). The more taken for granted an organizational technique, the less likely the taken for granted technique will disappear. Therefore, the theory of institutionalization in organizational techniques, considered in isolation from the theory of fashions, suggests that:

Hypothesis 2: The hazard rate of organizational techniques’ disappearance decreases with their duration.

It should be noted that the theory of institutions in organizational techniques assumes taken for grantedness to be quite robust, so that techniques tend to endure for long periods of time. New institutions tend to emerge, displace, or replace these older institutions relatively rarely. This happens in response to powerful shocks exogenous to organizational techniques’ fields or to intra-field contradictions (Powell, 1991; Barley and Tolbert, 1997; Greenwood, et al., 2008).

We did not hypothesize how deinstitutionalization might affect organizational techniques’ hazard rate of disappearance because, at any point in time, any number of forces can cause deinstitutionalization (Oliver, 1992; Dacin and Dacin, 2008). Deinstitutionalization can occur at the point of friction or recombination between different institutional logics (Rao,

Monin, and Durand, 2005; Thornton, Ocasio, and Lounsbury, 2012). Alternatively, deinstitutionalization can occur when institutions that were previously separated by cultural boundaries are brought together. Westney (1999), for instance, showed how Japanese institutions became deinstitutionalized during the Meiji period when Western organizational techniques were imported into Japan. Existing institutional arrangements can also be overturned through the institutional work of social movement organizations. Davis, Dieckmann, and Tinsley (1994), for example, showed how institutionalized organizational techniques, such as the BCG matrix and so called conglomerate organizations, were deinstitutionalized by a host of social actors. Still other scholars have shown how organizational techniques become deinstitutionalized because of the diffusion of their rejection (Greve, 1995; Greve, 2011). Finally, other scholars have shown how major techno-economic changes might fundamentally alter the need for particular types of organizational techniques (Barley and Kunda, 1992).

JUXTAPOSING THE THEORIES OF FASHIONS AND INSTITUTIONS

There exists a third possibility: that the theories of fashions and institutions in organizational techniques might complement each other. Jointly, they might explain why and when certain organizational techniques disappear relatively transiently whereas others persist relatively permanently. Supply-side organizations respond rapidly to the disappearance of one organizational technique by launching another technique into fashion (David and Strang, 2006). By virtue of the speed of their onset, fashion forces would operate first, causing relative transience in certain organizational techniques.

Taken-for-granted institutionalization occurs only over time. Over time, therefore, slower institutional forces of taken for grantedness prevail, blocking the fashion-driven replacement of organizational techniques, and causing their relative persistence. So, in the third hypothesis below, we consider the possibility that fashion forces causing, initially, a higher hazard rate in the disappearance of organizational techniques might, subsequently, be gradually overwhelmed by institutional forces resulting in a decreasing hazard rate.

Figure 1 depicts how organizational techniques' hazard rate would change as institutional forces overwhelmed fashion forces. It distinguishes three, analytically-distinct periods through which organizational techniques might transit: a fashion period, a mid-life uncertainty period, and an institutionalization period.

Insert Figure 1 about Here

Fashion Period. Both supply- and demand-side organizations benefit from the replacement of semi-institutionalized techniques by more progressive techniques. This fashion-driven force to replace techniques grows rapidly as techniques endure, forcing up their hazard rate. We call this first period, the “fashion period” of organizational techniques.

Mid-Life Uncertainty Period. As techniques endure past the fashion period, they also become increasingly taken for granted and difficult to replace by new fashionable techniques. During a second period, therefore, increasing taken for grantedness renders it much more difficult for supply-side organizations to replace surviving organizational techniques with new

fashionable techniques. The countervailing forces of fashion and institutionalization have two effects.

First, fashion forces no longer simply continue driving up the hazard rate of organizational techniques' disappearing as they endure. This is because institutional forces begin to increasingly create pressures forcing down this duration-dependent hazard rate. More specifically, initially, countervailing fashion and institutional forces jointly cause the hazard rate to continue increasing, as techniques endure, but at a sharply decreasing rate; this, until a maximum point we call the "mid-life uncertainty" point. At that point, institutional forces counterbalance fashion forces and the hazard rate begins to decrease gradually, at an increasing rate, as techniques endure. We call the second period, surrounding the mid-life uncertainty point, the "mid-life uncertainty period".

Second, why do we use the term mid-life "uncertainty" period? We use the term "uncertainty" because, during this period, it becomes highly uncertain which will dominate: fashion forces, causing techniques' disappearance, or institutionalization forces, causing their relative persistence. In other words, we use the term "uncertainty" because closely-balanced and countervailing fashion and institutional forces render it highly uncertain whether an organizational technique will or will not disappear during this period.

Institutionalization Period. In the case of organizational techniques that endure past the mid-life uncertainty period, institutionalization forces clearly overwhelm fashion forces, giving rise to a third period which we call the "institutionalization period" of organizational techniques. As techniques endure, institutionalization forces cause the hazard rate to decrease

at an increasing rate. In short, considering the impact of countervailing fashion and institutional forces on the hazard rate of organizational techniques' persistence suggests that,

Hypothesis 3: The hazard rate of organizational technique disappearing will follow a curvilinear pattern: increasing during a fashion-period, until a mid-life uncertainty period during which it reaches its apogee, after which it decreases during an institutionalization period.

METHODS

Data

It is important to specify clearly what our data do and do not measure. Our data do not measure the prevalence of proto-institutions (Lawrence, Hardy, and Phillips, 2002). As we discussed above, organizations, such as consultancies and mass media organizations, have to theorize proto-institutions into organizational techniques for them to diffuse. First, these organizations have to attach to proto-institutions linguistic labels denoting linguistic prescriptions. Second, these organizations have to broadcast broadly this theorized language, constituting these organizational techniques, for these techniques to potentially diffuse widely; whether they go on to become transient fashions or persistent institutions. We measure the diffusion, transience, or persistence of labels denoting organizational techniques.

Many scholars have used bibliometric measures; measures of the number of publications broadcasting discourse transmitting the labels denoting organizational techniques (See Benders, Nijholdt, and Heusinkveld, 2007 for a review). Studies find a high correlation in the use of such labels through books, articles, speeches, and seminars (Abrahamson and Fairchild, 2000; Benders and Van Bijsterveld, 2000; Spell, 2001; Strang, 2010). Bibliometric

counts of articles about organizational techniques have been used most extensively, as they offer the most plentiful, reliable, and valid measures of such labels' emergence, persistence, or disappearance (Benders, Nijholdt, and Heusinkveld, 2007).

Case studies also indicate that the number of articles using a label denoting a business technique provide a proxy for the number of organizations that report using this technique (e.g., Burns and Wholey, 1993; Abrahamson and Fairchild, 2000). Moreover, in a quantitative study of the diffusion of twenty five organizational techniques between 1993 and 2004, Abrahamson and Reuben (2014) found that the number of articles about these techniques correlated with survey measures of their reported use by organizations.

Database. As noted above, rather than using a mono-innovation strategy that involves examining the diffusion of single innovations across many institutional fields, our multi-innovation strategy involves studying the diffusion of hundreds of innovations across a single institutional field. The ABI Inform database renders this multi-innovation strategy possible. It stores articles published between 1971 and 2012 by—on average for each of these years—more than 2,000 publications covering business-related topics.

