Is ISO 9004 a path to business excellence?

Opinion of Canadian standards experts

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Abstract *ISO 9001 and ISO 9004 were created as a "consistent pair" of standards so that businesses that wanted to exceed the requirements of 9001 could use the principles of 9004 to move towards business excellence. In this paper, opinions from Canadian quality standardization experts were used to explore the needs of business against what is offered by ISO 9004 and to assist in the comparison of ISO 9004 with common business excellence models. The ISO 9004 (2000) document was perceived as needed, and as holding great potential. Suggestions for realizing that potential ranged from the inclusion of more guidance on specific business processes (for example complaints handling) to the incorporation of material that links ISO 9004 with industry-specific standards, awards and/or general business programs. With modification, the document was seen as being able to make a valuable contribution to an organization's business excellence strategy. Without some form of recognition and/or award as offered by other business excellence models, however, the amount of usage ISO 9004 will receive is questionable.*

Introduction

It is not an understatement to say that organizations throughout the world are struggling with the ever-expanding role of quality. In recent decades, the term "quality" has expanded beyond the classical interpretation of "satisfying customer expectations related to the supplied product" to include not only the delivery of excellence to a variety of stakeholders, but also the environmental, safety, financial, and even social aspects of organizational performance. This direction of change has prompted a small revolution in quality management research and practice. The shift in focus from solely the external customer to the internal organizational health and overall business performance has resulted in the creation of excellence criteria, including the European Foundation for Quality Management (EFQM) excellence model, the Malcolm Baldrige National Quality Award (MBNQA, 2002) and the Canadian Framework for Business Excellence (CFBE, 2002). Such models contain guidelines for improving both the enablers of performance and related financial and

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non-financial results, making them broader in scope than the ISO 9000 standards, which largely ignore business results of any kind.

There are numerous reports in the literature that describe quality management practices and the benefits that emanate from implementation of an ISO 9000 system. Samson and Challis (2002) studied leading international organizations in an effort to determine why some were more successful than others in their pursuit of excellence. They identified a total of 14 principles that served as catalysts for business excellence. The extent to which each organization embodied these principles seemed to be directly related to the speed of its journey towards excellence; this was explained on the basis of the strong links between strategy, operation, and employee rewards in these organizations.

The ISO 9000 standards seem to be regarded as the foundation on which organizations build their excellence programs. The standards themselves have been seen from two perspectives, referred to by Gotzamani and Tsiotras (2002) as the optimistic and pessimistic views. According to the former, the standards serve as the beginning of a total quality management (TQM) program. Issues such as internal organization, internal and external communication, employee awareness of quality, product conformance, and customer satisfaction are all addressed, simplifying management commitment to quality. The requirements of the standards are clearly defined, so that the program has a beginning and an end. In many cases, the ISO standards shift an organization's focus from detection to avoidance of errors. The pessimistic view holds that conformance to the ISO 9000 standards cannot be considered true commitment to quality on the part of management because the driving force underlying many registrations is the acquisition of the certificate itself and not the quality improvements that it brings. This perspective suggests that implementation of the standards may lead to excessive emphasis on the documented procedures and less emphasis on exceeding their requirements.

The message is that the "added value" that an organization derives from the ISO 9000 standards is a result of its true motives for, and approach to, implementation (Gotzamani and Tsiotras, 2002). In other words, are the standards adopted strictly as a customer requirement or are they a true quality initiative? Simple conformance to the ISO 9000 standards is not considered excellence; the success of a quality management program that builds on the foundation of the ISO 9000 system also relates to the original motivation for registration (Van der Wiele *et al.*, 2001).

An issue that has been widely debated over the years has been the applicability of the ISO 9000 standards to small and medium enterprises. McAdam and McKeown (1999) extended that debate in their survey of the impact not only of ISO 9000, but also of TQM on small businesses in Northern Ireland. The authors reported that 26 percent of the respondents to their survey expanded the scope of their programs beyond the requirements of ISO 9000 and into the realm of TQM. The majority of these businesses cited internal reasons, primarily cost reduction and increased productivity, as the primary driving force for their pursuit of TQM. Given that small businesses often have very limited resources, such a response seems hardly surprising. These businesses had not lost sight of the objective of their TQM programs, since they cited customer satisfaction as of second greatest importance. None of the organizations were able to quantify the value of the benefits they received from their TQM programs in terms of either financial return or increased customer satisfaction. While ISO 9000 was seen as

an integral part of TQM, the majority did perceive more benefit from their TQM initiatives than from ISO 9000 (McAdam and McKeown, 1999).

Developing a culture in which TQM can flourish is a demanding and time-consuming undertaking. The ultimate success of such a TQM initiative, however, was demonstrated to be related to the following four factors: "the emotional quality of the chief executive officer, the ability of the management team, systems infrastructure, and human resources management" (Van der Wiele, 1998). The first two factors relate to an understanding of TQM and its importance to the organization whereas the last two describe the integration of TQM activities into the day-to-day operations of the organization, which requires both knowledge of TQM and support of managers and staff.

To be maximally effective, quality improvements should be prioritized and focus on the results category of a business excellence model such as the MBNQA (http://www.baldrige.nist.gov) or the EFQM Excellence Model (http://www.efqm.org). It is apparent that the EFQM is the excellence model discussed most frequently in the literature (Van der Wiele *et al.*, 2000a, 1995). This model uses self-assessment as a tool to identify the strengths as well as the areas in which an organization has room for improvement. Its outcome is a structured plan for improvement, which is subsequently monitored for progress. In addition to this self-assessment component, the EFQM assists organizations with their continuous improvement initiatives by facilitating measurement of progress against TQM, identification of improvement opportunities, as well as benchmarking and organizational learning (McAdam and Kelly, 2002). Truly effective use of the excellence models for continuous improvement requires the input of so many managers and staff that, for maximum benefit, it must be effectively marketed by top management and internalized by the staff of the organization (Van der Wiele *et al.*, 2000b).

The vast majority of half a million companies worldwide that are currently registered to ISO 9000 standards still lag behind the levels of performance excellence required by the quality awards criteria. Unfortunately, due to the largely differing purpose, nature and methodology, one cannot simply cut the additional requirements of a business excellence model (BEM) and paste them onto an ISO 9001-compliant QMS (Dale, 1999). Overnight excellence is simply not possible. In other words, although we consider the shift from quality assurance to business excellence as revolutionary, it is really an evolutionary approach that is required (Van der Wiele *et al.*, 1997). In an effort to illustrate this gradual improvement in performance, EFQM (2001) has recently defined three different levels of "excellence": commitment, recognition and award winning.

