



ISO 9000: integration rationales and organizational impacts

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Abstract

Purpose – The purpose of this paper is to present the results of an empirical study of the impact of motivational factors underlying ISO 9000 certification on several aspects of organizational performance.

Design/methodology/approach – An extension of a typology based on motivational factors is proposed and four integration rationales (quality enthusiasts, ISO integrators, ritual integrators, and dissidents) are exposed. The paper then evaluates how each of these four rationales related to potential organizational problems and benefits. Various statistical analyses were conducted on data obtained from a sample of 872 certified Canadian firms. A factor analysis was completed to develop an instrument allowing to develop a typology distinguishing between the four integration rationales.

Findings – The results demonstrate that the nature and intensity of motivations behind a decision to adopt the ISO 9000 standard play a key role in the success of the implementation process and the emergence of organizational problems arising from certification.

Research limitations/implications – The main contribution of the study was to develop a typology of certified organizations based on a theoretical framework explaining some paradoxes and pervasive effects of ISO 9000 adoption.

Practical implications – The typology helps characterize certified firms and anticipate potential consequences ancillary to the certification process; it can assist firms in evaluating whether they should go forward with the certification process.

Originality/value – Contrary to many studies focusing on traditional performance criteria only, this study sheds light on organizational problems and the possible ineffectiveness of ISO 9000 certification depending on their integration rationale. This approach led to a more comprehensive and tempered vision of ISO 9000 impacts.

Keywords ISO 9000 series, Quality management, Organizational performance, Organizational effectiveness

Paper type Research paper

1. Introduction

Despite substantial literature on the ISO 9000 standard, there is still much debate concerning the standard's impact on firm performance, competitiveness and operations management. The extent to which organizational performance can effectively be improved through ISO 9000 certification remains an important issue (Walgenbach, 2001; Acharya and Ray, 2000; Aarts, 2001; Wilson *et al.*, 2003; Heras *et al.*, 2002). The quality management standard, which first gained wide acceptance in Europe, has certainly become a passport to doing business in many countries. However, as this standard becomes a customer requirement for some organizations, management may be tempted to implement it superficially with minimum disruption to the organization and regardless of potential internal benefits or implications of certification. When such is the case, ISO certification tends to become an end in itself rather than a management tool intended to foster quality practices. Likewise, integration of this quality management system into the entire organization is unlikely and potential internal



benefits may go unnoticed. This discrepancy between external requirements and internal practices or benefits can transform ISO 9000 into a kind of “rational myth” (Meyer and Rowan, 1977) somewhat dissociated from daily activities and implemented essentially to comply with institutional pressures (Boiral, 2003).

Nevertheless, these institutional pressures are not the only rationale behind ISO 9000 certification. Many studies suggest that quality improvement or organizational effectiveness rank among the main drivers of ISO 9000 implementation (Standards Council of Canada, 2000; Gotzamani and Tsiotras, 2002; Douglas *et al.*, 2003). However, internal requirements for implementing the standard are not necessarily aligned with external pressures for certification. The possible disconnection between these two types of motivations can lead to paradoxes or contradictions between the institutional or commercial legitimacy associated with ISO 9000 and its internal relevance or efficiency. Analyzing these paradoxes contributes to a better understanding of the driving forces behind ISO 9000 adoption and effectiveness.

The main objective of this study was to gain more insight into the rationale of ISO 9000 integration by examining the impact of motivational factors on several aspects of organizational performance. The development of a typology of certified organizations based on motivational factors sheds considerable light on potential problems and benefits associated with implementation of the standard. Other aspects of the ISO 9000 standard, such as the actual auditing process and the 2000 version, were also examined in this study based on data obtained from a sample of 872 certified Canadian firms.

The rest of the paper is organized as follows: the theoretical context is presented in the next section. In section 3, the methodological aspects of the study and construct measurements are presented, while the findings are presented in section 4. Results along with their implications for future research and managerial practices are presented in the last section.

2. ISO 9000: from commercial pressures to internal benefits

Over the past decade, the ISO 9000 standard has literally become an international benchmark in the field of quality management. In 2005, more than 600,000 organizations throughout the world adopted the standard and the number of ISO 9000 certificates has risen continuously since its inception in 1987 (International Organization for Standardization, 2005).

This rapid development is driven by external as well as internal factors. Indeed, ISO 9000 certification is both a commercial tool and an internal management system. Studies on motivation and the organizational implications of ISO 9000 implementation have emphasized these two complementary dimensions. Most of these studies (Carlsson and Carlsson, 1996; Standards Council of Canada, 2000; Acharya and Ray, 2000; Douglas *et al.*, 2003; Costa and Lorente, 2004; Bhuiyan and Alam, 2005) have shown that commercial aspects constitute a determining factor in the decision to implement the standard. In many cases, actual or potential customer requirements clearly represent sufficient motive to adopt ISO 9000, irrespective of the internal implication of such a process.

However, internal benefits associated with the adoption of the standard are also strong motivating factors. Contrary to external pressures which are market-dependent, internal motivations are based on anticipated improvements to practices and internal performances resulting from ISO 9000. Such improvements are direct corollaries of ISO

standard recommendations, implementation and degree of adaptation to the specific needs of each organization. Since, these needs vary, internal motivations to adopt the standard may differ significantly from one firm to the next. A recurrent theme in studies focusing on motivations for adopting ISO 9000 is improving management rigor and operations control (Carlsson and Carlsson, 1996; Standards Council of Canada, 2000; Gotzamani and Tsiotras, 2002; Douglas *et al.*, 2003; Bhuiyan and Alam, 2005). Another motivation resulting from tighter control is product improvement and enhanced service quality and, more broadly, improvement in business productivity (Chang and Lo, 2005; Sun, 1999; Gotzamani and Tsiotras, 2002; Poksinska *et al.*, 2002; Tan and Sia, 2001; Yeung *et al.*, 2003).

