

SUCCESSFUL ACQUISITION OF A MANAGERIAL CAPABILITY: A CASE OF ISO 9000*

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Abstract

This paper draws on the literature of induced innovation and improvisation, and a survey to show when and under what conditions the implementation of a managerial practice can make a difference for organizational performance. To improve performance, the managerial practice must be thoroughly assimilated. However, assimilation is not enough; going beyond the managerial practice's minimum requirements also is necessary. The managerial practice must become a catalyst for rethinking the way the organization does business and a starting point for the introduction of more advanced practices.

1. Introduction

In an impressive body of work, Abrahamson (1991; 1996; 1997a; 1997b) argues that the implementation of managerial practices is akin to fads and fashions. Managers implement management practices in ways that people make decisions about the length of a skirt or the width of a tie. They are persuaded by glitzy rhetoric that exploits their vulnerabilities and psychological needs. While Abrahamson (1991; 1996; 1997a; 1997b) sees the process of implementation of management practices as a social construction, which does not narrow real performance gaps, Collis and Montgomery (1997) suggest that the implementation of managerial practices can raise organizational efficiency. It can enable organizations to convert inputs into products and services more efficiently than their competitors.

In this paper, we provide evidence that shows there is a middle position in this debate. We sketch out when and under what conditions the implementation of managerial practices can make a difference in organizational performance. The literature typically treats implementation as a discrete phenomenon, neglecting to examine variation in the form of implementation (Westphal, Gulati, and Shortell, 1997). We argue that the conditions under which implementation takes place determine whether an organization will benefit or not. These conditions have not been adequately specified in the literature, however.

The model we propose is grounded in both the literature on how organizations respond to external inducements (Oliver, 1991; DiMaggio and Powell, 1983; Marcus, 1988) and the literature on improvisation (Moorman and Miner, 1998;

Weick, 1998). Whether inducement comes from business partners, customers, trade groups, or laws, it is a fact of organizational life, but how should organizations respond? The institutional literature refers to external inducements as coercive, normative, and mimetic (Oliver, 1991; DiMaggio and Powell, 1983). Oliver's (1991) typology of how organizations respond includes acquiescence, compromise, avoidance, defiance, and manipulation.

The managerial practice, upon which we focus, is externally induced in that for many companies, it is a condition for doing business. Their customers require that they implement this practice. There are rules for quality that they must establish and they are audited to guarantee compliance. We argue that a practice like this must be thoroughly assimilated to have a positive effect on performance. It must be integrated, coordinated, used in daily practice, applied to solving problems, and kept current. However, assimilation is not enough. For an organization to improve, going beyond the practice's minimum requirements is necessary. By going beyond, we mean that the practice becomes a catalyst for rethinking the way the organization does business and a starting point for the introduction of more advanced practices.

In accord with the literature on improvisation (Weick, 1998), assimilation provides the structure that implants the routines, while going beyond instills the flexibility that allows for departures from them. If these two conditions are met – both assimilation and going beyond, then the implementation of a management practice like the one we examine is likely to serve a useful purpose (Collis and Montgomery, 1997). But if they are not met, then implementation is likely to yield little benefit (Abrahamson, 1991; 1996; 1997a; 1997b).

In our model, *Going Beyond* has a direct effect on performance and a mediated one through *Assimilation*'s effects on performance, as shown in Figure 1. Thus,

Hypothesis 1: *The more organizations assimilate a new managerial practice, the more successful they are.*

Hypothesis 2: *The more organizations go beyond what the rules for the new practices literally require, the more successful they are.*

