

Managing with ISO Systems: Lessons from Practice[☆]

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More than 1 million organisations around the world are certified ISO 9001 and ISO 14001, these standards being based on very similar management practices. Despite the increased number of certified organisations, the main problems and critical success factors in ISO management standard implementation – as described by managers and employees who work with these management systems – have remained largely unexplored. The objective of this paper is to show how ISO management systems can improve in-house practices and avoid the most frequently observed drawbacks. Based on qualitative interviews with 189 managers and employees working in ISO certified organisations, our results showed that the positive or negative impacts of ISO management systems were not a foregone conclusion, but rather depended on specific factors. By shedding light on these factors, the paper offers guidelines in the use of ISO standards that can improve their efficiency and mitigate the risks of improper use. ISO certification should not be considered as a goal in itself, but rather as a learning process with its own pitfalls, benefits and surprises.

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Introduction

How can ISO management systems be used to improve organisational practices and performance? How can managers avoid the drawbacks that often result from the implementation of these systems? More than 20 years after the introduction of the first ISO management systems, these questions are being asked by a growing number of managers. In the opinion of some, the adoption of ISO management standards is tantamount to ensuring the implementation of efficient, proven practices. For others, these systems have a debatable impact, representing

[☆] The author would like to thank Jonathan Doh, Associate Editor of *Long Range Planning*, and the anonymous reviewers for their valuable comments and suggestions on the improvement of this article. He gratefully acknowledges the financial support of the Social Sciences and Humanities Research Council of Canada.

a marketing tool that may lead to negative consequences within organisations (Walgenbach, 2001; Bansal and Bogner, 2002; Jiang and Bansal, 2003; Aragón-Correa and Rubio-López, 2007). Nevertheless, these two seemingly opposite positions are not mutually exclusive. Indeed, ISO management systems represent both a way to improve in-house practices based on recognised management principles and a means to promote social legitimacy and respond to specific external pressures.

External pressures often make the certification process less voluntary than it would appear. When major clients or other stakeholders demand ISO certification, managers generally have no choice but to adopt certification, whether or not they support the ISO system. In this context, managers may adopt the ISO system without being truly convinced of its usefulness or without employing the means required for its efficient use as a management tool.

Ironically, the concept of ISO certification harbours very different realities from one organisation to another. Although ISO systems comprise rather specific recommendations, they are far from explicit in their method of application, affording managers a great deal of leeway. This freedom of action contributes to the flexibility and adaptability of ISO systems. However, managers are often at a loss to manage these systems properly and avoid pitfalls such as the increase in paperwork associated with their adoption. Furthermore, most studies on the impact of ISO management systems ignore the drawbacks, focusing instead on restrictive performance criteria: increased sales, internationalisation of firms, implementation of environmental and quality policies, etc. Moreover, the positive and negative impacts of ISO management systems were not a foregone conclusion, depending rather on generally overlooked factors.

Surprisingly, despite the increased numbers in certification around the world, the main problems and critical factors in the successful application of ISO standards — as described by individuals working in certified organisations — has remained largely unexplored. This approach was at the heart of the research presented here, which was carried out by Canada Research Chair in Sustainable Development Management Standards and was based on feedback from 189 managers and employees of ISO 9001 and ISO 14001 certified organisations. Although the two standards address different issues, that is quality and environment, they are based on the same generic model, also referred to as the “ISO management system” (www.iso.org/iso/iso_catalogue/management_standards/understand_the_basics.htm).

The aim of this paper is to show how this ISO generic management system may be used to improve in-house practices and avoid the most frequently observed drawbacks. Feedback from individuals has highlighted the recurrence of key challenges to the effective use of ISO management system standards. Understanding these challenges may prove vital for managers. Indeed, irrespective of their size or activity sector, many organisations may one day have to adopt ISO 9001, or even ISO 14001, and many managers will then wonder about the best way of implementing an ISO management standard. The experience of certified organisations can therefore prove invaluable and provide a working guide for the most appropriate way to manage these international standards.

This paper first explains why ISO management systems now are used, despite their controversial impact. The last two sections summarise the main recommendations drawn from 189 discussions with managers and employees working for ISO 9001 and ISO 14001 certified organisations. The recommendations encompass the pitfalls to avoid and the ways of improving in-house practices through ISO certification.

Passports for global trade

ISO management systems have enjoyed spectacular success since the first series of ISO 9000 standards was introduced in 1987. This success is evident in the rapidly increasing number of certifications, the diversity of ISO system applications and the growing interest in ISO in developing countries.

The number, development and internationalisation of ISO management systems certifications are the subjects of frequent surveys (<http://www.iso.org/iso/survey2009.pdf>).

With nearly 1 million organisations certified around the world in 2009, the ISO 9001 standard on quality assurance is the most widespread and best-known. The ISO 14001 environmental management system, launched in 1996, is also considered a reference standard and has experienced rapid growth. Thus, 12 years after the introduction of this standard, more than 180,000 organisations worldwide were ISO 14001 certified. By 2009, nearly 1.2 million organisations around the world were certified under one of the two leading ISO management systems. And the numbers continue to grow (See Figure 1).

This growth can be explained by the international recognition and the generic nature of ISO management systems. These days, ISO 9001 is widely used in industrial sectors as diverse as aerospace, pulp and paper, aeronautics and even construction. Surprisingly, the increase in the number of certifications is strongest in the service and public sectors. The same trend can be observed for ISO 14001 certification (Moutchnik, 2006).

Although this standard was applied first in the manufacturing sector, more and more municipalities, public enterprises, hospitals and even transport companies are now ISO 14001 certified. For example, the Port of Houston became the first US port to obtain ISO 14001 certification in 2002 (Hinds, 2007).

In response to the specific requirements of certain sectors, and to adapt to emerging problems, the International Organization for Standardization began developing a dozen new ISO management standards in the early 2000s. For example, in 2002, ISO/TS 16949 was introduced with specific requirements for the application of the standard in the automotive industry. Today, this standard is used by major carmakers. As a result, more than 80 per cent of vehicles and trucks made in the world contain components manufactured by organisations operating under the ISO/TS 16949 system (Gryn, 2003).

Other ISO standards based on a management system similar to ISO 9001 and ISO 14001 have been developed in food safety, supply chain security, petroleum and gas, medical devices, etc. One of the most widely-awaited standards is the ISO 26000 system on organisational social responsibility, slated for introduction in 2010.

Whether the aim is to improve customer satisfaction at a bank, measure and reduce greenhouse gas emissions at a chemical plant, increase productivity at a security firm or implement an environmental policy in a municipality, ISO standards contain guidelines that seem to adapt to a wide variety of situations. Furthermore, and contrary to widespread opinion, European countries and wealthy nations are not responsible for the constantly increasing number of ISO management system certifications. Growth currently emanates from developing countries, in particular China and India. In 2009, China ranked first for ISO 9001 certifications with more than 220,000 certified organisations and was ranked just ahead of Japan for ISO 14001, with nearly 40,000 certifications (IOS, 2008).

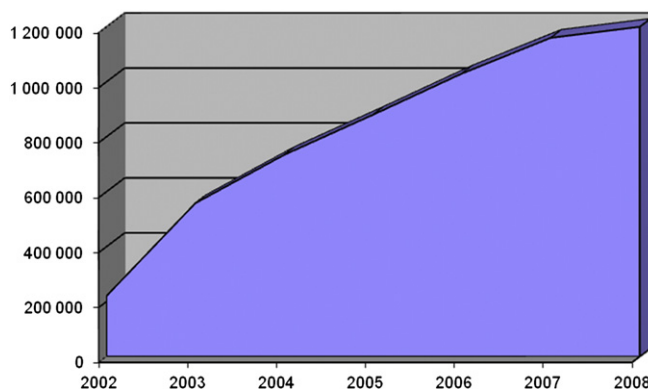


Figure 1. Total Number of ISO 9001 and ISO 14001 Certifications Worldwide

ISO standards contain guidelines that seem to adapt to a wide variety of situations.

Presently, ISO management systems are found in most sectors in China, including the organisation of international events. For example, the Organising Committee of the Olympic Games in Beijing adopted ISO 14001 to promote “green” games in 2008 (Fan, 2006). The committee’s goal was not strictly environmental: the underlying idea was to promote the image of an international event receiving wide media coverage and taking place in a city struggling with serious environmental problems.

While managers often adopt ISO management standards in response to external pressures, the fundamental purpose of these standards is to improve in-house practices. The adaptability and pertinence of these systems resides in their simplicity and consideration of accepted practices. According to the International Organization for Standardization, ISO management systems “provide a model to follow in setting up and operating a management system. This model incorporates the features on which experts in the field have reached a consensus as being the international state of the art.” (http://www.iso.org/iso/iso_catalogue/management_standards/management_system_basics) Actually, this model is based on the “plan-do-check-act” cycle, which forms the core of traditional management. First, organisations must develop objectives and plans based on their situation, targets and external requirements. In the case of ISO 14001, the plans must take into account environmental aspects and external constraints, notably legislation. ISO 9001 is focused on customer satisfaction, but its proposals are based on the same planning rationale. Second, organisations adopting ISO 9001 or ISO 14001 are supposed to implement their plans through similar measures: resources for implementation, clarification of roles, responsibility and authority, development of capabilities, awareness and training, communication procedures, etc. In both standards, these measures must be documented to facilitate the monitoring and auditing processes. Third, the management system must be regularly checked by measuring quality or environmental performances. Regular audits also contribute to the monitoring process. Fourth, organisations must demonstrate their commitment to the continual improvement of their management system. The significance of this concept is similar in both standards and is defined by ISO 14001 as “a process of enhancing the environmental management system in order to achieve improvements in overall environmental performance consistent with the organisation’s environmental policy” (ISO, 2004, p. 2).

