

# **`Not by Conformity Alone: Management Consultants' Influence on Adoption Behavior and Performance**

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# **Not by Conformity Alone: Management Consultants' Influence on Adoption Behavior and Performance**

## **ABSTRACT**

This study assesses the influence of management consultants on the diffusion of administrative innovations. We conceptualize consultants as agents of theorization (Strang and Meyer, 1993) and as “knowledge entrepreneurs,” (Abrahamson & Fairchild 1999). This conceptualization suggests that consultants will weaken the linkage between distinctive firm characteristics and adoption behavior. Accordingly we hypothesize that firms that use consultants will be more conforming – that is they will show higher levels of conformity to prevailing forms of the practice. We further hypothesize that as diffusion progresses and institutionalization begins or bandwagon processes take hold, consultants’ influence will increase. We also hypothesize that use of consultants will affect the consequences of adoption – that weakening links between distinctive firm characteristics and adoption patterns will result in lower performance outcomes for firms that use consultants as compared to firms that do not use consultants. Support is found for all hypotheses. The findings suggest that consultants are important drivers of diffusion and isomorphism, as well as of management fads.



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## **INTRODUCTION**

Management consultants have received increasing attention from management scholars recently (e.g., Brindle and Stearns, 2001; Clark and Fincham, 2002; Kipping and Engwall, 2002), not only because their industry has grown dramatically in the last two decades (Brindle and Stearns, 2001), but also because the consultants' abilities to improve their client's performance has been sharply questioned (Mickelwait and Wooldridge, 1996; O'Shea and Madigan, 1997).

Consultants are also implicated in broader social processes. They are held to promote the spread of management fads (Abrahamson, 1991; Abrahamson and Fairchild, 1999; Brindle and Stearns, 2001, Kieser 2002) and isomorphism both within organizational fields (DiMaggio and Powell, 1983) and across national boundaries (Kipping and Engwall, 2002), through the proselytizing of administrative innovations. .

However, to the best of our knowledge, no studies have assessed the influence of consultants on adoption and implementation of a new management practices as those practices diffuse through a population of firms. This study conducts such an assessment and addresses several unresolved questions regarding whether and how consultants speed diffusion, and the impact of that on individual firms. The study examines three broad questions.

First, Strang and Meyer (1993), argue that during institutionalization, consultants will tend to act as agents of theorization (Strang and Meyer, 1993) which simplify and rationalize practices so that broad classes of firms will understand them and find them appealing. Abrahamson and Fairchild (1999) argue for similar behaviours, but with possibly different intent, by knowledge

entrepreneurs (of which consultants are the archetypical example). We ask how this theorization, rationalization, and simplification affects the way in which firms within a population adopt practices. In particular, we examine the tendency of firms to adopt normatively preferred forms (Kieser, 2002; Westphal et al. 1997).

Second, we explore the third part of Strang and Meyer's (1993) argument, and the equivalent argument from Abrahamson and Fairchild (1999), namely that consultants will act as conduits for the diffusion of novel practices (DiMaggio and Powell, 1983). That is, we ask whether later adopters, because they are adopting standardized forms which are designed to be independent of the distinctive characteristics of their firm and appeal managers' power, are likely to find adoption easy, and consequently see consultants as playing a more important and helpful role.

Finally, if we find that consultants influence which firms adopt a novel practice and how they adopt it, we might expect that firms that use consultants will achieve different performance outcomes from those that do not. There is evidence that consultants can have a major influence on performance in individual organizations (e.g., O'Shea and Madigan, 1997), but it does not appear that researchers have directly measured the performance impact of consultants as a novel practice diffuses through an organizational population. We examine whether there is an overall performance impact associated with use of consultants, and whether that impact remains after controlling for any increased conformity in form of adoption among firms that work with consultants.

In parallel to the analysis above, we compare the influence of customers and suppliers with that of consultants – for example whether the influence of customers will increase over time, how customers will influence the type of firm that adopts the practice, and whether help from customers will lead to increased conformity to normative forms. While these are interesting

questions in themselves, here we focus specifically on what the comparison illuminates about the role of consultants. Thus we do not make hypotheses about the influence of these other actors.

The study addresses the questions using survey data on approximately 800 Australian and New Zealand manufacturing sites that adopted manufacturing best practice programs from the early 1980s through to 1994.

## **THEORY AND HYPOTHESES**

### **Consultants as Agents of Theorization and “Knowledge Entrepreneurs”**

The diffusion and widespread adoption of a practice can indicate *either* processes that are leading to isomorphism, institutionalization, and retention of the practice, or bandwagon processes that will lead to widespread adoption but also widespread disillusionment and abandonment of the practice. In this study we examine the upswing of adoption, when it is impossible to tell, a priori, whether the practice will be associated with either population-level pattern. Given that institutional theory makes similar predictions to theories of fad and fashion, we consider them in turn.

Strang and Meyer (1993) argue that *theorization* (see also Berger & Luckmann, 1971; Strang & Meyer, 1993; Tolbert & Zucker, 1997) is central to accelerating diffusion in institutional environments. Theorization is described as the development of general models through “development and specification of abstract categories, and the formulation of patterned relationships such as chains of cause and effect.” By simplifying phenomena and providing general models with causal and often functional accounts, theorization allows quite different organizations to perceive themselves as having similar needs. Such perceived similarity accelerates diffusion. Specifically, Strang and Meyer describe three ways in which theorization

is important: adopters are theorized as belonging to broad classes; similarly diffusing practices are theorized such that certain elements are emphasized and others are not; and the theorizing agents themselves are often important conduits for diffusion.

Abrahamson (1991) as well as Abrahamson and Fairchild (1999) make a similar argument about the upswing of fads. “Knowledge entrepreneurs” actively recognize diffusing practices as opportunities. Abrahamson and Fairchild’s (1999) analysis of discourse associated with Quality Circles suggests knowledge entrepreneurs simplify and rationalize the diffusing practice, packaging it for easy acceptance by potential adopters. Knowledge entrepreneurs also work to formulate the practice and discourse about it in ways that make the practice appear applicable to broad classes of potential adopters. And consistent with the “entrepreneur” in the term, knowledge entrepreneurs actively proselytize potential adopters.

Consultants clearly act consistently with these descriptions. They do so in three ways. First, consultants tend to commodify management practices (Brindle and Stearns, 2001; Sturdy, 1997). That is, they rationalize, simplify and standardize the innovation, consistent with accounts of theorization and knowledge entrepreneurship (Abrahamson & Fairchild, 1999; Strang & Meyer, 1993). Doing so serves several purposes for consultants: it allows them to deliver a consistent product (Lory, 2002) using relatively inexperienced but well-trained personnel (Brindle and Stearns, 2001). Simplification and rationalization makes the practice easier to understand and so diminishes the barriers to adoption.

Second, consultants also clearly transform potential adopters from distinctive organizations to abstract entities which are similar to all others (i.e. they theorize them too). This process is closely linked to theorization of the practice itself. By rationalizing and simplifying the practice they are able to couch it as being as more universally applicable. Indeed, part of the reason for

commodification for this is it is appealing to have a “proven” practice that has succeeded elsewhere (Kipping, 2002). Consultants make explicit links to success of other firms that have used their services; some consultants come from firms that are pioneers in the practice (Abrahamson and Fairchild, 1999). Of course, this also implies that the consultant tends to treat firms as all alike. Consultants are reported to be more interested in selling their solution than fully understanding the problems their potential clients face (Dupre, 1999). Even when consultants are quite aware of client’s desire to see how the consultant will address their specific problems they themselves indicate that efforts often fall short (Bain & Company, 1997; Dupre, 1999).

