A new role for ISO 9000 in the food industry?
Indicative data from the UK and mainland Europe

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Abstract *Traditional criticisms of the ISO 9000 standards, that they are generic, procedurally-oriented, expensive and burdensome, are particularly applicable within the food industry. Their lack of fit with industry priorities and requirements, moreover, has created a growth in uptake of alternative "bespoke" standards in the UK, designed to better meet the needs of the industry and demands of the retail customer. The year 2000 revision of ISO 9000 may serve to redefine the role of this standard in the food industry, whereby it can augment such standards and provide a template for Business Excellence. This paper presents an analysis of industry trends in relation to quality standards, and discusses the potential role of ISO 9000:2000 within this sector based upon published data from ISO, industry survey data, and interviews with a major UK food certification body and with technical managers from food companies in the UK and overseas. Implications of such trends are presented in relation to the auditing of UK companies.*

Introduction

Recent information from ISO reports record growth of ISO 9000, with 343,643 certifications recorded at the end of 1999, an increase of 26.4 per cent over the previous year (ISO, 2000). It is also reported that the UK reached the 60,000 milestone in 1999 (to 63,700, being the highest number of certifications in any country). The major growth sectors across all countries are reported to be "electrical and optical equipment", "basic metal and fabricated metal products", "construction" and "machinery and equipment", which together account for 42 per cent of all ISO 9000 certifications (ISO, 2000). In the food and drinks manufacturing industry (referred to subsequently as "the industry") internationally, ISO 9000 standards have enjoyed relatively steady success. Increasingly, however, UK food producers are moving from the generic ISO 9000 series towards "bespoke" third-party accredited standards. This article presents the background to this apparent decline in interest, and outlines the potential renewed role for ISO 9000 in this industry in the light of its year 2000 revisions.

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ISO 9000 and the food and drinks industry

Quality and management systems in the industry

For the producers of food and drink products, there are three broad aspects of "quality", namely:

(1) all necessary process and sensory criteria associated with the product and consumers' expectations of it;

(2) activities required to assure its safety and legality (basic mandatory guidelines and systems); and

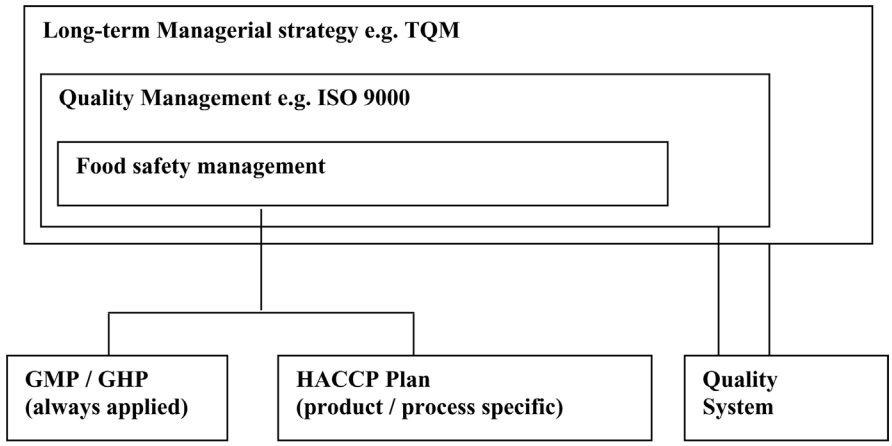
(3) sectoral and industry-wide quality marks, compliance schemes and management systems aimed at "farm to fork" quality assurance.

Holleran *et al.* (1999) categorise the third aspect under the following three headings: International QA standards (e.g. ISO 9000); national farm level assurance systems (e.g. the lion mark for eggs); and proprietary QA systems (i.e. systems imposed upon suppliers by large retail customers). The voluntary adoption of such systems represents a marketing opportunity and competitive weapon in the fight for increasingly vital retail business.

The model shown in Figure 1 was developed by the International Life Sciences Institute (ILSI) to illustrate levels of QA management in the industry. At the baseline level is the essential management of food safety, incorporating:

- the hazard analysis critical control point (HACCP)[1] risk assessment and management system; and
- good manufacturing/hygiene practice (GMP/GHP) as laid down in relevant codes of practice (e.g. IFST, 1991).