However, the benefits of the standard on an organization's internal practices and performance seem uncertain. If ISO 9000 certification can effectively contribute to generating more rigor, it is often accompanied by more bureaucracy, a lack of employee commitment and frequent challenging of audit process credibility (Mispelblom, 1995; Seddon, 1997; Boiral, 2003). Moreover, studies have yielded contrasting results regarding the improved performance of certified organizations. Many acknowledge progress in product quality, customer satisfaction, cost reduction, productivity and operating advantages (Sun, 1999; Standards Council of Canada, 2000; Gotzamani and Tsiotras, 2002; Poksinska *et al.*, 2002; Douglas *et al.*, 2003; Bhuiyan and Alam, 2005; Naveh and Marcus, 2005; Tan and Sia, 2001). However, other studies question the effectiveness of the standard or the possibility of measuring its real contribution to improved organizational performance (Quazi *et al.*, 2002; Ismail and Hashmi, 1999; Acharya and Ray, 2000; Aarts, 2001; Wilson *et al.*, 2003; Heras *et al.*, 2002; Simmons and White, 1999; Chin *et al.*, 2002).

Nevertheless, most of these studies are based on a narrow and linear view of performance that fails to consider some organizational problems resulting from certification. Indeed, performance evaluation too often remains based on traditional and narrow criteria (Herman and Renz, 2004; Zellars and Fiorito, 1999; Tsui, 1990; Cameron, 1986). By focusing on criteria such as quality improvement, cost reductions, and sales growth, most studies tend to overlook internal problems that can temper perceptions regarding the benefits of management practices such as ISO 9000. To avoid a monolithic view of effectiveness, an assessment of organizational performance should not ignore ineffectiveness criteria that may question the apparent success of some practices (Cameron, 1984).

Most of these internal problems are related to human resources, bureaucracy, auditing and overall confidence in the standard's proposals. First, the mobilization of human resources appears to be both one of the main difficulties associated with implementing the standard and a key factor for a successful certification process (Briscoe *et al.*, 2005; Gustafsson *et al.*, 2001; Fuentes *et al.*, 2003; Carlsson and Carlsson, 1996). Second, the adoption of ISO 9000 can create more bureaucracy (Dissanayaka *et al.*, 2001; Mispelblom, 1995; Seddon, 1997; Boiral, 2003). Third, some studies have emphasized the pervasive effects of auditing processes: costs, red tape and superficial checking, auditors' lack of credibility, etc. (Walgenbach, 2001; Boiral, 2003). Furthermore, certification audit requirements seem somewhat flexible, depending, for example, on the auditor performing the external audit (Boiral, 2003). Last minute preparation for an audit is not uncommon, revealing a lack of integration of the standard (Naveh and Marcus, 2005). Finally, managers and employees may be dubious

and mistrustful about the intrinsic relevance of ISO 9000 proposals and its latest version introduced in 2000, causing them to pay lip service only to the system (Mispelblom, 1995; Boiral, 2003).

In spite of the numerous studies on the impacts of ISO 9000, few of them have resulted in a clear typology or analysis framework that sheds light on the links between the type of motivations underlying the adoption of ISO 9000 and benefits or internal problems associated with this adoption. The development of such a typology was initiated in a qualitative study on the perceptions of the ISO 9000 system (Boiral, 2003). This study showed that adhesion to ISO 9000 was often superficial or ritualistic, depending on perceptions of the system's *raison d'être*. The analysis of these perceptions led Boiral to identify three groups with differing rationales for integrating the standard. The first and largest group, ritual integrators, considered that requirements met by the standard were more commercial than internal. In their opinion, integration of the standard was fairly superficial and intended first and foremost to pay lip service, especially during the certification audit. In the opinion of the second group, quality enthusiasts, not only was ISO 9000 certification intended to meet marketing requirements, but the system was also perceived as intrinsically relevant, useful and efficient for management purposes. Finally, the third group or dissidents considered ISO 9000 implementation to be a bureaucratic iron cage whose internal as well as external legitimacy were questionable.

These three differing rationales for integrating the standard lead to a less monolithic and more configurational view of certification, most often characterized in terms of global impacts rather than different patterns of attributes encouraging performance. However, the relationships between the three integration rationales of ISO 9000 and organizational performance remain unclear, given the qualitative nature of the study conducted by Boiral (2003), the limited scope of the sample and its heterogeneity. Moreover, this typology does not consider situations where the standard is viewed primarily as a management tool rather than a marketing tool. Even though this situation seems, *a priori*, improbable, given that commercial pressures are usually the main driver of ISO 9000 certification, some organizations may be eager to adopt the standard because of the relevance of its recommendations and not because of external impetus. In a study conducted among 1,220 certified organizations, Buttle (1997) found that marketing motivations were less important in seeking certification than the search for process improvement and profitability. Others studies have stressed that internal benefits ensuing from certification, such as improving rigor in management, procedure documentation, or error reduction were often greater than commercial and external benefits (Walgenbach, 2001; Dissanayaka *et al.*, 2001; Santos and Escanciano, 2002). These results give credence to the claim that, for some organizations adopting ISO 9000, expectations of the internal benefits of certification may exceed external motivations.

In light of this situation that broadens the analysis framework proposed by Boiral (2003), four groups of different rationales for adhering to ISO 9000 were identified based on the relative importance of the external and internal motivations for adopting the standard, namely:

- (1) *Quality enthusiasts*. Who consider that the standard meets strong internal as well as external requirements; therefore, they appear to be the most convinced of the relevance of this system.

- (2) *Ritual integrators*. Who consider that the adoption of the standard is justified primarily by commercial pressures and that its usefulness as a management tool is very debatable.
- (3) *ISO integrators*. Who believe that the internal improvements that the standard can bring about are more important than its commercial aspects.
- (4) *Dissidents*. Who are characterized by relatively weak internal and external motivations: they appear to be the most inclined to contest the standard's legitimacy.

By considering the relative influence of both external and internal motivations, the framework helps to shed light on some of the paradoxes of ISO 9000 certification. Indeed, the intensity of external pressures to adopt the standard is not necessarily related to the intensity of internal motivations for the standard. This possible dissociation between the quest for external legitimacy and the quest for internal efficiency has been emphasized by neo-institutional theory.

According to this theory, external pressures lead organizations to adopt similar practices and structures (DiMaggio and Powell, 1983; Kostova and Roth, 2002). Conformity with these models of management stems more from a process of institutional mimesis than from a genuine concern for efficiency (Zbaracki, 1998; Selznick, 1996). This conformity also reflects a "cult of reason" (Meyer and Rowan, 1977) related to the use of managerial methods considered as legitimate. The frequent decoupling between these methods and the real practices or needs of organizations result in "myths" and "ceremonies" intended to meet external environment requirements superficially (Meyer and Rowan, 1977; De Cock, 1998). In the case of ISO 9000, these external requirements are expressed essentially through commercial pressures in favor of a management system considered to be a rational and recognized way of dealing with quality issues. These requirements may not meet the needs, culture, managerial style or size of an organization, hence leading to the adoption of ISO 9000 as a sort of managerial fashion based on rhetoric rather than the internalization of new practices (Abrahamson, 1991), and possibly reinforcing some internal problems associated with certification.