Finally, consultants also clearly are part of the diffusion process itself. There are many types of agents of theorization and knowledge entrepreneurs. Both academic theorists and consultants theorize and act as knowledge entrepreneurs. But for academics, promoting diffusion itself is secondary. For consultants such promotion is fundamentally linked with their organizational survival. Through information brokering (Hargadon and Sutton, 1997), education, and persuasion, consultants place both mimetic pressure and normative pressure on potential adopters. For example, consulting proposals explain the benefits of the novel practice and attempt to link it to the client’s problems with explicit reference to the success of prior clients (Kipping and Engwall, 2002). Consultants act to gain status as normative experts by publishing in scholarly and trade journals, in part in order to give their pronouncements about the worth of practices normative force (Brindle and Stearns, 2001).

To pull these threads together, it is useful to step back and consider how the description of consultant’s roles differs from the traditional focus of innovation diffusion research. Such research has long been concerned with describing how specific and distinctive features of

potential adopters are central in adoption patterns (Rogers, 1995). When consultants are seen as agents of theorization and as knowledge entrepreneurs, the central thrust of the argument is that their efforts are powerfully directed in the opposite direction – that consultants act to *weaken* these linkages between specific, distinctive characteristics of firms and adoption patterns.

### **Do Consultants Weaken the Firm-Characteristics-Adoption Linkage?**

Our first question asks whether consultants influence adoption of diffusing practices. In particular, we ask whether consultants weaken the linkage between specific, distinctive organizational features and adoption patterns by accelerating isomorphic processes.

Organizational scholars have observed that over time, members of organizational fields and populations tend to use similar practices – that is, they become isomorphic (DiMaggio and Powell, 1983). Isomorphism can be thought of in two ways. Most commonly, studies of isomorphic processes (such as institutionalization) look at factors that influence whether firms adopt a new practice (e.g., Tolbert and Zucker, 1983; Fligstein, 1985). In such studies the practice is conceived in monolithic terms – the organization adopts municipal reform or it doesn't. A second approach recognizes that many practices can be implemented in multiple ways – the form of the practice can vary. Isomorphism increases when adopters conform to normative or prevalent forms. For example, Westphal, Gulati and Shortell (1997) found that as adoption of Total Quality Management became widespread among U.S. hospitals, hospitals increasingly adopted similar forms of the practice.

Consultants are likely to influence isomorphism by increasing conformity in the *form* of adoption. The arguments about theorization above suggest consultants shape practices to increase their accessibility and attractiveness to wide ranges of organizations. When consultants

act as “knowledge entrepreneurs” (Abrahamson, 1991, Abrahamson and Fairchild, 1999), they observe the actions of pioneering adopting organizations and rationalize those actions, packaging new practices in universalistic ways that are then argued to apply across field and national boundaries (Kipping and Engwall, 2002). These arguments suggest that firms that work with consultants are likely to be pushed toward normative forms of the new practice. Normative forms are considered here as forms that are in prevalent use. Thus we hypothesize:

Hypothesis 1: Firms that work with consultants will conform more to prevailing forms of a practice than other adopting firms will.

Customers and suppliers should also influence isomorphism. Neoinstitutional theorists have argued that mimicry of peer-like organizations is a powerful source of institutional isomorphism (DiMaggio and Powell, 1983). Such mimicry seems particularly likely to be evident in firms that actually received help, or even extensive help, from other peer-like firms in their implementation of administrative practices. Further, research suggests that peer-like firms may accelerate isomorphism through proselytizing behaviors somewhat similar to those of consultants, such as spreading success stories (Zbaracki, 1998; Strang and Macy, 2001). The relative strengths (i.e., value of coefficients) will speak to the relative contribution of suppliers, customers, and consultants to conformity and isomorphism.

### **Do Consultants Play an Increasingly Important Role as Diffusion Progresses?**

We now turn to our second question. So far the hypotheses have considered whether consultants’ influence on adoption promotes conformity and isomorphism. Another important question asks whether consultants are perceived as helpful to adopting firms. The more helpful consultants are perceived to be, the more likely it is that consultants are accelerating diffusion

and increasing isomorphism, playing their part to drive institutionalization and/or bandwagons and fads.

There are several reasons that consultants will be perceived as increasingly helpful as diffusion progresses. One reason is that it simply takes time for consultants to begin acting as “knowledge entrepreneurs” (Abrahamson, 1991). Perhaps more importantly, though, are arguments that for consultants to play a strong role, there must be widespread recognition of a problem that the focal practice can solve (Abrahamson, 1991; Abrahamson and Fairchild, 1999), and that the practice represents the solution. This does not occur until a reasonably large number of firms have adopted the practice and the issue is in play in the media – that it, the practice has gained some legitimacy.

For later-adopting firms consultants are particularly attractive sources of information. This is because, through the rationalization process, consultants develop and offer forms of the practice that are normatively appropriate and easily accessible, whereas practices discovered through local exchange ties might be more idiosyncratic or difficult to adapt. These arguments are consistent with findings in the innovation diffusion literature, that suggest that broadcast sources – experts, media, and the like – are more important influences on later adopters than they are on earlier adopters (Coleman, Katz, and Menzel, 1966; Strang and Meyer, 1993; Rogers, 1995). Based on these arguments, then, we hypothesize that the perceived helpfulness of consultants will be greater for later adopters:

Hypothesis 2: Late adopting firms that use consultants will find consultants more helpful than early-adopting firms will.

Relationships with peer-like organizations such as customers and suppliers have been conceptualized as helpful because they facilitate transmission of rich information about new

practices (Coleman, Katz and Menzel, 1966; Rogers, 1995). Such contacts with peers have been found to be particularly important for early adopters (e.g., Coleman, Katz and Menzel, 1966). Early on, customers and suppliers are likely to be a primary source of information about practices for early adopters as widespread recognition and accessible knowledge of the practices is lacking and knowledge entrepreneurs (Abrahamson, 1991) will not to have yet organized themselves around the practices. Late-adopting firms will have more options for gathering that information (Rogers, 1995) – such as consultants, media and other sources that early-adopting firms were less able to rely on. On the other hand, the number of customers and suppliers that have adopted and who can provide assistance will also have grown. Given these conflicting trends, assessing the *absolute* level of perceived helpfulness of suppliers and customers over time is an empirical matter. On a relative basis, however, the conflicting trends suggest a *relative* decline in the perceived helpfulness of suppliers and customers as compared to the predicted steadily increasing perceived helpfulness of consultants.

### **Do Consultants Influence Performance Outcomes?**

While consultants claim they can bring valuable information and expert capabilities to firms they work with them, organizational scholars have suggested several processes through which working with consultants can impair performance.

First, conformity to normative forms has been associated with lower performance benefits from a practice (Westphal et. al., 1997). While the normative configuration may be seen as the most legitimate or appropriate, the essence of gaining advantage from new administrative practices is often effective implementation - which in contrast requires adopting or customizing the practice to the specific characteristics of the firm (Eccles and Nohria, 1992).

Second, the spread of fads and bandwagons in part by consultants (Abrahamson, 1991; Brindle and Stearns, 2001) is important. In bandwagons, a large number of participants may be influenced to adopt even when they may not substantially benefit or when adoption may actually impair performance (Abrahamson & Rosenkopf, 1993; Strang and Macy, 2001). Firms that use consultants may be those that do not see (or have) clear benefits but are nevertheless “sold” on the practice, and so such firms may experience lower performance benefits than other adopting firms. Relatedly, theorists of management fad and fashion suggest managers confront an increasingly complex world they have difficulty making sense of, and turn to consultants to relieve the resulting anxiety (Kieser, 2002). This, to put it mildly, is not described as a performance-improving adoption process.

Finally, implementation of change is important but problematic (Kanter, 1989) and consultants have been associated with poor implementation. They have been criticized as promoting activity to the exclusion of results (Schaffer and Thompson, 1992) and technical solutions to the exclusion of implementation (Schaffer, 1988). Employees may pick up on the faddish nature of consultant-driven change and so be less enthusiastic in their implementation, expecting that “this too shall pass.” (Schaffer and Thompson, 1992). Thus we propose:

Hypothesis 3: Firms that use consultants will benefit less from adoption than other adopting firms will.