As is customary in this type of research, in order to find articles about a particular organizational technique denoted by a label, we used the ABI Inform's thesaurus of such labels (Benders, Nijholdt, and Heusinkveld, 2007). The ABI-Inform thesaurus has a hierarchical structure with seven levels. The upper-most level of the hierarchy contains seven categories of articles. We used only the Business and Industry category to isolate articles about business-related topics. Moving down the hierarchy, each level contains more and more specific categories. We used the second level of the hierarchy to distinguish organizational techniques

by function: Accounting, Financial Management, Human Resource Management, Marketing, and Operations Management. The seventh and lowest level contains 579 labels used to code articles belonging to organizational technique. For each of the 579 organizational techniques, therefore, we could measure when, between 1971 and 2012, the years in which the first article and the last article about this technique appeared. The yearly number of articles under the thesaurus label Business Process Reengineering, for instance, provides a yearly count of the number of articles published about the Business Process Reengineering technique.

Duration of Organizational Techniques. Hypotheses 1, 2, and 3 bear on the number of years each of the 579 organizational techniques endured; what we call their “duration.” To measure the duration of the diffusion of each organizational technique, we counted the first time an article about the technique was published as its appearance and the last time such an article appeared as the techniques’ disappearance. Therefore, we calculated the duration of the diffusion of an organizational technique, given a zero-article threshold, as the year of its appearance minus the year of its disappearance. So, for example, the number of articles appearing under the ABI-Informs’ thesaurus label “Business Process Reengineering” was greater than zero articles starting in 1992 until the year 2012. In this case, the duration of the “Business Process Reengineering” organizational technique was counted as 21 years. We carried out robustness tests of when techniques appeared and disappeared, varying the threshold level above zero articles to five articles. Our results remained consistent.

Control Variables. We controlled for the number of articles in the previous year in our regression analysis. In the Complementary Log-Log Link function model, which we describe below, in order to control for possible idiosyncratic effects associated with particular business

functions—Accounting, Finance, Human Resource Management, Management, Marketing, and Operations—and organizational techniques, we controlled for business-function fixed effects and technique fixed effects. Our Piecewise Constant-Hazard model, which we describe below, has a panel structure for organizational techniques and did not require us to control for organizational-technique fixed effects. Therefore, we included business-function fixed effects only.

Analysis

In our analysis, the term “duration” of an organizational technique denotes how long articles were published about this technique. This paper investigates the effect of techniques’ duration on their risk of disappearance. We model this risk using two different approaches. First, we use a Complementary Log-Log Link-Function model to estimate the effect of duration on the probability of techniques’ disappearance. Second, we use a Piecewise-Constant Exponential model to directly estimate the different risks of disappearance during different time periods.

Log-Log Link-Function Model. As mentioned earlier, the ABI Informs database records the number of articles on business labels on a yearly basis. Thus, we could only observe the disappearance of techniques on such a yearly basis, whereas disappearance events could happen at any time during a year. When continuous-time processes are measured at discrete time intervals, Logit or Probit models may not be appropriate because coefficients obtained from these models may not be comparable to coefficients obtained from Continuous-Time Hazard-Rate models (Petersen, 1993). The Complementary Log-Log Link-Function model, on the

other hand, provides estimation of parameters consistent with continuous time hazard models, while using discrete-time data (Allison, 1982; Petersen, 1993). For this reason, many studies wherein events can happen at any time, but are only observed to occur at discrete intervals, have used Complementary Log-Log Link Function models (e.g., Kitts, 2009). Therefore, we model the probability of disappearance using the Complementary Log-Log link function:

$$P(y_i = 1 | x = x_i) = g^{-1}(x_i\beta) = \exp(-\exp(-x_i\beta))$$

where y_i is the dependent variable coded as 1 when no article is published about the given technique i and x_i is the vector of independent and control variables for observation i , and β is the vector of parameters to be estimated.

Piecewise-Constant Exponential Model. One of the most popular methods for modeling survival data is the Cox Proportional Hazard model. It allows testing for differences in survival times of two or more groups of interest, while allowing adjusting for covariates of interest. However, the Cox model assumes that hazard functions are proportional over time. This assumption implies that hazard ratios depend only on the predictor variables and not on time. Since our study focuses on the effect of duration on the risk of disappearance, a Cox model is not appropriate for our study. Instead, we use a Piecewise-Constant Exponential model, which assumes that the baseline hazard is constant within different time periods. That is, Piecewise-Constant Exponential models estimate hazard ratios as a step function that is constant within each a priori determined time period, but that varies between periods.

In a Cox model, the hazard at time t is defined as:

$$\lambda_i(t | x = x_i) = \lambda_0(t) \cdot \exp(x_i\beta)$$

where x_i is the vector of independent variables and control variables for observation i , β is the vector of parameters to be estimated, and $\lambda_0(t)$ is an unspecified non-negative function of time called baseline hazard. The Piecewise-Constant Exponential model follows the same hazard rate as the Cox model specified above, but the main difference is that the baseline hazard rate $\lambda_0(t)$ is allowed to vary in different time periods. That is, baseline hazard is specified as:

$$\lambda_0(t) = \lambda_i \text{ for } t \text{ in period } i$$

so that the baseline hazard is constant within each period, but may differ between periods. Using a Piecewise-Constant Exponential model, we are able to estimate different baseline hazards for different duration periods.

As we noted above, the theory of fashions and institutions in organizational techniques point jointly to countervailing fashion and institutionalization forces that could differentially affect, during three different periods, the hazard rate of organizational techniques' disappearance. Specifically, Hypothesis 3 suggests that the hazard rate of organizational technique disappearing will be curvilinear: increasing during a fashion-period, until a mid-life uncertainty period during which it reaches its apogee, after which it decreases during an institutionalization period. So, our Piecewise-Constant Exponential model allowed us to explore more subtle variations in the hazard rate across these three periods.

A weakness of Piecewise-Constant Exponential models, however, is that they don't specify the length of the periods that should be used for a particular analysis (Blossfeld, 2002). To do so, we used our Log-Log Link-Function model to estimate the point of midlife-uncertainty. We then used duration periods that made it possible to examine the hazard rate around this

mid-life uncertainty point. This allowed us to test for differences in the hazard rate between the mid-life uncertainty period and the fashion and institutionalization periods respectively. As a robustness check, in supplemental analyses, we also retested our Piecewise-Constant Exponential model using shorter duration periods.

RESULTS

Descriptive Statistics

The total number of business-technique-year observations is 17,717 with 579 unique organizational techniques. Table 1 presents descriptive statistics for the study's key variables.

Insert Table 1 about Here

Log-Log Link-Function Results

Table 2 presents the maximum likelihood parameter estimates for the complementary Log-Log Link-Function.

Insert Table 2 about Here

For the Log-Log Link-Function model, we used a linear term in order to test for the linear slopes of the hazard rate for organizational techniques' disappearing specified in Hypotheses 1 and 2. In Table 2, Model 2 tests Hypotheses 1 and 2. The coefficient for the duration of organizational techniques in Model 2 is not statistically significant. Moreover, the χ^2 statistic

from the likelihood ratio test between Model 1 and Model 2 is not statistically significant at the 0.05 level of significance, indicating that the addition of a linear term does not improve model fit. Taken together, these results did not provide support for Hypotheses 1 or 2 that the hazard rate of organizational techniques' disappearance either increases with their duration, as specified in Hypothesis 1, or decreases with their duration, as specified in Hypothesis 2.