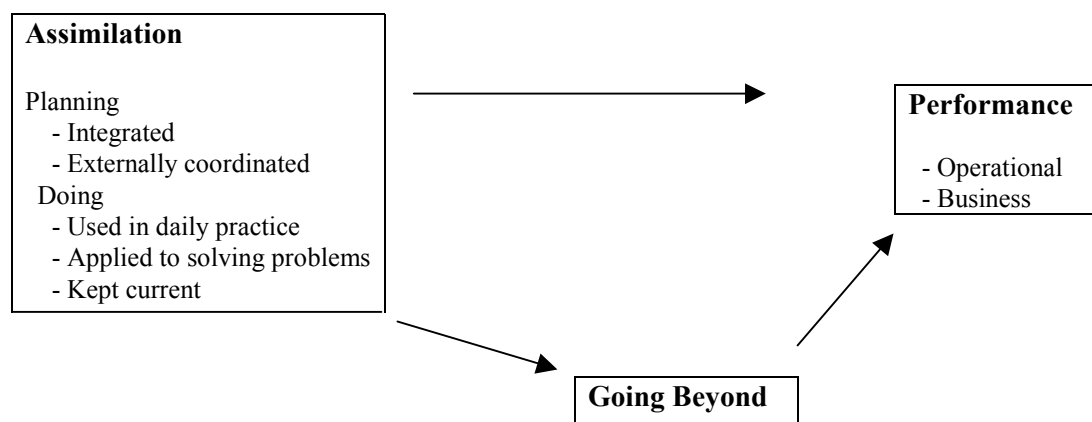


Fig. 1 Going Beyond: The Condition for Successful Implementation of a Managerial Practices

2. Methods

2.1 The Survey

The newsletter Quality System Update routinely collects lists of facilities that have demonstrated through external audit that they have implemented ISO 9000. To reach this population, we sent postcards to the ISO 9000 management representatives, which appeared in the registrars' lists. They were asked to participate in the study and were given a code that gave them entry to an Internet site where a questionnaire could be completed. For the typical respondent, the questionnaire took about 25 minutes to complete. 1,150 ISO 9000 managers completed the survey, which represents a response rate of about 20%. We divided responding facilities into industry groups and compared the percentage responding in these groups with the percentage of actual registrants in the groups. The numbers were close enough for us to believe that those who responded came from similar industry groups as the population as a whole.

2.2 Operationalization of the Variables

The questionnaire had a high degree of face validity. It was carefully designed in an iterative process with leading practitioners in the field. World leading experts on the ISO 9000 standard such as members of the TC 176 group (the international committee that is in charge of the standard), U.S. registrars, consultants and professional quality managers participated in the development of the survey. We also conducted a pre-study pilot study to which several dozens respondents gave comments. They were interviewed and the questions used in the survey were improved to the point where we had great confidence in them.

Independent variables - Assimilation: Based on Argote (1999), we suggest that assimilation of a new management practice is a mixture of learning by planning and learning by doing (also see Lewin, 1952; Zmud and Apple, 1989; and Cooper and Zmud, 1990). Our operationalization consisted of both elements. First, planning consisted of the following questions: (1) In the *design and development* of the ISO 9000 standard, how was the practice *integrated* with other systems that were already in place (Dierickx and Cool, 1989)?, and (2) In the *design and development* of the standard, how was it *externally coordinated* with customers and suppliers (Eisenhardt and Tabrizi, 1995)?

Second, *doing* consisted of the following questions: (1) To what extent was the standard *used in daily practice*?, (2) To what degree was it *applied to solving problems*?, and (3) To what extent was it *kept current*?

We postulated that the more that these characteristics of assimilation were exhibited, the more that an organization's performance was likely to improve.

Mediating variable - Going beyond: Based on Moorman and Miner (1998), and Weick (1998), we defined *going beyond* with the following questions: (1) To what extent was the managerial practice a springboard to the introduction of new practices? (2) To what extent did it lead to the discovery of improvement opportunities? (3) To what extent did it help prevent problems? (4) To what extent was it a starting point for more advanced practices? (5) To what extent was it a catalyst for rethinking how to do business? (6) To what extent was it understood as an opportunity to innovate? Notice that the extent to which this operationalization emphasizes discarding links to the original practice and moving into new areas.

Dependent variables: In studies of quality, better performance typically has two dimensions – operational and business (Benson, Saraph and, Schroeder, 1991; Evertt and, Adam, 1994; Flynn, Schroeder and, Sakakibara, 1994). For our dependent variable, the aspects of operating performance that we used were defect rates, cost of quality, productivity, on-time delivery, and customer satisfaction with the product and/or service. The aspects of business performance that we used were market share, sales, export growth, and employee retention. Our expectation was that the findings for operating performance would be stronger than for business performance because ISO 9000 more directly deals with operating performance. Many factors, other than ISO 9000, have an impact on business performance.