Other baseline "due diligence" requirements such as those associated with weights and measures control as laid down in the UK "packers code" (DTI,



Source: Jouve *et al.* (1998)

Figure 1.
ILSI model for quality assurance management in the food industry

1979) can also be added at this level. These basic quality control and assurance activities can then be supported by and contained within an appropriate documented quality management system such as ISO 9000. At the highest level are the more strategic quality management activities of the company. A more generalised model, clearly showing the "nested" nature of inspection, quality control, quality assurance and quality management activities, can be found in Dale (1999).

The ILSI model advocates use of ISO 9000 standards in quality management, and indeed the European Directive (93/43/EEC) that introduced the seven principal activities of HACCP also recommended that the activities be embedded within a documented management system along the lines of ISO 9000 (e.g. Holt and Henson, 2000).

The case against: problems in relation to ISO 9000

The traditional criticisms of the pre-2000 releases of ISO 9000 standards have been in relation to their focus on procedures (rather than processes), which has long been perceived to be out of step with TQM, and to the resource implications involved in achieving and maintaining the standard, which impact particularly upon the smaller company. Both issues are particularly significant within the food and drinks processing industry. Additional factors specific to the industry, moreover, have tended to compound these disincentives, and discourage or prevent many organisations from seeking registration against the standard. These include: lack of fit with industry priorities such as food safety assurance requirements; the existing high costs of regulatory compliance; the proliferation of vertical and horizontal quality assurance schemes over recent years; and the fact that increasingly powerful customers (consumers and retailers) in general do not consider registration against the standard to be an important criterion in their choice of product or supplier. These factors are each considered in the following sections.

Resource implications. As shown in Table I, Pareto's law is particularly applicable within the food industry. Eighty-six per cent of businesses have fewer than 50, and 96 per cent fewer than 250 employees (IGD, 2000), thereby conforming to the generally accepted definition of an SME. The largest 4 per cent of organisations in the sector account for around 79 per cent of turnover, and around 72 per cent of employment. Previous research has been undertaken

Organisation size (no. of employees)	1-49	50-99	100-249	250-499	500+
Total number	6,325	355	335	160	175
Percentage of businesses	86	5	5	2	2
Percentage of employment	12	5	10	11	61
Percentage of turnover	9	5	8	9	70

Source: IGD (2000)

Table I.
Food products, beverages and tobacco sector demographics

into assessing the burden upon the large number of smaller organisations of coping with an increasingly regulated environment (e.g. Heasman and Henson, 1997). The findings of such studies would tend to suggest that such organisations are under a considerable disincentive to adopt higher level systems that are not perceived as necessary by customers.

Lack of fit with industry priorities and procedures. Holt and Henson (2000) highlight the following areas of tension between ISO standards and food manufacture, specifically in the context of food safety:

- Procedures that satisfy ISO do not necessarily guarantee product safety, and may not even satisfy the "due diligence" defence when it comes to food safety (Jouve *et al.*, 1998).
- Assessors not trained in food technology are entirely inappropriate for food businesses (Ottaway, 1991).
- When attempting to incorporate HACCP within ISO, the identification of too many critical control points within the HACCP can lead to excessive documentation (Moy *et al.*, 1994).

The main issue is that safety is a fundamental priority for food companies, and ISO 9000, as a quality management standard, does not adequately address product safety. One international certification body is currently addressing this gap via the development of a system that integrates HACCP with ISO 9000 type documentation (for details of this system, see Dougherty *et al.*, 1999; Tanner, 2000).

Resource implications of the growth of sector specific quality assurance schemes. There has been a proliferation of generic and sector-specific quality assurance initiatives and schemes resulting from various high-profile food safety scares since the 1980s. These include national and international legislation (e.g. the 1990 UK Food Safety Act); farm level schemes (Morris and Young (2000) report that there are currently around 40 of these in the UK); quality marks; and voluntary and mandatory codes of practice. The continued success of food companies is dependent upon their ability to adopt the schemes that are relevant to their own sector, and hence they are increasingly committing their resources to the achievement and maintenance of these. This impacts particularly upon the smaller companies, and much research has been undertaken into assessing the burden upon such firms of coping with an increasingly regulated operating environment (e.g. Heasman and Henson, 1997; Holt and Henson, 2000; Henson *et al.*, 1999). The findings from these studies would suggest that small firms particularly are under a considerable disincentive to adopt a non-mandatory higher level system such as ISO 9000 which, as discussed below, may not be perceived as necessary by customers.