These organizational problems, as well as the benefits ensuing from certification, are expected to be related to both internal and external motivations for adopting ISO 9000 and, consequently, to the different rationales for adhering to this standard, namely quality enthusiasts, ritual integrators, ISO integrators and dissidents (Figure 1). These expected relations raise two basic questions:

- (1) To what extent are the four rationales for adhering to ISO 9000 related to business impacts and benefits arising from certification?
- (2) How do organizational problems and internal consequences of certification differ between these rationales?

Concerning business impacts of certification, it is reasonable to assume that the benefits of ISO 9000 will improve as internal motivations increase. Indeed, these motivations reflect coherence between the standard's proposals and organizational needs, thereby encouraging greater mobilization in favor of ISO 9000. Accordingly, some studies suggest that the positive effects of certification are related to management's willingness to make ISO 9000 a genuine tool for improving quality

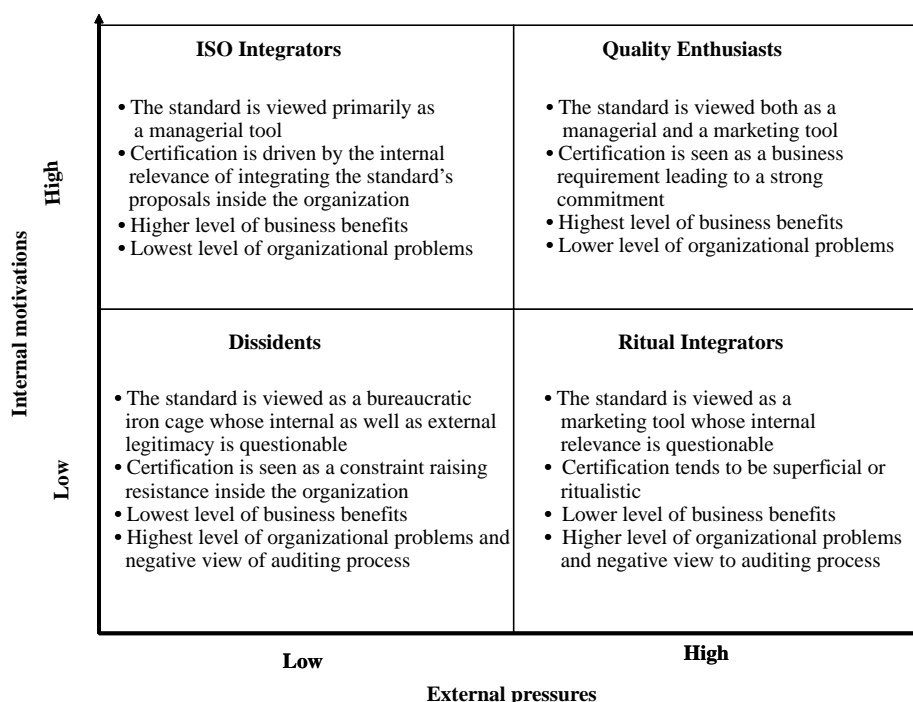


Figure 1.
Integration rationale and
expected relations

practices (Gotzamani and Tsiotras, 2002; Douglas *et al.*, 1999; Withers and Ebrahimpour, 2000; Poksinska *et al.*, 2002; Llopis and Tari 2003). This link between expectations about the efficiency of some practices or behaviors and individuals' mobilization has been demonstrated by organizational and psycho-cognitive studies (Chinander, 2001; Bandura, 1986; Vroom, 1964). From this perspective, the more management believes that ISO 9000 will meet internal organizational requirements such as rigor of quality practices or control of employee behavior, the more management should be inclined to support the system and improve its efficiency. Consequently, it may be surmised that quality enthusiasts and ISO integrator rationales are positively associated with improvements of organizational effectiveness and the business impacts of certification (Figure 1).

These businesses impacts also depend on the intensity of external pressures favoring certification (Bhuiyan and Alam, 2005; Santos and Escanciano, 2002; Huarng *et al.*, 1999). If ISO 9000 is an important requirement to garnering new contracts, penetrating new markets or ensuring customer loyalty, it is reasonable to expect that certification will lead to improvements in commercial performance. Thus, it may be assumed that the quality enthusiasts' rationale is associated with higher business impacts than the ISO integrators' rationale, whose external pressures remain lower. For the same reasons, business impacts should be higher with the ritual integrators' rationale than the dissidents' rationale. Nevertheless, as claimed by institutional theory, these commercial improvements may be disconnected from the internal and intrinsic effectiveness of the standard (Meyer and Rowan, 1977; Zbaracki, 1998; DiMaggio and Powell, 1983).

Consequently, one may conclude that the ritual integrators rationale remains associated with a relatively weak general performance of ISO 9000 (Figure 1).

Concerning the organizational problems of certification, it may be assumed that a lack of internal motivations for adopting the standard tends to reinforce human resource problems, bureaucracy and a lack of confidence in the auditing process, as well as in the intrinsic relevance of ISO 9000 proposals. Indeed, the lack of internal motivations for adopting the standard may reflect the absence of a quality culture, making it more difficult to achieve consistent success with ISO implementation and total quality management practices (Fuentes *et al.*, 2003; Adebajo and Kehoe, 1999; Briscoe *et al.*, 2005). In addition, the auditing process may be seen as superficial and bureaucratic, leading to criticism of the auditors, the certification rationale and the ISO 9000 approach. Because they are characterized by low internal motivations, dissidents' and ritual integrators' rationales should be more wary of the certification process (Figure 1).

