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ISO 9000 certification benefits, reality or myth?

Gavin P.M. Dick

Gavin P.M. Dick is a Senior Lecturer at Staffordshire University Business School. His background is the electronics industry where he was involved in Quality and Operations Management.

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Given the rapid recent growth in ISO 9000 applications and the business performance benefits being claimed for it by National Accreditation Registrars, it is timely to review the research in this area to see if any substantial proof exists for these claims. The paper explores the literature and finds that there is no proven link between quality certification (ISO 9000) and improved business performance. However, it is clear from the research reviewed on business performance factors, that better quality does have a consistent, positive relationship with business performance. Combining these findings leads to the inference that quality certification to ISO 9000 standards is not consistently associated with having a quality assurance system that delivers improved process control, or better quality. We conclude that the National Accreditation Registrars need to reflect on the standards of proof that they currently use to support claims for business performance improvement from the application of the ISO 9000 standards.

Content Indicators: Readability**, Practice Implications**, Originality**, Research Implications**

Introduction

Since 1987, when the International Organisation for Standardisation first published the ISO 9000 series of quality standards, the world-wide take up of quality certification to the ISO 9000 standard (QCert) has been increasing rapidly. At the end of 1998, more than 270,000 firms in over 143 countries, will be certified to the standard, an increase of 48,000 on the previous year (ISO, 1999). The progressive increase in applications from manufacturing firms, for approval to standards such as ISO 9000, suggests that QCert has been, and continues to be, viewed as important to competitive position by manufacturing firms. More recently, the popularity of QCert has spread into the service industries (ISO, 1999).

Given the growth in ISO 9000 applications and the business performance benefits being claimed for it by the accredited certification bodies, it is overdue to review the research to see if any substantial proof exists for these claims.

Benefits of certification claimed

The International Standards Organisation, National Accreditation Registrars and the third party accreditation bodies in Europe and the USA all make claims for ISO 9000 certification leading to business performance improvement. The claims seem to become more explicit as one moves closer to those who provide third party assessment.

For instance, ISO is careful not to make explicit claims:

Therefore, organisations that implement ISO 9000 voluntarily are doing so because they expect these standards to help them to do things better and to provide real benefit (ISO, 2000).

This is not the case for the British Standards Institute that claims a host of benefits including increased profitability:

The consequent benefits of registration are, needless to say, substantial. You should expect: Greater responsibility, accountability and quality consciousness among your staff. Better use of time and resources. Greater consistency and traceability of product or service. Less wastage through product or service failure. Continual improvement to your quality and efficiency. Improved profit. Wider market opportunities (BSI, 2000).

The American Registrar Accreditation Board (RAB) who, with the American Standards Institute, founded the American National Accreditation Board, makes claims for eight internal and eight external benefits from implementing a quality system based on ISO 9000. These include:

increased operational efficiency, cost savings from less scrap and rework, cost savings from fewer warranty claims, a competitive edge, perceived higher quality, and increased market share (RAB, 2000).

The UK-based National Quality Assurance (NQA), an accredited certification body carrying out third party assessment in both the UK and the USA, makes similar specific claims:

It reinforces a company's management system. Provides a framework for controlling and improving business activities. Adds value to products and services. Adds to competitiveness. Provides a marketing edge (NQA, 2000).

We can summarise the benefits claimed as:

Lower costs through reduced wastage and quality improvement.
Increased market share through perceived higher quality and/or improved market opportunities.

To examine the validity of these claims, we will first examine the research on quality and business performance to see what links are found and how these relate to quality control and assurance. We will then evaluate the research on QCert and improved business performance to establish if the claims for benefits from ISO 9000 certification can be supported.