We used an additional quadratic term to test for a curvilinear slope of the hazard rate, as specified in Hypothesis 3. In Model 3, both the linear and the quadratic term are statistically significant suggesting a curvilinear relationship between duration and the hazard rate of organizational techniques' disappearance. Moreover, the increase in the χ^2 statistic from the likelihood ratio test between the null Model 1 and Model 3 is 14.76 and statistically significant at the 0.001 level. More importantly, the increase in the χ^2 statistic from the likelihood ratio test between Model 2 and Model 3 is 11.39 and is statistically significant at the 0.001 level. These results provide support for Hypothesis 3 of a curvilinear relationship between organizational techniques' duration and their disappearance hazard: increasing during a fashion-period, until a mid-life uncertainty period during which it reaches its apogee, after which it decreases during an institutionalization period. More specifically, Model 3 revealed that the hazard rate increased until a mid-life uncertainty, inflection point of 18 years after which the hazard rate decreased. We used this 18 year mark in order to specify the three periods in our Piecewise-Constant Hazard Rate model.

Piecewise-Constant Exponential Model Results

As noted above a common criticism of Piecewise-Constant Exponential models is that they provide neither a theoretical, nor an empirical justification, for the length of periods selected for a particular analysis (Blossfeld, 2002). To remedy this shortcoming, we started by considering the 18 year mid-life uncertainty point revealed by our Log-Log Link-Function model. We then bracketed this mid-point using 12-year periods: 0 to 12 years for the fashion period, 12 to 24 year for the mid-life uncertainty period, and 24 years and above for the institutionalization period. Consequently, the 18 year mid-life uncertainty point fell precisely in the middle of our 12 to 24 year mid-life uncertainty period. Note also that each of the three periods has a roughly equal percentage of the 17,717 business-technique-duration total observations: 33.00% for the first period, 31.57% for the second, and 35.43% for the third.

Insert Table 3 about Here

First, the χ^2 statistic from the likelihood ratio test between Model 1 and Model 2 is 7.05 and statistically significant at the 0.05 level. This means that splitting duration into periods provides a better fit of the data than not. Second, we test whether the coefficients for the duration periods are different from each other by utilizing a Wald test. In the first Wald test, we test the difference between the coefficients for duration-periods 1 and 2, ($\lambda_1 = \lambda_2$). In this Wald test, the null hypothesis is that there is no difference between the two coefficients. The Wald test statistics (χ^2 statistics) is 6.46, meaning that we can reject the null hypothesis that there is no difference between the coefficients for duration-periods 1 and 2, at the 0.05 level of

statistical significance. In the second Wald test, the null hypothesis is that there exists no difference between the two coefficients for duration-periods 2 and 3, ($\lambda_2 = \lambda_3$). The Wald test statistics (χ^2 statistics) is 4.54, meaning that we can reject the null hypothesis that there is no difference between the coefficients for duration-periods 2 and 3, at the 0.05 level of statistical significance. These results suggest, in line with Hypothesis 3, that during the second, mid-life uncertainty period, the hazard rate is statistically significantly larger than during either the fashion or institutionalization periods.

Figure 2 provides graphical representation of the hazard rate in each period. It indicates the percent change of the magnitude of changes in the hazard rate across the different periods.

Insert Figure 2 about Here

The rates from the Piecewise-Constant Exponential results for the fashion, mid-life uncertainty, and institutionalization periods are hazard rates of 7.87%, 14.00%, and 6.34% respectively. So the hazard rate during the mid-life uncertainty period is roughly 7% higher, or nearly twice as high, than during either the fashion or institutionalization periods.

Supplemental Analysis Using 5-year Segments. Table 3 shows the results for the Piecewise-Constant Exponential model using 5-year segments. Again we picked this segment length in order to bracket the 18 year mid-life uncertainty point, revealed by our Log-Log Link-Function model, between 15 and 20 years.

Insert Table 4 about Here

Figure 3 provides graphical representation of the hazard rate in each period. The results approximate Figure 1's curve-linear relationship between duration and hazard rate. The results

Insert Figure 3 about Here

in Table 4 and Figure 3 are consistent with Hypothesis 3. The results show that the hazard rate of techniques' disappearance increases across the first three, five-year segments. Then, the hazard rate reaches its highest point during the fourth, 15 to 20 year segment, which brackets our 18 year mid-life uncertainty point. The hazard rate then drops in the final two periods.

DISCUSSION

We used two models in our analysis, a Log-Log Link-Function model and a Piecewise-Constant Exponential model. We discuss the results for both models simultaneously.

This study tested three hypotheses. Hypothesis 1 suggested that fashion forces, alone, caused the hazard rate of organizational techniques disappearance to increase with their duration. Hypothesis 2 stated that institutional forces, alone, caused this hazard rate to decrease with techniques' duration. Neither the results for the Log-Log Link-Function model, nor those for the Piecewise-Constant Exponential model provide support for Hypotheses 1 and 2.

Both the results of the Log-Log Link-Function and the Piecewise-Constant Exponential models did, however, provide support for Hypothesis 3 that the hazard rate of organizational technique disappearing is curvilinear: increasing during a fashion-period, until a mid-life uncertainty period during which it reaches its maximum, after which it decreases during an institutionalization period. In particular, the fashion period is approximated as lasting between 0 and 12 years. The mid-life uncertainty period is estimated as lasting between 12 and 24 years. Finally, the institutionalization period is estimated as lasting beyond 24 years.

Mid-life Uncertainty Period. Our results supporting Hypothesis 3 bear out our reasoning that organizational techniques' hazard rate of disappearance is hard to theorize and explain relying either only on the theory of fashions, or only on the theory of institutions in organizational techniques. The relationship is better explained by using Neoinstitutional theories and empirical evidence of fashions and institutions jointly. Fashion theory explains why, during an initial fashion period, the hazard rate of disappearance of organizational techniques would increase relatively sharply. This is because supply-side organizations exert increasing pressures to debunk enduring organizational techniques, making room for the progressive techniques demanded by demand-side organizations.

The fashion theory explanation and evidence alone, however, provides no clear explanation for why subsequent to the fashion period, the hazard rate would reach a maximum during a mid-life uncertainty period, and then decrease subsequently, during an institutionalization period. The theory and evidence of institutions in organizational techniques suggested that greater taken for grantedness, with time, tends to institutionalize organizational techniques depressing their hazard rates. During the mid-life uncertainty period, therefore,

fashion and institutional forces tend to counterbalance each other causing the hazard rate to gradually peak at, and decline after, a mid-life uncertainty point. Subsequent to the mid-life uncertainty period, institutional forces, depressing the hazard rate, clearly overwhelm fashion forces, resulting in the hazard rate declining relatively sharply during the institutionalization period.

CONCLUSION

This article suggests theoretical, methodological, and practical conclusions and extensions. It examines each in turn.

Theoretical Contributions and Future Directions

As we mentioned in the introduction, Neoinstitutionalists generally assume that organizational techniques' performance remain highly ambiguous (DiMaggio and Powell, 1983). Under these conditions of ambiguity, organizations cannot adopt techniques because they learn directly of their technical performance (c.f., Meyer, 2010).