Contrary to internal motivations, external pressures should have a more ambiguous impact on internal problems associated with certification. On the one hand, external pressures could encourage internal support and create a momentum to better integrate ISO 9000 in daily activities. This support can reduce problems related to human resources and bureaucracy. It can also contribute to mitigating criticism of the auditing process and the ISO 9000 approach. On the other hand, external pressures can exacerbate internal problems and resistance to the standard by forcing people to adopt a management system that is not necessarily well understood and accepted inside the organization. In this case, external pressures are expected to lead to a more critical perception of ISO 9000, which might be viewed as a sort of iron cage (Weber, 1968) making the organization more rigid and more bureaucratic. From this standpoint, it may be assumed that ritual integrators' and quality enthusiasts' rationales lead to more internal problems than ISO integrators' and dissidents' rationales (Figure 1).

Depending on the different integration rationales of ISO 9000, expectations concerning business impacts and organizational problems of certification may also be influenced by some contingent factors, in particular firm size. Indeed, some studies have emphasized that it is generally easier for large organizations to implement ISO 9000 or garner benefits from this system than it is for SMEs, whose more informal structure and relationships are not necessarily well adapted to such a formalized management system (Briscoe *et al.*, 2005; Calisir *et al.*, 2001; Gustafsson *et al.*, 2001; Lee and Palmer, 1999; Bhuian, 1998). Thus, one may assume that internal problems regarding ISO 9000 certification will be more intense for SMEs than for larger organizations. It may also be surmised that for SMEs, adoption of the standard is motivated more by external pressures than by internal motivations. Consequently, the dissidents' rationale should be more frequent within SMEs than large organizations.

3. Methodology

A study was performed with a sample of 872 certified Canadian organizations in order to analyze more precisely the role of motivations on organizational performance and integration of the ISO 9000 system. Since, the focus of this study was to confirm and build on existing literature on the impact of the ISO 9000 standard on firm performance, an empirical study was deemed more appropriate. Various statistical analyses were conducted to evaluate how motivational factors relate to potential organizational problems and benefits.

3.1 Sample and data collection

A six-page questionnaire was sent by mail to the 2,880 ISO 9000 (ISO 9001, 9002, and 9003) certified companies in the Province of Quebec, Canada. The questionnaire had been pre-tested, also by mail, with 200 certified companies. Certified companies were identified using the *World Preferred Registry*. Whereas the questionnaire is ordinarily addressed to the “quality director,” in this case we did not indicate a specific recipient. During the pre-test phase, we found that, given the high number of small firms, the position of “quality director” did not exist. However, in the introductory letter, we explained that the questionnaire was to be completed by the person most involved with the ISO certification process. Furthermore, although concerns about potential response bias could be mitigated by using multiple respondents, a single respondent was used for each company because the respondent had to be knowledgeable about the ISO 9000 process. Owing to address errors, 101 questionnaires were returned unopened, and 872 usable questionnaires were received, for a response rate of 31.4 percent, which is satisfactory for this type of study (Delmas, 2001).

We estimated non-response bias through time trend analysis (Armstrong and Overton, 1977; Moore and Tarnai, 2002). Early and late respondents (used as proxies for non-respondents) were compared on the basis of both sample characteristics (industry and size) and main construct measures. Using χ^2 statistics, no significant differences were found between the size and the industry (manufacturing or service) of early respondents and late respondents. *T*-tests were also performed to compare the means of the constructs used in the statistical analyses and no difference was found between early and late respondents. Hence, it seems that non-response bias is not a concern in our sample.

3.2 Research variables

The questionnaire consisted of two main parts: the first part contained both general company information (sector, number of employees (according to three possible categories: small, medium and large), date of accreditation) and respondent information (age, gender, number of years with the company). The second part was comprised of 49 statements (bipolar comparison scale, where 1 – do not agree and 4 – total agreement) about the ISO 9000 standard. The four-point interval was chosen to avoid the occurrence of the central tendency error. In this study, we focused our attention on 29 of the statements that dealt specifically with both implementation and impact issues of the ISO 9000 standard. The exact wording and scale reference anchor phrases appeared in French in the questionnaire and are available from the lead author.

Items were measured using the respondent’s perception of several aspects of the ISO 9000 process. Perceptual measures are often used in empirical operations management literature and are considered to satisfy reliability and validity requirements (Ketokivi and Schroeder, 2004). Furthermore, as mentioned above, there is a high proportion of SMEs in our population, and respondents from these companies are often reluctant to provide hard data describing their operational and financial performance (Sapientza *et al.*, 1988).

Four key aspects of the ISO 9000 process were examined: motivational elements, organizational impacts, opinions about the third-party certification audit process and opinions about the 2000 version. The questionnaire included six motivational items extracted from literature that included both external motivational elements

(responding to pressure from customers, improving company image) and internal ones (improving rigor in management, inspiring employees, improving quality, and implementing strong internal controls). The organizational impact elements (14 items) featured in the questionnaire are consistent with literature and include both potential benefits and problems associated with the ISO 9000 standard. With respect to benefits, the questionnaire included the following six items: cost reduction, integration of quality aspects in the business strategy, integration of cutting-edge management practices, employee commitment, commercial performance and quality performance. Potential problems included seven items: increased rules and regulations, time constraints, increased paperwork, employee complaints about documentation, lack of human resources, lack of top management involvement, lack of employee involvement and incompatibility with the existing culture.

The audit process was examined using four items that reflect complaints often documented in literature: lack of time to perform the audit effectively, overlooking of non-compliance requirements, lack of industry-specific knowledge and potential conflict of interest of auditors. Finally, the questionnaire included five items concerning the respondent's opinion of the 2000 ISO version: overall superiority, reduction of paperwork, increased performance orientation, simplification of quality system and departure from existing system.

3.3 Developing an instrument

A factorial analysis based on the PCA (principal component) method with varimax rotation was carried out on the 29 statements presented to the respondents to identify underlying dimensions and develop an instrument. Based on their weak communalities, two items were eliminated, namely "improving firm image" and "incompatibility with existing firm culture." The final factorial analysis revealed seven dimensions, explaining 61.09 percent of the variance. Both the tests that verified the relevance of using the factorial model were fully satisfied: the sampling adequacy test with a Kaiser-Meyer-Olkin (KMO) measure is 83.3 percent and the Bartlett's sphericity test is 6,171, 940, $p < 0.0001$. The results are presented in Table I.