Quality and business performance

The contribution of quality to business performance has consistently been claimed by the quality gurus (Crosby, 1979; Juran, 1982; Deming, 1986). Empirical research such as the PIMS studies (Schoefer *et al.*, 1974; Buzzel and Wiersema, 1981; Craig and Douglas, 1982; Phillips *et al.*, 1983) and more recent findings (Maani *et al.*, 1994, Jacobson and Aaker, 1987; Flynn *et al.*, 1995, 1997; Forker *et al.*, 1996; Adam *et al.*, 1997) all support the proposition that better quality has a positive relationship with business performance. This is also true for the service sector; Capon *et al.* (1990) identifies 20 service studies that find a positive relationship between quality and business performance. Rust *et al.* (1994), who review the marketing literature on service quality and performance, come to the conclusion that a link exists between quality and financial returns. Caruana and Pitt's (1997) study of 131 UK service firms suggests that better quality does have a positive effect on the overall performance of the firm, relative to its competitors.

We note however, that, although quality itself does have a consistent positive relationship with better performance, there is little commonality in how performance is measured or how quality is defined. We select some of the research mentioned for more detailed examination to aid our understanding of the quality factors that have been found to have an influence on business performance.

Jacobson and Aaker (1987) found product quality had a positive influence on return on investment, market share and price. An investigation of 65 firms in the furniture industry (Forker *et al.*, 1996) discovered that quality – defined as conformance to specification – was significantly related to sales growth and the return achieved on the sales growth. These findings indicate the powerful impact that better conformance can have on reducing costs and attracting, and retaining, customers.

Flynn *et al.*'s (1995) study of the transportation, electronics and machinery industries found that good internal quality (made right first time) was associated with greater employee involvement and better process control. Greater employee involvement could be associated with the total quality ideal, while better process control should come from the quality control that underpins good quality assurance systems. This indicates that better process control should lead to lower rework and diminishing costs of quality.

Findings from the World-class Manufacturing Project (Flynn *et al.*, 1997) indicate that achieving conformance to specification with low levels of rework has a direct effect on competitive advantage, while management perception of the plant's product quality and customer service, relative to its competitors (quality differential), had an even greater impact. "Right first time" was strongly associated with better process flow management while quality differential was shown to be linked with better process management and quality control.

We can summarise the factors that relate to business performance into two categories. First, those that improve the product or service quality differential against competitors and, second, those factors that reduce the cost of quality. An effective quality assurance system will have product and service quality conformance as its primary goal. The research reviewed found that better conformance quality was associated with sales growth and better sales margins. It was also found that good quality control was related to competitive advantage. An effective quality assurance system will have process control as an essential activity. Better process control will, the research suggests, be consistently associated with less rework and hence lower costs. These lower costs will lead to better comparative business performance. This is in line with Deming (1986) who reasons that, as quality improves, waste is eliminated, costs are reduced, and financial performance improves.

We can conclude that there is a consistent pattern in the research that suggests that the claims made for quality improvement as a means of improving business performance are true. The research clearly suggests that effective process control, quality control and better conformance quality are linked to competitive advantage. However, can the same be said for the claimed link between QCert and improved business performance?

Quality certification and business performance

Inferred in the pursuit of quality certification is the assumption that quality certification is associated with improved quality systems, leading to better quality and hence to better business performance. However, the research we now review, on the link between quality certification and business performance, reveals contradictory results. To provide an understanding of this contradiction we also explore the intermediate links between quality certification and business performance variables.

Our examination of the literature found that the vast majority of the articles that do address the business value of certification are, unfortunately, either anecdotal, case study based, or report only descriptive statistics. Case studies are an ideal way of illustrating success stories and the realities of implementation. However, they do not provide proof that QCert is likely to lead to improved performance, only that it is possible. Descriptive statistics also have their problems, since they cannot demonstrate causal links, and so provide weak evidence at best of the links between QCert and business performance improvement. Because of these concerns, we focus, where possible, on research using statistical data analysis.

the principal motivation for pursuing QCert was the ability of the certificate to open customers' doors that were previously closed, or would close, if QCert were not achieved

Many studies report expectations of increased market share and improved quality from ISO 9000 implementation (e.g. Ebrahimpour *et al.*, 1997). The UK research of Mann and Kehoe (1994) noted that QCert was associated with improved business performance at the operational level. Buttle's (1996) survey of 1,220 certified UK companies, which included 415 service sector firms, found that improving operations and marketing gains were claimed by most of the firms following QCert. However, the large scale descriptive studies of Lloyd's Register (1993), The Institute of Quality Assurance (1993) and Breka (1994), report that the greatest gain from quality certification is widening market opportunities rather than improvements in quality itself.