Many authors (e.g. Van der Wiele *et al.*, 2000b) now concur that ISO 9000 or some other framework of formalized quality assurance is the necessary first step on the path toward competitiveness and excellence. But what is the second step? For most organizations, immediately introducing a full-fledged BEM would probably be a mistake (Dale, 1999), as this usually requires a paradigm shift in organizational culture and thinking. A better solution would be to minimize this quantum leap with an intermediate model that is based on ISO 9001, yet is able to extend the boundaries of quality assurance into the realm of TQM. It was this purpose that directed the most recent round of revisions of the ISO 9004 guideline. While previous (1987 and 1994) versions were intended to assist organizations in the implementation of an ISO 9001,

9002 or 9003 standard, the ISO 9004 (ISO, 2000a) document was changed in both purpose and scope to become a guideline for performance improvement. The goal was clear, and the idea elegant. Create ISO 9001 and ISO 9004 as a "consistent pair of standards", so that companies that wanted to exceed the basic requirements of ISO 9001 could apply ISO 9004 to enhance their QMSs and move towards business excellence. While this approach appears to be logical, and is advocated by some quality management authors (e.g. Seghezzi, 2001), little assessment has thus far been performed to determine if the final product of ISO 9004 (ISO, 2000a) truly fulfills this purpose and is "a step in the right direction" toward business excellence.

It is this precise issue of ISO 9004 (ISO, 2000a) as a stepping-stone toward business excellence that this paper seeks to address. Following an overview of the concept of business excellence and BEMs, an outline of the main characteristics of ISO 9004 (ISO, 2000a) will be presented. Qualitative data collected from Canadian standardization experts working in the quality management field will then be used to explore the needs of business in relation to what is offered by this standard and to assist in a comparison of ISO 9004 (ISO, 2000a) with several BEMs. Finally, a model will be discussed which explores the transition from ISO 9001 to business excellence through ISO 9004.

ISO 9004 and business excellence: an overview

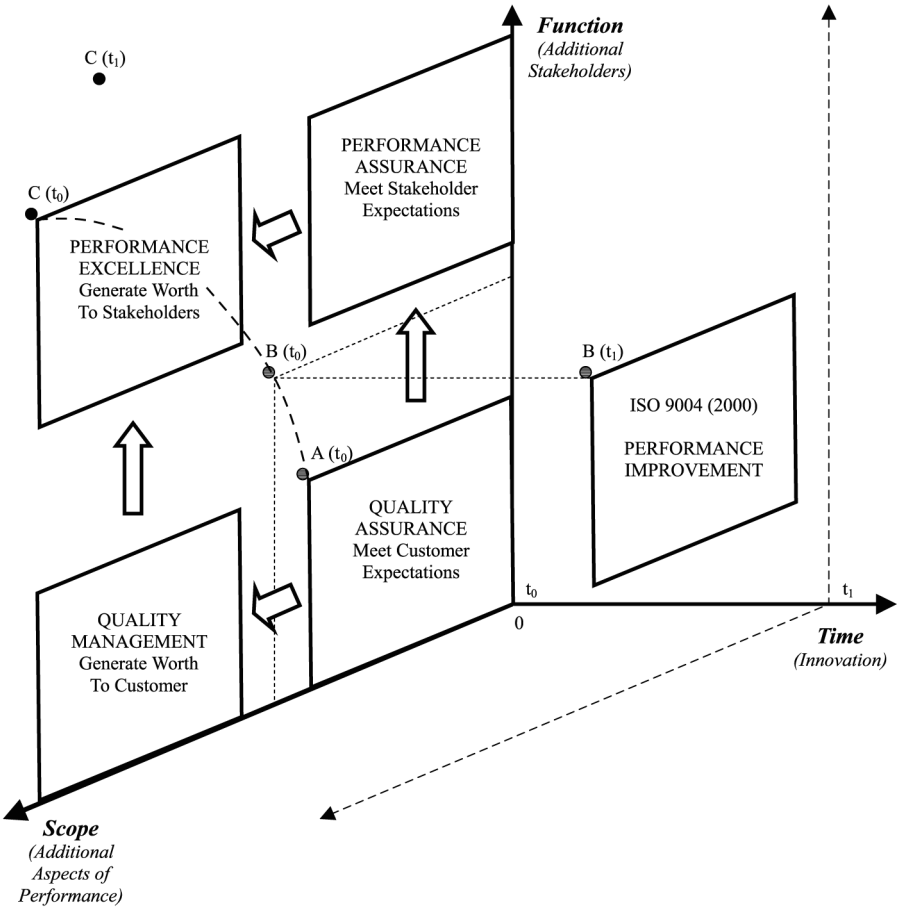
Although not yet formally defined in academic or business practitioner literature, the concept of business excellence guides much of today's corporate thinking and objectives. Countries around the world have developed models to help guide their nation's businesses toward higher standards of business performance and better operational results. This paper does not seek to expand our present understanding of business excellence, but rather to work within this broadly understood concept. As such, although differing somewhat, it is these national models against which business excellence is judged, and against this level of required performance that ISO 9004 (ISO, 2000) must be compared. Based on awareness levels by Canadian organizations, the MBNQA (USA), the model of the EFQM, and the National Quality Institute's CFBE have been selected for inclusion in this study. The following section presents an overview of the ISO 9004 (ISO, 2000a) document. This summary discusses the main features of its purpose and scope as well as the principles and framework on which ISO 9004 (ISO, 2000a) is based.

ISO 9004: purpose and scope

In a departure from the two previous editions which were aimed at facilitating the implementation of the ISO 9001, 9002 or 9003 quality system, the ISO 9004 (ISO, 2000a) standard provides guidance for the continuous improvement of existing quality systems beyond the minimal ISO 9001 (ISO, 1996a) requirements. This change has effectively moved the timeline for application of ISO 9004 from before or during the introduction of an ISO 9001 standard to after an organization has established a formal quality program in accordance with ISO 9001 requirements. A second major development is the extension in scope of the document from a focus on quality assurance to one on quality management. While ISO 9001 (ISO, 2000b) is intended to provide customer satisfaction through assurance that product quality requirements are met, ISO 9004 (ISO, 2000a) is designed to broaden this objective to include satisfaction of an extended network of stakeholders including employees, investors, suppliers,

partners and society at large. In addition, ISO 9004 addresses the improvement of both the effectiveness and efficiency of a QMS, while ISO 9001 is limited to the assessment of effectiveness only. This two-prong expansion of the ISO 9004 (ISO, 2000b) role, namely the satisfaction of additional stakeholders (functional expansion along the *Y*-axis) and improvement of further aspects of business performance (expansion of scope along the *Z*-axis), is illustrated in Figure 1.