We will compare the performance impact of working with consultants with that of help from customers and suppliers. The virtues of customer focus and of value chain management, for example, suggest that help from customers and suppliers may lead to higher performance. On the other hand, the arguments about conformity and success stories made above point towards help from others in general leading to less customized and thus perhaps less effective

implementation. For these reasons, we suggest that the performance impact of customer and supplier help is an empirical matter. It will nevertheless be of theoretical interest through the way that it contrasts to the performance impact of help from consultants. For example, if we saw help from any of the sources studied here had no impact on performance outcomes, that would suggest that the vilification of consultants (e.g., O'Shea and Madigan, 1997) may be misplaced.

### **RESEARCH SETTING: Manufacturing Best Practices**

The context for our research is adoption of Manufacturing Best Practices prior to 1994 by manufacturing firms in Australia and New Zealand. Manufacturing best practices is a variant of the broader concept of "best practices," and as such is fundamentally empiricist in its origins. The core underlying idea is that one can infer the best way to manage an operation or aspects of it, and then apply those practices to a given organization. Best practices thus contain two core aspects. The first is the systematic examination of practices within functional areas, such as the factory shop-floor, through comparison of a firm's existing practices with practices at competitive and best-in-class firms. This can be done by benchmarking (Venetucci, 1992), reading, informal information sharing, or by engaging consultants. The second aspect of "best practices" programs is efforts to change existing processes by adopting or adapting those best practices within the focal firm.

The idea of manufacturing best practices became increasingly salient through the 1980s. Its salience appears to have been driven by the competitiveness "problem" faced by large U.S. firms, particularly the U.S. automobile industry. This led to a widespread perception that U.S. firms' management and production practices were inferior to those of Japanese firms (Abrahamson and Fairchild, 1999). The solution to that "problem" initially formed under an umbrella known as "Japanese management" and comprised a discrete set of practices such as

quality circles and just-in-time logistics. By the end of the 1980s, the idea that these practices need to be integrated came into the mix, and the category crystallized and was re-labeled as Total Quality Management (Abrahamson and Fairchild, 1999).

With the rise of the Total Quality movement, the idea spread that large U.S. firms had become excessively internally focused and had lost touch with their environments (Venetucci, 1992).

The search for best practices – initially emphasizing Japanese practices, but later broadening to the idea of best-in-class firms anywhere – became a prominent solution to this internal focus, being perceived as a way to keep firms in touch with their environments (Venetucci, 1992). A significant number of books were written on various best practices through the 1980s and 1990s. However, “best practices” as a significant administrative innovation appeared to crystallize in the early 1990s. A search of ABI/Inform on the term “best practice or best practices” gives few hits until 1991, at which time it rises dramatically every year until 1995. If combined with “manufacturing”, usage peaks in 1997. Manufacturing best practices were also clearly linked with the Total Quality movement in the early 1990s, as that movement represented “best practices” especially in the area of manufacturing operations.

To assess the content of manufacturing best practices, we used ABI/Inform search results for the period 1986 to 1994 for articles about manufacturing best practices. We found 119 articles of which we coded 53 as actually being about Manufacturing Best Practices. We coded the 53 abstracts for all specific practices which were mentioned explicitly or implicitly. (For example, “learning from suppliers” was considered implicit in an article which advocated the importance of a common language throughout the supply chain.). This gave a list of 28 practices, which are presented in Table 1. The left-hand column presents counts of articles in which the practice is either the central idea, or one of the central ideas presented in the abstract. The right-hand

column presents counts of mentions of practices, irrespective of centrality to the argument. In 16 of the 53 citations, we inferred from the text of the abstract that it was likely that the article would introduce practices than were not discussed in the abstract. The table suggests that Manufacturing Best Practices is essentially Total Quality Management (quality itself is first-ranked, and the 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> highest-ranked- items are also components of TQM) with a very strong emphasis on benchmarking and the practices to which benchmarking might lead manufacturers. This information guided our selection of practices to assess conformity against.

---- Table 1 about here ----

We were satisfied that the manufacturing sector represented a field (DiMaggio & Powell, 1983) for two major reasons. First, organizations such as the Australian Manufacturing Council and the New Zealand Manufacturing Advisory Group were constituted by their respective governments, and given resources to work on the “competitiveness problem”. This provides fairly strong evidence that manufacturing firms in these economies had a collective identity, particularly around issues of production effectiveness. Second, and relatedly, highly influential books such as “Made in America” (Dertouzos, Lester, & Solow, 1989) defined the competitiveness problem as one of manufacturing productivity. Once again, we expect this to lead to the creation of a collective identity within the sector, particularly around problems of production effectiveness.

Finally, studying Australian and New Zealand firms when the genesis of Manufacturing Best Practices was a largely North American phenomenon raised questions about whether the role of consultants might be specific to the geographic context. We thus felt it reassuring that data the

ten largest consultancies in Australia in 1997 were *all* American-based firms such as Anderson Consulting, Ernst and Young, and Boston Consulting Group (Wright, 2002).

Overall, we believe manufacturing best practice programs are an excellent context to examine the role of consultants in the adoption of administrative practices, as the implementation of best practices are fundamentally based on understanding – through benchmarking and information transfer – what these best practices actually are and how to implement them.

## **METHODS**

**Survey.** Data were obtained from a 1994 mail survey of Australian and New Zealand manufacturing sites conducted by the Australian Manufacturing Council (AMC) in conjunction with the Boston Consulting Group, the Australian Bureau of Statistics, and the Manufacturing Advisory Group (New Zealand).

The survey was primarily designed to measure relationships between manufacturing practices and competitiveness, and has led to several published analyses in this vein (Australian manufacturing council, 1994; Terziovski, Samson, and Dow, 1997; Samson and Terziovski, 1999; Samson and Ford, 2000; Challis, Samson, and Lawson, forthcoming:). These studies have found evidence that implementation of manufacturing best practices is associated with higher performance.

The survey instrument was a 17-page, 246-question review of manufacturing strategy, practices and performance outcomes. The instrument was pilot tested at six sites and revised based on respondent reactions. In addition to asking whether and when the responding site embarked on a program aimed specifically at achieving “best practice”, the survey asked about a large number of manufacturing-related practices and technologies, the extent of their adoption, and their

impact on the site and its performance. These practices were assumed by the survey authors to be a superset of “best practices” (Samson, personal communication, December 2001). It also asked a number of questions relating to performance, and about the nature of the site. The opportunity to explore the questions raised above arose because a section of the survey asked about other organizations that had been helpful in implementing best practices programs.

**Sample.** The survey instrument was sent to a stratified random sample of the manufacturing sites that were registered with the Australian Bureau of Statistics or Statistics New Zealand and employed more than 20 people in 1993. The sample was stratified within each country using twelve industry codes Australian Standard Industry Codes (ASIC) and three size categories (25-49, 50-100, and over 100). The stratification resulted in each cell containing at least 15 respondents.

The survey was mailed to 4,000 manufacturing site managers, 3,000 in Australia and 1,000 in New Zealand. 1289 responses were received within a ten-week period, with response rates of 32% for Australia and 38% for New Zealand. The AMC subsequently conducted a telephone survey of 108 non-respondents, who were asked a subset of questions with high predictive validity for the survey as a whole. No significant response bias was found (Australian manufacturing council, 1994).

Of the 1289 responding sites, 913 (71%) indicated that the sites had adopted a best practices program by the time of the survey.