The first factor (2000 version) comprises the five items that relate to opinions regarding the new ISO version. The second factor (business impacts) consists of 6 of the 13 organizational impact items: cost reduction, integration of quality aspects in the business strategy, integration of cutting-edge management practices, employee commitment, commercial performance, and quality performance. These results seem to question one of the initial assumptions of the study, namely the possible disconnection between commercial performance and items related to the internal effectiveness of the standard. Congruence between these two facets of performance may be related to the perceptual approach used to assess performance that can lead to a global overview of the positive or negative impact of the standard. It can also stem from the success of ISO 9000 implementation inside organizations and its impact on quality as perceived by customers. Another explanation resides in the effects of external pressures that can foster both commercial performance and internal mobilization for the standard; this seems to be confirmed by the analysis of variance presented further on. The second factor was interpreted to represent business impacts, because underlying items relate mainly to the impact of the ISO 9000 standard on business performance. The third factor (internal motivation) consists of the following items: improving rigor in management, inspiring

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Pressure from customers	0.028	0.127	0.057	-0.069	0.010	-0.026	0.902
Motivation to implement rigor in management	0.039	0.077	0.838	-0.051	-0.016	-0.135	-0.050
Motivation to implement controls	0.070	0.129	0.838	-0.062	0.016	-0.045	-0.064
Motivation to improve quality	0.084	0.275	0.654	-0.056	0.068	-0.180	0.243
Motivation to inspire employees	0.120	0.252	0.677	-0.057	-0.157	0.181	0.065
Increased rules and regulations	0.007	-0.023	-0.004	0.082	0.251	0.687	-0.020
Time constraints	-0.108	-0.005	-0.004	0.033	0.304	0.692	0.015
Increased paper work	-0.192	-0.199	-0.035	0.130	0.180	0.650	-0.012
Employee complaints about documentation	-0.067	-0.080	0.070	0.047	0.623	0.251	-0.023
Lack of human and financial resources	0.056	0.021	-0.029	0.021	0.625	0.332	-0.186
Lack of top management involvement	-0.027	0.105	-0.101	0.159	0.726	0.033	0.051
Lack of employee involvement	0.002	-0.194	0.004	0.090	0.764	0.103	0.102
Cost reduction	0.167	0.510	0.223	-0.120	0.117	-0.481	0.018
Integration of quality into business strategy	0.257	0.510	0.190	-0.167	0.062	-0.355	0.036
Cutting-edge practices in management	0.210	0.728	0.120	-0.075	-0.020	0.005	-0.057
Employee mobilization	0.226	0.709	0.167	-0.130	-0.263	0.052	-0.048
Commercial performance	0.146	0.682	0.114	-0.032	-0.102	-0.040	0.250
Improved quality performance	0.089	0.545	0.273	10.665 × 10 ⁻⁵	0.115	-0.322	0.097
Lack of time for thorough evaluation	0.016	-0.062	-0.059	0.728	0.172	0.057	-0.073
Non-compliance requirements overlooked	-0.054	-0.085	-0.026	0.775	0.108	0.050	-0.089
Conflict of interest of auditors (remuneration)	-0.054	-0.069	-0.055	0.774	0.046	0.076	0.001
Lack of industry specific knowledge of auditors	-0.066	-0.050	-0.046	0.737	-0.013	0.071	0.073
Superiority of ISO 2000 version to old version	0.737	0.177	0.024	-0.102	0.013	-0.162	-0.020
Modification in quality processes due to ISO 2000 version	0.708	0.198	0.083	-0.016	0.030	-0.137	-0.126
Reduction in paperwork due to ISO 2000 version	0.844	0.045	0.041	0.018	-0.045	0.017	0.159
Simplification of quality system due to ISO 2000 version	0.857	0.132	0.043	-0.029	-0.085	-0.005	0.121
ISO 2000 version is more performance oriented	0.648	0.184	0.111	-0.062	0.010	-0.078	-0.074
Percentage of variance explained	11.96	10.12	9.49	9.00	8.42	8.05	4.05
Cumulative percentage of variance explained	11.96	22.08	31.57	40.57	48.99	57.04	61.09
Cronbach's α	0.83	0.80	0.79	0.77	0.70	0.69	n/s

Table I.
Factor analysis of ISO
statements

employees, improving quality, and implementing strong internal controls. The factor was labeled “internal motivation,” because underlying items are associated only with internal motivational factors. The fourth factor (audit process) includes all four items related to opinions about the audit process. The fifth and sixth factors are both associated with problems connected with the ISO 9000 standard: factor five (human resources) consists of four items relating primarily to human resource problems faced during the implementation process, including employee and top management involvement, lack of resources and employee complaints about strict documentation requirements; the sixth factor (bureaucracy) includes three items that relate mainly to increased bureaucratic problems following the implementation: increased rules and regulations, time constraints and increased paper work. Finally, the last factor (external pressures) consists of only one item, pressure from customers.

As seen in Table I, items comprising each factor were further examined to assess reliability. Cronbach's α is equal to, or above 0.70 for the first five constructs and 0.69 for the sixth one (bureaucracy). Ahire and Devaray (2001) and Nunally (1978) recommend a threshold of 0.50 for emerging construct scales and 0.70 for maturing constructs. Hence, α coefficient values for the multiple-item scales employed in this study are reliable.

4. Results

The sample consisted of manufacturing firms (56.2 percent) and service firms (43.8 percent). The sample was composed mostly of small enterprises (44.8 percent), followed by medium (37.6 percent), and then large (17.5 percent). The classification used to categorize each firm was based on the definition commonly used in Canada and Europe (GREPME, 1997, European Commission, 2005), that is, small enterprises (<50 employees), medium enterprises (between 50 and 249 employees), and large enterprises (>249 employees). On average, companies had held their certification for 60.5 months (standard deviation = 29.12).

In order to examine the relationship between motivational factors and their impact on organizational performance aspects, respondents were grouped according to their reason for adopting the ISO 9000 standard. Building on Boiral's typology (2003), respondents were grouped according to the four types of integration rationale presented in section 2. The four groups were created using the two motivational factors generated by the factor analysis, namely internal motivation (factor 3) and external pressures (factor 7) (Figure 1). For each of these factors, we used the median as the cut-off point between the groups. These results are consistent with analyses using the mean as the cut-off point between the groups:

- (1) quality enthusiasts (high internal and external motivation; 33.9 percent of sample);
- (2) ritual integrators (high external motivation and low internal motivation; 23.5 percent of sample);
- (3) ISO integrators (high internal motivation and low external motivation; 22.5 percent of sample); and
- (4) dissidents (low internal and external motivation; 20.1 percent of sample).