The purpose of the previous two versions of ISO 9004 was to provide guidance for reaching the level of performance required by quality assurance models, namely ISO 9001, 9002 or 9003 (indicated by point A in Figure 1). For example, had a business not had any formalized quality assurance program in place, it could have used ISO 9004 (ISO, 2000a) to facilitate a move from point 0 to point A. The purpose of the current version of ISO 9004 is to foster a move from quality assurance (point A) to performance



Note: A = ISO 9001 (2000)
B = ISO 9004 (2000)
C = BEM

Figure 1.
Expansion of the role of ISO 9004 in organizations

excellence (point C). However, since it reaches neither the height (i.e. function exemplified by a number of additional stakeholders the system is able to satisfy) nor the depth (i.e. scope exemplified by the introduction of financial, societal and other new aspects of performance) of BEMs, ISO 9004 (ISO, 2000a) is able to achieve only point B. Another problem for the ISO 9004 (ISO, 2000a) guideline is that of time, indicated by the *X*-axis of Figure 1. If we compare the performance of two companies at one time (e.g. t_0), one with an ISO 9004-strenghtened quality assurance system, and another one which is a winner of a quality award, they will obviously have two different levels of performance, illustrated with points B (t_0) and C (t_0), respectively. Since ISO 9004 (ISO, 2000a) does not particularly encourage organizational learning and innovation, after some time t_1, the first company will basically remain at the same height and depth as when ISO 9004 (ISO, 2000a) was originally applied (point B (t_1)). On the other hand, the award winner is likely to expand further on the criteria of BEM (e.g. with strengthened environmental sustainability and corporate social accountability requirements) and through innovation, breakthrough approaches and learning achieve a much greater performance level (e.g. point C (t_1)).

ISO 9004: principles and framework

The introduction of ISO 9004 (ISO, 2000a) states that use of the guideline does not "imply uniformity of quality management systems" but rather that each organization's use of a QMS will reflect the "varying needs, particular objectives, the products provided, the processes employed, and the size and structure" of that company. Further, it is also emphasized that, although specific guidance is not provided within the document itself, function-specific management systems, including programs for environmental, health and safety, and risk management can be aligned or integrated with ISO 9004 (ISO, 2000a).

It is on a set of eight management principles that the guidance offered in ISO 9004 (ISO, 2000a) has been developed. Customer focus, leadership, involvement of people, process and system approaches to management, continual improvement, factual approach to decision making and mutually beneficial supplier relationships (Table I) are considered to be key factors in the ability of management to lead an organization towards improved performance. These principles shape the process approach that underlies ISO 9001 (ISO, 2000b) and were adopted as the underlying framework for ISO 9004 (ISO, 2000a); it is on the basis of these principles that the main ISO 9004 (ISO, 2000a) elements of: management responsibility; resource management; product realization; and measurement, analysis and improvement were designed. A further description of each of these elements of ISO 9004 (ISO, 2000a) is provided below:

- *Management responsibility.* The element of management responsibility contains guidance on establishing leadership, commitment and "active involvement" of management. A list of actions for the consideration of top management is provided; among these are included the application of methods for performance measurement and managing a quality system as an "effective and efficient network of processes". Identification and subsequent satisfaction of stakeholders' needs, together with the generation of worth to these stakeholder groups are outlined as issues of primary concern.

  The management responsibility section provides guidance on the establishment and communication of quality policy and objectives, and the translation of these

ISO 9004 Quality management principles	MBNQA Core values and concepts	CFBE Principles for excellence	EFQM Fundamental concepts of excellence
Customer-focused organization	Customer-driven excellence	Primary focus on stakeholders/customers and the marketplace	Customer focus
Leadership	Visionary leadership	Leadership through involvement	Leadership and constancy of purpose
Involvement of people Mutually-beneficial supplier relationships	Valuing employees and partners	Cooperation and teamwork	People development and involvement Partnership development
Process approach	Focus on results and creating value	Prevention-based process management	Results orientation
System approach to management	Systems perspective		
Continual improvement	Organizational and personal learning Managing for innovation	Continuous learning and people involvement	Continuous learning, innovation and improvement
Factual approach to decision making	Management by fact Public responsibility and citizenship Focus on the future Agility	Factual approach to decision making Fulfill obligations to all stakeholders and society Focus on continuous improvement and breakthrough thinking	Management by processes and facts Public responsibility

Table I.
Business excellence principles

into actions through the quality planning process, and the definition of responsibility and authority. In an effort to address one of the main problems of quality audits, namely their inability to ensure that audit results are incorporated into the business planning process so as to further continual improvement, the management responsibility element includes a fairly detailed guideline on the process of management review. This process should "facilitate timely provision of data to the strategic planning process" and is viewed "as a powerful tool in the identification of opportunities for performance improvement".

- *Resource management*. The resource management element of ISO 9004 (ISO, 200a) directs top management to "ensure that the resources essential to the implementation of strategy and the achievement of the organization's objectives are identified and made available". Furthermore, it urges top management to consider all resources, tangible, intangible, and natural in order to improve the performance of an organization. Recommendations for consideration are provided on a number of topics broadly grouped into the areas of: people, infrastructure, work environment, information, suppliers and partnerships, natural resources and financial resources.
- *Product realization*. The product realization element encompasses both processes that result in products that add value to the organization, as well as necessary support processes. The role of people and documentation in the support of processes is highlighted, and the incorporation of results from verification and validation of processes as inputs into a process is stressed as a key to the attainment of continuous performance improvement. Consideration of the broad issues of planning of product realization, processes related to interested parties, design and development, purchasing, production and service operations, and control of measuring and monitoring devices are elaborated upon within this element.

  In addition to information provided within this element, ISO 9004 (ISO, 2000a) contains an Annex (Annex B: Process for Continual Improvement) that is designed to "assist in the identification of actions needed for continual improvement of the effectiveness and efficiency of processes".
- *Measurement, analysis and improvement*. This section is derived directly from the two fundamental principles of excellence, namely a fact-based approach to decision making and continual improvement. Performance measurement, monitoring and analysis are viewed as supporting processes for organizational improvement. The results of these activities are conceptualized as an important input for the management review process which, in turn, should become part of business planning, and thus complete the plan-do-study-act cycle of continual improvement. The element of measurement, analysis, and improvement provides recommendations for top management consideration on the topics of measurement and monitoring, control of nonconformity, analysis of data, and improvement.