Thus, the two main ISO management standards, ISO 9001 and ISO 14001, are rooted in the same model. The apparent simplicity of this model encourages acceptance. ISO management systems also include more technical recommendations considered as best practices by the international groups of experts responsible for creating these standards. Finally, certification by external auditors tends to strengthen the international recognition and credibility of ISO 9001 and ISO 14001. This certification is based on the same auditing process performed by auditors from accredited certification bodies. Auditors are expected to follow the ISO 19011 standard, which is used for ISO 9001 as well as ISO 14001 certification. According to this standard, launched in 2002 and with a new version expected in 2011, certification audits must be guided by auditor professionalism, independence and impartiality. Nevertheless, certification audits remain a private and voluntary process. In this context, just as in the case of financial audits, the commercial aspects of ISO audits and competition between auditors can undermine independence and impartiality principles (The Business Improvement Network, 2002; Power, 2003; Boiral, 2003).

Despite widespread praise from consultants and certified companies, there are widely differing opinions about the certification process and so-called best practices proposed by ISO management standards. The CEO of a major bathroom fixture and spa manufacturer recently stated to us that one of the best decisions he ever made was to end ISO 9001 and ISO 14001 certification because of the burden of paperwork. This attitude was in no way exceptional. Although the number of ISO management system certifications is rapidly increasing around the world, it is also stagnating,

even declining, in some developed countries. This is notably the case for ISO 9001. For example, from 2004 to 2008, the number of ISO 9001 certificates issued in the UK declined from 50,884 to 41,150, while in Europe it increased more than 42% (IOS, 2008). During the same period in Switzerland, Sweden and France, the number of ISO 9001 certificates remained relatively stable. In certain wealthy countries, notably the US, the number of certifications issued is fairly low compared with the size of the economy. Thus, the number of ISO 9001 certificates issued in the US in 2008 (32,400) was inferior to that of various European countries, including Spain, the former declining by more than 13% since 2004. Structural reasons linked to open economies, outsourcing to countries like China, increases in multi-site certifications and cultural concerns may explain the fall. However, more often than not, managerial resistance to adopting or renewing certification is rooted in the uncertain consequences and drawbacks associated with ISO standard adoption.

The controversial impact of ISO certification

The impact of ISO management standards has been the object of many studies over the last two decades. Because ISO 9001 was launched first and has been adopted by more organisations, the impact of this standard on organisations has been studied more extensively than that of ISO 14001.

The majority of empirical studies on ISO 9001 have highlighted the internal and external benefits of certification. First, many studies have focused on the operational benefits of ISO 9001 inside the organisation: improvement of productivity, operational efficiency, waste reduction, innovation, product quality, costs of non-quality, planning, etc (Standards Council of Canada, 2000; Naveh and Marcus, 2005; Bhuiyan and Alam, 2005). General and managerial benefits have also been stressed: financial performance, leadership in quality issues, motivation, training and awareness, communication, work climate, etc. Second, the literature has focused on the external impacts of ISO 9001: customer satisfaction and service, complaint reduction, delivery, supplier relations, image, sales, market share, etc (Sun, 2000; Escanciano et al., 2001; Standards Council of Canada, 2000). Although critical approaches toward ISO 9001 are relatively scarce in the literature, certain studies have questioned the standard benefits or stressed the various pitfalls associated with its implementation (Quazi et al., 2002; Moatazed-Keivani et al., 1999). First, the standard's implementation can add to internal bureaucracy and paperwork (Awan and Bhatti, 2003; Boiral and Amara, 2009). Thus, many organisations develop an overly extensive documentation by seeking to comply mechanically with the principle "say what you do, do what you say". Second, the certification process can be costly, especially for SMEs (Briscoe et al., 2005; Wilson et al., 2003; Gotzamani and Tsiotras, 2001). In addition to the cost of auditors and consultants, the time and resources necessary to implement ISO 9001 can represent serious barriers. According to certain studies, implementation costs can exceed the standard's benefits (Martinez-Costa and Martinez-Lorente, 2007a,b; Curkovic and Pagell, 1999). Third, the internalisation of ISO 9001 can be quite superficial and engender resistance to change inside the organisation. Thus, internal practices can be quite unrelated to the standard's recommendations. These issues have been raised, most notably in qualitative studies intended to delve deeper into the internalisation process (Walgenbach, 2001; Boiral, 2003).

Although it has been studied separately, ISO 14001 implementation seems to generate similar managerial issues. Internal benefits of the standard have been associated with various operational and managerial improvements: the rigor of environmental management practices, employee motivation, manager leadership, etc (King et al., 2005; González-Benito and González-Benito, 2008; Russo, 2009; González-Benito and González-Benito, 2005). As with ISO 9001, the external benefits of ISO 14001 have been highlighted: response to customer expectations, competitive advantage, relations with various stakeholders, promotion of green supply chain management, social legitimacy, international presence, etc (Delmas, 2001; Melnyk et al., 2003; Corbett and Kirsch, 2001; Darnall et al., 2008; Bansal and Hunter, 2003). Nevertheless, the positive impact of the standard has been questioned in various studies (Christmann and Taylor, 2006; Barla, 2007; Welch et al., 2003; King et al., 2005). Moreover, the implementation of ISO 14001 can result in pitfalls almost identical to those observed in ISO 9001. The risk of bureaucracy has been highlighted and seems to

stem from similar causes, notably the preparation for certification audits (Jiang and Bansal, 2003; Boiral, 2007). The cost of ISO 14001 can also represent a major obstacle to implementation, although most studies remain focused on economic benefits related to pollution prevention, improved corporate image, reduction of resource consumption, etc (Babakri et al., 2003; Bansal and Bogner, 2002; Bansal and Hunter, 2003). Last but not least, the lack of internalisation and internal commitment to ISO 14001 has been observed, similarly to ISO 9001 (Jiang and Bansal, 2003; Bansal and Bogner, 2002; Welch et al., 2003; Boiral, 2007).

These controversies over the supposed benefits of ISO management systems can be explained both by their ambiguous impact and the limitations of the available literature. First, the effects of ISO certification are often complex and paradoxical. Thus, implementing ISO 9001 or ISO 14001 can have a positive impact on certain performance indicators such as sales, image or waste reduction while leading to pervasive effects such as more paperwork and costs. These apparently paradoxical effects are not limited to ISO certification, but reflect the complexity and contradictions of organisational performance measurement in general (Cameron, 1986; Henri, 2004; Boiral and Amara, 2009). Surprisingly, most research on ISO management standards remains focused on specific performance indicators while ignoring other criteria, especially those related to possible pitfalls and ineffectiveness. In this context, the supposed impact of ISO certification depends, to a large extent, on the way in which it is measured.

Second, the vast majority of research is based on quantitative approaches and quite standardised methodology. Although these approaches have led to a better understanding of incentives underlying ISO implementation and its possible benefits, they tend to be influenced by the respondents' social desirability bias. Thus, most studies are based on questionnaires answered by ISO managers who are asked to be judge and jury. Consequently, the complexity of the internal effects of certification, resistance to change, and the various interpretations of the standard's impact would certainly benefit by being studied with interviews, on-site visits and qualitative data collection.

Lastly, the certification process seems to be taken for granted in most studies. Thus, certified organisations are considered comparable in terms of internalisation of the standard. As a result, research is focused much more on the general benefits of ISO certification rather than on how to manage the standard, implicitly considered as homogeneous and standardised. Nevertheless, the way ISO management systems is implemented, internalised and managed can be very different from one organisation to another. From this perspective, it is not necessarily the certification itself that leads to possible improvements, but the way the standard is implemented within organisations. The same remark would logically apply to the pitfalls of ISO implementation. Thus, excessive documentation and lack of internal involvement are not necessarily unavoidable consequences of ISO implementation but may result from failure to use the standard appropriately. Although certain studies (Naveh and Marcus, 2005; Bansal and Bogner, 2002; Boiral and Amara, 2009) have considered the impact that certain ways of applying ISO standards have on the potential benefits, how to employ ISO management systems in practical terms remains unclear.

These limitations in the literature call for more qualitative approaches focused on the paradoxical effects of certification and on how managers can bring out the best in ISO systems while avoiding certain drawbacks. Because they have implemented the standard and directly experienced their positive or negative impacts, managers and employees working in certified organisations are the best placed to provide recommendations on this issue. Surprisingly, this approach has been largely overlooked in the literature. Although certain studies offer general recommendations to managers, they are most often based on statistical results and not on first-hand experience of the standard. As a result, these recommendations to managers tend to remain rather oblique: incorporation of ISO certification with the philosophy of total quality management, establishment of key performance indicators, involvement of stakeholders in ISO design, development of best practices and manufacturing excellence through certification, use of ISO as a catalyst for change, consideration of the connection between ISO implementation and supply chain management, monitoring of ISO implementation by suppliers, etc (González-Benito and González-Benito, 2008; Naveh and Marcus, 2005; Delmas, 2001; Sun, 2000; Christmann and Taylor, 2006).

Paradoxically, although a large number of organisations have adopted an ISO management system, what individuals working in these organisations have to say on how to improve internal practices through these systems has been largely neglected. From this perspective, recommendations in the literature may appear to be too general and somewhat removed from actual practices. Moreover, the literature remains rather segmented and focused on the application of one standard in very specific areas or activity sectors. Despite similarities between ISO 9001 and ISO 14001, there has been little or no attempt to bridge the gap between these two standards and provide basic recommendations for managers.