To investigate the relationship between motivational factors and opinions about the standard (business impacts, audit process, implementation problems and the 2000

version), we performed an analysis of variance on the average scores for each construct (Table II). This analysis emphasizes the relationship between the four groups and the five constructs[1]. Table II highlights significant differences between the four groups. First, on the issue of business impacts of the standard, the results demonstrate that the four groups did not perceive the same level of benefits. Indeed, we observed an increase in business benefits associated with the level of motivation. Among the four groups, the “quality enthusiasts” seem to have noted more positive business-related impacts (2.97), while the dissidents noted significantly fewer business impact benefits (2.27). These results would seem to confirm that underlying motivations had a significant impact on the benefits of certification. Hence, when the standard was motivated by both internal and external factors, benefits such as cost reduction and improved quality were higher. Likewise, when both internal and external motivations were low (dissidents), business benefits were also low. Overall, it seems that internal motivations had the most impact on business performance. For instance, “ISO integrators” noted a higher level of benefits than did the “ritual integrators.” When the adoption of the standard was motivated mainly by internal needs, its performance was superior to when it was motivated mainly by external pressures. Therefore, in order to gain more benefits, the standard first had to meet clear internal needs. Pressure from customers did not constitute a condition sufficient to reap potential benefits.

As regards human resource problems associated with the implementation of the standard, results suggest that the four groups did not differ as significantly as they did for the business benefits. Nevertheless, it seems that “dissidents” experienced more human resource problems, such as a lack of resources and a lack of support from both employees and top management. Hence, results suggest that when a clear case was not made from the start of the potential benefits associated with adoption of the standard, problems occurred more often during the implementation process. However, differences between the three other groups were not significant: “ritual integrators” noted no more problems (2.07) than did the “ISO integrators” (2.05) and the “quality enthusiasts” (2.11). It seems that human resource problems arose specifically when both internal and external motivations were low. Our results suggest the existence of minimal conditions that favor the internal mobilization of employees and management with regard to the standard. These conditions should encourage firms to identify their motivations for seeking ISO 9000 certification clearly, be they to meet customer requirements or improve internal business processes. Once these motivations are well established, it should be easier to gain organizational support.

Constructs	Dissidents	Rituals integrators	ISO integrators	Quality enthusiasts	Significance level p^a
Business impacts	2.27 (d)	2.43 (c)	2.78 (b)	2.97 (a)	0.000***
Human resources	2.21 (b)	2.07 (a)	2.05 (a)	2.11 (a, b)	0.076*
Bureaucracy	2.83 (b)	2.63 (a)	2.55 (a)	2.65 (a)	0.001***
Audit process	2.36 (b)	2.26 (b, a)	2.19 (a)	2.15 (a)	0.015**
Version 2000	2.42 (b)	2.52 (b)	2.68 (a)	2.80 (a)	0.003***

Notes: ^aSignificance level: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$

Table II.
Integration rationale and
ISO process

Bureaucracy problems and opinions about the audit process basically followed the same pattern as the human resource problems. The “dissidents” clearly had different views on these two issues, reporting higher levels of bureaucracy problems (2.83) and having a more critical view of the audit process (2.36). However, the three other groups were not significantly different on these two aspects. As for human resource issues, it seems that both bureaucracy and the audit process became problematic when motivations regarding the standard were generally low. When either internal or external motivations were sufficiently high, problems seemed to diminish for each of the categories.

With respect to opinions concerning the 2000 version of the standard, two distinct views seemed to emerge. “Quality enthusiasts” (2.8) and “ISO integrators” (2.52) considered this version to be superior to its predecessor in terms of requisite paperwork, quality control, simplicity and performance. However, “ritual integrators” (2.52) and “dissidents” (2.42) did not share this positive view. These results suggest that internal motivations had a significant positive impact on the perceptions of the quality and relevance of the 2000 version. Hence, “quality enthusiasts” and “ISO integrators” were more convinced that this version was superior and could generate more benefits. For “ritual integrators,” however, who adopted the standard because of external pressures, the benefits of the 2000 version were not so evident. Indeed, changes in this version did not change the commercial aspects of the standard or influence whether or not customers required ISO certification. These respondents seemed to be indifferent to this version of ISO 9000, which they continued to perceive essentially as a commercial certificate. For “dissidents,” benefits of the 2000 version were less clear.

A cross tabulation was performed to examine the relationship between integration rationale and firm size. Results suggest significant differences in the proportion of respondents according to firm size. As seen in Table III, larger firms had a greater proportion of both “quality enthusiasts” (41.2 percent) and “ISO integrators” (24.2 percent). The proportion of “dissidents” (13.1 percent) was also smaller. These results suggest that larger firms were more likely to implement the standard to improve internal business processes. As expected, larger firms seem to have had a better opinion of the relevance of the ISO standard. The smaller proportion of “dissidents” within larger firms indicates that motives for ISO certification were clearly established. Results were quite different for smaller firms, where the proportion of “dissidents” was greater. It is within medium-sized firms that “ISO integrators” (21.3 percent) and “quality enthusiasts” (30.5 percent) represented the smallest proportions. These two groups accounted for just over 50 percent of the respondents in these firms. However, within these firms, the proportion of “ritual integrators” was the greatest (28.4 percent). These results seem to indicate that in the case of these firms, external pressures were the primary motive for seeking ISO certification.

Table III.
Integration rationale and
firm size

Size	Dissidents	Ritual integrators	ISO integrators	Quality enthusiasts	Total
Small	23.0	20.2	22.8	34.0	100
Medium	19.8	28.4	21.3	30.5	100
Large	13.1	21.6	24.2	41.2	100

Notes: Pearson χ^2 : $p < 0.023$; Φ : 0.023; Cramer's V : 0.023; entries in table are in percentage

In order to gain more insight into the effect of firm size on the ISO process, an analysis of variance was also performed (Table IV). The results support our previous discussions and highlight some finer points. First, large firms, which also represented the largest proportion of “quality enthusiasts,” experienced a higher level of benefits and reported fewer bureaucracy-related problems. These benefits may be linked to the style of management of large organizations, which are more accustomed to the type of formalization and bureaucracy brought about by ISO certification than smaller organizations. Likewise, larger firms appeared to perceive the 2000 version as an improved standard. However, we did not find any significant differences between the three groups in terms of human resources problems or their evaluation of the audit process.