  In addition to the previously described Annex B, in Annex A ISO 9004 (ISO, 2000a) also provides "Guidelines for self-assessment" which are designed to evaluate the maturity of the quality management system for each major clause of the standard. Given the deliberate correlation between the major clauses of ISO 9004 (ISO, 2000a) and ISO 9001 (ISO, 2000b), this tool can also be used to identify

areas which will require additional attention in making the transition between the 1994 and the 2000 versions of the ISO 9001 standard.

ISO 9004 and business excellence: interviews

Research methodology

To evaluate whether or not ISO 9004 (ISO, 2000a) is truly a path to business excellence, opinions of Canadian standards experts were gathered and used to perform a comprehensive analysis of the ISO 9004 (ISO, 2000a) standard.

The lack of controlled scientific studies on the topic of Canadian business excellence and Canadian sentiment toward ISO 9004 (ISO, 2000a) required an exploratory approach. A questionnaire would not have adequately identified the thoughts, feelings, and opinions of participants; in-depth interviews were used because they permit considerable flexibility in eliciting information from those interviewed. A semi-standardized interview framework was employed. This permitted the flexibility of following a pre-determined series of questions, but also allowed for the interjection of additional questions to clarify or elaborate on subjects' comments. In this exploratory study, it was determined that Canadian standards experts, who were both familiar with the ISO 9000 standards and who thoroughly understood the needs of business in this area, would best be able to provide insight into the research objectives. As such, participation was sought and received from members of the Canadian Advisory Committee (CAC) to ISO 9000 (CAC/ISO/TC176). Membership of this committee consists of a "balanced matrix" of public and private sector representatives from a wide variety of industries across Canada. Many of these representatives are employed as consultants to assist businesses with their implementation of quality management systems, thus making them aware of the challenges faced by a wide diversity of organizations. Prior to the interviews, subjects were given general information about the nature of the study, asked to consent to the use of a tape recorder during the interview, and assured of confidentiality of their comments.

Interviews with 16 individuals were conducted and fully transcribed. All of the interview transcripts were reviewed by a second individual and, in the event of a discrepancy between the original transcription and the reviewer, a third party resolved that discrepancy. Recurring themes derived from the transcripts were identified and grouped into a master document that allowed for the extraction of information that was most relevant. Subjects' comments were then summarized and added to the master document along with the interviewer's thoughts and comments from brief notes taken during the interviews. The regrouped data were examined and triangulated with the published literature and other materials obtained from the interviewees. While it is not possible to derive conclusive results with qualitative research, indications about the use of business excellence programs by Canadian organizations and about the potential use of ISO 9004 (ISO, 2000a) as a tool to assist Canadian organizations in achieving business excellence were determined.

Purpose of document

The ISO 9004 (ISO, 2000a) document is quite explicit in stating that it "is recommended as a guide for organizations whose top management wishes to move beyond the requirements of ISO 9001". It also states that this "International Standard consists of

guidance and recommendations and is not intended for certification, regulatory or contractual use, nor as a guide to the implementation of ISO 9001". Although this statement appears in the document, understanding of the purpose of ISO 9004 (ISO, 2000a) was surprisingly diverse among the individuals interviewed. All interviewees were aware of the effort to make ISO 9004 (ISO, 2000a) part of a consistent pair with ISO 9001 (ISO, 2000b) and the majority recognized ISO 9004 (ISO, 2000a) as "a framework for providing the first building block for going towards performance excellence". However, a few interviewees did not recognize the change in the intent of the document from an ISO 9001 implementation aid to a tool to support organizations in going beyond ISO 9001 requirements. When the purpose of ISO 9004 (ISO, 2000a) is not clearly understood by members of the committee who contributed to its content, many of whom frequently work in a consulting capacity, it is unlikely that the purpose of this document is being clearly communicated to Canadian businesses.

Application. The change in scope of ISO 9004 from the 1994 to the 2000 version raises several questions regarding users' perceptions of quality management standards. As the document is no longer designed to support quality system implementation efforts, will organizations wait until after they have obtained ISO 9001 (ISO, 2000a) registration before they use ISO 9004 or will they instead seek support from excellence models? Is there actually a need for ISO 9004 (ISO, 2000a) or, given the existence of other excellence models, is this document redundant?

The majority of interviewees reported that they were not aware of any organizations that used ISO 9004 (ISO, 2000a). Among subjects who worked as consultants a few reported that, in some instances, they had used the standard in their own practice, either to directly support their work with clients or as a reference tool in training and education programs. In two instances, subjects reported that they had used ISO 9004 (ISO, 2000a) as part of a complimentary pair, however, it was noted that ISO 9004 (ISO, 2000a) was not suitable for use in every organization:

> I only had two customers that went ahead with the 2000 version (of ISO registration) and one of them ... they were not mature enough to go to the 9004 recommendation.

In general, however, the present lack of use of ISO 9004 (ISO, 2000a) was thought to be more related to businesses being overburdened by the transition to ISO 9001:

> I think that people are just grasping with the ... what's this ISO 9001 thing is a big challenge. And ISO 9004 hasn't even entered on their radar screens. People just want to know about 9001 and not really focus on 9004.

In instances where ISO 9004 (ISO, 2000a) was used (or prescribed for use) by companies, in most cases it was the "Guidelines for self-assessment" in Annex A of the document that were of interest. A few interesting cases were also mentioned where ISO 9004 was, at least in part, used. Several organizations were reported to be using sections of it to supplement weak areas of their own companies, and the American automobile industry was reported to be using 9004 to develop a standard for health care services within the automotive sector.Interestingly, despite this lack of current use of the ISO 9004 (ISO, 2000a) document, interviewees were overall in agreement that 9004 is a needed tool. Some indicated that, provided there was some usage, ISO 9004 was a needed and useful document; others identified certain consumers of quality programs, such as smaller organizations and business consumers, who have a specific need for ISO 9004:

> Yes – no matter how few are using it, so long as someone is using it, it is still worth it.
>
> There is a definite need for 9004 especially for the smaller companies that want to improve their performance. Now they have a certain framework where they can add value to their 9001 standard.

Change in purpose of ISO 9004

Several interviewees commented that the transition in purpose of ISO 9004 between 1994 and 2000 has left an unfilled need in the ISO 9000 series of standards and that there is a continued need to support organizations in their early quality efforts:

> There is a need ... there is a great need within the industry, I think, and also within the government, to find tools to do things ... the how. That the old 9004 was ... giving somehow.

Industry-specific guidance for the implementation of ISO 9001 (ISO, 2000b) and the gaps in information brought forward through the ISO 9004 review process, such as information on the economics of quality, are thought to be inadequately addressed in the current ISO 9000 documentation. A need was also identified for a guideline that assists companies in the transition between the 1994 and 2000 versions of the standard. It was generally thought that companies were struggling with the implementation of the new standard and that a transition document would be useful and well received.