Three areas of research bear out Neoinstitutionalists' rejection of Learning theory diffusion models generally, and duration-dependent learning models particularly, as they might pertain to the hazard rate in the duration of organizational techniques (c.f., Fichman and Levinthal, 1991). First, research replicates Tolbert and Zuckers' (1983) finding that only during the very early period in the diffusion of organizational techniques, and not thereafter, do organizations appear to adopt techniques based on learning about their technical performance (Rumelt, 1974; Baron, Dobbin, and Jennings, 1986; Fligstein, 1990; Burns and Wholey, 1993;

Westphal and Zajac, 1994; Westphal, Gulati, and Shortell, 1997; Meyer, Stephenson, and Webster, 1985). Second, research on the adoption of organizational techniques indicates that organizations often do not adopt organizational techniques because they learn of their technical performance. Organizations often have a limited understanding of the organizational techniques they have adopted (e.g., Nicolai and Dautwiz, 2009; Strang, 2010) and their adoption is sometimes symbolic, rather than substantive (e.g., Zbaracki, 1998; Staw and Epstein, 2000). Not surprisingly, research tends to indicate that the implementation of organizational techniques has little effect on organizational performance. Westphal, Gulati, and Shortell's (1997) study of 2700 hospitals that used Total Quality Management (TQM), for instance, showed that early adopters of TQM displayed few performance increases, whereas later adopters tended to only to obtain stakeholders' support. Nicolai and Dautwiz (2009) found that the implementation of the core competence management technique had no clear impact on organizations de-diversifying to focus on their core competencies. Third, if organizations learn about organizational techniques' technical performance, then they might tend to perform better as a result. However, with some exceptions (e.g., Powell, 1995), the preponderance of research has found few positive results linking organizations' use of organizational techniques to increased organizational performance (c.f., Staw and Epstein, 2000; Rost and Osterloh, 2009).

Based on this tripartite evidence, we grounded this article in the Neoinstitutional theory of organizations. In particular, we relied on two theories: the theory of fashions and the theory of institutions, as they pertain to organizational techniques. Though these theories share common roots in Neoinstitutional theory, they have developed largely separately. This is

evidenced by the fact that recent books, reflecting on the theory of institutions (Greenwood, et al., 2008) and on the theory of fashions (Kipping and Clark, 2012), draw largely on non-overlapping sets of theoretical and empirical articles.

This article rests on the assumption that differentiating and then integrating the theory of fashions and the theory of institutions, in Neoinstitutional theory, has distinct advantages; this because they tend to rest on two fundamentally different assumptions causing them to struggle with opposite sides of the same problem. On one side of the coin, the theory of fashions tends to assume transience in organizational techniques, but then strives to explain fashionable organizational techniques' persistence (e.g., Zeitz, Mittal, and McCauley, 1999; Heusinkveld and Benders, 2001; Perkmann and Spicer, 2008). This article suggests that the increasing taken-for-grantedness of enduring techniques explains why certain fashionable organizational techniques persist. More specifically, if fashionable organizational techniques endure through a period of mid-life uncertainty, then they will tend to become taken for granted and persist through an institutionalization period.

On the other side of the coin, the theory of institutions tends to assume relative permanence in the diffusion of organizational techniques as they become taken for granted, but then strives to explain certain organizational techniques' transience (Colyvas and Jonsson, 2011). As noted above, a number of diffusion studies replicate Tolbert and Zucker's (1983) finding that organizational techniques' technical performance can explain only their early adoption, suggesting that institutional forces lead to their widespread diffusion and retention as they become taken-for-granted. However, even excluding studies testing the theory of fashion, a number of studies find that semi-institutionalized organizational techniques'

disappear before they become taken-for-granted and institutionalized (e.g., Burns and Wholey, 1993; Greve, 1995; Greve, 2011). So like the theory of fashions, the theory of institutions has to explain why certain semi-institutionalized techniques that diffuse become taken for granted and endure, whereas others disappear (Colyvas and Jonsson, 2011). The theory of fashions, and the numerous studies finding evidence of fashions in organizational techniques, suggests that organizational techniques are relatively transient because fashion forces cause them not to endure long enough to become institutionalized and relatively persistent.

This study also draws attention to a particularly interesting, mid-life uncertainty period, in the endurance of organizational techniques. During this period, the forces of fashion, forcing up the duration-dependent hazard rate of organizational techniques disappearance, are counterbalanced by the forces on institutionalization, forcing down this hazard rate. Explaining the fate of an organizational technique during this mid-life uncertainty period may deserve particular research attention. Very small differences in forces affecting organizational techniques may have a very large effect on whether or not they persist.

As it pertains to extensions and replications of this article's theory and findings, it should be noted that it focused only on the diffusion of organizational techniques. Research could usefully test the bridging of fashion and institutional theory developed in this article. Indeed, Meyer (2010) notes the existence of what he calls "others", who purvey all forms of scripted techniques for pursuing individual and organizational goals in ways believed to be rational and progressive. They range from techniques to better educate students, to techniques to better treat patients, to techniques to better lose weight, for instance (Best, 2006). They even extend to rational and progressive techniques to better administer the death penalty—hanging,

electrocuting, gassing, and injecting (Denver, Best, and Haas, 2008). Therefore, many different types of diffusing innovations either disappear, as relatively transitory fashions, or persist, as relatively permanent institutions (Best, 2006; Abrahamson, 2011).

Methodological Contributions

This article did not only investigate how the theory of fashions and institutions might cast light on organizational techniques' diffusion followed by either their disappearance or their persistence. It also advanced a different analytical strategy for studying innovation diffusion; a multi-innovation strategy that did not involve examining the diffusion of single innovations, belonging to different types, across many different institutional fields, but rather involved studying the diffusion of hundreds of innovations, of the same type, across the same institutional field.

Our multi-innovation analytical strategy, by examining the diffusion of many innovations of a type, within a single institutional field, does not allow us to investigate the generalizability of single diffusion episodes of different innovation types, across different institutional fields. It does allow us, however, to make general statements about variations across the diffusion of many innovations of a type, within one institutional field. In particular, it allowed us to address the general question: when, why, and how persistently does one type of innovation, organizational techniques, endure when they are broadcasted in the institutional context of the market for fashionable organizational techniques. This study suggests at least three reasons for why our multi-innovation strategy may provide a way to yield insights that diffusion research, using a mono-innovation strategy, could not investigate until this point.

Full diffusion data sets are difficult to come by. Due to these data limitations, quantitative research on innovation diffusion has tended to have three characteristics. First, studies of innovation diffusion typically examine one episode of diffusion of a single type of innovation in one institutional context (Strang and Soule, 1998). Consequently, with some notable exceptions, mono-innovation diffusion research has been hard put to find many characteristics of innovation diffusion that generalize across institutional contexts (Downs and Mohr, 1976). We pointed out, for example, how certain diffusion studies find that diffusing organizational techniques endure (e.g., Tolbert and Zucker 1983), whereas others don't (e.g., Burns and Wholey, 1993; Greve, 1995).

Second, as Rogers (1986), pointed out, archival data tends to be collected only on the diffusion of the *adoption* of innovations. When innovations begin to lose popularity, archival data rarely reflects the diffusion of the *rejection* of innovations (Strang and Still, 2004). So, most diffusion research does not examine the full trajectory of innovations diffusion from their emergence to their relatively rapid disappearance or permanence (Barker, 1977). As such, most diffusion research continues to be about the speed in the diffusion of the adoption of innovations, rather than about their overall duration—that is, the length of the period between the emergence and the disappearance of innovations. Our multi-innovation approach allowed us to provide results bearing on the duration of organizational techniques.