5. Discussion and conclusion

This research demonstrated that the types of motivations driving decisions to adopt the standard play a key role in the success of the implementation process. As shown in Figure 2, the typology built on motivational factors highlights four groups with

Constructs	Small	Medium	Large	Significance level p^a
Business impacts	2.62 (b)	2.66 (b)	2.77 (a)	0.023 ***
Human resources	2.07	2.16	2.11	0.136
Bureaucracy	2.74 (b)	2.65 (b)	2.45 (a)	0.000 ****
Audit process	2.22	2.25	2.19	0.654
Version 2000	2.42 (b)	2.52 (b)	2.68 (a)	0.013 ***

Notes: ^aSignificance level: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$

Table IV.
Firm size and ISO process

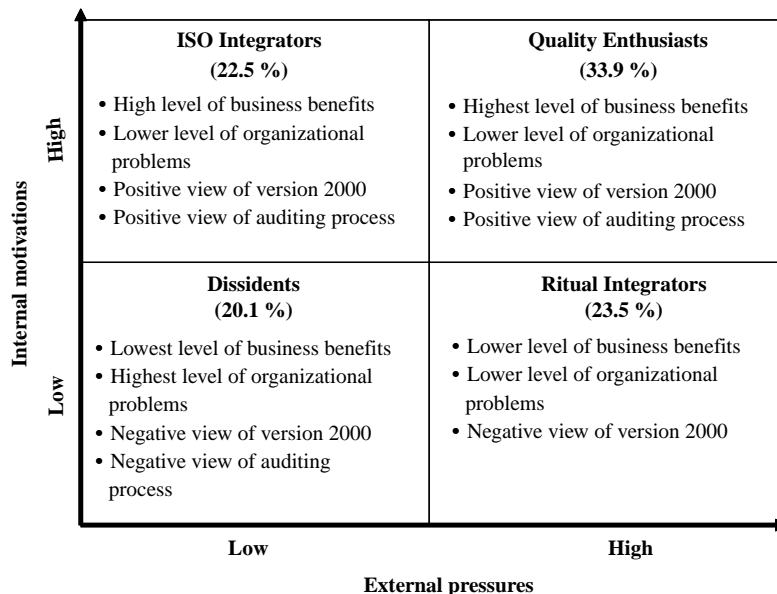


Figure 2.
Integration rationale and main results

different characteristics; they have experienced different levels of business benefits and organizational problems and do not share the same views about the audit process and version 2000. These results seem to confirm both the expected relationships between motivational factors and performance, as well as those of studies that stress the importance of pursuing improved management practices when a decision is made to adopt the standard (Gotzamani and Tsiotras, 2002; Douglas *et al.*, 1999; Withers and Ebrahimpour, 2000; Poksinska *et al.*, 2002; Llopis and Tari 2003).

As expected, external pressures alone were not sufficient to improve the performance and organizational integration of ISO 9000. Thus, quality enthusiasts were significantly different from ritual integrators in terms of business impacts as well as organizational problems of certification even if both rationales are characterized by high external pressures. The same remark applies to the differences between ISO integrators and dissidents. By contrast, the differences between quality enthusiasts and ISO integrators, both characterized by high internal motivations, were not very significant except on the issue of business impacts. Organizational problems were expected to be low for quality enthusiasts as well as ISO integrators because of internal motivations. Indeed, these internal motivations make the occurrence of “myths” and “ceremonies” (Meyer and Rowan, 1977) arising from the superficial adoption of new practices less likely. Differences in terms of business impacts between ISO integrators and quality enthusiasts can be explained by the relationships between external pressures and the commercial advantages ensuing from certification. As expected, the more customers pressured an organization to adopt ISO 9000, the more certification led to a high business impact.

Nevertheless, contrary to some initial expectations, pressure from customers does not necessarily lead to more human resource problems and a sort of iron cage (Weber, 1968). In fact, external pressures can encourage a better integration of ISO 9000. Thus, ritual integrators seem to have experienced fewer organizational problems than dissidents in terms of human resources and bureaucracy. However, the differences between these two groups of respondents were not significant with regard to audit process and the most recent ISO 9000 version proposals. Moreover, the positive impact of external pressures on organizational problems was limited to the groups characterized by low internal motivations. Thus, these internal problems were not significantly different between ISO integrators and quality enthusiasts, both characterized by high internal motivations. In sum, when internal motivations for adopting the standard are weak, external pressures seem to act as a sort of catalyst, encouraging better integration of the quality system and alleviating some human resource and bureaucracy problems caused by a lack of internal support for ISO 9000. When internal motivations are sufficient, this catalyst effect no longer appears to be necessary and tends to disappear.

One of the main contributions of this study is the proposal of a general framework for a better understanding of the ins and outs of ISO 9000 certification from a critical standpoint. Contrary to many studies that focus on traditional performance criteria only, this study sheds light on organizational problems and the possible ineffectiveness of ISO 9000 certification and issues such as bureaucracy, lack of employee commitment, distrust of auditing process and criticism of standard proposals. This approach led to a more comprehensive and tempered vision of ISO 9000 impacts. Like recent studies on this issue (Naveh and Marcus, 2005; Briscoe *et al.*, 2005) the results of

our research emphasize that outcomes and difficulties related to ISO 9000 certification are not monolithic and can vary significantly from one organization to another, depending on the way the standard is integrated. From this perspective, it is not the standard itself that has an impact on organizational performance, but the conditions and the context of underlying adoption.

These conclusions raise questions about the many studies focusing on the benefits of ISO 9000 in different regions of the world, irrespective of the organizational and contextual parameters influencing the adoption of certification and potential problems (Aarts, 2001; Bhuian, 1998; Ismail and Hashmi, 1999; Poksinska *et al.*, 2002; Llopis and Tari 2003; Tsekouras *et al.*, 2002). Contrary to recent studies analyzing the internalization of the standard in daily practices based on quality culture, innovative environment or stages of implementation of ISO 9000 (Naveh and Marcus, 2005; Briscoe *et al.*, 2005), our study stresses that motivations for adopting the standard are the main drivers of business impacts and organizational problems. Internalization of the standard and its impacts on human resources appear to be a consequence of the balance between internal and external motivations. These results are complementary to those of Naveh and Marcus (2005), who emphasize the need for further research to gain more insight into contingency factors influencing the decision to implement ISO 9000 in order better to understand its outcomes.