This paper attempts to address this gap in the literature by analysing, as part of a series of complementary studies how ISO management systems were employed by a large number of individuals working in ISO 9001 and ISO 14001 certified organisations. On the whole, numerous discussions with managers and employees working with these two standards on a daily basis have shown that the officially proclaimed optimism is often a far cry from the reality. While ISO advocates generally display great enthusiasm for these standards, other categories of respondents are more reserved, even critical. Therefore, despite their consensual appearance, ISO management standards are not clear-cut systems encouraging excellence and having the same meaning for everyone. Instead, they represent flexible guidelines that may be viewed and managed quite differently. In this context, recommendations from ISO standard users about the best ways to implement the standards are essential to managers intending to adopt or to improve ISO 9001 and ISO 14001 management systems.

Discussions with those working with these standards have shown that the officially proclaimed optimism is often a far cry from the reality.

The analysis of numerous cases of certified organisations has shown that the reasons that make the implementation of ISO systems difficult or successful are often the same. Discussions with managers who have undertaken the certification process provide a better understanding of the pitfalls as well as the factors that lead to successful ISO management systems.

Method

When analysing in-house results of ISO management systems, one of the main challenges consists of looking beyond the official optimistic view of these standards and seeking differing points of view on the question. There are several ways to break the wall of silence and skirt politically-correct positions (Detert and Edmondson, 2007; Zbaracki, 1998; Morrison and Milliken, 2000) concerning in-house experience in ISO certification. They include: not limiting the study to those responsible for ISO standard implementation; focusing on in-depth individual interviews and case studies; holding discussions not only inside the workplace but also outside the organisation; and diversifying investigative methods.

These different approaches have been used over the past decade by Canada Research Chair in Sustainable Development Management Standards in several qualitative studies to understand the implications and in-house perceptions of the ISO 9001 and ISO 14001 management systems.

Data collection on ISO 9001 was based on two main qualitative studies:

- The first study involved 47 individual interviews with managers (27), quality specialists (11) and employees (9). Interviews were conducted outside the workplace of different certified organisations. About 60% of these organisations were in the industrial sector and 40% in services. The main objective of this study was to analyse perceptions with regard to ISO 9001 implementation: support for the system, resistance to change, pitfalls, certification preparation, auditing practices, impacts on performances, etc. Conducting interviews outside the workplace brought to light very critical statements about the internalisation of the standard that occurred inside organisations;
- The second study involved 60 individual interviews among managers (31), quality specialists (18) and employees (11). The proportion of industry and service organisations was similar to the first

study. Each interview was conducted within the workplace of a different organisation. The objective of this study and the questionnaire used were similar to the first study. Although respondents interviewed inside the workplace were clearly less critical, the data collected confirmed the main results of the first study conducted outside the workplace in terms of the pitfalls of ISO implementation, its critical success factors and recommendations for managers.

Data collection on ISO 14001 was based on a case study of nine certified industrial facilities operating in various sectors, namely the car industry, aluminum and magnesium production, pulp and paper and mining. In all, 82 respondents were interviewed, including managers (31), environmental department specialists (21) and employees (30). The main objective of this qualitative study was to analyse the internalisation of ISO 14001 inside organisations and the paradoxes between the standard's appearance of legitimacy and its actual effectiveness.

In all, data from 189 interviews with managers (89), environmental and quality specialists (50) and employees (50) working in ISO 9001 or ISO 14001 certified organisations were analysed for this paper (Casadesus and Karapetrovic, 2005; McGuire and Dilts, 2008).^a Although these studies were based on different contexts and organisations, they share some common, important characteristics:

- all studies were performed in Canada, led by the same researcher and had common objectives, notably to analyse managers' and employees' viewpoints on how to manage ISO systems; these studies used a qualitative approach based on grounded theory (Strauss and Corbin, 1990; Locke, 2001; Suddaby, 2006);
- data collection was based mainly on individual semi-structured interviews;
- many questions in the questionnaires were comparable and all interviews addressed the issue of drawbacks, critical success factors and recommendations for ISO implementation through identical questions;
- qualitative data analysis was based on the same inductive approach: interview transcriptions, transfer to qualitative analysis software, categorisations, analysis of categories.

The use of these common methodological characteristics and the same systematic process for information analysis made it possible to incorporate data from different qualitative investigations (Bansal and Bogner, 2002) (Exhibit 1).

Although the qualitative approach of these studies was not suited to the measurement of the frequencies or intensity of specific variables (Gephart, 2004), it appeared important to evaluate, as much as possible, what pitfalls and critical success factors were considered most important by interviewees.^b Because of the open and qualitative nature of the questions asked during interviews, it was not possible to use statistics to measure this issue. Nevertheless, the proportion of interviewee statements, which were grouped into distinct categories describing the main pitfalls and success factors, were used as a proxy to estimate the relative importance of each issue.^c This appeared to be the most appropriate approach

^a Because they were based on many individual interviews in connection with different organisations, data collection on ISO 9000 outside the workplace was performed by nine interviewers (four of them were also involved in interviews within the workplace). Case studies on ISO 14001 were performed by two interviewers and directed, like the studies on ISO 9000, by the same researcher. All interviews on ISO 14000 and ISO 9000 were conducted between 1998 and 2007. No indications that this period of time and different versions of ISO standards may have a significant impact on the issues were observed or mentioned by respondents. This observation is congruent with studies showing that the time factor and various versions of ISO certificate do not significantly influence the impact of ISO certification on organisations.

^b Thanks are due to one of the reviewers for highlighting this point.

^c Categories are based on a collection of statements on the same issue. As a result, the relative number of statements grouped into a specific category can be considered as a proxy of the importance of the issue related to this category. For example, the categories related to managerial conviction and support grouped the most statements on critical success factors in general (22% of all statements on success factors). Conversely, the statements grouped into the categories related to the importance of integrating the fundamental goals of the organisation represented 8% of all statements on critical success factors. Because responses to open questions are spontaneous, the fact that only 8% of all statements on success factors were related to one specific issue did not mean that this issue was not important. Nevertheless, integrating fundamental goals was not perceived as important as managerial conviction and support in the eyes of most respondents. The same approach was used to weight the relative importance of other ISO success factors and pitfalls.

Exhibit 1 Data collection

Data collection was based on grounded theory. Contrary to hypothetico-deductive approaches that are based on developing and testing hypotheses, the grounded theory supposes an inductive process of categorising and analysing qualitative data from the field to infer concepts, theories and conclusions. First, to facilitate the categorisation process, all 189 interviews were transcribed word-for-word. Second, these transcriptions (verbatim) were transferred to NUD*IST qualitative analysis software. Third, an analytical framework based on the main issues regarding ISO management system implementation (motivations, employee commitment, implementation pitfalls, internal improvements, recommendations from interviewees, etc.) was developed. Data analysis was based on the segmentation and grouping of information from interviews according to the analytical framework developed. Although this analytical framework was specific to each study, many categories appeared to be similar or identical. This was notably the case for categories related to ISO certification drawbacks (paperwork, costs, lack of commitment, etc.), the system's main benefits (organisational legitimacy and image, internal rigor, improvement of practices, etc.), and the respondents' recommendations.

These similarities can be explained by the common features shared by the two standards and topics arising during the interviews. Thus, although ISO 9001 and ISO 14001 are focused on two different issues (quality and environment), they are derived from the same generic model and many organisations studied have integrated both standards within the same management system. Distinctions between the two standards can thus be artificial when seen from this perspective.

Data analysis focused on three main open-ended questions that were asked systematically in each interview:

- What are the main pitfalls that your organisation faced during ISO implementation?
- Based on your own experience, what are the main factors in the successful implementation of the standard?
- What advice would you offer to a manager intent on adopting the standard?

Given their qualitative and open nature, these questions were not intended to measure technical issues or correlations with contextual factors, but to understand, from the respondents' viewpoint and experience, the main factors driving the success or failure of ISO certification. Although these factors were not monolithic and varied somewhat from one respondent to another, most comments on these issues gravitated around a few pitfalls and critical success factors regardless of the standard considered (ISO 9001 or ISO 14001) or the sector of activity. These factors were grouped into categories and sub-categories related to the three main questions of our studies: drawbacks, benefits, advice to managers. Analysing these categories showed no significant differences between the statements about ISO 9000 and ISO 14000, except for certain specific benefits related to environmental versus quality issues. These similarities confirmed that ISO management systems are based on the same generic model and share similar managerial issues and success conditions.

In order to make sense of the main ISO drawbacks, their ensuing consequences and feasible recommendations that would help managers avoid these problems, relevant categories of these issues were related to each other or grouped together.^d Relationships between ISO pitfalls, ensuing risks and recommendations for managers were analysed and summarised in a table (see Table 1). The same approach was applied to the critical success factors of ISO

^d For example, the lack of follow-up and system continuity was often associated with difficulties renewing certification, the growing disinterest in ISO and the declining impact on practices. Recommendations on procedural updating and improvement could easily be related to this issue. In fact, most recommendations were intended to address specific pitfalls or bring forth benefits from ISO implementation.

implementation, ensuing benefits and viable recommendations for managers (see Table 2). Passages from interviews that are representative of respondents' statements on each point were also chosen from various categories.

given the open nature of the questions asked during interviews and the qualitative analysis process, which were based on verbatim categorisations rather than on quantitative data.

Recommendations on how to avoid pitfalls and improve practices are not necessarily mutually exclusive and reflect the main results of the studies. These results can help managers to learn from the accumulated experience of many organisations and bring out the best in ISO management systems.

Avoiding pitfalls in ISO implementation

Regardless of the reasons for implementing ISO management systems, the consequences of the certification process are often unexpected and can lead to pitfalls that are too often overshadowed by the optimistic rhetoric associated with the standards. More often than not, the drawbacks observed originated from poor organisational preparation and a misunderstanding of the concrete implications of adopting ISO systems. The study of numerous cases of certified companies has shown that pitfalls in ISO management systems can often be avoided and that they had a few leading causes. Indeed, more than 70% of interviewees' answers to the question on the ISO implementation pitfalls that organisations faced can be grouped into five main categories:

- Inappropriate or excessive documentation (27%);
- Lack of follow-up and system continuity (21%);
- Search for commercial certification (12%);
- Insufficient resources (8%);
- Externalisation of the implementation process (5%).