## **Variables**

**Use and Helpfulness of Consultants, Suppliers, and Customers.** The survey asked respondents to assess the degree to which types of other organizations “have been valuable

sources of external advice or assistance in helping this site achieve improved business performance based on “Best Practice.” Types of organizations asked about included Management Consultant(s), Supplier(s), and “Customer or client(s)”. Respondents answered on a five point scale with anchors, coded as 0=No assistance; 1=Marginal Assistance; 2=Some Assistance; 3=Reasonably Significant Assistance; and 4=Major Assistance. We coded **Use** as a binary variable with 0 if respondents indicated no assistance, and 1 otherwise. **Helpfulness** was simply the raw responses listed above. The use and helpfulness variables are independent variables in most of the analyses, though the helpfulness variable is the dependent variables in one analysis.

The descriptive statistics (Table 2, below) show that consultants are used less frequently (71%) than suppliers (81%) or customers (89%). These differences are highly significant. However, suppliers are perceived to be less helpful than consultants on average (t-test shows  $p < .001$ , at sites that use both), whereas consultants are perceived to be less helpful than customers (t-test shows  $p < .05$  at sites that use both).

**Adoption Period.** The survey asked whether the site had embarked on a program aimed specifically at achieving “Best Practice” and if so, when such efforts commenced. Four time period response categories were provided – before 1985, 1985-1988, 1989-1991, and post-1991 (the survey was mailed in January 1994). These are coded sequentially, with 1 representing the before 1985 time period, 2 representing 1985-88, 3 representing 1989-1991 and 4 representing post-1991. Approximately 70% of responding sites had adopted by the time of the survey, with the bulk doing so in the last two time periods. The adoption curve is shown in Figure 1:

---- Figure 1 about here ----

**Conformity:** The conformity measure is designed to measure how closely a firm matched the configuration of the manufacturing best practices prevalent in the field. It does so through assessment of which of a set of practices the firm adopted and which it did not adopt. In order to construct a measure, we needed a set of practices to assess. Within the survey were nineteen practices for which we could obtain a relatively unambiguous measure of whether adoption had occurred. While all were putatively related to best practices in the opinion of the survey authors (by virtue of their inclusion on the survey), respondent data suggested seventeen of the practices were distinctively “best practices” in that sites which had not adopted best-practice programs had adopted those seventeen practices significantly less frequently.<sup>1</sup> The seventeen practices were also related to the content of manufacturing best practices as found in our ABI/Inform search, with many of them being related to quality management. The practices themselves are listed in the Appendix.

The conformity measure itself was constructed for each site using the method of Westphal, Gulati and Shortell (1997), who studied conformity of Total Quality Management practice adopters. For each site and each practice, we measured conformity as the percentage of other sites whose response (adoption or non-adoption) matched that of the focal site, from among sites that had adopted a best practice program in the same or earlier time period as the focal site. These scores were summed across the seventeen practices to form an overall measure of conformity. The matching procedure underlying the measure allows conformity to reflect adoption of widely-used practices, as well as non-adoption of less widely-used practices.

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<sup>1</sup> We compared whether firms had adopted between those who had adopted “best practice” and those who had not using a simple t-test. We set the rejection criterion at the  $p=0.05$  level.

**Performance impact.** Our aim in measuring the performance impact of adoption was to measure those aspects of performance that could be attributed most closely to adopting manufacturing best practices, and then to control for all other aspects of performance which might be attributable to prior performance or managerial action independent of best practice adoption. Consequently, we selected a very narrow set of performance measures: defects as a percentage of production volume, warranty claims cost as a percentage of total sales, cost of quality as a percentage of total sales, percentage of product delivered in full and on time to customers, customer satisfaction, and average process change-over time. All items were measured on a five-item scale and so, with the exception of reverse coding the first three items, we simply took the mean of the responses.

We included the same controls as in the analyses of adoption rates, but added controls for elements of performance which could be attributed to prior performance or managerial action other than the adoption of manufacturing best practices. The performance controls fell into two groups. The first included variables we expect to be associated with high performance: productivity, cash flow, relative technological competitiveness, material costs per unit of product, total cost per unit of product. The second group included variables we expect to be associated with poor performance: time lost to accidents and time lost to industrial disputes. All of these were measured on a five point scale and they were entered into the regression equations separately. Because four of the variables had “don’t know” as a sixth alternative, we also created dummy variables for each of these variables to account for the “don’t know” cases.

This approach to measuring performance has the distinct advantage that it controls for common method bias to a certain extent, since performance is measured on both sides of the regression equation. It has the disadvantage, however, that the control variables tend to absorb variance that

should be attributed to the independent variables. For example productivity is a control variable, even though the best practice programs aim fundamentally to improve productivity.

Consequently, our test is conservative and the specific magnitudes of effects are not likely to be meaningful.

**Control Variables.** Measures were included to control for characteristics of sites that might influence the dependent variables. *Benchmarking* is a binary indicator of whether the site utilized this popular practice. This could have been included in the conformity index, but because it was so directly related to interorganizational ties, it was held out separately<sup>2</sup>.

*Technology Level* is measured from a section of the survey that asked the extent to which several manufacturing technologies such as CNC machines, robots and materials-working lasers contributed to the site's competitiveness. Twelve measures (five-point scales) were available.

The technology level was constructed as the mean level across the twelve measures (alpha .80).

*# of Unions* is the number of unions reportedly represented at the site. *Employee Growth* is the log of the number of full-time permanent employees at the time of the survey divided by the number of such employees two years previously. *Australian* is a dummy set to 1 if the site was

physically located in Australia, and zero if the site was located in New Zealand. *EU/UK owner*,

*US owner*, *Japanese owner* are dummy variables indicating a EU/UK, USA, or Japanese

(respectively) owner or parent firm. Industry control dummy variables for eleven of the twelve major classifications in the Australian Standard Industrial Codes were incorporated in all models.

Period dummy variables were included for the time periods 2 through 4 that were described

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<sup>2</sup> Benchmarking is in fact associated with increased conformity, but not with increased (or decreased) performance impact.

above, with period 1 being the omitted category. Industry and period controls are not shown in the results but are available from the authors.

For several of the control variables, a modest number of cases had missing variables. Because of the number of control variables, however, a large number of cases that had all the independent and dependent variables were missing at least one control variable. In order to retain these cases in the analysis, we created a “missing” dummy variable that was paired with each of those control variables. For cases where the control variable was reported, we simply set the “missing” dummy variable to zero. For cases where the control variable was not reported, we set the “missing” dummy variable to one, and set the control variable itself (for this case) to zero. This is statistically equivalent to imputing the value of the missing control variables to the mean, an option discussed by Little and Rubin (2002). We felt the increase in effective sample size outweighed any concerns about the imputation process, particularly since the variables were only control variables. Further details are available from the authors.

## **RESULTS**

**Adoption and Conformity.** The association of consultants with conformity, as well as the other remaining analyses, was done using OLS regression. For these analyses 867 sites had valid responses for all the dependent or independent variables of interest and so were included in the analysis. Note that these sites are all sites that reported adopting manufacturing best practice programs, whereas in the event-history analysis sites that never adopted were included as they are part of the risk set. Descriptive statistics for the OLS regression analyses are presented in Table 2.

---- Table 2 about here ----

The dependent variable for the conformity analysis is the conformity index of the adopting site, with the key independent variables being use or helpfulness of consultants. We consider both use of consultants and helpfulness as predictors of conformity, as it may be that consultants increase conformity more when they are perceived as perfectly helpful – i.e., when consultants have likely had considerable influence on adoption and implementation. The results are presented in Table 3. Model 3A is the baseline model. Model 3B adds use of consultants and shows that use of consultants is associated with significantly higher conformity ( $t=2.23$ ,  $p<.03$ ), as predicted by hypothesis 1. This same relationship holds for helpfulness of consultants but is only marginally significant, as shown in Model 3C ( $t=1.75$ ,  $p<.08$ ). The stronger result from model 3B suggests use of consultants is associated with a step-function increase in conformity, rather than a more-or-less linear increase in conformity as consultants are perceived to be more helpful.