The development of "bespoke" industry standards

Alternative third-party accredited standards have been recently developed in the UK as a response to:

- the need for such standards that closely match the requirements of the industry; and
- the need to rationalise the various retailer-specific compliance schemes that accompanied the growth in the power base of UK retail customers over the last decade.

Two important examples of these standards discussed in this article are those produced by EFSIS (The European Food Safety Inspection Service) and BRC (the British Retail Consortium), although there are others in use. The EFSIS "standard for companies supplying food products" (EFSIS, 2000) was initially developed in 1989, and the BRC "Technical standard for companies supplying retailer-branded products" was introduced in October 1998 for incorporation into the standards of other third-party inspection bodies (*Quality World*, 2000). Both standards have EN45004 status, although the full BRC requirements are now in any case contained within the current revision of the EFSIS standard.

Retailer power in the UK has increased to a point where retailer-branded products account for over 50 per cent of food sold in the UK (*Quality World*, 2000). With such a shift in the power balance of the supply chain, there is a clear incentive for many UK companies to adopt a standard that incorporates the BRC requirements. Holt and Henson (2000) found that because of customer pressure and for reasons of professional credibility, motivation to achieve EFSIS certification is currently very high among technical and quality managers in the industry. The development of bespoke standards is not, of course, unique to the food industry. Parallels can be seen in other sectors such as hospitality (with the introduction of the Hotel and Catering International Management Association's (HCIMA) *Hospitality Assured*) and leisure (with Associated Quality Services Ltd's (AQS) *QUEST*).

The case for: benefits and potential role of ISO 9000

These criticisms and developments suggest that ISO 9000 now has a limited role to play in this industry. As an internationally recognised standard, however, there have always been advantages to its adoption, particularly in relation to competing for business internationally. The new revision of the standard, moreover, may further enhance its usefulness to the industry. The theoretical aspects of this role are discussed in the following sections.

Benefits of ISO 9000. The generic benefits that ISO 9000 can bestow upon an organisation are widely reported. In the food industry, Augustyn and Pheby (2000) cite a number of advantages reported by a small UK cider company that recently took the decision to adopt ISO 9000. These included improved international competitiveness; realisation of internal benefits; meeting customer demands and expectations (particularly smaller off-licences); raising credibility in the market; and meeting the regulatory environment. This company did acknowledge problems in relation to the timescale involved, the

cost of registration and the fact that the standard is only understood by business customers, and not by consumers.

Changing business priorities. In June 1996, The Leatherhead Food Research Association launched *the Food and Drinks Industry benchmarking and self-assessment initiative* (Mann *et al.*, 1998, 1999). Adebanjo (1999) reports that by the time of the third annual conference on benchmarking in the industry, over 150 food and drinks companies had conducted self-assessments against the EFQM Excellence model. Out of a maximum "excellence" score of 1,000 points, however, the industry average was reported to be below 250 points, and the industry was additionally reported to be performing relatively badly *vis-à-vis* other industry sectors (Mann *et al.*, 1999). On the basis of their findings, these authors have written widely on the need for the food industry to enhance its performance and competitiveness by investing in business excellence (BE) models and principles. In addition to excellence trends, the industry will require to take cognisance of the development of integrated management systems (IMS), which will be another important aspect to maintaining competitiveness into the new millennium (Dougherty *et al.*, 1999). As with ISO 9000 initially, as the more proactive players begin to adopt such approaches, so other organisations will feel greater pressure to conform.

The new role for ISO 9000?. It is in this context that the revised ISO 9000 may now be in a position to offer something concrete to these organisations. The closer alignment of ISO 9000:2000 to TQM/BE principles (e.g. Wade, 2000), and improved integration with other management systems such as ISO 14000 (BSI, 2000) means that it can now (in theory) assist companies in the pursuit of these goals. While many managers are unlikely to have the time to be able to digest the theories and requirements of the EFQM model and IMS, ISO 9000 in its revised format can provide a standardised approach to achieving customer-driven improvement toward business excellence. This process is fully described in Van der Wiele *et al.* (2000). The extent to which food businesses are aware of ISO 9000:2000, and are likely to wish to adopt it for these purposes is, however, the subject of the empirical research described in the following sections.