Third, Rogers (1986) pointed to the existence of a pro-innovation bias in diffusion research. That is, the entire body of diffusion research tends to sample on the dependent variable. It does so by studying primarily the diffusion of innovations that diffuse successfully, for a relatively long time period. This because unsuccessful and short-lived innovations leave

small traces; a number of adopters that is too small for statistical analysis. Consequently, we know little about innovations that diffuse little and transitorily. Our multi-innovation approach allows us to provide results bearing not only on innovations that diffused widely and protractedly, but also on innovations that diffused narrowly and transitorily.

Multi-innovation diffusion studies should become more common with the proliferation of so-called “big data”. These data record the adoption and rejection of many types of innovations by thousands of organizations and even millions of individuals; the diffusion of educational reforms, medical treatments, memes, and cultural content such as movies, music, or video games, for example (Abrahamson, 2011).

Although it is highly speculative, our multi-innovation strategy might also prove useful in areas of research, such as Social Movement research, related to innovation-diffusion research (Strang and Soule, 1998). Social Movement research indicates that diffusing symbols, frames, tactics, and instances of social protest, cause social protest to spread (e.g., Wang and Soule, 2012). In a highly-stylized and parsimonious model of what Tarrow (2011) calls “protest cycles”, initially, diffusion and mass media amplify protest causing insipient social change. Growing protest, however, triggers increasing powerful and successful protest-suppressing forces, such as state action, driving up the duration-dependent hazard rate of failed social change. Subsequently, however, institutional change, including revolutions, tends to cause social changes to persist, driving down the hazard rate of their disappearance. Earlier state-suppression forces counterbalanced by subsequent institutional-perpetuation forces would result in a mid-life uncertainty period and an overall curvilinear pattern in the duration-dependent hazard rate of social-movement driven social change. Such a pattern might be

revealed by a multi-social-movement analytical strategy, like the multi-innovation-strategy developed in this article, by using mass media traces of many social movements.

Practical Contributions

In the introduction to this study we noted that whereas students, managers, and employees typically value—and strive to acquire—techniques whose effectiveness endures over time, they can end up using relatively transient organizational techniques that emerge one year only to lose popularity a few years later. Our study provides preliminary evidence indicating the likelihood that new organizational techniques might endure for relatively longer or shorter periods of time. In particular, it reveals that the increasing risk that organizational techniques might fall out of fashion as they last up to two decades. It reveals that after this mid-life uncertainty point, organizational techniques have a greater likelihood of surviving. More generally, the research in this study may begin to help managers answer the difficult question: when is a new organizational technique just a fashion or when might it persist as an institution?

Table 1

Descriptive Statistics for Organizational Techniques

Variables	Mean	Std. Dev.	Min	Max
Duration	18.64	11.44	1	42
Number of articles	92.26	341.46	1	9,161

Table 2
Complementary Log-Log Link-Function Regression Tests
of Duration's Effect on the Hazard Rate

	Model 1 Dependent Variable: Hazard Rate	Model 2 Dependent Variable: Hazard Rate	Model 3 Dependent Variable: Hazard Rate
Duration		0.013 (1.47)	0.129*** (3.77)
Duration (Squared)			-0.004*** (-3.37)
Number of articles	-0.562*** (-9.62)	-0.580*** (-9.64)	-0.622*** (-9.93)
Constant	-2.495*** (-7.67)	-2.557*** (-7.78)	-2.882*** (-8.32)
Business technique fixed effect	Yes	Yes	Yes
Function fixed effect	Yes	Yes	Yes
No. of groups for clustering (No. of business techniques)	579	579	579
Model χ^2	103.42***	104.18***	112.42***
<i>N</i>	17,717	17,717	17,717

t statistics * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3

Piecewise-Constant Hazard Rate model Tests of the Hazard Rate Using 12-Year Periods

	Model 1 Null Model Dependent Variable: Hazard Rate	Model 2 Alternative Model Dependent Variable: Hazard Rate
Constant hazard rate over all duration-segments	-2.535*** (-7.78)	
Different hazard rates over different duration segments		
Duration-segment 1: under 12 years		-2.542*** (-7.77)
Duration-segment 2: from 12 years to 24 years		-1.966*** (-5.02)
Duration-segment 3: 24 years and above		-2.757*** (-5.99)
# of Articles	-0.552*** (-9.53)	-0.572*** (-9.56)
Function fixed effect ^a	Yes	Yes
# of business techniques	579	579
# of hazard of business techniques	122	122
Log likelihood	-296.42	-292.90
Time at risk	17,717	17,717

t statistics * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4

Robustness Test for the Piecewise-Constant Hazard Rate model Using 5-Year Periods

	Model 1 5-year segments Dependent Variable: Hazard Rate
Different hazard rates over 5-year long segments	
Duration-segment 1:999 under 5 years	-2.711*** (-8.08)
Duration-segment 2: from 5 years to 10 years	-1.956*** (-5.23)
Duration-segment 3: from 10 years to 15 years	-1.849*** (-4.36)
Duration-segment 4: from 15 years to 20 years	-1.498*** (-3.49)
Duration-segment 5: from 20 years to 25 years	-2.439*** (-4.33)
Duration-segment 6: 25 years and above	-2.553*** (-5.56)
# of Articles	-0.610*** (-9.90)
Function fixed effect ^a	Yes
# of business techniques	579
# of hazard of business techniques	122
Log likelihood	-285.41
Time at risk	17,717