Interestingly, customer relationships also have a positive influence on conformity for both use ( $t=2.12$ ,  $p<.04$ ) and helpfulness ( $t=1.85$ ,  $p<.07$ ). On the other hand ties to suppliers show no significant relationship with conformity in adoption, though again the coefficients are positive. The customer result may occur because customers require suppliers to follow standardized processes and procedures, which leads to conformity. Such an effect would not be evident for suppliers who would not have that type of power.

**Helpfulness over Time.** Next we assessed whether the perceived helpfulness of consultants increased over time, as predicted. The dependent variable is the perceived helpfulness for consultants, but we assess trends in the perceived helpfulness of customers and suppliers as well. Results are presented individually for each type of relationship in Table 4. Model 4A includes all sites and shows that perceived helpfulness increases with time of adoption ( $t=2.71$ ,  $p<.01$ ), as

predicted by hypothesis 2. We were concerned that part of this result might be attributable to different usage rates across time periods, so we also report model 4B that includes only sites that indicated consultants were used. The results are very similar to model 4A. Conversely, the coefficient for perceived helpfulness for customers and suppliers is generally negative, though not significant<sup>3</sup>. For the latest adopting cohort consultants are actually perceived as slightly more helpful than customers: Mean helpfulness was 3.13 vs. 3.12 in favor of consultants for sites that use both, whereas the difference was .40 in favor of customers for the earliest adopting cohort. Based on these examinations we conducted a supplementary analysis of the *relative* influence of consultants. To do so we constructed an index of relative helpfulness, by starting with the helpfulness of consultants for an individual site and then subtracting the average helpfulness of customers and suppliers for that same individual site (i.e., not the sample mean, the mean by site). When this index is positive, it indicates consultants played a relatively important role; when negative, customers and/or suppliers did. The same analyses that were conducted in model 4A and 4B were repeated with this index as the dependent variable (not shown). In the analyses time period has a significant positive coefficient, indicating fairly directly that the relative helpfulness of consultants increases over time, consistent with consultants playing an increasingly important role as diffusion progresses.

---- Table 4 about here ----

**Performance Impact.** In this analysis, the dependent variable is the performance impact variable at the adopting site. The use or helpfulness of consultants are again the key independent

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<sup>3</sup> The decreases in perceived helpfulness for suppliers and customers are subject to potential bias, as later adopters have less time to utilize any advice they receive (as the survey is done at the same time for early and late adopters). However, the consulting result is subject to the same bias that makes it all the stronger. What is theoretically most important is the clear *difference* in helpfulness over time for consultants and more peer-like ties - which is not subject to that bias.

variables. The results are presented in four columns of Table 5, with Model 5A in the first column the baseline model, Model 5B indicating the relationship between performance impact and use, and Model 5C adding the relationship between performance impact and helpfulness to Model 5B. Model 5D adds a control for conformity. As with the conformity analysis, we modeled both use and helpfulness of consultants to determine whether any effects were step-function like, dependent just on using consultants, or if the effects were more linearly dependent on how helpful the consultants were perceived to be.

Model 5B shows use of consultants is associated with a negative coefficient – in the predicted direction – that is not significant ( $t=-1.38$ ,  $p<.17$ ). Model 5C, which adds the relationship with helpfulness, the coefficient for helpfulness consultants becomes solidly significant ( $t=-2.07$ ,  $p<.04$ ) in the predicted direction. Model 5D show that when conformity is controlled for, there are only minor decreases in t-scores and that significance levels are maintained, so that hypothesis 3 receives support. Conformity increases alone do not explain the performance outcomes associated with consultants.

Help from suppliers and customers show no relationship with performance impact, perhaps because the many different potential positive and negative forces tend to cancel each other out.

---- Table 5 about here ----

## **DISCUSSION**

We investigated outcomes associated with use of consultants during the diffusion of manufacturing best practices programmes in Australia and New Zealand. Our results supported our three hypotheses that firms that found consultants helpful would exhibit higher conformity to prevailing forms of manufacturing best practices, that later-adopting firms would find

consultants more helpful than earlier-adopting firms, and that performance measures at firms that found consultants helpful would be lower than they would be otherwise.

**Conformity Results.** The conformity results are consistent with arguments that consultants play roles as theorizing agents (Strang and Meyer, 1993) and knowledge entrepreneurs (Abrahamson, 1991; Abrahamson & Fairchild, 1999). However, on closer examination the results don't support the conclusion that consultants, through acting in those ways, play a predominant role in driving increased conformity across the population. The increase in conformity meets tests of statistical significance, but the coefficient suggests that working with consultants increases conformity only a relatively modest magnitude – about one-fifth of a standard deviation. Also, working with customers was associated with a greater increase in conformity than working with consultants was. Perhaps most striking is the comparison with a control variable: benchmarking. Benchmarking was associated with a conformity increase that was more than twice as large as the increase associated with consultants. The benchmarking and customer results suggest that interfirm processes such as mimesis (DiMaggio and Powell, 1983) may be increase conformity more strongly than consultants do as theorizing agents.

**Perceived Helpfulness Results.** The increase in the perceived helpfulness of consultants for later adopters is consistent with argument that knowledge entrepreneurs enter new knowledge-management niches as diffusion progresses (Abrahamson, 1991) and awareness of the trend or fad becomes widespread among potential clients. It is also suggestive that consultants are more helpful for later adopters, who may have delayed adoption because they did not initially see a clear application or benefits from the novel practice. The finding supports the well-known argument that consultants drive more rapid widespread diffusion, but provides some nuance in suggesting that customers and suppliers are relatively most helpful early on.

**Performance Results.** We now turn to the performance outcome results. Discussion of them must first acknowledge the inability to definitively draw conclusions about causality, because the data is cross-sectional. Thus two processes in two directions could lead to our finding that sites that found consultants helpful showed more negative performance outcomes. First and as discussed in the theory section, it could be that these outcomes are the result of the relatively ineffective help from consultants – that is, consultants drive the results. Alternatively, the results could be driven by the sites themselves. That is, the result could occur through a selection effect, in which sites that choose work with consultants are disproportionately poor-performing at the time that they adopt the new practice. If this is the case, the *level* of performance (the outcomes we measure) might remain relatively low at the time of the survey even if consultants were helpful in improving performance. The two processes are not mutually exclusive - it may be that the observed outcomes result both from selection effects and from consultants driving performance outcomes.

A strong argument for the selection process is the face validity problem associated with attributing the negative performance outcomes solely to action driven by consultants. To accept that consultants are driving negative performance, then we must accept that responding managers, on successive pages of the survey, reported that the more advice or assistance from consultants was *helpful in achieving improved performance* through best practice programs, the more negative performance outcomes actually were. The outcomes associated with use of consultants and helpfulness affect this. If, for example, we found that use of consultants was associated with lower performance overall, but that as consultants were perceived as more helpful the performance decrement became smaller, it would be easier to argue that consultants are driving those results. But we found that when consultants were perceived to be only

marginally helpful, performance suffered only modestly. When consultants were perceived to be highly helpful, performance suffered a good deal. This argument suggests that the selection explanation is more likely, and that the more a site is performing poorly, the more helpful consultants are likely to be perceived to be.

However, we anticipated the selection argument and took steps to bound its applicability. By controlling for broader measures of performance, we tend to eliminate the broadest form of the selection argument, that poorly-performing sites in general disproportionately use consultants. We found that controlling for broader measures of performance did not markedly effect the performance outcome results. This would suggest that the selection argument is restricted to a narrower logic: that sites that are performing relatively poorly *only on performance measures associated with best practices programs* are disproportionately likely to engage consultants. The difficulty with this restricted logic is that it is really a variant of the logic that poorly-performing firms in general engage consultants. If selection processes alone drive the results, it would be quite surprising to find no evidence for the general argument, yet find strong evidence for the restricted argument. Thus we believe the results associated with our controls for measures of broader performance point towards consultants driving action, at least to some degree.

We continue to work on analyses that let us assess the direction of causality indirectly.