Another contribution of our study is the development of a typology of certification rationales based on a theoretical framework explaining certain paradoxes and pervasive effects of the adoption of ISO 9000. Very few empirical studies proposing a typology of ISO 9000 certification (Brown and van der Wiele, 1996; Casadesús *et al.*, 2001) have focused on total quality management outcomes resulting from the adoption of the standard. The typology proposed in our study helps paint a global picture of certification rationales and impacts on business performance as well as organizational problems. The main outcomes of these certification rationales are in keeping with the general premises of the neo-institutional theory emphasizing the lack of effectiveness and ritual behaviours resulting from the superficial adoption of management practices aimed first and foremost at responding to external pressures disconnected from internal needs (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; De Cock, 1998).

These outcomes fuel debates about the complex relationships between motivations and performance. For example, in a recent study of Canadian firms, Bhuiyan and Alam (2005) found that motivations underlying certification have little impact on difficulties associated with implementing the standard, except for a few items related to total quality management. Their study also concludes that internally driven organizations perceived a lower degree of benefits, compared to externally driven companies. The results of our study indicated, on the contrary, that internally driven organizations experienced more benefits and fewer internal difficulties in implementing ISO 9000. As expected, when internal motivations are low, organizations are more likely to adopt ISO 9000 as a sort of “myth and ceremony” (Meyer and Rowan, 1977) leading to more bureaucracy and less effectiveness.

These results have managerial implications and should encourage firms considering ISO certification to closely examine their motives. Is the standard really driven by internal needs? What kinds of pressure are customers exerting? As shown in this study, the answers to these two questions will greatly determine impacts, benefits, and potential pitfalls inherent in the certification process. For managers, the proposed

typology offers a relevant framework for positioning certified firms and anticipating potential impacts. The framework can assist firms in evaluating whether they should go forward with the certification process. For example, managers considering the adoption of the ISO standard when commercial pressures are low and they have not yet clearly identified internal business benefits to justify the endeavor should take the time to reflect on its potential benefits and impacts. This remark applies particularly to SMEs whose behavior seems more in line with “dissidents” and “ritual integrators.” Thus, the results of our study confirm the results of other studies that have specifically examined SME problems and obstacles to ISO 9000 standard (Briscoe *et al.*, 2005; Calisir *et al.*, 2001; Lee and Palmer, 1999; Bhuian, 1998).

Although this study enhances our knowledge of the consequences and challenges associated with the ISO certification process, its limitations provide indications of the avenues that future research might explore. First, more detailed case studies would allow a more thorough examination of organizational performance variables, attitudes and understanding of the ISO standard. Second, the results of the factorial analysis, in particular commercial and organizational benefits of ISO 9000, limit the possibility of describing precisely which motivations would likely lead to which impacts. Also, the factor analysis resulted in a single item construct that was used to measure “external motivation.” Certainly, a single-item construct is less reliable than a multiple-item construct.

Third, as discussed earlier, the relatively congruent and coherent view of business impacts stemming from ISO 9000 certification may be related to the perceptual measure of performance. In fact, many studies have shown that the assessment of organizations’ effectiveness remains embedded, to some extent, in values, preferences and individual perceptions (Cameron, 1986; Zellars and Fiorito, 1999; Zammuto, 1984). Whatever the method used, assessing the impacts of ISO 9000 is a complex challenge that can hardly be addressed independently from the perceptions of the people involved in the implementation of this management system. These perceptions may lead to two types of bias.

The first type of bias is reverse causality, which can alter results about the relationships between motivations and effects. Thus, the positive or negative effects of ISO 9000 implementation may influence the perception of motivations and problems. Nevertheless, the results show that these perceptions are not necessarily in line with other impact items, as they should be in case of reversal causality. For example, the results show that although ritual integrators and ISO integrators are opposed in terms of motivations driving the adoption of the standard, their human resources and bureaucracy problems are not significantly different. Given the fact that ISO integrators are characterized by higher internal motivation and higher business-related benefits, their perceptions of these internal problems could have been more positive.

The second type of bias relates to the respondent’s title. Because respondents were in charge of the ISO 9000 implementation process, they might be inclined to have a relatively positive view of this system compared to employees who are more prone to have a critical outlook of the certification process. Thus, an interesting avenue of research would be to examine the existence of different perceptions of ISO 9000 inside same organizations by interviewing employees as well as managers and quality specialists. Performing case studies, interviews and qualitative analyses would be the most appropriate approach to this type of research and would make it possible to

further our understanding of the various “quality culture” (Adebanjo and Kehoe, 1999) associated with ISO 9000 certification.

This study provides a somewhat static picture of integration rationales and organizational impacts of ISO 9000 certification. Longitudinal surveys would make it possible to examine how perceptions and impacts of the standard evolve over time. According to Casadesus and Karapetrovic (2005), perceptions of the benefits of ISO 9000 have eroded over the last few years in spite of the changes and improvements supposedly provided by the latest version of the standard. However, many studies have suggested that organizations certified for longer periods of time tend to garner greater benefits than more recently certified organizations because they have had more time to integrate improvements derived from ISO 9000 (Escanciano *et al.*, 2001; Singels *et al.*, 2001). Hence, surveys designed to gather information at several points in time would provide valuable insight into the analysis of these possible changes and the assessment of long- versus short-term impacts of certification.

Finally, this study focuses on Canadian firms. Given the internationalization of the standard, it would be interesting to replicate the study in different regions and cultures. Some research has already suggested that the explanatory models for quality performance may vary from region to region (Adam *et al.*, 1997; Chin *et al.*, 2002), but the influence of culture on ISO 9000 certification rationales remains unexplored. Cross-country comparative analyses would probably highlight the prevalence of some integration rationales, revealing, for example, in some areas, the predominance of ritual integrators viewing ISO 9000 as a marketing tool much more than a management system for improving quality practices.

Note

1. When the conclusion retained was that at least two categories presented different means, another test was performed to identify categories that were effectively different. The Duncan multiple comparison test was used to identify the different categories. Results of the Duncan test are given here as letters. Two means identified by the same letter are not significantly different. For example, a mean identified by the letters a and b would not be significantly different from a mean identified by the letter a or one identified by the letter b, but a mean identified by the letter a would be significantly different from one identified by the letter b.

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