t statistics * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure 1

Periods in the Hazard Rate of Organizational Techniques' Persistence

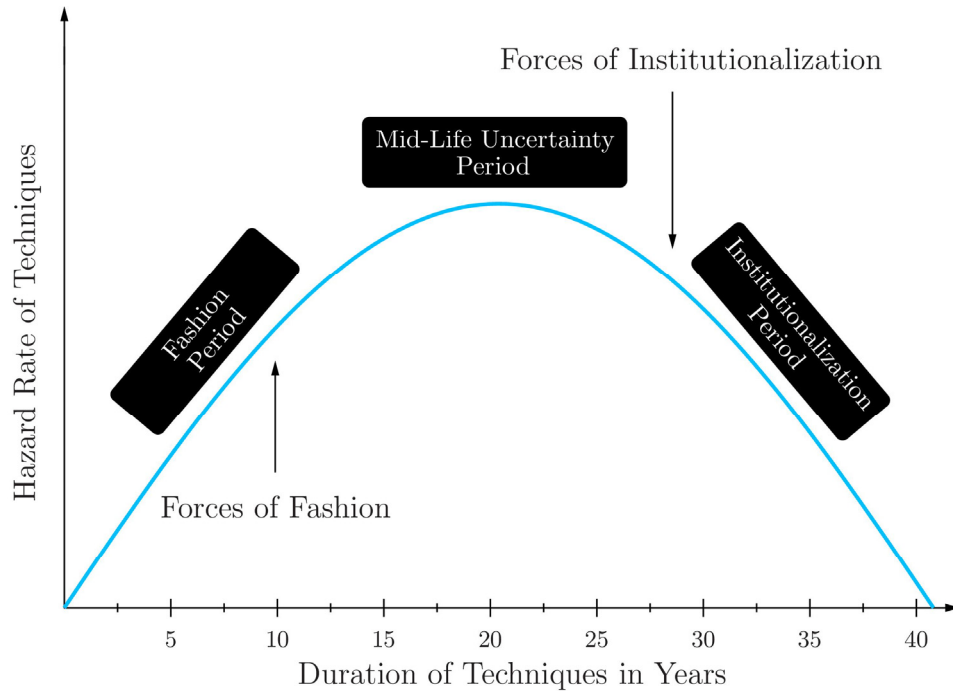


Figure 2

Piecewise-Constant Hazard Rate model by 12-year Duration Periods

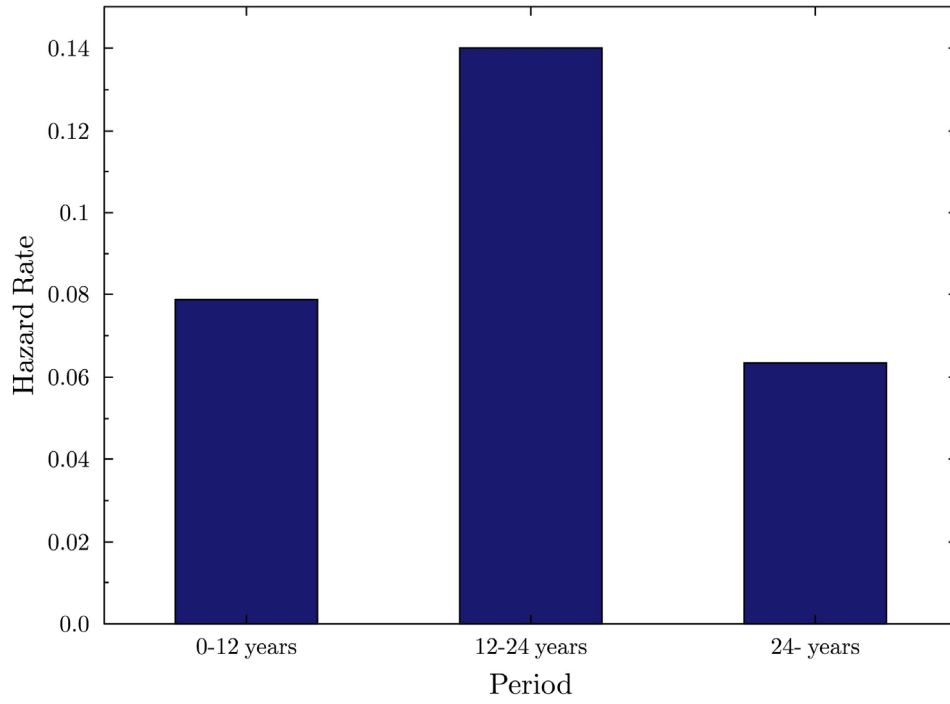
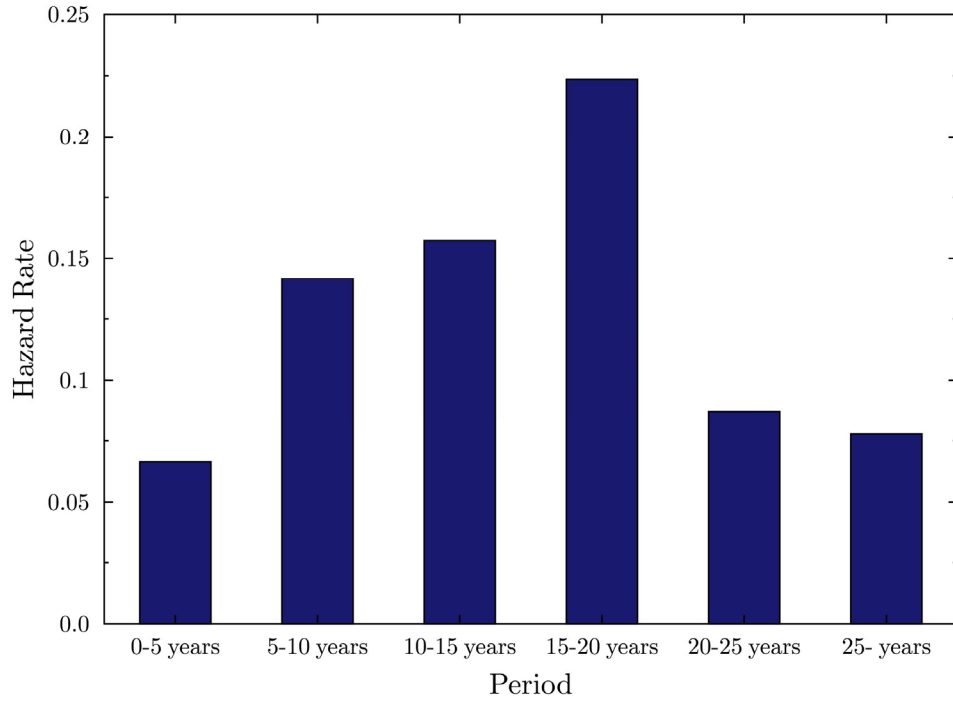


Figure 3

Piecewise-Constant Hazard Rate model by 5-year Duration Periods



References

Abrahamson, E.

1996 "Management Fashion." *The Academy of Management Review*, 21: 254-285.

Abrahamson, E.

2011 "The iron cage: Ugly, uncool, and unfashionable." *Organization Studies*, 32: 615-629.

Abrahamson, E. and G. Fairchild

1999 "Management Fashion: Lifecycles, Triggers, and Collective Learning Processes." *Administrative Science Quarterly*, 44: 708-740.

Abrahamson, E. and G. Fairchild

2000 "Knowledge Industries and Idea Entrepreneurs." In E. R. Kay Schoonhoven (ed.), *The Entrepreneurship Dynamic in Industry Evolution*: 147-177. Palo Alto: Stanford University Press.

Abrahamson, E. and A. Reuben

2014 "The market hypothesis for business techniques." Working Paper Columbia Business School.

Allison, P. D.

1982 "Discrete-time methods for the analysis of event histories." *Sociological methodology*, 13: 61-98.

Barker, D.

1977 "The Paracme of Innovations: The Neglected Aftermath of Diffusion or a Wave Goodbye to an Idea?" *Area*, 9: 259-264.

Barley, S. R. and G. Kunda

1992 "Design and Devotion: Surges of Rational and Normative Ideologies of Control in Managerial Discourse." *Administrative Science Quarterly*, 37: 363-399.

Barley, S. R. and P. S. Tolbert

1997 "Institutionalization and Structuration: Studying the Links Between Action and Institution." *Organization Studies*, 18: 93.

Baron, J. N., F. R. Dobbin, and P. D. Jennings

1986 "War and Peace: The Evolution of Modern Personnel Administration in U.S. Industry." *American Journal of Sociology*, 92: 350-383.

Benders, J., F. Huijgen, and U. Pekruhl

2002 "What do we know about the incidence of group work (if anything)?" *Personnel Review*, 31: 371-385.

Benders, J., J. Nijholdt, and S. Heusinkveld

2007 "Using Print Media Indicators in Management Fashion Research." *Quality & Quantity*: 815-829.

Benders, J. and M. Van Bijsterveld

2000 "Leaning on lean: The reception of a management fashion in Germany." *New Technology, Work, and Employment*, 15: 50.