Others issues such as the cost of ISO certification, lack of commercial opportunities related to the standard or economic downturns were also mentioned during interviews. Nevertheless, statements on these issues were less frequent or were related, to some extent, to the above mentioned main categories.

Inappropriate or excessive documentation

ISO documentation and the accompanying paperwork were the most frequently criticised aspects of ISO management systems. Thus, about 27% of statements on ISO pitfalls were related to the documentation required by the system and the ensuing risk of bureaucratisation. Preparing documentation for the ISO management system often takes a great deal of time and resources. Time spent preparing documentation instead of working on regular production activities may have a negative impact on productivity. This issue was mostly raised in SMEs, where organisational size and lack of internal resources make it more difficult to assign full-time persons to ISO certification. Likewise, document follow-up and updating tended to be viewed as burdensome and complex. Depending on the degree of functional illiteracy (http://portal.unesco.org/en/ev.php-URL_ID=13136&URL_DO=DO_PRINTPAGE&URL_SECTION=201.html), which may affect up to 20% of the North American workforce, <http://www.charlotteworks.org/workplaceilliteracy.PDF> (Charlotte-Mecklenburg Workforce Development Board, 2001) this follow-up process can raise serious challenges. Nevertheless, criticisms of ISO bureaucracy seemed to originate primarily from an erroneous perception of the role of documentation and its improper use. Consequently, ISO documentation tended to be perceived as a necessary evil rather than as a means of clarifying and safeguarding good practices. Since the reason for the documentation was often misunderstood from the start, it was viewed as burdensome. Moreover, criticism of inappropriate or excessive ISO documentation also reflected the difficulty in dosing the level of detail, scope, content and even the format of the documentation. As a result, documents were perceived as too complex and inappropriate for organisational needs. The following comment by a manager of a large

service firm with ISO 9001 certification was fairly representative of problems resulting from unwieldy, inappropriate documentation:

“We found ourselves with a lot of filing cabinets and technical sheets. The major problem with all of this was format. Most of the ISO certification documents contained things that were unreadable or incomprehensible and words that were interpreted differently. The type of language was an issue. I prefer documents that are straightforward and interesting to read.”

ISO documentation tended to be perceived as a necessary evil rather than as a means of clarifying and safeguarding good practices

Lack of follow-up and system continuity

While many organisations are fully compliant with ISO system requirements during the certification audit, they do not necessarily remain so afterward. Nearly 21% of the responses on ISO pitfalls in our studies highlighted the importance and difficulty of keeping the ISO system alive. This difficulty was not linked solely to an implementation that was deemed too fast, too superficial or too steeped in formalities. It also resulted from a mechanistic view of the ISO system, a loss of the impetus accompanying its initial implementation and the decrease in use often observed between two audits. An excess of confidence in the ISO system may lead managers and consultants alike to implicitly view ISO systems as a kind of organisational technology that, once implemented, are supposed to operate relatively independently. Several ISO standard recommendations, notably regular audits and management reviews, serve to maintain, update and improve the system. Oddly enough, these recommendations may add to the illusion of ISO standards operating almost automatically, like a well-oiled machine needing only occasional tweaking. One of the main challenges facing interviewed managers was maintaining the ISO system on an ongoing basis, not just during audits and managerial reviews. The following statement by an ISO 9001 manager of a big industrial company is fairly representative of the respondents' opinions concerning the issue of system continuity:

“Above all, the ISO 9000 system must be alive. Achieving this involves constant reminders to use it. The less the system is used, the more people become wary of it, viewing it as a cumbersome affair. Then they back off and won't touch it. A system that kicks into action once a year for audits will never provide concrete benefits.”

The search for commercial certification

The third most frequent pitfalls shared by respondents were the superficiality of ISO implementation ensuing from the focus on image and commercial purposes rather than on organisational changes. Nearly 12% of the criticisms of ISO standards concerned the lack of internal involvement and the focus on marketing aspects instead of on improved practices. From this perspective, organisations tend to view certification as a commercial issue that is an end in itself rather than as a means of improving in-house practices. This view was fuelled by external pressures to become certified and a lack of in-house enthusiasm for the intrinsic pertinence of ISO standards. To meet external pressures, organisations were tempted to pay lip service to the rhetoric of ISO certification without really trying to improve or question their internal practices. This attitude was mirrored in the rather ritualistic integration of the standard and the disconnect between the official position on ISO certification and what it truly represented within organisations. Ritualistic system integration seemed to be more prevalent in ISO 9001 certification, often demanded by clients without managers necessarily perceiving its operational pertinence. Nevertheless, in four out of nine cases, the ISO 14001 organisations studied here adopted the standard quite superficially, for reasons of image or pressure from head office rather than in-house management motivation. Such was the case of a large mining company that adopted ISO 14001 primarily in response to a highly publicised environmental crisis. As an employee with this

company explained: “ISO was a way of saving face; it was a cover.” The integration of the standard and preparation for the certification process were superficial at best: “ISO 14001 was like spring cleaning. Shortly before our certification audit was to take place, the environment was the hottest topic in the plant. It was debated every day until the auditors left.”

Insufficient resources

Although excessive documentation and formalities are clearly major shortcomings, implementing simplified versions of ISO systems is not necessarily better. The underestimation of the time, effort and resources needed to complete the certification process was mentioned by about 8% of responses on ISO pitfalls in our studies. This problem is more likely to occur when a company tries to fast-track implementation of an ISO management system in response to pressing customer or stakeholder demands. Regardless of the reasons stated, lack of human, financial and temporal resources to adopt ISO are likely to result in cursory completion followed by employee resistance once the system is in place. Surprisingly, none of the managers encountered boasted of implementing an ISO management system with nominal resources in record time. On the contrary, at least five respondents highlighted their organisations’ need for a one to two-year timeline to properly identify ISO specific scope and objectives, explain the importance of certification, rally employees to the cause, establish an efficient team to implement the system, choose the right consultants, draft documents, change certain kinds of conduct, prepare audits, etc. All in all, the adoption of a standard should be viewed as a collective learning process requiring the creation and sharing of a great deal of knowledge rather than as a goal in itself. As stated by a middle manager of a large bus manufacturer certified ISO 14001:

“You have to proceed in stages and not go too fast. If ISO is implemented all at once, it can be irritating to employees and cause them to balk. People ask what they are supposed to do with all those formalities and finally end up doing nothing at all. It is better to take the time to assimilate new concepts, develop new habits, and make sure that things are moving along smoothly.”

Externalisation of the implementation process

The lack of follow-up and system continuity after the certification process can stem from the externalisation of ISO standards implementation. Nearly 5% of responses on ISO pitfalls concerned the risk of being dependent on external consultants. This dependence tended to undermine the internalisation of the standard and its adaptation to the organisation. Technicalities and requirements of ISO standards may legitimise the intervention of consultants, especially in SMEs lacking the internal capacity to implement the system. Nevertheless, it appeared essential that organisations take as much responsibility as possible for the implementation of ISO standards. Entrusting a major portion of ISO implementation to consultants, temporary trainees, co-op students or managers with scant experience may reinforce the lack of coherence between the standard’s requirements and internal practices. This disconnection can also create management systems which look fine on paper but which, from a practical standpoint, are poorly adapted to organisational needs. According to respondents, these problems did not necessarily contradict the pertinence of turning to external consultants, but certainly required closer co-operation with the latter. Such co-operation was especially important in the preparation of ISO documentation, which, where possible, should be done by those who will be using the documentation. As stated by the quality representative of a medium-size facility certified ISO 9001:

“The worst thing to do is work with a consultant who tells you to let him take care of things because he knows what to do and is willing to draft your procedures so you can become ISO 9000 certified, etc. You may indeed become certified, but you risk frustrating a lot of people in the company. Because the individuals who work with ISO were not involved in the process, they are simply going to state that the procedures don’t correspond to what they do.”

Table 1 summarises the main ISO drawbacks along with manager recommendations on how to avoid them.