Control variables: Based on earlier ISO 9000 studies (McGraw-Hill 1993 and 1996 surveys) four control variables were included: time since registration, number of external audits attain registration, annual sales volume, and whether a registered company was a manufacturing, as opposed to a services or software, company. For the analysis, we created a dummy variable that equals to one when the registered facility was a service or a software company and that otherwise equals zero. We postulated that the longer the time since registration, the larger the facility, and the fact a facility was a manufacturer (since the ISO 9000 system initially was designed with manufacturers in mind), the better that performance was likely to be. We included the number of external audits to attain registration as a control because a facility might have had experience with ISO 9000 prior to certification. Prior experience might affect the results.

2.3 Estimation of the Models

Four models were estimated. The first analyzed the effect of the four control variables on performance. The additional models test for mediation (Baron and Kenny, 1986). We regressed *Going beyond*, the mediator, on the independent variables, which represent assimilation (model 2). We regressed the dependent variables, which represent performance, on the independent variables, which represent assimilation (model 3). We also regressed the dependent variables, which represent performance, on both the independent variables, that represent assimilation, and on *Going beyond*, the mediator (model 4).

3. Results

Through factor analysis, we could identify six distinct varimax rotated factors from the 27 original independent items. These six factors accounted for 58 percent of the total variance of the original 27 items. Five assimilation factors emerged (accounting for 31 percent of the variance of the original items), and a separate factor for *Going beyond* (accounting for 27 percent of the variance of the original items). The dependent variables, as well, broke up as expected. Two distinct varimax rotated factors were identified from the 9 original dependent variable items, one representing operational performance and one representing business performance. These two factors accounted for 52 percent of the total variance of the original nine items. The business performance factor accounted for 36 percent of the variance of the original items, and a separate factor on operating performance accounted for 16 percent of the variance of the original items.

The means, standard deviations, and correlations of these factors are found in Table 2. Because the assimilation variables were the independent variables and were assumed to cause *Going beyond* (the mediator), these variables should be correlated (Baron and Kenny, 1986). All the independent variables and the controls were significantly correlated with operating and business performance, and with some exceptions with the control variables. However, they were not correlated with each other at a level higher than .80, which would make us concerned about serial correlation in the regression models (Kennedy, 1984, p. 131). A collineadiagnostic also was done for each of the regressions that are presented, using the SAS option Collin (SAS User's guide: Statistic, 1985, p. 672; Kennedy, 1984, p. 127-136), and no evidence of collinearity was found.

INSERT TABLE 2 ABOUT HERE

3.1 Effects on Performance

We found that ISO 9000's effect on business performance was less direct and weaker than its effect on operating performance. The models for operating performance had adjusted R squares that were about twice the magnitude of the models for business performance (See Table 3). For instance, in Model 4, the adjusted R squared for operating performance was .25, while for business performance it was .13. For combined performance, the adjusted R squared was .26. The correlation analysis, with the weaker effects on business as opposed to operating performance, also indicated that this would be true.

INSERT TABLE 3 ABOUT HERE

For all the dependent variables, the effects of the control variables on performance were very moderate. The adjusted R squared for operating performance in Model 1 was .01, for business performance it was only .015, and for

combined performance it was .02. The only control variable significantly related to performance was time since registration: the longer the time since registration, the more the performance improvement.

3.2 Assimilation

Model 2 shows that each dimension of assimilation had significant effects on *Going beyond*. However, the largest effects were from *Applied to solving problems* (.41) and *Kept current* (.28). The effects of *Used in daily practice* and *Externally coordinated* were both .13 and those of *Integrated* were .1. Service and software companies were more likely to *Go beyond* than manufacturers (.14), and the time since registration relationship to *Going beyond* was both significant and negative, suggesting that the longer a company had been registered the less likely it was to *Go Beyond*. Overall, the adjusted R squared for this model was a very robust .5.

In Model 3, with the exception of the variable, *Integrated*, all the dimensions of assimilation had a significant effect on operating performance and combined performance. The dimension with the weakest effect was *Externally coordinated*. *Used in daily practice* (.14), *Applied to solving problems* (.13), and *Kept current* (.13) had about the same significant impact on operating performance. On combined performance, *Applied to solving problems* (.15) had a slighter greater significant impact than *Used in daily practice* (.11) and *Kept current* (.07). Only *Applied to solving problems* (.17) and *Used in daily practice* (.07) had a significant effect on business performance, and the effect of *Applied to solving problems* was greater. These results provide support for Hypothesis 1.