Content and organization of the ISO 9004 document

Interviewees offered a substantial number of comments related to the content and organization of the ISO 9004 (ISO, 2000a) document. Overall, remarks were quite positive about the format of the document:

> See the beauty of 9004 is ... you have a two-in-one ... the way it's formatted and structured. For example, any page you open on 9004 has a little box at the top. The box is the encapsulated content, in total, of the corresponding 9001 section. So outside the box is a commentary relating to that subject matter over and above.

In addition to favorable remarks about the commentary available in the "people", "infrastructure", and "work environment" sections, several interviewees also noted the usefulness of the supplementary material included in the Annexes. Business consultants, in particular, commented on the usefulness of Annex A in assisting their clients to visualize gaps in their organizational processes.

Some unfavorable comments were also received about the content of this document. Despite a mandate to link ISO 9004 (ISO, 2000a) with ISO 9001 (ISO, 2000b) as a consistent pair, several interviewees commented that this relationship had not been satisfactorily achieved:

> ... the 9004, the way it was written was too disconnected from 9001; the structure, the vocabulary ...

It was also thought that the extent of additional guidance offered in ISO 9004 was frequently inconsistent in that it varied considerably between elements in the structure, quantity, and quality of information it provided beyond that available in ISO 9001 (ISO, 2000b) (described further below). Both of these drawbacks are believed to have been the result of the accelerated process used to write the ISO 9004 document; overall

it was thought that, had the more traditional ISO standard development process been followed, the final document would have been better.

The ISO 9004 model

Surprisingly, few interviewees were able to offer any comment about the appropriateness and/or completeness of the model used as the basis of ISO 9004 (ISO, 2000a). With a few notable exceptions, the model was generally viewed as being of interest to academics but of little use or interest to business practitioners. Of the few who did speak to this topic, comments received indicated that, although basic, the model was generally viewed as a good foundation upon which to base an organization's quality system:

> . . . it's a primitive model, but at least . . . it's a starting point and you can build upon it and refine it to your own dimension.

> The model has lots of flexibility. It lets you adapt a system to any organization.

Presentation of the model was generally agreed to be inappropriate for its intended audience:

> There is nowhere in 9004 where there is a really good description of the model and how to apply it from a business excellence point of view. So here you are with 9004, a little diagram but a whole bunch of recommendations, and then a lot of people don't really understand the model because the recommendations are very difficult to align with the model because . . . there is no text around it to tell them why these things are the way they are.

Comment about the individual elements was limited to favorable remarks about some sections and general comments about inconsistencies between elements that were outlined previously. Major comments and concerns with information provided in each of the elements are included in the following discussion.

Management responsibility. While the guideline is very detailed with respect to certain groups of stakeholders along with their needs and expectations (e.g. customers, end-users, suppliers and society), other interested parties such as employees, owners and investors in the organization are somewhat ignored. For example, the sole statement reflecting the shareholders' needs, i.e. "the organization should define financial and other results that satisfy the identified needs and expectations of owners and investors", is too general and adds virtually no value.

Resource management. Unlike the management responsibility section that offers little additional information to that available in the ISO 9001 (ISO, 2000b) document, the resources management section of ISO 9004 (ISO, 2000a) is greatly expanded in two aspects. First, the management of resources identified in the ISO 9001 (ISO, 2000a) requirements is addressed in sufficient detail to ensure the improvement of these functions within an organization. For example, while ISO 9001 addresses only training and competence requirements of personnel, ISO 9004 encourages employee empowerment, innovation, teamwork, two-way communication of improvement suggestions, as well as the measurement of employee satisfaction. In the same vein, establishment of a work environment that "has a positive influence on motivation, satisfaction and performance of people" is also encouraged. Second, in addition to topics of human, infrastructure and environmental resources detailed in ISO 9001 (ISO, 2000b), ISO 9004 (ISO, 2000a) addresses four other categories of resources that should

be managed: information, suppliers and partnerships, and both natural and financial resources. While guidance on these may be limited and presented in terms of the effective operation of a quality management system (e.g. financial resources in terms of identifying, reporting and reducing costs of poor quality, but not in a broader sense), this section is a substantial improvement over ISO 9001.

Product realization. Like the management responsibility section, the guidance on product realization processes is limited largely to an explanation of the corresponding minimal requirements of ISO 9001 (ISO, 2000b), without providing much detail on how to move beyond these. Since process management is a particular focus of the ISO 9000 standards, however, further guidance in this area may not be required. This section emphasizes that the way to improve performance is to improve processes, and postulates that better results should be obtained as a consequence of better processes. This focus on the "enablers" of performance, rather than on performance results, is typical of the ISO 9000 series that, from their inception, "assured product quality by ensuring process quality". The weakness of this approach lies in ignoring the importance of integrating adequate resources and objectives into the managed processes. For instance, one can have a "perfect" production process but still make defective products if people are incompetent, raw material is poor and/or goals are not clear. To really improve their performance, organizations need to better manage whole systems (consisting of processes, resources and objectives), rather than only processes. What is needed is a system, not a process approach (Karapetrovic and Willborn, 1998). Nevertheless, the process approach of the ISO 9000 (2000) series is a step in the right direction towards the systems approach of BEMs such as the MBNQA.

Measurement, analysis, and improvement. In addition to internal quality audits, which are required by ISO 9001 (ISO, 2000b), this section of ISO 9004 (ISO, 2000a) provides guidance for the measurement of customer satisfaction, determination of quality costs, and use of self-assessment as a method of performance measurement. While initially the suggested roles of internal audits "to assess strengths and weaknesses of the quality management system (QMS)" and "to evaluate organizational effectiveness and efficiency" may appear to be reasonable extensions of their primary function to assess compliance with the ISO 9001 standard, this guidance is misleading. Quality audits are neither intended to, nor capable of, evaluating process efficiency. Furthermore, audits can only identify strengths and weaknesses of a management system in relation to a selected standard (for example ISO 9001). For threshold-based requirements (e.g. where there are only two possible results: compliance or noncompliance), the audit does not reveal the actual level of performance, but only whether or not the audited level meets the required threshold.

ISO 9004 writers have included guidance on a self-assessment methodology in Annex A of the document. The ISO 9004 (ISO, 2000a) model for self-assessment is focused on the measurement of the effectiveness, efficiency and maturity of the QMS and, as such, does not represent an alternative to the quality audits in ISO 9001. Furthermore, as it is conducted against the QMS model presented in the ISO 9004 (ISO, 2000a) standard, and is performed by organization employees rather than by an external audit professional, this tool can be likened to a "self-audit" (Karapetrovic and Willborn, 2002). The results of these self-assessments should stimulate improvement by not only corrective actions and loss prevention, but also both gradual (*kaizen*) and

quantum leap (breakthrough) improvements. These four approaches to continual improvement are elaborated upon in the guideline.