Benders, J., R. J. Van den Berg, and M. Van Bijsterveld

1998 "Hitch-hiking on a hype: Dutch consultants engineering re-engineering." *Journal of Organizational Change*, 11: 201-215.

Best, J.

2006 *Flavor of the Month: Why Smart People Fall for Fads*. Berkely: University of Callifornia Press.

Blossfeld, H. P.

2002 *Techniques of event history modeling: New approaches to casual analysis*. . Mahwah, New Jersey: Lawrence Erlbaum Associates.

Braam, J. M., J. Benders, and S. Heusinkveld

2007 "The balanced scorecard in The Netherlands An analysis of its evolution using print-media indicators." *Journal of Organizational Change Management*, 20: 866-879.

Brandes, S. D.

1976 *American welfare capitalism, 1880-1940*. Chicago: University of Chicago Press.

Brindle, M. C. and P. N. Stearns

2001 *Facing Up to Management Fadism: A New Look at an Old Force*. Wesport, CT: Quorum Books.

Briscoe, F. and S. Safford

2008 "The Nixon-in-China Effect: Activism, Imitation, and the Institutionalization of Contentious Practices." *Administrative Science Quarterly*, 53: 460-491.

Burns, L. R. and D. R. Wholey

1993 "Adoption and abandonment of matrix management programs: Effects of organizational characteristics and interorganizational networks." *Academy of Management Journal*, 1: 106-138.

Burt, R. S.

1987 "Social Contagion and Innovation: Cohesion versus Structural Equivalence." *American Journal of Sociology*, 92: 1287-1335.

Cole, R. E.

1985 "The Macropolitics of Organizational Change: A Comparative Analysis of the Spread of Small-Group Activities." *Administrative Science Quarterly*, 30: 560-585.

Cole, R. E.

1999 *Managing Quality Fads*. New York: Oxford University Press.

Coleman, J., E. Katz, and H. Menzel

1957 "The Diffusion of an Innovation Among Physicians." *Sociometry*, 20: 253-270.

Colyvas, J. and S. Jonsson

2011 "Ubiquity and Legitimacy: Disentangling Diffusion and Institutionalization." *Sociological Theory*, 29.

Colyvas, J. and S. Maroulis

2015 "Moving from an Exception to a Rule: Analyzing Mechanisms in Emergence-Based Institutionalization." *Organizational Science*, In Press.

Dacin, M. T. and P. A. Dacin

2008 "Traditions as institutionalized practice: Implications for deinstitutionalization." In R. Greenwood, et al. (eds.), *The Sage Handbook of Organizational Institutionalism*: 327-351. Los Angeles: Sage.

David, R. J. and D. Strang

2006 "When fashion is fleeting: Transitory collective beliefs and the dynamics of TQM consulting." *Academy of Management Journal*, 49: 215-234.

Davis, J., C. A. Dickmann, and C. H. Tinsley

1994 "The Decline and Fall of the Conglomerate Form in the 1980s: The Deinstitutionalization of an Organizational Form." *American Sociological Review*, 59: 547-570.

De Cock, C. and I. Hipkin

1997 "TQM and BPR: Beyond the Beyond Myth." *Journal of Management Studies*, 34: 659-675.

Denver, M., J. Best, and K. C. Haas

2008 "Methods of execution as institutional fads." *Punishment Society*: 227-252.

DiMaggio, P. J. and W. W. Powell

1983 "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review*, 48: 147-160.

Dobbin, F. and E. L. Kelly

2007 "How to Stop Harassment: Professional Construction of Legal Compliance in Organizations." *American Journal of Sociology*, 112: 1203-1243.

Downs, G. W., Jr. and L. B. Mohr

1976 "Conceptual Issues in the Study of Innovation." *Administrative Science Quarterly*, 21: 700-714.

Fichman, M. and D. A. Levinthal

1991 "Honeymoons and the Liability of Adolescence: A New Perspective on Duration Dependence in Social and Organizational Relationships." *The Academy of Management Review*, 16: 442-468.

Fligstein, N.

1990 *The Transformation of Corporate Control*. Cambridge, MA: Harvard University Press.

Greenwood, R., et al.

2008 "Introduction." *The Sage Handbook of Organizational Institutionalism*: 1-46. Thousand Oaks, CA: Sage.

Greenwood, R., R. Suddaby, and C. R. Hinings

2002 "Theorizing Change: The Role of Professional Associations in the Transformation of Institutionalized Fields." *The Academy of Management Journal*, 45: 58-80.

Greve, H. R.

1995 "Jumping Ship: The Diffusion of Strategy Abandonment." *Administrative Science Quarterly*, 40: 444-473.

Greve, H. R.

2011 "Fast and expensive: The diffusion of a disappointing innovation." *Strategic Management Journal*, 32: 949-968

Guler, I., M. F. Guillén, and J. M. Macpherson

2002 "Global Competition, Institutions, and the Diffusion of Organizational Practices: The International Spread of ISO 9000 Quality Certificates." *Administrative Science Quarterly*, 47: 207-232.

Harry, S.

2000 "The HR implications of supply chain relationships." *Human Resource Management Journal*, 10: 5.

Heusinkveld, S. and J. Benders

2001 "Surges and sediments: shaping the reception of reengineering." *Information & Management*, 38: 239-251.

Hirsch, P. M.

2000 "Cultural Industries Revisited." *Organization Science*, 11: 356-361.

Hislop, D.

2010 "Knowledge management as an ephemeral management fashion?" *Journal of Knowledge Management*, 14: 779-779-790.

Hughes, E.

1936 "The ecological aspect of institutions." *American Sociological Review*, 1: 180-189.

Kipping, M. and T. Clark

2012 "The Oxford Handbook of Management Consultancy." Oxford and New York: Oxford University Press.

Kitts, J. A.

2009 "Paradise lost: age-dependent mortality of American communes, 1609-1965." *Social forces*, 87: 1193-1222.

Lawrence, T. B., C. Hardy, and N. Phillips

2002 "Institutional Effects of Interorganizational Collaboration: The Emergence of Proto-Institutions." *The Academy of Management Journal*, 45: 281-290.

MacKenzie, D.

2009 *Material Markets: How Economic Agents are Constructed*. Oxford: Oxford University Press.

Marja, F.

2005 "Management fads: the case of the self-managed team." *Benchmarking*, 12: 275.

Meyer, J. W.

1986 "Ideas in the modern organizational environment." In B. Czarniawska, and G. Sevón (eds.), *Translating organizational change*. New York: De Gruyter.

Meyer, J. W.

1996 "Otherhood: The promulgation and transmission of ideas in the modern organizational environment." In B. Czarniawska, and G. Sevón (eds.), *Translating Organizational Change*: 241-252. Berlin: DeGruyter.

Meyer, J. W.

2010 "World Society, Institutional Theories, and the Actor." *Annual Review of Sociology*, 36: 1-20.

Meyer, J. W. and R. L. Jepperson

2000 "The "Actors" of Modern Society: The Cultural Construction of Social Agency." *Sociological Theory*, 18: 100-120.

Meyer, J. W. and B. Rowan

1977 "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology*, 83: 340-363.

Meyer, M. W., W. Stephenson, and S. Webster

1985 *Limits to bureaucratie growth*. Berlin: Walter de Gruyter.

Mezias, S. J.