In general, the assimilation variables associated with doing had more of an impact than the assimilation variables associated with planning. The learning literature maintains that there is a tension between learning by planning versus learning by doing (Argote, 1999). Learning by doing is preferable when knowledge is highly dependent on the organizational context. Quality programs such as ISO 9000 are highly context dependent.

3.3 Going Beyond

In Model 4, as predicted, *Going beyond* had the strongest effect on performance. In the case of operating performance, the effect was .23, in the case of business performance the effect was .20, and in the case of combined performance the effect was .21. Some of the dimensions of assimilation were not significant in this model, while they were significant in Models 2 and 3 and thus for these assimilation dimensions there was full mediation. Some dimensions of assimilation had significant effects in Model 4, but these effects were substantially less than the effect that they had in Model 3. This decrease in effect is another proof for mediation (Baron and Kenny, 1986). For these dimensions of assimilation, *Going beyond* is a partial mediator. In the case of operating performance, *Externally coordinated* and *Applied to solving problems* were not significant while they were significant in Models 2 and 3. *Used in daily practice* (.11) and *Kept current*

(.07) had significant effects, but the coefficients were smaller than they were in Model 3. In the case of business performance, *Used in daily practice* was not significant while it was significant in model 3. *Applied to solving problems* (.09) and *Kept current* (-.06) had significant effects but the coefficients were small. However, the effect of *Kept current* was in the opposite direction of what we expected. In the case of combined performance *Kept current* and *Externally coordinated* were not significant while they were significant in Model 3. *Used in daily practice* (.08) and *Applied to solving problems* (.06) had significant effects but they were smaller than in Model 3.

In each instance, Model 4 with *Going beyond* had higher adjusted R squares than Model 3 without *Going beyond*, thus giving additional credence to mediation. In the case of operating performance the adjusted R squared for Model 4 was .25, while for Model 3 it was .2. In the case of business performance the adjusted R squared for Model 4 was .13, while for Model 3 it was .1. In the case of combined performance the adjusted R squared for Model 4 was .26, while for Model 3 it was .21. These results provide support for Hypothesis 2.

4. Conclusions

The impact of the implementation of a new management practice on organization performance has been investigated in this paper. This research was initiated by the identification of theoretical and practical inconsistencies in the literature. With regard to theory, one school of thought maintained that the implementation of a new managerial practice yields better organizational performance, while another school claimed that implementation was an example of fads and fashions that did not have much positive impact. The practical issue concerned the implementation of the worldwide quality assurance standard ISO 9000. The evidence on the results of thousands of organizations implementing this standard was mixed. While some findings showed positive benefits, others showed no impact on performance.

The purpose of our study was to provide analyses and data about what happened once a company became registered. What approaches could it take to maximize the gains it could achieve from implementing this practice? Our hypotheses were to be successful organizations must thoroughly assimilate a new practice. However, to be successful, they also must go beyond what the rules for the new practice literally require. We tested the hypotheses with the statistical study. In general, we saw that the higher the degree of assimilation of a new practice the more the benefits gained. We identified five dimensions of assimilation. Two had to do with planning: integrated and externally coordinated. Three had to do with doing: used in daily practice, applied to solving problems, and kept current. Our results were that the doing variables had more of an impact on performance than the planning variables. But more than just assimilation was required. Going beyond played a vital role in performance. In the model we developed and tested in this paper, it mediates the effects of assimilation on

performance. We conclude that a combination of assimilation and going beyond is the best way to successfully implement a managerial practice.

A paradox lies at the heart of these findings and the theory on which they are based. It is that structure and routine are the foundation for abandonment of structure and routine. This paradox is found in both theories of external inducement and improvisation. Without structure and routine as a foundation, an organization has nothing from which to depart from and set out on its own. Both adherences to an externally imposed standard, and alteration and departure from this standard, after it has been thoroughly incorporated, are needed.

Simply put, our answer to the question of the conditions under which the implementation of a managerial practice, such as ISO 9000, improves organizational performance is that it depends on how the practice is implemented. More success is achieved if there is both thorough assimilation of the practice and going beyond what the practice literally requires.