Further suggested changes to ISO 9004

Some suggestions for further changes to the ISO 9004 (ISO, 2000a) document were also offered in the depth interviews. Several interviewees considered that, overall, ISO 9004 (ISO, 2000a) does not go far enough in leading users toward business excellence. The following suggestions were made to partially remedy this: incorporation of additional content about specific business processes (e.g. complaints handling); provision of clear material that links the ISO 9004 content to industry-specific standards, requirements and awards; and/or material that describes the links between ISO 9004, other ISO standards (i.e. ISO 14000), and general business programs (i.e. workplace health and safety). Furthermore, it was also felt that the revised document does not adequately address the needs of specific types of organizations, in particular small business and service organizations:

> We have multiple sectors and you can't write something very direct to everybody ... so there has to be some kind of link ...

Much attention was also drawn to the fact that use of the ISO 9004 (ISO, 2000a) document does not carry with it any recognition. The ISO 9004 (ISO, 2000a) document explicitly states that it is "not intended for certification or contractual purposes"; those interviewed, however, were quite divided on this point. In one instance, several interviewees stated that, due to its links with ISO 9001 (ISO, 2000b), use of ISO 9004 (ISO, 2000a) was a logical next step in an organization's efforts towards business excellence. Despite this advantage, others indicated that this would be insufficient motivation to "justify" use of the document over a program that offered recognition:

> Imagine that I incorporate the 9004 with my 9001 and then we get audited to 9001. Everybody in the company will see that we are not audited to 9004 and they are going to say "why the extra effort?" ... Even if we communicate very well, people won't understand what we've done ... that we have just verified such a small portion with the external auditor.

Even among those who indicated that some form of recognition was needed, there was divided opinion as to what form this recognition should take. Some indicated that use of ISO 9004 (ISO, 2000a) should offer a certification similar to that gained through ISO 9001; while perhaps too large an undertaking at any one time, a few interviewees suggested that a multi-level recognition scheme would be of value:

> A better [approach] would be a step-ladder approach ... if you break it up in let's say three segments, and get recognized for that ... it would be more palatable ... but it would have to have recognition at those steps.

Conversely, others felt this option would limit the intended flexibility of the document and prevent users from "picking and choosing" among which recommendations were most needed and consistent with their organization's strategy. Designing an "item-specific" merit program, however, might be one solution to this:

> If you are going to do 9004 ... that segment on partnership which you never did before ... you get a partnership badge of some sort. I think it would be very helpful.

As an alternative, an award program was suggested by a few of the interviewees. Among the more popular thoughts were to transform ISO 9004 into an award that was

similar in style to the Malcolm Baldrige and EFQM awards, except offer it through an international competition. Other suggestions included following the Canadian National Quality Institute's example of a combined certificate and award program, the first stage of which is simply a commitment by the organization to pursue the program:

> If you give a certificate before they do it … this hooks on people … Perhaps giving a certificate up front would also make a group feel more committed to the program and more obliged to follow through with 9004.

One final comment commonly brought up by participants was the actual name of the document. Given its changed focus, many suggested that the new version of ISO 9004 should have a different title in order to reinforce its new role within the ISO 9000 series of standards.

ISO 9004 and business excellence: a path

ISO 9004: exploring the principles

The evolution from quality management to business excellence is smoother if both systems follow a similar, if not identical, framework; the more compatible the systems, the easier the transformation. As discussed previously, management systems modeled after the ISO 9004 (ISO, 2000a) guideline are based on a set of eight quality management principles. When these principles are juxtaposed with the concepts of excellence used as a framework for business excellence models, a striking similarity is evident. Table I compares the ISO 9004 (ISO, 2000a) principles with the "core values and concepts" of the MBNQA, the "principles for excellence" of the CFBE and the "fundamental concepts of excellence" of the EFQM model; examination of both content and context of these sets of principles reveals that they are quite consistent. Customer focus, leadership, involvement of people and partners, fact-based management, and continual improvement are common to all models and as such may be considered as necessary conditions for excellence. The systems perspective *per se* is not included as a fundamental concept in the EFQM and CFBE models, but as this approach to decision making is implied through the EFQM "management by processes" and the CFBE "prevention-based process management" principles, this may be included as a further common element among the four sets of concepts.

There are two areas in which ISO 9004 is noticeably deficient, and thus requires expansion. The first is the ISO 9004 emphasis on the process approach as opposed to the results orientation of business excellence models. In fact, as the former incorporates the latter (see preceding section), there is no reason why "systems" and "process" approaches should be considered as separate principles. The second drawback of ISO 9004 is the lack of emphasis among the principles on public responsibility and citizenship. In view of increased concern for the environment and social accountability, fostering these tenets is crucial in seeking excellence for any organization. Therefore, in order to initiate the transformation from ISO 9001 to excellence through ISO 9004, organizations must also consider how to improve financial and non-financial results, as well as their public responsibility and accountability.

ISO 9004: steering towards business excellence

This paper focused on the question of whether it possible to use the ISO 9004 (ISO, 2000a) guideline to transform an organization's ISO 9001-complaint quality assurance

system to a broader system exhibiting overall business excellence. While the previous sections discussed the main virtues and drawbacks of this international guideline in order to provide some background for a positive answer to the question, the focus will now be turned to the analysis of one method that may be used to achieve such a transition. Following a brief discussion about how this evolution through ISO 9004 is indeed possible, an illustration will be provided on how it can be accomplished through a gradual expansion of the scope and functions of a quality assurance system based on ISO 9001 (ISO, 2000b). The final paragraphs of this section are devoted to broadening the methodology for system evaluation, namely the quality audit to a BEM-based self-assessment.

ISO 9004: expanding the criteria

As is apparent from the abundant performance measurement literature, it would be unwise for a company to move suddenly to results-based measurement of performance. Therefore, while an organization gains experience in "true", "integrated" and "total" quality management, expansion of existing programs to include additional principles of and criteria for excellence must be done in a gradual manner.