In contrast to the studies reporting business benefits, Batchelor's (1992) study of over 600 registered UK firms, found that only 15 per cent of firms achieved gains from quality certification. These benefits were largely internal, such as reduction in error rates and procedural efficiency, rather than external dimensions such as market share. This is supported by a recent rigorous empirical study (Terziovski *et al.*, 1997) of 1,000 firms in Australia and New Zealand that found that QCert had no significant, positive relationship with business performance. They noted that the principal motivation for pursuing QCert was the ability of the certificate to open customers' doors that were previously closed, or would close, if QCert were not achieved. Seddon's (1997) case study research in the UK goes further to suggest that if ISO 9000 has any effect on performance it is negative.

Insights into the reasons for pursuing QCert, and the effect this has on subsequent business performance, are provided by the Science and Engineering Policy Studies Unit (1994) study, that reviewed 28 surveys relating to ISO 9000. It concluded that there appears to be a relationship between managers' motives for adopting certification and gains achieved in business performance. Companies that cited customer pressure as their reason for pursuing certification were less likely to report improvements than those which gave other reasons for adopting QCert. Other studies (for instance, Gore, 1994) have suggested that organisations reacting to external pressure may see QCert registration as the prime objective and adopt a minimalist approach to achieve. These firms may possess QCert but they do not value the quality assurance system that QCert requires.

These studies infer that the motive for seeking certification is an important predictor of performance. Insights into this motivation variable are provided by a recent empirical study of 272 Australian firms by Jones *et al.* (1997). It found evidence that firms that sought QCert because of externally imposed perceptions of the necessity to "obtain a certificate" were found to experience fewer beneficial outcomes of QCert than firms who had a "developmental" view of quality improvement. These developmental firms' motives included a desire to use QCert to improve the company's internal processes, and/or help lower quality costs and increase customer focus.

An insight into the importance of having a developmental orientation towards quality is provided by the study by Chapman *et al.* (1997) of large service and manufacturing firms in Australia. They found that improved financial performance (sales per employee) was linked to greater integration of quality plans into strategic business plans. This relationship was found to be stronger in service firms than in manufacturing ones.

In contrast to Jones *et al.*'s (1997) and Chapman *et al.*'s (1997) findings indicating that a developmental or strategic orientation is a moderating variable, Terziovski *et al.* (1997) found that their variable "TQM environment", (indicative of a developmental view of quality) had no significant influence on the relationship between QCert and business performance.

Overall, it would seem that possession of QCert has little or no explanatory power in terms of organisational performance, unless complex variables such as motives or orientations are taken into account. No consistent evidence is found to support the universal benefits claimed of QCert leading to lower costs through reduced wastage and quality improvement or increased market share through perceived higher quality and improved market opportunities.

Conclusions

It is clear, from the research we reviewed on business performance factors, that better quality does have a consistent positive relationship with improved business performance. At a more detailed level, the research indicates that factors that are essential to quality assurance systems, such as effective process control, quality control and better conformance quality, are linked to better business performance. However, the research shows that firms who have a quality certificate, and hence an approved quality assurance system, do not show any consistent business performance gains. Combining these findings leads to the inference, that quality certification is not consistently associated with having a quality assurance system that delivers improved process control, quality control or better conformance quality. So, are the ISO 9000 requirements set at too low a level?

It is widely accepted that the so-called requirements of QCert represent the lowest common denominator in any successful quality system. The narrow scope of ISO 9000 compared to the "excellence" models of quality is illustrated by Ferguson (1996) who found that the requirements of ISO 9000 met only 40 per cent of the requirements of the Baldrige Award. Even so, we would surely expect a sufficient proportion of firms to take their quality assurance system beyond this minimum to show that performance benefits are linked to the possession of a quality certificate. The fact that this is not the case could have a number of explanations that we will now explore.