However, we also believe that the results are theoretically interesting even if the causal ambiguity remains. . The theory section described consultants as the drivers of action. However, it is possible to reconceptualize action as an outcome of a consultant-adopter *relationship*, rather than action emanating from the consultant or the adopter alone. This conceptualization eases the causality ambiguity issue because it encompasses both types of action described above – selection processes where the adopter seeks out the consultant and processes where the

consultants is a significant driver of adoption. What we can then say is that the consultant-adopter interaction shows distinctly different performance effects than the effects of customer-adopter relationship or the supplier-adopter relationship.

One final aspect of the results is interesting. From the standpoint of institutional theory and theories of fad and fashion, the negative performance outcomes are particularly important because they cannot be attributed to conformity in the form of adoption. As noted, a major thrust of the institutionalists' argument has been that isomorphism means that some adopters – particularly late adopters – adopt in conforming fashion in order to achieve legitimacy. For example, Westphal et. al.'s (1997) study provided strong support for this argument. The present study suggests that consultants play a part, but not a dominant part, in inducing isomorphism through conformity in the form of adoption. Perhaps more interesting is the evidence that consultants have an influence beyond conformity – for example, as agents of influence in driving bandwagons (Abrahamson and Fairchild, 1999) and so inducing firms to adopt administrative practices that are not likely to drive increased performance (Strang and Macy, 2001). It is also consistent with ideas that consultants drive flawed implementation (Schaffer, 1988), where problems go deeper than standardized packages because they reflect fundamental problems in implementation of change.

**Limitations.** The study clearly has limitations, some of which we have already discussed. The cross-sectional survey data prevents direct assessment of causality for the performance results particularly. We performed additional analyses help us make inferences about causality, but they are indirect. The data is based on self reported interpretation of performance and practices, though some of the practices and performance measures have objective anchors for each response. These issues are implications, to a certain extent, of using a survey that was designed

for other purposes. On the other hand, we believe we are on more solid methodological ground with the conformity analysis and analysis of differences in perceived helpfulness of consultants by time of adoption. Overall, we consider this an exploratory analysis in which we address questions that have been theorized about extensively, but that have not been empirically examined in a large scale analysis. We believe that the results should guide and spur further research in these areas.

## REFERENCES

- Abrahamson, E. 1991. Managerial fads and fashions: the diffusion and rejection of innovations. *Academy of management review*, 16(3): 586-612.
- Abrahamson, E., & Fairchild, G. 1999. Management fashion: lifecycles, triggers, and collective learning processes. *Administrative Science Quarterly*, 44(4): 708-740.
- Abrahamson, Eric, and Lori Rosenkopf. 1993. Institutional and Competitive Bandwagons. Using Mathematical Modeling as a Tool to Explore Innovation Diffusion. *Academy of Management Review*, 18:487-517.
- Australian manufacturing council. 1994. Leading the way: A study of best manufacturing practices in Australia and New Zealand: 114. Melbourne.
- Bain & Company. 1997. *Management Tools and Techniques*.
- Bandura, A. 1977. *Social Learning Theory*: NJ: Prentice-Hall.
- Berger PL, Luckmann T. 1971. *The social construction of reality*. Penguin: Harmondsworth
- Brindle, Margaret and Peter N. Stearns. 2001. *Facing up to Management Faddism: A New Look at an Old Force*. Quorum Books, Westport CT.
- Burns, L. R., and Douglas R. Wholey. 1993. Adoption and abandonment of matrix management programs: Effects of organizational characteristics and interorganizational networks. *Academy of management journal*, 36: 106-138.
- Challis, D., Samson, D., & Lawson, B. 2002. Integrated manufacturing, employee, and business performance: Australian and New Zealand evidence. *International Journal of Production research*, Forthcoming.
- Clark, Timothy and Robin Fincham. 2002. *Critical Consulting: New Perspectives on the Management Advice Industry*. Blackwell:Oxford.

Coleman, J. S., Katz, E., & Menzel, H. 1966. *Medical innovation: A diffusion study*. New York: Bobbs-Merrill.

Davis, G. F. 1991. Agents without principles? The spread of the poison pill through the intercorporate network. *Administrative science quarterly*, 36: 583-613.

Dertouzos, M. L., Lester, R. K., & Solow, R. M. 1989. *Made in America: Regaining the Productive Edge*. Cambridge Ma: M.I.T. Press.

DiMaggio, P. J., & Powell, W. W. 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48(April): 147-160.

DiMaggio, P. J., & Powell, W. W. 1991. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. In DiMaggio, P.J. and Powell, W.W., 1991. Eds. *The New Institutionalism in Organizational Analysis*. University of Chicago Press:Chicago.

Dupre, J. 1999. Do Consultants Really Practice What they Preach? *Journal for Quality and Participation*, 22(5):32.

Eccles, Robert and Nitin Nohria, with James Berkley. 1992. *Beyond the Hype: Rediscovering the Essence of Management*. Harvard Business School Press: Boston, MA.

Fligstein, N. 1985. The spread of the multidivisional form among large firms, 1919-1979. *American Sociological Review*, 50: 377-391.

Galaskiewicz, J., and Stanley Wasserman. 1989. Mimetic processes within an interorganizational field: An empirical test. *Administrative science quarterly*, 34: 454-479.

Hargadon, Andrew and Robert I. Sutton, 1997. Technology Brokering and Innovation in a Product Development Firm. *Administrative science quarterly*, 42: 716-749.

Haunschild, P. R. 1993. Interorganizational Imitation: the impact of interlocks on corporate acquisition activity. *Administrative science quarterly*, 38: 564-592.

- Kanter, Rosabeth. 1989. *When Giants Learn to Dance*. Simon and Schuster, New York.
- Kieser, Alfred. 2002. Managers as Marionette? Using Fashion Theories to Explain the Success of Consultancies. p. 167-183 In Kipping, Matthias and Lars Engwall, eds. 2002. *Management Consulting: Emergence and Dynamics of a Knowledge Industry*. Oxford University Press: Oxford.
- Kipping, Matthias and Lars Engwall, eds. 2002. *Management Consulting: Emergence and Dynamics of a Knowledge Industry*. Oxford University Press: Oxford.
- Micklethwait, John and Adrian Woolridge, 1996. *The Witch Doctors: Making Sense of the Management Gurus*. Times Books: New York.
- O'Shea, James and Charles M. Madigan. 1997. *Dangerous Company: The Secret Story of the Consulting Powerhouses and the Corporations they Save and Ruin*. Random House: New York.
- Palmer, D. A., P. Devereaux Jennings and Xueguang Zhou. 1993. Late Adoption of the multidivisional form by large U.S. corporations: institutional, political, and economic accounts. *Administrative science quarterly*, 38: 100-131.
- Rogers, E. M. 1995. *Diffusion of innovations* (4th ed.). New York: Free Press.
- Samson, D., & Ford, S. 20. Manufacturing practices and performance: Comparisons between Australia and New Zealand. *International Journal of Production Economics*, 65: 243-255.
- Samson, D., & Terziovski, M. 1999. The relationship between total quality management practices and operational performance. *Journal of operations management*, 17: 393-409
- Schaffer, Robert H. 1988. *The Breakthrough Strategy: Using Short-Term Successes to Build the High Performance Organization*. Harper Business: New York.
- Schaffer, Robert H. and Harvey Thompson. 1992. Successful Change Programs Begin with Results. *Harvard Business Review*, Jan/Feb 1992: p.80-89
- Strang, D., & Meyer, J. W. 1993. Institutional conditions for diffusion. *Theory and society*, 22: 487-511.