Table 1. Avoiding ISO Drawbacks

ISO pitfalls and ensuing risks	Hypotheses and contingencies to be explored	Recommendations for managers to be explored
<p>Inappropriate or excessive documentation</p> <ul style="list-style-type: none"> • Time and resources to prepare documentation • Complex and unpractical documents • Excessive and demanding paperwork 	<ul style="list-style-type: none"> • ISO paperwork tends to be more manageable in large and conventional organisations. • Managers encouraging employee initiatives and innovation are expected to be more critical with regard to ISO paperwork. • High level of illiteracy in the workplace tends to increase resistance to ISO documentation. 	<ul style="list-style-type: none"> • Focus the documentation on essential and value-added procedures; documents must also be accessible, practical, and easy to change or update. • Keep the system as simple, clear, and practical as possible: “Try to have as few documents as possible. The main problem is paperwork and bureaucracy. Too much unnecessary documentation is created for certification. In most cases, things could be much simpler” (manager in a small ISO 9001 service enterprise).
<p>Lack of follow-up and system continuity</p> <ul style="list-style-type: none"> • Difficulties and costs of renewing certification • Growing disinterest in ISO certification • Declining impacts on internal practices 	<ul style="list-style-type: none"> • When certification is perceived as an end in itself, keeping the system alive after audits is more difficult. • The lack of leadership and resources for ISO certification tends to undermine system continuity. • Economic downturns and unconvincing benefits of certification tend to weaken the maintenance of the ISO system. 	<ul style="list-style-type: none"> • Be sure that procedures are updated and improved on a regular basis. • Use regular audits, annual reviews, and meetings of top management to sustain the certification momentum: “ISO 14001 should be on the agenda of top management meetings at least once or twice every trimester to keep the system alive and send a clear message to employees about the importance of the standard” (environmental specialist of a large ISO 14001 industrial enterprise).
<p>The search for commercial certification</p> <ul style="list-style-type: none"> • Superficial implementation • Lack of internal involvement • Disconnect between statements and practices 	<ul style="list-style-type: none"> • Organisations mostly driven by external pressures are more inclined to adopt ISO as a sort of “organisational degree” whereas internal motivations are more likely to reinforce the standard’s internalisation. • Commercial certification is less likely to occur with ISO 14001 than ISO 9001 which is more often driven by clients. 	<ul style="list-style-type: none"> • Use external certification pressures as a leverage to internally mobilise managers and employees. • Clarify the potential internal benefits of ISO systems: “At the onset, ISO was a requirement from customers. But now, I often say to employees that before using ISO for customers, we must use it for ourselves and get the most out of it” (quality specialist in a small ISO 9001 industrial enterprise).
<p>Insufficient resources</p> <ul style="list-style-type: none"> • Lack of time to internalise ISO • Superficial programs for quality or environment 	<ul style="list-style-type: none"> • Human and financial resources are expected to be more substantial when managers truly believe in ISO effectiveness. 	<ul style="list-style-type: none"> • Clarify who will be in charge of each ISO requirement and be sure enough resources are provided.

(continued on next page)

Table 1 (*continued*)

ISO pitfalls and ensuing risks	Hypotheses and contingencies to be explored ^a	Recommendations for managers ^b
<ul style="list-style-type: none"> • Paper system more than an effective management tool 	<ul style="list-style-type: none"> • The more that quality or environmental concerns are an integral part of the corporate culture prior to certification, the more the resources deployed for ISO implementation are expected to be substantial. 	<ul style="list-style-type: none"> • Don't try to fast-track the certification process; take the time to learn how to use the ISO system efficiently within the organisation: "If you rush the implementation, the situation can be much worse than before certification! It takes a lot of time before people can really understand and integrate the ISO system" (manager in a small ISO 9001 industry enterprise).
<p>Externalisation of the implementation process</p> <ul style="list-style-type: none"> • Lack of adaptation of ISO systems to specific organisational needs • Dependence on external consultants • Implementation costs 	<ul style="list-style-type: none"> • SMEs lacking the internal resources and capacity to implement the system tend to be more dependent on ISO consultants than large organisations. • Dependence on external consultants tends to decrease when ISO systems are well integrated and understood. 	<ul style="list-style-type: none"> • Involve managers and employees in the implementation process as much as possible. • Be very selective about the experience and costs of ISO consultants: "You can expect that consultants will cost much more than what they said. The least expensive offer is not necessarily the best. It is also essential to choose experienced consultants in your area" (manager in a medium-sized ISO 9001 service enterprise).

^a Given the qualitative nature of interviews, hypotheses and contextual factors have not been quantified, measured, or tested. They are intended to shed light on the possible contingencies influencing the main risks and drawbacks in ISO implementation. They also provide avenues for future research.

^b Recommendations were drawn from responses to the question "What advice would you offer to a manager intent on implementing an ISO management system?".

Improving practices through certification

Much like preventing certification problems, improving practices and performance is dependent upon managerial aspects that are sometimes difficult to master. The experience of the many organisations studied here has shown the crucial nature of several interdependent factors. More than 75% of interviewees' responses to the question on the crucial success factors of ISO implementation can be grouped into five main categories:

- Showing managerial conviction and support: 22%
- Clearly explaining the reason for certification: 17%
- Mobilising employees and knowledge: 16%
- Adapting the standard to the organisation, not the contrary: 14%
- Integrating the organisation's fundamental goals: 8%

Others crucial success factors such as keeping the system as simple as possible, benchmarking with other certified organisations or choosing experienced consultants were mentioned less frequently or could be related to the five main categories.

Showing managerial conviction and support

The managers' active commitment and participation in the implementation process were mentioned in 22% of interviewees' statements about crucial success factors. In theory, ISO certification supposes this type of commitment. The proposals of ISO management systems are indeed based on a top-down rationale that assumes managerial involvement in the establishment of the policies, programmes and follow-up mechanisms of the standard. Nevertheless, various factors, such as the search for commercial certification, misunderstanding of the standard's requirements, paperwork or lack of time can impair the managers' real commitment. As a result, their involvement may lack conviction and be limited to an administrative role rather than to true leadership. Managers' signatures on an environmental policy or their participation in a committee in charge of the management review of ISO 14001 do not necessarily reflect a real leadership with regard to the standards. At least four respondents pointed out that the main difficulty resided in convincing managers, not employees. This lack of commitment and conviction reflected the superficiality of ISO implementation in certain organisations. The importance of managerial involvement as stressed by respondents was not only based on rational considerations. It also involved emotional aspects and a commitment tantamount to an act of faith in relation to ISO standards. As indicated by a middle manager of a small enterprise certified ISO 9001:

“Managers must show conviction. If not, there will always be another priority. From the very start, managers must be convinced of the fundamental worth of the standard’s core philosophy and convinced that it is worth the effort to invest the time and money. You really have to believe in ISO; to me this is the most important thing.”

Clearly explaining the reason for certification

Clearly explaining the reason for certification represented nearly 17% of all statements related to the crucial factors in successful ISO implementation. At first glance, it can be assumed that employees of certified organisations are well informed of the standard's requirements and objectives. Nevertheless, interviews with employees in our studies revealed that this basic assumption was at best theoretical. Although the interviews were not intended to measure the degree of understanding of the standard, it appeared that many respondents, especially employees who were interviewed outside the working environment, ignored the objectives of ISO certification or even their existence. Moreover, at least a dozen interviewees were confused about the type of ISO standard implemented in their own organisation and whether it was related to quality, environment, health and security or excellence. This issue clearly showed the need to provide employees with clearer information and better training as concerns ISO requirements, procedures and consequences. The need to improve the understanding of the standard revealed the weak internalisation of ISO and the likelihood of it being perceived as a mere logo used by managers for unclear reasons. Generally speaking, employees need to understand the objectives of the implemented standard and what their specific roles are in relation to it. Communication will be all the more effective if managers could showcase the advantages of certification, for both the organisation in general and for the system users in particular. This would include developing training programmes, maintaining jobs connected to contracts that require certification, clarifying certain procedures, etc. As a process technician in a large ISO 14001 certified industrial business stated:

“For me, the first condition involves properly informing people. You have to sell the idea that ISO will improve their work and that they will benefit from it. It’s important that people be open to change. It has to be presented as an improvement process and not as punishment.”

Mobilising employees and knowledge

The importance of employee involvement was mentioned nearly as frequently as explanations of ISO certification. This involvement was not necessarily focused on the ISO system itself. Respondents also pointed out that rallying efforts should focus primarily on the quality and environmental concerns

that ISO standards are supposed to promote. Organisations that reaped the most benefits from ISO systems seemed to be those that were able to use the certification process like a springboard to implement new programmes in this field or strengthen existing ones. For example, many SMEs visited successfully used ISO management systems before introducing their first quality and environmental policies. Obtaining ISO certification was also used as leverage to strengthen employee pride, motivation and awareness of issues that were not always viewed as priorities. Although it was rarely explicitly mentioned during interviews, the certification process itself can be used to formalise tacit knowledge and consult employees on ways to improve established practices (Nonaka et al., 2000; Boiral, 2002). This bottom-up approach of listening and taking into account tacit knowledge encourages employees to collectively support ISO systems. The comments of a process officer of a major ISO 14001 certified industrial business reflect the importance of this bottom-up approach:

“Employees need to be motivated and to achieve this they need to be consulted. Just informing them is not enough. They also have to agree. If managers want to impose ISO and the employees resist it, it won’t get far. It will just be a system on paper. But if the employees are consulted and involved, the system will work for sure.”

Adapting the standard to the organisation, not the contrary

Rallying and consulting employees were not only crucial to successfully internalising interest in quality and the environment, it also made it possible to implement systems that were better adapted to existing work practices. This need for adaptation and flexibility represented 14% of statements on the crucial factors for ISO success. The search for adaptation appeared to be a way to reduce the risks of the ISO system becoming bureaucratized and disconnected from internal practices. Furthermore, this adaptation rationale appeared to be more in line with the primary goal of ISO management systems, which is to structure, solidify and perpetuate best practices, not necessarily to revolutionise practices already in place. In this context, the aim is to adapt ISO systems to the organisation, not the organisation to ISO. Respondents stressed that it was crucial, if this was to be achieved, that existing policies, procedures and documentation which managers wished to maintain be integrated into the ISO system wherever possible. This approach helped to avoid creating a management system that was too complex or too far removed from workplace realities. It also served to take advantage of new procedures and changes introduced by ISO standards such that any improvements would actually bring about true added value. Generally speaking, adopting the ISO system to organisational realities will prove easier when it is possible to capitalise on existing procedures that are well documented and adapted to in-house needs. As an environmental technician working for a major ISO 14001 certified industrial business stated:

“In my opinion, there must already be a management system in place. ISO should not be used to build a completely new system based on the standard. We already had a well established system before, even if the vocabulary used was not the same as ISO. This is why implementation of the standard went so smoothly. Above all, ISO 14001 allowed us to organise our activities and correct certain points.”