Accreditation can be achieved too easily by those who just want the badge.

The standards lead to an inappropriate emphasis.

Quality differentials are less between firms than they were.

Total quality management (TQM) quality initiatives provide greater business performance improvement opportunities than ISO 9000 quality management systems.

There does appear to be some evidence that accreditation can be achieved too easily by those who just want the badge. Earlier we referred to studies (for instance, Gore, 1994) that have suggested that organisations reacting to external pressure may see QCert registration as the prime objective and adopt a minimalist approach to achieve it. These firms see the accreditation process as a game they can win by cheating, they may possess QCert but they do not value the quality assurance system that QCert suggests that they possess. Accepting this explanation is to accept that the accreditation process is ineffective in weeding out the fakers.

There is a range of criticisms of the standards leading to an inappropriate emphasis. The standards are often criticised for fostering bureaucratic paperwork rather than quality improvement (for instance Seddon, 1997). Others (for instance, Karapetrovic, 1999) argue that the standards' emphasis on compliance means that firms focus too much on proving the system is in place with documentation, rather than making sure it is working and improving quality. Other critics see the standards as static and not a reliable way of achieving the objective of the firm's products or services being of an assured quality (e.g. Corrington, 1994; Struebing, 1996). ISO have not ignored these criticisms and are in the process of gaining world-wide approval for substantial revisions to the ISO 9000 standard entitled ISO 9001:2000 that addresses many of these issues including the role of quality improvement. If we argue that the lack of a link between QCert and improved performance is explained by the standards leading to behaviour that is inconsistent with quality improvement, one would have to accept that a substantial minority, or a majority, of firms possessing QCert fall into this category, or are after just the badge. Otherwise, there would not be enough firms failing to realise performance benefits, to dilute the effect of those firms who are gaining benefits from their ISO 9000 quality management system.

An alternative explanation is that the competitive advantage from better quality is fading since most firms have already improved their quality through other quality initiatives. This infers that good quality is the norm rather than the exception hence quality gains from ISO 9000 are too small to lead to improved performance. This argument is tempting. No doubt evidence can be found that overall quality has improved in many industrial sectors. However, as the research reviewed earlier on the link between quality and improved business performance shows, there is still a sufficient differential between firms to lead to performance gains through quality improvement. We therefore have to discard this explanation.

the generalised business performance benefits claimed for ISO 9000 certification are not justified by the research evidence. National Accreditation Registrars need to reflect on the standards of proof that they currently use to support claims for business performance improvement from the application of standards

When we examined the links between better quality and improved business performance it was noted that some quality improvement links related to the total quality ideal. We find support for this in further examination of Terziovski, *et al.*'s (1997) research. They found that firms with a strong TQM environment reported greater business performance improvement than firms who only possessed QCert. Firms who possessed a strong or weak TQM environment reported no additional business performance benefits from having QCert. The quality staircase model of Kim *et al.* (1997) provides an explanation. In firms with a strong TQM environment, QCert may not make much difference to business performance because, as it is focused on mastering conformance to specification which is at the bottom of the staircase, so QCert may do little more than document what are already good quality attitudes and systems. Conversely, firms with a weak TQM environment may not improve their business performance through adoption of QCert because of the earlier explanations.

Whichever one these explanations we consider, we have to find that the generalised business performance benefits claimed for ISO 9000 certification are not justified by the research evidence. We suggest that National Accreditation Registrars need to reflect on the standards of proof that they currently use to support claims for business performance improvement from the application of standards. Perhaps it is the Achilles' heel of Standards Organisations that they do not insist on such standards? The National Accreditation Registrars have to set the example, since firms providing third party assessment will quote them as the source for their claims for benefits.

It would be prudent for the National Accreditation Registrars to take their lead from ISO who make no explicit claims for benefits, other than ISO 9000 is an internationally recognised standard. ISO sensibly use quotations from customers who have been pleased with the benefits they have gained, they make no claims for universal business benefits.

Commentary

A timely review of the benefits or otherwise of ISO 9000.

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