- Strang, D., & Macy, M. W. 2001. In search of excellence: fads, success stories, and adaptive emulation. *American Journal of Sociology*, 107(1): 147-182.
- Sturdy, A. 1997. The Consultancy Process – an Insecure Business? *Journal of Management Studies*, 34(3): 389-413.
- Terziovski, M., Samson, D., & Dow, D. 1997. The business value of quality management systems certification - Evidence from Australia and New Zealand. *Journal of operations management*, 15(1): 1-18
- Tolbert, P. S., & Zucker, L. 1983. Institutional sources of change in formal structure of organizations: The diffusion of civil service reform. *Administrative Science Quarterly*, 28: 22-39.
- Tolbert PS, Zucker LG. 1997. The institutionalization of institutional theory. In S Clegg, C Hardy, o other (Eds.), *Handbook of organization studies*: 174-190. Sage: Newbury Park
- Venetucci, R. 1992. Benchmarking: A reality check for strategy and performance objectives. *Production and Inventory Management Journal*, 33(4): 32.
- Westphal, J. D., Gulati, R., & Shortell, S. M. 1997. Customization or conformity? An institutional and network perspective on the content and consequences of TQM adoption. *Administrative Science Quarterly*, 42(2): 366-394.
- Westphal, J., and Edward J. Zajac. 1997. Defections from the inner circle: Social exchange, reciprocity, and the diffusion of board independence in U.S. corporations. *Administrative science quarterly*, 42: 161-183.
- Westphal, J. D., Gulati, R., & Shortell, S. M. 1997. Customization or conformity? An institutional and network perspective on the content and consequences of TQM adoption. *Administrative Science Quarterly*, 42(2): 366-394.
- Wright, Christopher. 2002. Promoting Demand, Gaining Legitimacy, and Broadening Expertise: The Evolution of Consultancy-Client Relationships in Australia. pp. 184-202 in

Kipping, Matthias and Lars Engwall, eds. 2002. *Management Consulting: Emergence and Dynamics of a Knowledge Industry*. Oxford University Press: Oxford.

Zbaracki, M., J. 1998. The rhetoric and reality of total quality management. *Administrative Science Quarterly; Ithaca*, 43(3): 602-636.

**Table 1: Frequencies of and importance attributed to practices in articles about Manufacturing Best Practices**

	<b>Practice</b>	<b>Central idea</b>	<b>Mentioned</b>
1	Formal Quality practices (TQM, six sigma, etc.)	23	23
2	Benchmarking	17	19
3	Customer focus	10	11
4	Continuous Improvement	8	12
5	Participation or Empowerment	7	13
6	Planning or alignment between strategy and practices	7	13
7	Advanced technology	7	8
8	Supply chain integration and management	6	7
9	Learn from or teach suppliers	5	9
10	Design for manufacturing	5	6
11	Just in Time	4	6
12	Self managed teams	3	6
13	Statistical process control	3	6
14	Organization design	2	4
15	Problem solving teams	2	4
16	Management of pay and performance	2	3
17	Training and Development of employees	1	7
18	Leadership	1	5
19	Mass Customization	1	3
20	Integration of multiple practices	1	2
21	Flexible manufacturing	1	2
22	Use of Stretch targets	1	1
23	Best practices contingent on local environment	1	1
24	Proceduralized learning (e.g. safety audits)	1	1
25	Focus in strategy	1	1
26	Mission statement	1	1
27	Labor relations	0	2
28	Preventative Maintenance	0	1

**Table 2. Descriptive Statistics for OLS Regressions (n=867).**

Variable	Mean	S.D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1Consultant Use	0.71	0.45																										
2Consultant Helpfulness	1.49	1.23	.77																									
3Customer Use	0.88	0.32	-.02	-.08																								
4Customer Helpfulness	1.91	1.07	-.02	-.05	.65																							
5Supplier Use	0.81	0.39	.05	.04	.40	.34																						
6Supplier Helpfulness	1.48	0.99	.04	.03	.32	.46	.72																					
7Conformity	9.72	0.90	.11	.08	.12	.13	.10	.08																				
8Time Period	3.29	0.90	.06	.11	.01	-.06	.00	-.04	-.04																			
9Quality Outcomes	0.00	0.63	-.09	-.13	.05	.09	.04	.06	-.07	-.20																		
10Log (Size)	4.45	1.33	.10	.11	-.02	-.01	.01	-.02	.19	.03	-.26																	
11Private	0.50	0.50	-.09	-.06	-.01	.02	.09	.10	-.13	-.12	.19	-.28																
12Independent	0.01	0.12	.02	.04	.02	.00	-.04	-.05	-.04	.07	-.06	.03	-.12															
13Benchmarks	0.60	0.49	.03	.00	.07	.08	.05	.05	.28	-.05	.00	.13	-.08	-.07														
14Technology	0.86	0.82	.11	.09	.08	.13	.08	.12	.26	-.06	-.04	.19	-.01	.00	.18													
15Unionized	0.81	0.39	.12	.08	-.03	-.03	-.07	-.08	.10	.02	-.17	.32	-.33	.01	.08	.01												
16Ln Employee Growth	0.01	0.15	-.07	-.04	-.01	.05	-.01	.03	-.06	.01	.05	-.10	.10	-.05	-.05	-.03	-.23											
17Australian	0.73	0.44	.11	.12	-.08	-.13	-.13	-.12	-.04	.06	-.07	-.04	-.06	.05	.04	.07	-.03	-.08										
18E.U. Owner	0.12	0.32	.00	.00	-.03	-.02	.00	-.07	.01	.02	-.01	.10	-.16	-.05	.07	.03	.11	-.11	.07									
19U.S. Owner	0.07	0.26	.10	.08	.01	-.01	-.01	-.01	.04	-.03	-.04	.04	-.02	.00	.05	.05	.02	-.01	.10	-.10								
20Japanese Owner	0.02	0.15	-.08	-.09	.03	.08	.04	.07	.11	-.08	.02	.15	-.02	-.02	.10	.09	.08	-.06	-.07	-.06	-.04							
21Productivity	3.56	0.76	-.02	-.03	.02	.12	.05	.10	.10	-.08	.31	.02	.01	-.02	.04	.09	-.07	.01	-.09	.07	.08	.03						
22Cash Flow	3.60	0.97	.07	.03	.07	.08	.00	.00	.09	-.01	.18	.12	-.06	-.05	.03	.02	.00	.02	-.15	.03	.04	-.03	.25					
23Tech. Competitiveness	3.27	0.94	-.03	-.02	.03	.10	.03	.09	.06	-.06	.21	.02	.06	-.05	.10	.19	-.14	.11	-.05	-.01	.00	-.01	.23	.18				
24Material costs	2.72	1.03	.04	-.01	.03	.03	.04	.03	.07	-.03	.02	.03	-.05	.01	.04	.05	-.01	.04	-.07	.02	.01	-.01	.12	.12	.18			
25Total costs	2.68	1.13	-.01	-.04	.07	.09	.02	.03	.03	-.01	.15	-.04	-.02	-.01	.00	.07	-.06	.08	-.12	-.02	-.03	.00	.17	.14	.16	.59		
26Accidents	2.71	1.80	.02	.01	.08	.04	.08	.10	.01	-.01	.04	.05	.03	.05	.06	.07	-.06	-.03	.03	.02	.04	.03	.07	.02	.02	.10	.11	
27Ind'l Disputes	3.22	1.80	.06	.05	.05	.08	.03	.04	.00	-.02	.05	.05	.01	.07	.02	.07	-.06	.01	-.04	.01	-.03	-.01	.09	.03	.00	.14	.19	.63

**Table 3. OLS regression of use and helpfulness of consultants on conformity to prevailing forms of manufacturing best practice programs.**

	6A Baseline Model	6B Use of Relationships	6C Helpfulness of relationships
Consultant Use		.15* (.07)	
Consultant Helpfulness			.04† (.02)
Customer Use		.20* (.09)	
Customer Helpfulness			.06† (.03)
Supplier Use		.05 (.08)	
Supplier Helpfulness			.01 (.03)
Log (Size)	.10*** (.03)	.09** (.03)	.10** (.03)
Private	-.16* (.06)	-.15* (.06)	-.16* (.06)
Independent	.07 (.36)	.05 (.36)	.06 (.36)
Benchmarks	.38*** (.06)	.37*** (.06)	.37*** (.06)
Technology	.20*** (.04)	.19*** (.04)	.19*** (.04)
Unionized	.00 (.08)	.00 (.08)	.00 (.08)
Employee Growth	-.18 (.19)	-.15 (.19)	-.19 (.19)
Australian	-.17* (.07)	-.16* (.07)	-.16* (.07)
E.U. Owner	-.11 (.09)	-.10 (.09)	-.11 (.09)
U.S. Owner	-.01 (.11)	-.02 (.11)	-.02 (.11)
Japanese Owner	.09 (.19)	.12 (.19)	.10 (.19)
Constant	9.12*** (.22)	8.84*** (.24)	8.96*** (.23)
n	867	867	867
Adj. r-square	0.18	0.19	0.19

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001, two-tailed.