Empirical research: aims and methodology

Research aims

The aims of the research discussed in this article were:

- to examine trends in the uptake of ISO 9000 standards and other third-party certified standards within the UK food and drinks sector; and
- to assess the attitudes of industry managers in the UK and overseas towards both the current ISO 9000 standards and the proposed ISO 9000:2000, in order to determine the extent to which managers support the idea that the year 2000 revisions might create a renewed role for ISO 9000 within the industry.

Industry trend analysis

The starting point to the trend analysis pertaining to the first aim is data obtained from a postal survey of technical and quality managers from UK food and drinks manufacturers (n = 71 responding companies) and subsequent fieldwork interviews with a further sample of such managers (n = 14 companies), all of which were carried out over 1997/98. These data provide a useful snapshot of the UK industry around that period of time in relation to levels of uptake of ISO 9000 and the other standards described above. For a fuller discussion of the survey element, the reader is referred to Grigg (1998).

In order to establish how the position might have more recently changed within the UK industry, data were obtained from two main sources. First, the authors obtained the recent ISO CD-ROM of the ninth cycle survey of ISO 9000 certifications (ISO, 2000), some figures from which appear in the introduction to this article. Because of the doubtful inclusiveness and accuracy of these data, however, it was felt that more reliable information could be obtained by interviewing a representative of EFSIS. EFSIS is now the major accredited third-party certification body for the UK industry, their inspection activities having increased from 50 companies in 1992 to 1,900 companies in 2000. They are the only such body that is approved by every retailer using third-party inspection, and now claim to carry out over 70 per cent of all accredited own-label inspections on behalf of UK retailers. Their portfolio of clients is expanding at an international as well as a domestic level. Since they also perform ISO 9000 certification services for the industry, they are in a position to comment with authority on trends in uptake of both generic and bespoke standards.

Interviews with quality and technical managers

In relation to the second aim, in order to determine attitudes towards ISO 9000 standards, during 2000 the authors undertook a series of semi-structured interviews with technical and quality managers from:

- nine UK companies, all based in the West of Scotland; and
- nine companies based in Switzerland (n = 5), Germany (n = 2) and Denmark (n = 2).

Besides the geographical comparison, the companies were selected to represent a range of company sizes and industry sub-sectors. They included bakeries, dairies and distilleries, processors of meats, seafood, biscuits, ingredients, preserves, soft drinks, and confectionery.

Research findings

Levels of uptake of standards in the UK industry

The results of the 1997/98 survey and fieldwork revealed that 34 (40 percent) of the 85 companies involved either had, or were working towards, some level of ISO 9000 certification. Only 11 mentioned working to other standards. ISO

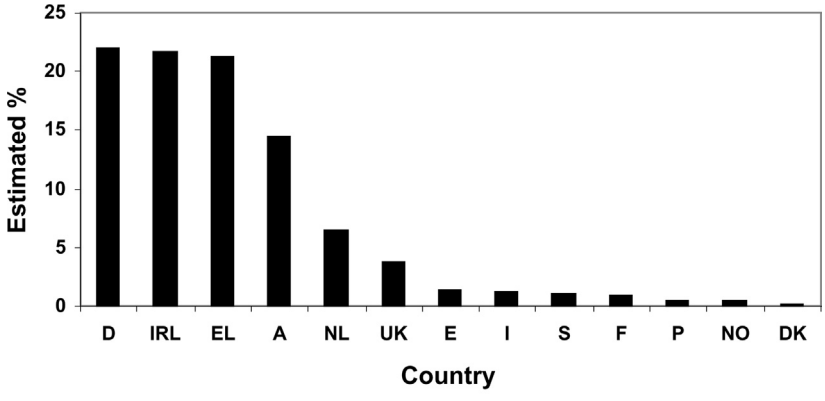
usage varied according to company size and specialism, but was nonetheless present to some extent in all sectors and companies of all sizes. This relatively high use of ISO is supported by findings reported by Holleran *et al.* (1999) who have estimated, based upon data from accredited UK certification bodies, that by 1995 there were over 1,000 UK food industry ISO certifications (representing around 14 per cent of total food enterprises). They further report that according to 1996 data, 94 per cent of total sales in UK brewing, and 75 per cent of total sales of UK drinks came from ISO certified firms.