Integrating the organisation’s fundamental goals into the system

According to 8% of the respondents, clearly defining ISO’s raison d’être and its connection to the organisation’s mission was an essential ISO success factor. The integration of the organisation’s mission raises fundamental questions about the system’s raison d’être. Why exactly should the standard be adopted? What are the internal advantages that can and should be gained? Are these advantages really in keeping with the organisation’s mission and strategic goals, and, if so, in what way? Raising these questions and finding plain answers appeared crucial to implementing a system that brought real added value to the organisation. Centering ISO systems on essential activities also helped to limit paperwork associated with low added value procedures and to increase employee incentive to successfully adopt these standards. Moreover, this approach contributed to reducing the pitfalls of commercial certification by clarifying the intrinsic advantages of ISO standards

and their connection with the organisational mission. As a result, ISO standards were not viewed as a sort of technical tool but rather as an integral part of a managerial system created to achieve strategic goals. This strategic use of the ISO system was facilitated by the open architecture of these standards. ISO systems are indeed based on general management principles that can seamlessly integrate goals and practices vital to an organisation's competitiveness and survival. Regardless of the goals pursued by management, ISO standards should not be adopted unless their *raison d'être*, their added value and their connection with an organisation's mission have been established from the onset. As one manager of a small ISO 9001 certified service firm explained:

“We wanted the standard to add something of value here. We held lengthy discussions with the auditors to avoid adding record keeping devoid of any merit. We implemented the standard because we knew it would add value to the fundamental goals of our organisation. Otherwise, the system is a costly waste of time, effort and money.”

Table 2 summarises the main ISO success factors and related recommendations for managers.

Table 2. Bringing out the best in ISO management systems

Success factors and ensuing benefits	Hypotheses and contingencies to be explored ^a	Recommendations for managers ^b
Showing managerial conviction <ul style="list-style-type: none"> • Reinforce internal commitment. • Demonstrate that the ISO system is a real priority. • Ensure that enough resources are allocated. 	<ul style="list-style-type: none"> • Economic downturns tend to undermine managerial support for ISO certification. • Manager values for quality (ISO 9001) or environment (ISO 14001) influence the support for these systems. • External pressures and clear internal motivation for certification reinforce the leadership for ISO implementation. 	<ul style="list-style-type: none"> • Take the initiative: involvement in decisions and committees concerning ISO implementation, informal discussions on this issue with employees, etc. • Show that difficulties will not divert you from your goals: “Others priorities and unforeseen events will occur anyway, but managers must demonstrate that this will not undermine the ISO 9000 process” (manager in a large ISO 9001 service organisation).
Explaining reasons for certification <ul style="list-style-type: none"> • Make the certification process easier. • Increase internal support for the system. • Avoid misleading interpretations of ISO. 	<ul style="list-style-type: none"> • Clarifying reasons for certification makes the communication process easier. • Explaining the <i>raison d'être</i> of certification should be easier in SMEs, especially when managers are convinced of the usefulness of the standard. • Fast-tracking ISO certification undermines the communication process. 	<ul style="list-style-type: none"> • Explain the benefits of certification not only for organisational strategy but also for the employees. • Be convincing about the “why” of ISO implementation before adopting the standard: “Before accepting something, you must know what it is. The criticism I would make is that managers try to convince us too often to do something without clearly explaining why” (employee of a large ISO 14001 industrial enterprise).
Mobilising employees and knowledge. <ul style="list-style-type: none"> • Avoid turning the standard into a paper system. 	<ul style="list-style-type: none"> • ISO certification tends to increase concerns for quality and environment only when the standard is properly internalised. 	<ul style="list-style-type: none"> • Use the system to reinforce organisational learning and codify tacit knowledge through ISO procedures.

(continued on next page)

Table 2 (continued)

Success factors and ensuing benefits	Hypotheses and contingencies to be explored ^a	Recommendations for managers ^b
<ul style="list-style-type: none"> • Improve overall employee motivation. • Help to take into account tacit knowledge. 	<ul style="list-style-type: none"> • Because environmental concerns are rooted in global issues, ISO 14001 offers better leverage to mobilise employees than does ISO 9001. • Employee consultation and involvement increase the impact of certification on performance. 	<ul style="list-style-type: none"> • Improving quality and environmental training and awareness should be one of the main objectives of the management system: “The most important things are to provide employees with more training and to involve them in the ISO system implementation” (quality manager in a small ISO 9001 industrial enterprise).
<p>Adapting ISO to the organisation</p> <ul style="list-style-type: none"> • Reduce unnecessary waste of time and money. • Reinforce the standard’s internalisation. • Reduce bureaucracy and paperwork. 	<ul style="list-style-type: none"> • Capitalising on existing procedures is easier when employees are involved in the implementation process. • ISO implementation is easier when substantial quality or environmental programs are already in place. • Adapting ISO is more difficult in large and complex organisations. 	<ul style="list-style-type: none"> • Take the time to investigate existing procedures that can be reused in the ISO system. • Remain focused on internal improvements more than on ISO requirements: “We should not be so obsessed by ISO. We have basically developed a more organised system by starting from existing procedures. This is how we have used ISO and it works” (manager in a medium-sized ISO 9001 industry enterprise).
<p>Integrating the fundamental goals</p> <ul style="list-style-type: none"> • Better alignment between ISO and corporate mission. • Increase the added value of certification. • Improve performance with regard to strategic objectives. 	<ul style="list-style-type: none"> • The more reasons for certification have been clarified from the onset, the more the ISO system is likely to be in line with strategic objectives. • Managerial involvement in the ISO implementation process contributes to a better integration of fundamental goals. • Organisations with a clear mission and long range objectives are likely to integrate ISO into their strategy more often. 	<ul style="list-style-type: none"> • Use the certification to review specific aspects of the organisational strategy (product quality, customer satisfaction, sustainability, etc.) and its implementation. • Clarify how ISO certification can be part of a more global strategy: “I can’t imagine that our boss, with the increasing competition we face, would have adopted ISO because of personal preferences instead of more global reasons. It’s our customers and competition that have driven the certification process” (manager in a large ISO 9001 service enterprise).

^a Given the qualitative nature of interviews, hypotheses and contextual factors have not been quantified, measured and tested. They are intended to shed light on the possible contingencies influencing the main benefits in ISO implementation. They also provide avenues for future research.

^b Recommendations were drawn from responses to the question “What advice would you offer to a manager intent on implementing an ISO management system?”.

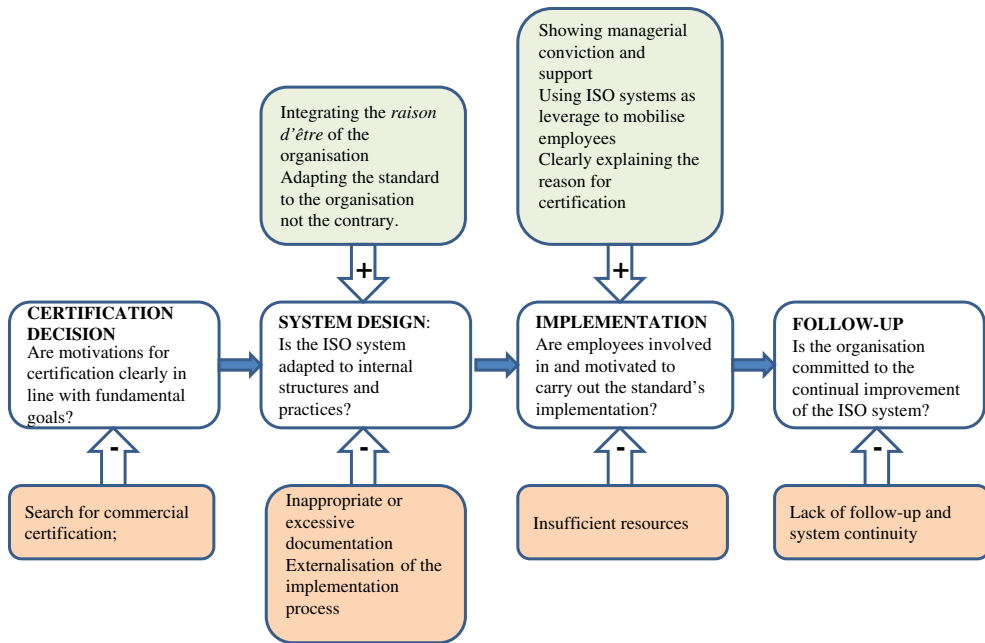


Figure 2. Roadmap for Successful Implementation of ISO Management Standards (grey color: Recommendations; white color: Certification Process; pink color: Pitfalls in ISO Implementation.) (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Conclusion

Organisations can obtain very real, accrued benefits in terms of quality and environmental management by adopting ISO 9001 and ISO 14001 standards. Nevertheless, such benefits are far from automatic and foreseeable. They are due less to the standards themselves and more to attitudes towards them and the way they are implemented. Since these standards are often adopted as a result of external pressure, the most essential question is not whether certification should be contemplated and what impact can be expected, but rather how ISO systems can be used as efficiently as possible. Figure 2 presents the main answers to this question as they relate to the main stages of ISO implementation.

Each stage in the model can be associated with specific pitfalls (–) and success factors (+) that revolve around one critical question for managers wishing to successfully implement ISO management systems (see Figure 2). The first stage, the certification decision, raises the critical question of what motivations underlay ISO adoption and their relationship to fundamental goals and strategies. Findings clearly showed that the search for commercial certification tended to exacerbate problems observed downstream from the certification process: lack of follow-up, dependence on external consultants, lack of connection with practices, etc. The second stage, system design, raises the critical question of how to adapt to internal structures and practices. Integrating the fundamental goals of the organisation and capitalising as much as possible on existing practices rather than considering ISO as the one and only way appeared essential to the success of this stage. Conversely, externalising the implementation process and developing inappropriate or excessive documentation undermined the design process and subsequent stages. The third stage, implementation, raises the critical question of the degree of employee involvement and motivation. Showing managerial support, using ISO systems as leverage for employee mobilisation and clearly explaining the reason for certification were considered essential. Conversely, lack of time and resources tended to undermine internal mobilisation for the standard's implementation. The last stage, follow-up, raises the critical question of how committed organisations really were to the continual improvement principle. Although this principle is, in theory, an integral part of ISO management systems, findings showed that the impetus for ISO tended to decline quite dramatically between two audits, which increased the dissociation between the standard and internal practices.