The criteria for performance improvement provided in ISO 9004 (ISO, 2000a) can serve as an intermediate step toward the full-fledged use of a BEM. Figure 2 illustrates such a model in which additional excellence criteria are gradually injected into an ISO 9001 (ISO, 2000) quality assurance system. The vertical axis depicts the excellence level achieved and the required enhancement of the system scope, while the horizontal axis illustrates time. For example, an ISO 9004-based QMS, which is conceptualized as the second phase in a four-phase evolutionary process, demonstrates a higher level of performance excellence (highlighted line on the top of the rectangle) than an ISO 9001-compliant quality assurance system, but also requires a broader scope (height of the rectangle). As discussed previously, transition from ISO 9001 to ISO 9004 requires an expansion of the scope of both the "resource management" and the "measurement, analysis and improvement" QMS elements.

The next evolutionary phase involves the transition of ISO 9004 to a broader model; this, in effect, bridges the gap between a system based on traditional quality assurance and performance excellence (Figure 1). An example of such a model, identified as the "Organizational Performance Improvement Model" (OPIM (Karapetrovic and Macey, 2003)), is illustrated in Figure 2. This model is based on the systems approach and contains five main elements of objectives, resources, processes, stakeholder results and business performance results. In essence, the OPIM integrates the criteria of ISO 9001, ISO 9004 and selected BEMs into the form of "minimum requirements" and "opportunities for improvement" (Macey, 2001). While the main idea underlying the OPIM is to progressively add BEM criteria to the ISO 9001/9004 systems framework, it is important to note that the users themselves can choose the specific excellence model (e.g. MBNQA, EFQM, CFBE) to be used.

In the fourth and final phase, the OPIM is expanded to include the complete BEM criteria. Figure 2, for example, demonstrates the transition to the nine-element EFQM model. A similar path can be followed in pursuit of the seven-element MBNQA or CFBE, or any other BEM.

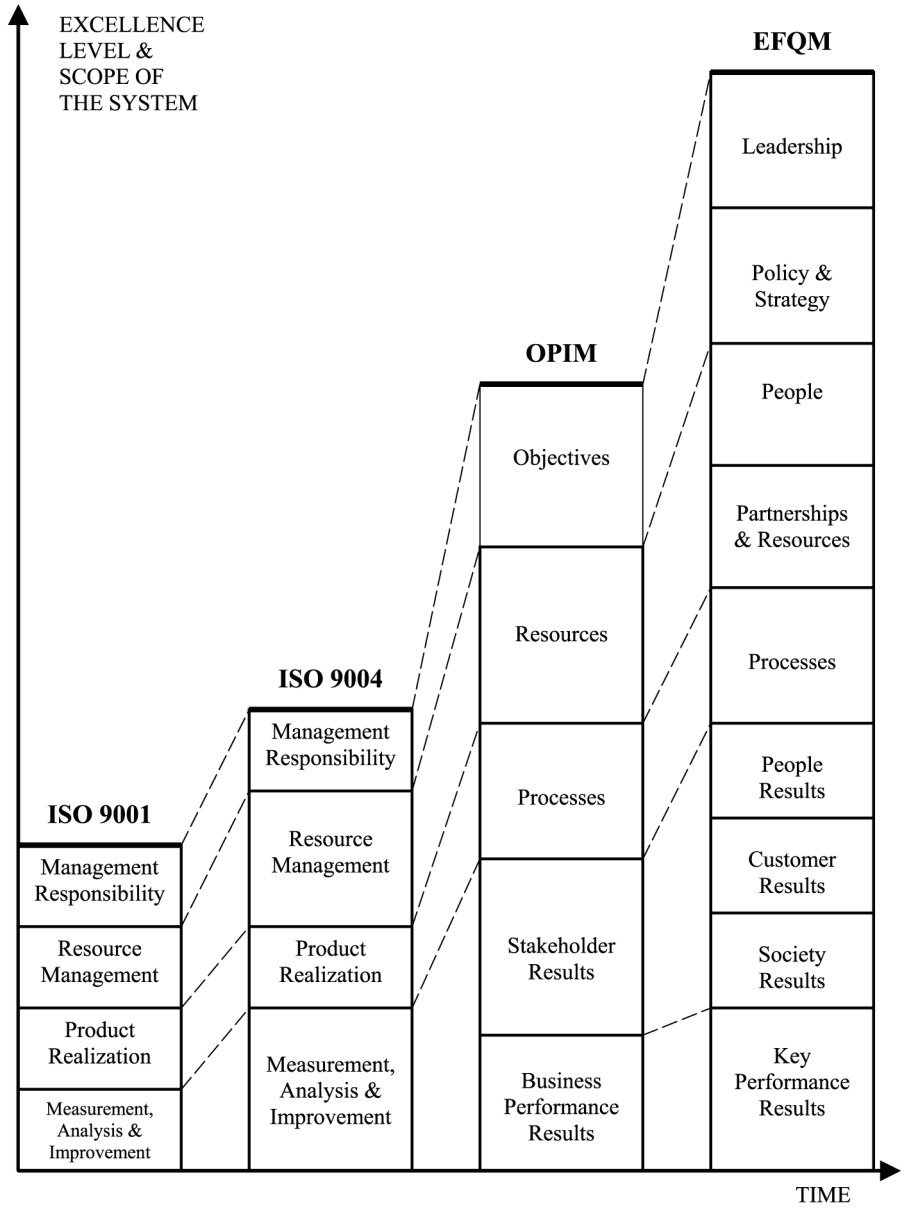


Figure 2.
Path from ISO 9001 through ISO 9004 to excellence

ISO 9004: expanding the audit

Augmentation of ISO 9001 (ISO, 2000b) requirements with BEM criteria is necessary but insufficient to ensure the transition from quality assurance to business (i.e. performance) excellence; any such transition that amounts to the cutting and pasting of criteria is doomed to failure (Dale, 1999) unless adequate support processes are

deployed. Performance measurement methodologies, including internal quality audits and later self-assessments provide part of this much-needed support. However, in line with the gradual introduction of BEM criteria, organizations should be careful not to jump into self-assessments against BEMs without first ensuring sufficient experience with their existing QMSs.

To evaluate their level of "performance maturity", organizations can use the self-assessment method presented in Annex A of the ISO 9004 (ISO, 2000a) standard. There are five possible maturity levels, ranging from the lack of any systematic approach to performance management (Level 1) to the best-in-class performance, demonstrated by benchmarked results (Level 5). This method can also be used to help expand the internal quality audit function in an organization. Process owners, for example, can supplement their regular independent quality audits with "self-audits" of process performance (Karapetrovic and Willborn, 2001) using the content of ISO 9004 (ISO, 2000a) Annex A. Less demanding self-assessment diagnostic approaches may subsequently be used, such as the questionnaire or the matrix chart (EFQM, 1999); this can then be followed by the application of a comprehensive award simulation approach. In this manner, organizations can sequentially move from detecting and correcting as well as preventing problems using audits, to the identification of areas for improvement, and to finally embedding self-assessment results into the business itself.