Practical Implications. Our paper makes a practical as well as theoretical contribution. Powerful industrial and service organizations have continued to ask their suppliers to gain ISO 9000 certification, when the effects are not clear. ISO 9000 has become the most commonly used quality system in the world. The need for theory and frameworks that explain its impacts are great. Existing studies of implementation usually are not based on theoretically grounded models. In this paper, we have developed and tested a model of ISO 9000 performance using a theory of improvisation and external inducement, which concentrates on the conditions of implementation. Both thorough assimilation and going beyond are needed for performance benefits to be realized from the implementation of a managerial practice.

This study provides organizations as well as certification and accreditation bodies with ideas about how to improve the implementation process. They have to understand that certification is only the first step in a process in improving quality. For the benefits of certification to be realized, companies must use the practices they implement and they must go beyond these systems. To go beyond, they need to thoroughly assimilate the systems and employ them for learning and for making changes.

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Table 3 Results of Regression Analyses

Variable	Operating performance - Model 1	Going beyond- Model 2	Operating performance - 3	Operating performance - Model 4
Intercept	3.6***	-.23	2.1***	2.2***
Integrated		.1***	-.01	-.03
Externally coordinated		.13***	.06*	.03
Used in daily practice		.13***	.14***	.11***
Applied to solving problems		.41***	.13***	.04
Kept current		.28***	.13***	.07**
Going beyond				.23***
Time since registration	.003***	-.002**	.003***	.003***
Annual sales volume	-.000006	.000001	-.000004	-.000003
Manufacturing/services	.001	.14***	.04	-.002
Number of external audits to attain registration	-.02	-.04	-.03	-.02
Adjusted R ²	.01	.5	.2	.25
F	3.4**	103.2***	26.2***	31***
N	913	926	900	900
Variable	Business performance - Model 1		Business performance – Model 3	Business Performance – Model 4
Intercept	3.2***		2.4***	2.5***
Integrated			-.02	-.04
Externally coordinated			.04	.02
Used in daily practice			.07*	.04
Applied to solving problems			.17***	.09**
Kept current			-.01	-.06*
Going beyond				.2***
Time since registration	.003***		.003***	.003***
Annual sales volume	-.000006		-.000004	-.000004
Manufacturing/services	.05		.06	.03
Number of external audits to attain registration	.06		.05	.06
Adjusted R ²	.015		.1	.13
F	4.5***		12.1***	14.9***
N	903		896	896
Variable	Combined performance – Model 1		Combined performance – Model 3	Combined performance - Model 4
Intercept	3.4***		2.3***	2.3***
Integrated			-.02	-.04*
Externally coordinated			.05*	.03
Used in daily practice			.11***	.08***
Applied to solving problems			.15***	.06**
Kept current			.07**	.008
Going beyond				.21***
Time since registration	.003***		.003***	.003***
Annual sales volume	-.000005		-.000003	-.000002
Manufacturing/services	.02		.04	.01
Number of external audits to attain registration	.02		.005	.01
Adjusted R ²	.02		.21	.26
F	4.7***		27.1***	33.8***
N	907		900	900

*P <.05

** P< .01

***P< .001

Table 2 Means, Standard Deviations, and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Operational performance	3.7	0.5										
2. Business performance	3.4	0.6	.42***									
3. Integrated	3.5	0.8	.11***	.07*								
4. Externally coordinated	2.1	0.7	.15***	.11***	.12***							
5. Used in daily practice	3.8	0.7	.34***	.21***	.2***	0.04						
6. Applied to solving problems	3	0.8	.37***	.28***	.26***	.23***	.56***					
7. Kept current	3.4	0.6	.32***	.14***	.12***	.15***	.36***	.39***				
8. Going beyond	3.1	0.8	.46***	.31***	.3***	.26***	.47***	.64***	.46***			
9. Time since registration	33.4	22.9	.12***	.12***	-.01	-.04	-.01	-.02	.12***	-.07		
10. Annual sales volume	726	4,209	-0.03	-.03	0.03	0.02	-.02	-.06	-.02	-.03	0.1***	
11. Number of external audits to attain registration	1.2	.6	.002	.07*	-.07*	.02	-.04	.02	.05	-.01	.03	-.02

*p<.05 ** p< .01 ***p< .00