These findings make three important contributions and lead to new avenues for research.

First, the paper sheds new light on the complex issues of using ISO management systems, based on the experience of a great number of respondents occupying different positions. Basically, ISO certification should not be considered as a goal in itself, but rather as a learning process that passes through various stages characterised by specific pitfalls and critical success factors (see [Figure 2](#)). As expected, this learning process appears to be comparable for ISO 9001 and ISO 14001. The paper thus helps to bridge the gap between two ISO management systems that have been considered independently in the literature. Although each of these standards seems to be rooted in specific disciplines, namely quality and environmental management, and are generally studied by different researchers, their underlying management principles and internalisation process appear to be very similar. Given the fact that this internalisation process explains, to a large extent, the success or failure of ISO management systems, the separation between ISO 9001 and ISO 14001 in the literature often seems artificial and should be questioned in future research. One interesting avenue for future research would be to analyse the integration of the two standards in organisations certified both ISO 9001 and ISO 14001. What are the main challenges and advantages of this double certification? To what extent are the requirements of the two standards considered separately or together by managers and employees? What collaboration mechanisms are required within organisations, especially between quality and environmental departments, to succeed in the integration of these two standards?.

Second, the paper analyses the main pitfalls to avoid when implementing these standards. Certain pitfalls, especially inappropriate and excessive documentation and the search for commercial certification have already been stressed in the literature ([Awan and Bhatti, 2003](#); [Moatazed-Keivani et al., 1999](#); [Walgenbach, 2001](#); [Jiang and Bansal, 2003](#); [Christmann and Taylor, 2006](#)). Others issues, such as the externalisation of the implementation process, insufficient resources and lack of follow-up between two certification audits have been overlooked. As these issues emerged spontaneously during interviews, they represent essential pitfalls that should not be ignored. This is notably the case of the lack of follow-up that was mentioned in more than 20% of statements on ISO drawbacks. Thus, the paper helps to shed light on both under-explored and essential issues. These issues did not stem from prior hypotheses intended to bring something new to the literature, but rather from open interviews intended to paint a global picture of the way ISO systems are managed in practical terms in organisations. This management seemed much too focused on the certification and auditing process and too little on the internalisation of potentially good practices. Although it was not the most frequent pitfall mentioned, the overemphasis on the certification itself as the main motivation for the standard adoption explained, to some extent, the drawbacks observed in the system design, implementation and follow-up. For example, externalisation of the implementation process and dependence on consultants can encourage a superficial implementation of the standard intended primarily to meet the certification audit requirements. Similarly, inappropriate and excessive documentation can be explained by the focus on document checking during certification audits. Surprisingly, the way these audits are conducted also remains understudied in the literature. What are the relationships between certified organisations and auditors? On what basis are these auditors chosen? What questions are asked during the certification process? What is the probability of failing the certification audit? How is this possibility managed? How do organisations prepare the certification audit in practical terms? Is this preparation, notably the documentation, influenced by the level of illiteracy within organisations? These under-explored questions present interesting avenues for future research.

Third, the paper proposes recommendations on how to improve existing practices and performances through ISO systems. Certain recommendations that emerged from interviews have been previously mentioned in the literature, such as showing managerial conviction, explaining reasons for certification and using ISO as leverage to mobilise employees ([Naveh and Marcus, 2005](#); [Boiral and Amara, 2009](#); [Gotzamani and Tsiotras, 2001](#)). Others recommendations, such as integrating fundamental goals and adapting ISO to the organisation, have received little attention. One important contribution of the present paper is to propose recommendations that are strongly rooted in

the statements of managers and employees working with ISO systems. These recommendations cannot be considered as pre-established management rules or formulas. Rather, they result from learning experiences in the field that most organisations had to go through from the start with little understanding of the certification's in-house implications. Acquired experience on the best way to manage ISO standards raises interesting avenues for future research. What advice and support do managers receive in implementing the standard? What are the roles of ISO consultants in the implementation process? What is their opinion about the difficulties met by organisations and the success factors in implementing the standard? What are the most relevant recommendations proposed by ISO management systems according to managers? To what extent does the goal of obtaining certification influence the way that specific ISO recommendations are implemented? What is the internal value that certification adds above and beyond its external recognition? To what extent can certification and the auditing process contribute to improved organisational learning and the internalisation of ISO management systems?.

As suggested by [Figure 2](#), ISO pitfalls and potential benefits are not necessarily mutually exclusive. Organisations may thus experience excessive paperwork and be dependent on external consultants while integrating the fundamental goals and showing the managerial conviction needed to reinforce internal commitment to the organisational mission. Most research only focuses on the measurement of specific benefits. Conversely, few studies, especially those employing a qualitative perspective, adopt an approach that is critical of ISO certification ([Walgenbach, 2001](#); [Jiang and Bansal, 2003](#); [Boiral, 2003](#)). As a result, research on this issue rarely provides a balanced and global picture of ISO management systems. The impact of ISO systems on performance is far from monolithic and should take into account both its effectiveness and ineffectiveness. Similarly, recommendations should not only consider the critical success factors that reinforce the potential benefits of certification, but also how to avoid possible drawbacks (see [Figure 2](#)).

Our findings thus present a more balanced approach to ISO management systems and should prove of interest to academics, managers and those contemplating certification. Given the qualitative nature of the interviews, these results can hardly be quantified and extrapolated to the whole population of ISO certified organisations. For the same reason, the contextual factors that possibly shape the success of ISO implementation are difficult to measure. Nevertheless, the large number of respondents and the consistency of the results, regardless of the standard considered, give credence to the validity of these results ([Yin, 1994](#)). These results also make it possible to propose various hypotheses regarding contextual factors likely to influence the impact of ISO implementation (see [Tables 1 and 2](#)). The qualitative and inductive approach used in the studies is not suited to verifying these hypotheses. As stressed by [Suddaby](#), “grounded theory thus should not be used to test hypotheses about reality, but, rather, to make statements about how actors interpret reality” ([Suddaby, 2006](#), p. 836). Nevertheless, the verification of certain proposed hypotheses, such as the influence of the level of illiteracy within organisations on the resistance to ISO implementation or the greater impact of ISO 14001 on employee mobilisation, present avenues for future research. The recommendations proposed in this paper could also be tested on a larger sample or be questioned through qualitative studies in different cultural or economic contexts.

Obviously, these recommendations assume that organisations truly wish to promote these systems as tools for in-house improvement. Managers who are more interested in marketing aspects than in managerial recommendations will be inclined to limit their undertaking to a superficial integration of ISO systems. Such superficial adoption may appear at first glance quite legitimate and logical in light of the possible drawbacks raised by these studies. Thus, the perception that certification serves commercial purposes first and foremost, tends to be externalised, leads to excessive documentation, requires more resources and lacks continuity can encourage the superficial adoption of the standard in order to prevent or limit these problems. From this perspective, the disconnect between ISO requirements and organisational practices may sometimes be viewed as a necessary evil to mitigate ISO drawbacks while acquiring a recognised certificate at a relatively low cost. Nevertheless, our results clearly show that these drawbacks are far from automatic and

can be avoided. Most often, the superficial adoption of ISO management systems is related to misconceptions about the objectives of these standards and how to manage them.

If the standard is perceived as a commercial certificate without any significant internal added value, a ceremonial internalisation of this system can make sense to a manager. Conversely, if it is considered as a potentially effective management system for the continual improvement of quality or environmental issues, which is what it is intended to be, managers would be advised to seriously consider its proposals independently from the certification process. Indeed, even though the adoption of an ISO system can be certified, the certification process is not mandatory and can even lead to certain inconveniences, particularly in terms of cost. Once the *modus operandi* of these standards is understood and the way to garner benefits is clarified, companies would miss an excellent opportunity by not considering the standard's concrete recommendations, regardless of the external pressures brought to bear. Ultimately, ISO standards propose a very concise overview of the basic practices that help to manage quality and environmental issues. Whether or not an organisation aims for certification, considering these basic practices can lead to pertinent ideas and help to correct shortcomings.

From this perspective, the recommendations of this paper can help to improve the efficiency of ISO management systems, namely their ability to achieve environmental or quality objectives with minimum costs and drawbacks. Because they are mostly based on managerial principles and the best ways of implementing the standard, these recommendations should not increase the burden of ISO certification. On the contrary, certain recommendations, such as reducing documentation and dependence on external consultants, can reduce implementation costs. Whether or not these costs may exceed benefits is debatable (Bansal and Bogner, 2002; Leung et al., 1999; Martinez-Costa and Martinez-Lorente, 2007a,b) and depends on many factors, including the way the standard is managed, its commercial benefits and the conditions of certification. These factors vary from one case to another and cannot be easily measured in a qualitative approach. The fact that the efficiency of ISO systems is not predetermined, but rather constructed through organisational practices, reinforces the importance of considering recommendations on its *modus operandi*.

When all is said and done, these systems are what managers make of them. As the CEO of an ISO 9001 certified industrial SME summarised: "You either believe in it or you don't. That's it. The ISO system can only be what you make it".