**Table 4. OLS Regressions of time of adoption on helpfulness of interorganizational relationships.**

Dependent Var:	7A Helpfulness of Consultants		7B Helpfulness of Consultants		7C Helpfulness of Customers		7D Helpfulness of Suppliers	
	All Sites	Only sites that use Consultants	All Sites	All Sites	All Sites			
Adoption Period	.15*** (.05)	.12** (.04)	-.04 (.04)	-.03 (.04)				
Log (Size)	.13** (.04)	.02 (.04)	-.09* (.04)	-.05 (.04)				
Private Independent	-.01 (.09)	.09 (.08)	-.03 (.08)	.16* (.08)				
Benchmarks	.93† (.52)	.21 (.62)	-.35 (.46)	-.81† (.42)				
Technology	-.06 (.09)	-.05 (.08)	.15† (.08)	.11 (.07)				
Unionized	.12* (.06)	.01 (.05)	.18*** (.05)	.18*** (.04)				
Employee Growth	.11 (.12)	-.10 (.11)	-.04 (.10)	-.16† (.10)				
Australian	-.07 (.28)	.21 (.27)	.28 (.25)	-.05 (.23)				
E.U. Owner	.32*** (.10)	.15 (.09)	-.35*** (.09)	-.26*** (.08)				
U.S. Owner	-.05 (.14)	.15 (.12)	-.04 (.12)	-.12 (.11)				
Japanese Owner	.26 (.16)	.10 (.14)	-.04 (.14)	.01 (.13)				
Constant	-.66* (.28)	-.30 (.30)	.27 (.25)	.42† (.23)				
n	867	619	867	867				
Adj. r-square	.06	.06	.04	.05				

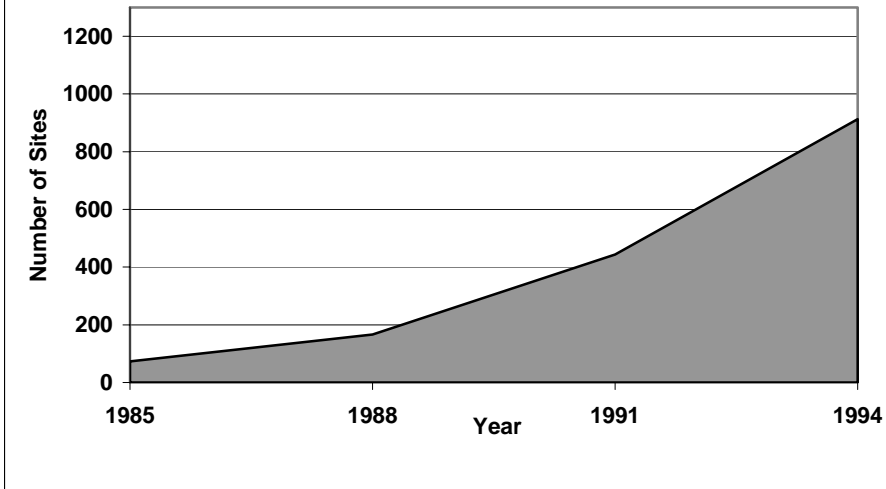
† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001, two-tailed.

**Table 5. OLS Regression of consultants use and helpfulness on performance impact of best practice programs.**

	8A Baseline Model	8B Add Use of Relationships	8C Add Helpfulness of relationships	8D Add Conformity Control
Consultant Use		-.06 (.04)	.04 (.06)	.05 (.06)
Consultant Helpfulness			-.05* (.02)	-.05* (.02)
Customer Use		.03 (.06)	.00 (.08)	.01 (.08)
Customer Helpfulness			.01 (.02)	.01 (.02)
Supplier Use		.01 (.05)	.05 (.07)	.06 (.07)
Supplier Helpfulness			-.02 (.03)	-.02 (.03)
Conformity				-.05* (.02)
Log (Size)	-.14*** (.02)	-.13*** (.02)	-.13*** (.02)	-.13*** (.02)
Private	.08† (.04)	.07† (.04)	.08† (.04)	.07 (.04)
Independent	-.12 (.23)	-.10 (.23)	-.09 (.23)	-.09 (.23)
Benchmarks	.04 (.04)	.04 (.04)	.04 (.04)	.06 (.04)
Technology	.00 (.03)	.00 (.03)	.00 (.03)	.01 (.03)
Unionized	-.01 (.05)	.00 (.05)	-.01 (.05)	-.01 (.05)
Employee Growth	-.07 (.13)	-.07 (.13)	-.07 (.13)	-.08 (.13)
Australian	.02 (.04)	.03 (.04)	.03 (.04)	.03 (.04)
E.U. Owner	.00 (.06)	.00 (.06)	.00 (.06)	-.01 (.06)
U.S. Owner	-.12† (.07)	-.12 (.07)	-.11 (.07)	-.12 (.07)
Japanese Owner	.17 (.12)	.15 (.12)	.15 (.13)	.16 (.12)
Productivity	.18*** (.03)	.18*** (.03)	.18*** (.03)	.19*** (.03)
Cash Flow	.07** (.02)	.07** (.02)	.07** (.02)	.07** (.02)
Tech. Competitiveness	.07** (.02)	.07** (.02)	.07** (.02)	.07** (.02)
Material costs per unit	-.06* (.03)	-.06* (.03)	-.06* (.03)	-.05† (.03)
Total costs per unit	.09*** (.03)	.09*** (.03)	.09*** (.03)	.09** (.03)
Accidents	.08** (.03)	.08** (.03)	.08** (.03)	.08** (.03)
Industrial Disputes	.04 (.03)	.04 (.03)	.04† (.03)	.04† (.03)
Constant	-.94*** (.22)	-.31*** (.08)	-.98*** (.23)	-.07 (.09)
n	867	867	867	867
Adj. r-square	0.30	0.30	0.30	0.30

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001, two-tailed.

Figure 1. Cumulative adoption of Best Practices initiatives among Australian & New Zealand manufacturing sites (n=1289)



## **Appendix: Practices included in conformity measure**

- 
- 1 Computer integrated manufacturing
  - 2 Designing products to match manufacturing and other capabilities
  - 3 Having an organization-wide training and development process
  - 4 Housekeeping
  - 5 Just-in-time logistics systems
  - 6 Machine set-up time reduction
  - 7 Manufacturing resource planning (MRP, MRPII)
  - 8 Preventative maintenance
  - 9 Production planning and control
  - 10 Regularly and formally measuring employee satisfaction
  - 11 Self managed and/or cellular work teams
  - 12 Statistical process control
  - 13 Systematically and regularly measuring customer satisfaction
  - 14 Taking the requirements of customers into account when designing new products and services
  - 15 Total quality management
  - 16 Warehousing and materials management
  - 17 Working closely with suppliers in product development
- 

**These practices were selected from the survey based on their matching important elements of manufacturing best practices, and a response format that allowed assessment of whether the practice was adopted or not.**

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