In terms of current figures, the ninth cycle survey data from ISO estimate the number of UK industry certifications in 1999 at only 318, although the accuracy of this figure is questionable for reasons identified in ISO (2000), relating mainly to the inclusiveness of the returns from certification bodies. Subject to this proviso, these figures place UK food industry registrations at around 4 per cent of the industry, which clearly bucks the general upward trend of overall UK registrations cited in the introduction of this paper. Figure 2 shows the estimated percentage of UK food industry registrations compared with other EEA countries (excluding Switzerland).

The existence of a downward trend in UK ISO registrations was confirmed by the EFSIS representative, however, who reported that many clients, including large clients, are making the conscious decision to turn away from ISO 9000 certification. Specific details on the size and product specialism of these companies cannot be published here for reasons of confidentiality.

Qualitative data from UK (West of Scotland) firms

UK firms were in general characterised by their preference for bespoke standards over the generic ISO 9000. Of the nine UK companies visited, two were certified against the ISO series, but eight were certified against the EFSIS bespoke standard (one being certified against both standards). One of the ISO users is a large organisation with over 500 employees; the other (with dual



Source: ISO, 2000

Figure 2.
Estimated percentage of food industry registrations by EEA country

certification) has around 100 employees. A third firm was using BS EN ISO 14000 as the basis for its environmental management system, but the EFSIS bespoke standard as the basis of its quality management system. Managers of the firms using the bespoke standard reported that this had the advantage over ISO of satisfying both their customers and the relevant legislation. Being already certified against the EFSIS standard, all but one felt it unnecessary to seek further certification against ISO 9000, not perceiving it to be useful to their operations. The two firms using ISO were doing so because they felt it gave them a competitive edge over and above mere compliance, and because they experienced certain operational benefits including improved efficiency of operations, and consistency of product quality. One of these firms was already registered against ISO 9000, but later achieved additional EFSIS standard certification at the request of one of their customers.

Through their assessors, the ISO users were aware that ISO 9000 was set to change, and had knowledge of the nature of the revisions. Users of the bespoke standard alone had only limited knowledge about this. They were aware that ISO was changing, but were unaware of the new structure and ethos of the standard.

Qualitative data from overseas firms

Of the nine overseas companies contacted, eight were operating quality systems based upon ISO 9000 standards, in addition to any other owner or customer specified system. These firms were, on the whole, found to be more positive towards ISO 9000, perceiving it to be a necessary element of international competitiveness. Two of the companies were not formally certified against the standard. The first of these reported that as part of a multinational concern, their proprietary standard is sufficient in its scope to cover all the basic requirements. In addition, this organisation is in a position of considerable strength within the international market. The second organisation has a well-documented quality system based upon the ISO 9002 standard, but had not sought formal certification. The quality manager gave two reasons for this. Being of a relatively small size (170 employees), first, the company believes that its financial resources are better used in funding promotions in co-operation with its retail customers. Second, in terms of their customers, the main retail client does not require an accredited system, and the consumer was reckoned to "perform his own audit every time he eats the product".

The major difference from the UK situation is to do with the size and power base of the retailer. With the overseas firms, the organisation is more at liberty to develop their own practices and quality systems. This meant that there appeared to be a greater use of networks for transfer of information on best practice, and more widespread use of the generic ISO 9000. These organisations were generally aware of the proposed revisions to ISO, an awareness derived via their informal networks and their third-party assessors, and welcomed the opportunity to re-focus their systems around continuous improvement (CI) principles and cycles which are, in some cases, already in operation. As was the

case with the UK sample, however, none of the overseas companies was currently using any formal business excellence or self-assessment model. In relation to TQM ethos and practices, similar variability was exhibited amongst these companies as amongst the UK sample. Food organisations, like most others, generally do what they can to integrate quality management practices, but the emphasis is upon production and legal compliance. The degree of quality maturity tends to depend upon the availability of in-house resources (time, money, people and knowledge).