1990 "An Institutional Model of Organizational Practice: Financial Reporting at the Fortune 200." *Administrative Science Quarterly*, 35: 431-457.

Monahan, S. C., J. W. Meyer, and W. R. Scott

1994 "Employee training: the expansion of organizational citizenship." In W. R. Scott, and J. W. Meyer (eds.), *Insitutional environments and organizations: Structural complexity and individualims*: 255-271. Thousand Oaks: Sage.

Nicolai, A. T. and J. M. Dautwiz

2009 "Fuzziness in Action: What Consequences Has the Linguistic Ambiguity of the Core Competence Concept for Organizational Usage?" *British Journal of Management*: 874-888.

Nijholt, J. J.

2010 "The role of print media in management fashions." Raboud University Nijmegen.

Oliver, C.

1992 "The antecedents of deinstitutionalization." *Organization Studies*, 13: 563-588.

Perkmann, M. and A. Spicer

2008 "How are management fashions institutionalized? The role of institutional work." 811.

Petersen, T.

1993 "Recent advances in longitudinal methodology." *Annual review of sociology*: 425-454.

Peterson, R. A. and N. Anand

2004 "The Production of Culture Perspective." *Annual Review of Sociology*, 30: 311.

Powell, T. C.

1995 "Total Quality Management as Competitive Advantage: A Review and Empirical Study." *Strategic Management Journal*, 16: 15-37.

Powell, W. W.

1991 "Expanding the Scope of Institutional Analysis." In W. W. Powell, and P. J. DiMaggio (eds.), *The new institutionalism in organizational analysis*: 183-203. Chicago and London: The University of Chicago Press.

Powell, W. W., et al.

2014 "Neither Contestation nor Convergence: The Proto-Institutionalization of Nonprofit Performance Metrics."

Pratt, J.

2005 "The Fashionable Adoption of Online Learning Technologies in Australian Universities." *Journal of the Australian and New Zealand Academy of Management*, 11: 57.

Rao, H., P. Monin, and R. Durand

2005 "Border Crossing: Bricolage and the Erosion of Categorical Boundaries in French Gastronomy." *American Sociological Review*, 70: 968-991.

Richard, J. G. and O. F. Offodile

2005 "Forecasting Management Philosophy Life Cycles: A Comparative Study of Six Sigma and TQM." *The Quality Management Journal*, 12: 34.

Rogers, E.

2005 *Diffusion of Innovations*, Fifth ed. New York: The Free Press.

Rogers, E. and F. F. Shoemaker

1971 *Communication of innovations: A cross-cultural approach* (2nd ed. of *Diffusion of innovations*). , Third Edition ed. New York: Free Press.

Rost, K. and M. Osterloh

2009 "Management fashion pay-for-performance for CEOs." *Schmalenbach Business Review*, 61: 119.

Royston, G., et al.

2008 "Introduction." *Sage Handbook of Organizational Institutionalism*: 49-77. Los Angeles: Sage.

Rumelt, R. P.

1974 *Strategy. structure and economic performance*. Boston: Harvard University.

Scarbrough, H.

2002 "The role of intermediary groups in shaping management fashion: The case of knowledge management." *International Studies of Management & Organization*, 32: 87.

Spell, C. S.

2001 "Management fashions: Where do they come from, and are they old wine in new bottles?" *Journal of Management Inquiry*, 10: 358.

Staw, B. M. and L. D. Epstein

2000 "What Bandwagons Bring: Effects of Popular Management Techniques on Corporate Performance, Reputation, and CEO Pay." *Administrative Science Quarterly*, 45: 523-556.

Strang, D.

1997 "Cheap Talk: Managerial Discourse on Quality Circles as an Organizational Innovation." Ithaca: Cornell University.

Strang, D.

2010 Learning by Example: Imitation and Innovation in a Global Bank. Princeton: Princeton University Press.

Strang, D., R. J. David, and S. Akhlaghpour

2015 "Coevolution in management fashion: an agent-based model of consultant-driven innovation." *American Journal of Sociology*, 120: 1-39.

Strang, D. and M. W. Macy

2001 "In Search of Excellence: Fads, Success Stories, and Adaptive Emulation." *The American Journal of Sociology*, 107: 147-182.

Strang, D. and J. W. Meyer

1993 "Institutional Conditions for Diffusion." *Theory and Society*, 22: 487-511.

Strang, D. and S. A. Soule

1998 "Diffusion in Organizations and Social Movements: From Hybrid Corn to Poison Pills." *Annual Review of Sociology*, 24: 265-290.

Strang, D. and M. C. Still

2004 "In search of the elite: revising a model of adaptive emulation with evidence from benchmarking team." *Industrial and Corporate Change*, 13: 309.

Tarrow, S. G.

2011 *Power in movement: Social movements and contentious politics*. Cambridge: Cambridge University Press.

Thomas, W. and P. C. Miguel

2001 "Reductionism and complex thinking during ERP implementations." *Business Process Management Journal*, 7: 387.

Thomas, W. I.

1908 "The Psychology of Women's Dress." *The American Magazine*, 67.

Thornton, P. H., W. Ocasio, and M. Lounsbury

2012 *The Institutional Logic Perspective: A New Approach to Culture, Structure, and Process*. Oxford, U.K.: Oxford University Press.

Tolbert, P. S. and L. G. Zucker

1983 "Institutional Sources of Change in the Formal Structure of Organizations: The Diffusion of Civil Service Reform, 1880-1935." *Administrative Science Quarterly*, 28: 22-39.

Tolbert, P. S. and L. G. Zucker

1996 "Institutionalization of institutional theory." In S. Clegg, et al. (eds.), *Handbook of organizational studies*. London: Sage.

Van den Bulte, C. and G. L. Lilien

2001 "Medical Innovation Revisited: Social Contagion versus Marketing Effort." *American Journal of Sociology*, 106: 1409-1435.

Wang, D. J. and S. A. Soule

2012 "Social Movement Organizational Collaboration: Networks of Learning and the Diffusion of Protest Tactics, 1960-1995." *American Journal of Sociology*, 117: 1674-1722.

Wang, P.

2010 "Chasing the Hottest IT: Effects of Information Technology Fashion on Organizations." *MIS Quarterly* 34: 1-24.

Westney, D. E.

1999 *Imitation and Innovation: The Transfer of Western Organizational Patterns in Meiji Japan*. San Jose: toExecel.

Westphal, J. D., R. Gulati, and S. M. Shortell

1997 "Customization or conformity? An institutional and network perspective on the content and consequences of TQM adoption." *Administrative Science Quarterly*, 42: 366-394.

Westphal, J. D. and E. J. Zajac

1994 "Substance and Symbolism in CEOs' Long-Term Incentive Plans." *Administrative Science Quarterly*, 39: 367-390.

Zbaracki, M. J.

1998 "The Rhetoric and Reality of Total Quality Management." *Administrative Science Quarterly*, 43: 602-638.

Zeitz, G., V. Mittal, and B. McCauley

1999 "Distinguishing Adoption and Entrenchment of Management Practices: A Framework for Analysis." *Organization Studies*, 20 741-776.

Zucker, L. G.

1977 "The Role of Institutionalization in Cultural Persistence." *American Sociological Review*, 42: 726-743.

Zucker, L. G.

1983 "Organizations as institutions." *The Sociology of Organizations*, 2: 1-47.