Conclusion

A series of in-depth interviews with Canadian standards experts revealed that, although perceived as a needed document, in its present form ISO 9004 (ISO, 2000a) is neither being used to a great extent, nor is adequately filling the role for which it was designed. The document was perceived as having great potential. Suggestions for realizing that potential were numerous, and ranged from adding more guidance on specific business processes (e.g. complaints handling) to incorporating more material that links ISO 9004 with industry-specific standards, awards, and general business programs. Through consideration of issues such as these, the ISO 9004 (ISO, 2000a) model has been re-examined and expanded in a manner that both addresses many of the experts' concerns and permits the model to be better incorporated into the path towards business excellence. It is felt that, with these changes, ISO 9004 (ISO, 2000a) can make a logical and valuable contribution to an organization's business excellence strategy.

Questions remain as to whether or not ISO 9004 (ISO, 2000a) will be selected as a stepping-stone on the path towards business excellence without some form of recognition. Although not directly analogous, one might consider the example of the ISO 14000 series of standards. Like the ISO 9000 standards, the ISO 14000 series contains a model for third-party registration of environmental management systems (EMS), namely ISO 14001 (ISO, 1996a), as well as a supporting ISO 14004 (ISO, 1996b) guideline. This guideline aims "to provide assistance to organizations implementing or improving an environmental management system (EMS)", thereby encompassing both the establishment and subsequent enhancement of an EMS. Although ISO 14000 does not closely parallel ISO 14001 in structure, it does offer "issues to be considered" in a format reminiscent of BEMs along with "practical help" that provides sample applications. In further similarity with ISO 9004, while ISO 14004 can be used for second-party "recognition", it cannot be used for third-party registration.

Further research on this topic will be conducted in the form of a detailed survey sent to a good variety of Canadian businesses. This survey will attempt to inquire about the perceptions of managers of Canadian organizations as they relate to the ISO 9004 (ISO, 2000a) guidelines and business excellence. The results of the survey are now available and will be reported soon.

References

CFBE (2002), *Canadian Framework for Business Excellence*, National Quality Institute, Toronto.

Dale, B.G. (1999), *Managing Quality*, 3rd ed., Blackwell Publishers, London.

European Foundation for Quality Management (EFQM) (1999), *The EFQM Excellence Model*, EFQM, Brussels.

European Foundation for Quality Management (EFQM) (2001), *EFQM Levels of Excellence*, EFQM, Brussels.

Gotzamani, K.D. and Tsiotras, G.D. (2002), "The true motives behind ISO 9000 certification. their effect on the overall certification benefits and long-term contribution towards TQM", *International Journal of Quality & Reliability Management*, Vol. 19 No. 2, pp. 151-69.

International Organization for Standardization (ISO) (1996a), *ISO 14001: Environmental Management Systems: Specifications with Guidance for Use*, ISO, Geneva.

International Organization for Standardization (ISO) (1996b), *ISO 14004: Environmental Management Systems: General Guidelines on Systems, Principles and Supporting Techniques*, ISO, Geneva.

International Organization for Standardization (ISO) (2000a), *ISO 9004: Quality Management Systems: Guidelines for Performance Improvements*, ISO, Geneva.

International Organization for Standardization (ISO) (2000b), *ISO 9001: Quality Management Systems: Requirements*, ISO, Geneva.

Karapetrovic, S. and Macey, S. (2003), "An integrative model for quality management system evolution beyond ISO 9000", *Proceedings of the 8th International Conference on ISO 9000 and TQM*, Montreal, pp. 54-60.

Karapetrovic, S. and Willborn, W. (1998), "The systems view for the clarification of quality vocabulary", *International Journal of Quality & Reliability Management*, Vol. 15 No. 1, pp. 99-120.

Karapetrovic, S. and Willborn, W. (2001), "Audit and self-assessment in quality management: comparison and compatibility", *Managerial Auditing Journal*, Vol. 16 No. 6, pp. 366-77.

Karapetrovic, S. and Willborn, W. (2002), "Self-audit of process performance", *International Journal of Quality & Reliability Management*, Vol. 19 No. 1, pp. 24-45.

McAdam, R. and Kelly, M. (2002), "A business excellence approach to generic benchmarking in SMEs", *Benchmarking: An International Journal*, Vol. 9 No. 1, pp. 7-27.

McAdam, R. and McKeown, M. (1999), "Life after ISO 9000: an analysis of the impact of ISO 9000 and total quality management on small businesses in Northern Ireland", *Total Quality Management*, Vol. 10 No. 2, pp. 229-41.

Macey, S. (2001), "An integrated model for performance management based on ISO 9000 and business excellence models", MSc thesis, Department of Industrial Engineering, Dalhousie University, Halifax.

MBNQA (2002), *MBNQA Baldrige National Quality Program Criteria for Performance Excellence*, National Institute of Standards and Technology, Gaithersburg, VA.

Samson, D. and Challis, D. (2002), "Patterns of business excellence", *Measuring Business Excellence*, Vol. 6 No. 2, pp. 15-21.

Seghezzi, H.D. (2001), "Business excellence: what is to be done?", *Total Quality Management*, Vol. 12 No. 7 and 8, pp. 861-6.

Van der Wiele, A. (1998), *Beyond Fads: Management Fads and Organizational Change with Reference to Quality Management*, Eburon Publishers, Delft.

Van der Wiele, T., Dale, B.G. and Williams, A.R.T. (1997), "ISO 9000 series registration to total quality management: the transformation journey", *International Journal of Quality Science*, Vol. 2 No. 4, pp. 235-52.

Van der Wiele,, T., Dale, B. and Williams, R. (2000a), "ISO 9000 series and excellence models: fad to fashion to fit", *Journal of General Management*, Vol. 25 No. 3, pp. 50-66.

Van der Wiele, T., Dale, B.G. and Williams, R. (2000b), "Business improvement through quality management systems", *Management Decision*, Vol. 38 No. 1, pp. 19-23.

Van der Wiele, A., Williams, A.R.T., Brown, A. and Dale, B.G. (2001), "The ISO 9000 series as a tool for organizational change: is there a case?", *Business Process Management*, Vol. 7 No. 4, pp. 323-31.

Van der Wiele, A., Williams, A.R.T., Dale, B.G., Carter, F., Kolb, D.M., Luzon, A., Schmidt, A. and Wallace, M. (1995), "Self-assessment: a study of progress in Europe's leading organizations in quality management practices", *International Journal of Quality & Reliability Management*, Vol. 13 No. 1, pp. 84-104.