References

- Aragón-Correa, J.A., Rubio-López, E., 2007. Proactive corporate environmental strategies: myths and misunderstandings. *Long Range Planning* 40 (3), 357–381.
- Awan, H.M., Bhatti, M.I., 2003. An evaluation of ISO 9000 registration practices: a case study of sports goods industry. *Managerial Finance* 29 (7), 109–134.
- Babakri, K.A., Bennett, R.A., Franchetti, M., 2003. Critical factors for implementing ISO 14001 standard in United States industrial companies. *Journal of Cleaner Production* 11 (7), 749–753.
- Bansal, P., Bogner, W.C., 2002. Deciding on ISO 14001: economics, institutions, and context. *Long Range Planning* 35 (3), 269–290.
- Bansal, P., Hunter, T., 2003. Strategic explanations of the early adoption of ISO 14001. *Journal of Business Ethics* 46 (3), 135–148.
- Barla, P., 2007. ISO 14001 certification and environmental performance in Quebec's pulp and paper industry. *Journal of Environmental Economics and Management* 53 (3), 291–306.
- Bhuiyan, N., Alam, N., 2005. An investigation into issues related to the latest version of ISO 9000. *Total Quality Management and Business Excellence* 16 (2), 199–213.
- Boiral, O., 2002. Tacit knowledge and environmental management. *Long Range Planning* 35 (3), 291–317.
- Boiral, O., 2003. ISO 9000: outside the iron cage. *Organization Science* 14 (6), 720–737.
- Boiral, O., 2007. Corporate greening through ISO 14001: a rational myth? *Organization Science* 18 (1), 127–146.
- Boiral, O., Amara, N., 2009. Paradoxes of ISO 9000 performance: a configurational approach. *The Quality Management Journal* 16 (3), 36–60.
- Briscoe, J.A., Fawcett, S.E., Todd, R.H., 2005. The implementation and impact of ISO 9000 among small manufacturing enterprises. *Journal of Small Business Management* 43 (3), 309–330.

- Cameron, K.S., 1986. Effectiveness as paradox: consensus and conflict in conceptions of organizational effectiveness. *Management Science* 32 (5), 539–553.
- Casadesu, M., Karapetrovic, S., 2005. An empirical study of the benefits and costs of ISO 9001:2000 compared to ISO 9001/2/3:1994. *Total Quality Management and Business Excellence* 16 (1), 105–120.
- Charlotte-Mecklenburg Workforce Development Board, 2001. Workplace Illiteracy: A Growing Workforce Challenge. Available at: <http://www.charlotteworks.org/workplaceilliteracy.PDF> [accessed 12.04.10].
- Christmann, P., Taylor, G., 2006. Firm self-regulation through international certifiable standards: determinants of symbolic versus substantive implementation. *Journal of International Business Studies* 37 (6), 863–878.
- Corbett, C.J., Kirsch, D.A., 2001. International diffusion of ISO 14 000 certification. *Production and Operations Management* 10 (3), 327–342.
- Curkovic, S., Pagell, M., 1999. A critical examination of the ability of ISO 9000 certification to lead to a competitive advantage. *Journal of Quality Management* 4 (1), 51–67.
- Darnall, N., Jolley, G.J., Hanfield, R., 2008. Environmental management systems and green supply chain management: complements for sustainability? *Business Strategy and the Environment* 17 (1), 30–45.
- Delmas, M., 2001. Stakeholders and competitive advantage: the case of ISO 14001. *Production and Operations Management* 10 (3), 343–358.
- Detert, J.R., Edmondson, A.C., 2007. Why employees are afraid to speak. *Harvard Business Review* 85 (5), 23–25.
- Escanciano, C., Fernandez, E., Vazquez, C., 2001. ISO 9000 certification and quality management in Spain: results of a national survey. *The TQM Magazine* 13 (3), 192–200.
- Fan, Y., 2006. ISO 14000 in China's green march to environmental management. *ISO Management Systems* 6 (3), 36–39.
- Gephart, R.P., 2004. Qualitative research and The Academy of Management Journal. *Academy Management Journal* 47 (4), 454–462.
- González-Benito, J., González-Benito, O., 2005. An analysis of the relationship between environmental motivations and ISO 14001 certification. *British Journal of Management* 16 (2), 133–148.
- González-Benito, J., González-Benito, O., 2008. Operation management practices linked to the adoption of ISO 14001: an empirical analysis of Spanish manufacturers. *International Journal of Production Economics* 113, 60–73.
- Gotzamani, K.D., Tsiotras, G., 2001. An empirical study of the ISO 9000 standards' contribution towards total quality management. *International Journal of Operations & Production Management* 21 (9/10), 1326–1342.
- Gryn, H., 2003. ISO mobile! *ISO Management Systems* 3 (3), 19–23.
- Henri, J.F., 2004. Performance measurement and organizational effectiveness: bridging the cap. *Managerial Finance* 30 (6), 93–123.
- Hinds, A., 2007. Houston: world's 10th largest port combines business with respect for environment through ISO 14001. *ISO Management Systems* 7 (1), 19–24.
- International Organization for Standardization, 2004. ISO 14001:2004 – environmental management systems – requirements with guidance for use. ISO, Geneva.
- International Organization for Standardization, 2008. The ISO Survey. Available at: [ISO Central Secretariat. http://www.iso.org/iso/survey2008.pdf](http://www.iso.org/iso/survey2008.pdf).
- International Organization for Standardization, 2009. The ISO Survey. Available at: [ISO Central Secretariat. http://www.iso.org/iso/survey2009.pdf](http://www.iso.org/iso/survey2009.pdf).
- Jiang, R.J., Bansal, P., 2003. Seeing the need for ISO 14001. *Journal of Management Studies* 40 (4), 1047–1067.
- King, A.A., Lenox, M.J., Terlaak, A., 2005. The strategic use of decentralized institutions: exploring certification with the ISO 14001 management standard. *Academy of Management Journal* 48 (6), 1091–1106.
- Leung, K.N., Chan, K.C., Lee, T.Y., 1999. Costs and benefits of ISO 9000 series: a practical study. *International Journal of Quality & Reliability Management* 17 (7), 675–691.
- Locke, K., 2001. *Grounded Theory in Management Research*. Sage Publications, Thousand Oaks, CA, p148.
- Martinez-Costa, M., Martinez-Lorente, A.R., 2007a. A triple analysis of ISO 9000 effects on company performance. *Journal of Productivity and Performance Management* 56 (5–6), 484–499.
- Martinez-Costa, M., Martinez-Lorente, A.R., 2007b. ISO 9000:2000: the key to quality? An exploratory study. *Quality Management Journal* 14 (1), 7–18.
- McGuire, S., Dilts, D., 2008. The financial impact of standard stringency: an event study of successive generations of the ISO 9000 standard. *International Journal of Production Economics* 113 (1), 3–22.

- Melnyk, S.A., Sroufe, R.P., Calantone, R., 2003. Assessing the impact of environmental management systems on corporate and environmental performance. *Journal of Operations Management* 21 (3), 329–351.
- Moatazed-Keivani, R., Ghanbari-Parsa, A.R., Kagaya, S., 1999. ISO 9000 standards: perceptions and experiences in the UK construction industry. *Construction Management & Economics* 17 (1), 107–119.
- Morrison, E.W., Milliken, F., 2000. Organizational silence: a barrier to change and development in a pluralistic world. *Academy of Management Review* 25 (4), 706–725.
- Moutchnik, A., 2006. ISO 14001 on public sector agenda at all levels around the world. *ISO Management Systems* 6 (4), 9–17.
- Naveh, E., Marcus, A., 2005. Achieving competitive advantage through implementing a replicable management standard: installing and using ISO 9000. *Journal of Operations Management* 24 (1), 1–26.
- Nonaka, I., Toyama, R., Konno, N., 2000. SECI, Ba and leadership: a unified model of dynamic knowledge creation. *Long Range Planning* 33 (1), 5–34.
- Power, M., 2003. Auditing and the production of legitimacy. *Accounting, Organizations and Society* 28 (4), 379–394.
- Quazi, H.A., Hong, C.W., Meng, C.T., 2002. Impact of ISO 9000 certification on quality management practices: a comparative study. *Total Quality Management* 13 (1), 53–67.
- Russo, M., 2009. Explaining the impact of ISO 14001 on emission performance: a dynamic capabilities perspective on process and learning. *Business Strategy and the Environment* 18 (5), 307–319.
- Standards Council of Canada, 2000. *Management Systems Standards: The Story So Far*. Standards Council of Canada, Ottawa.
- Strauss, A., Corbin, J., 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage Publications, Newbury Park.
- Suddaby, R., 2006. From the editors: what grounded theory is not. *Academy of Management Journal* 49 (4), 633–642.
- Sun, H., 2000. Total quality management, ISO 9000 certification and performance improvement. *The International Journal of Quality & Reliability Management* 17 (2), 168–179.
- The Business Improvement Network, 2002. Reactions to ISO Secretary-General's 'police yourselves' call to ISO 9000 community. *ISO Management Systems*, 55–61 (March–April).
- Walgenbach, P., 2001. The production of distrust by means of producing trust. *Organization Studies* 22 (4), 693–714.
- Welch, E.W., Rana, S., Mori, Y., 2003. The promises and pitfalls of ISO 14001 for competitiveness and sustainability: a comparison of Japan and the United States. *Greener Management International* 44, 59–73.
- Wilson, J.P., Walsh, M.A.T., Needy, K.L., 2003. An examination of the economic benefits of ISO 9000 and the Baldrige award to manufacturing firms. *Engineering Management Journal* 15 (4), 3–10.
- Yin, R.K., 1994. *Case Study Research: Design and Methods*. Sage Publications, London.
- Zbaracki, M.J., 1998. The rhetoric and reality of total quality management. *Administrative Science Quarterly* 43 (3), 602–636.

Biography

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