A revised model for quality systems in the food industry

Organisations using ISO will have an opportunity to advance further towards BE when they are re-assessed against ISO 9000:2000. The alternative standards that are increasingly becoming a part of UK business, however, are more specifically compliance-based. This suggests that the new role for ISO 9000 (for those companies that can afford it) is to complement these new standards, and bridge the gap between management systems aimed at customer compliance, and new strategic objectives such as the achievement of BE/IMS. The model shown in Figure 3 illustrates this bridging role, and has been developed from literature, from the views of current users of ISO 9000 who are aware of the revisions, and using the ILSI model (Figure 1) as a basis. It shows ISO 9000:2000 as a level "above" the new third-party standards, leading to the achievement of what can be broadly termed TQM, and is presented as a quality "maturity grid" for the industry, indicating possible milestones between basic compliance systems and total quality management.

Conclusions

Unlike many other industries where ISO 9000 has been adopted as a result of a "snowball effect", the food and drinks sector has not traditionally been one in which there is upstream pressure to adopt ISO 9000. Indeed there is increasing customer pressure on the industry, particularly in the UK, to adopt alternative

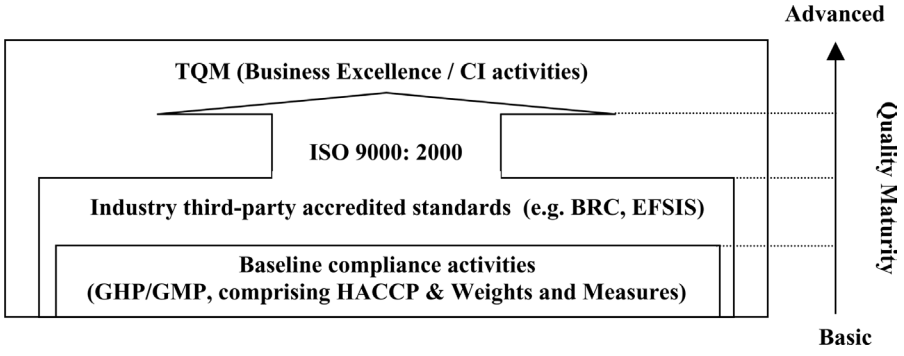


Figure 3.
Revised model for quality systems in UK food and drinks industry

standards such as BRC and EFSIS as the customer becomes increasingly influential.

The findings from the UK interviews support the premise that ISO 9000 is losing ground to these standards, although there is much evidence that as an internationally recognised standard it still has a role in the UK industry in its present form. The overseas interviews suggest that the industry trends discussed above are still a UK phenomenon, and that ISO 9000 remains the third-party standard of choice for many European manufacturers. With the overseas expansion of UK retailers, and with associated inspection activities expanding internationally, however, this situation may be set to change in the future.

It has been argued that the revised ISO 9000:2000 has a role to play in terms of helping organisations achieve strategic quality objectives such as IMS and BE, increasingly important concepts in global business. Since, however, the bespoke standards have a more traditional, procedures-based approach, then UK food organisations may in time begin to lag behind their European counterparts in the achievement of such strategic objectives. Moreover, the smaller organisations that characterise this sector, occupied as they are with reacting to the rigours of regulation and retailer-driven supply chains, are unlikely to be able to allocate the necessary time and resources required to progress upwards on the maturity grid shown in Figure 3.

One approach to maintaining competitiveness amongst UK firms will be via food industry-specific integrated management systems, assessed by industry "super-auditors". Given that organisations such as EFSIS are competent to assess against retailer standards as well as against ISO 9000, then development of "one-stop shops" for industry certification are likely to be the way forward. Assessors who are conversant with legislation, GMP/GHP, industry bespoke standards, generic international standards and business excellence models and principles will be the way to minimise the cost to the beleaguered manufacturer of attempting to progress towards BE in this industry.

Limitations and implications for further research

The food industry is extremely diverse, and so the results of this research are intended to be indicative. Further research is under way to attempt to more reliably quantify the extent of current usage of ISO 9000 and other industry-specific standards at a domestic and international level, and to determine the sub-sectoral costs and benefits beginning to be experienced by users of the various competing standards.

Note

1. The HACCP approach to food safety management and control is encapsulated within seven principles, details of which can be found in CAC (1993). This approach is increasingly becoming mandatory at an international level.

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