Factors Affecting Successful Implementation of ISO 9001: 2000

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Abstract
This paper explores the implementation of process-based management systems within organisations that have recently achieved certification of the quality management system ISO 9001: 2000. Certification to the ISO9001: 2000 quality management system is considered by many academics and business people alike to be an important step toward the total quality management principle of process based management. Hence, this paper discusses process-based management systems and also considers theories relating to the quality management systems topic. Consequently, a theoretical model is proposed that outlines the factors affecting successful implementation of a process-based management system. The paper demonstrates that the theoretical model has been assessed within organisations in Libya, UAE, Turkey and UK and concludes by discussing the key factors affecting successful implementation of ISO9001:2000.

Keywords: quality management, process management, ISO 9001: 2000

Introduction
Many companies throughout the world are trying to obtain ISO 9001:2000 Quality Management Systems certification to demonstrate to their customers that they are capable of meeting their needs and expectations. For instance, a report on ISO 9000 certifications showed that 500,125 companies worldwide had attained ISO 9001 certification by the end of December 2003 (Anon, 2004). Figure 1 shows the country distribution of certifications and accordingly shows the top ten countries with the top three being China, Italy and then the UK with a quantity of China having 96,715 companies registered as certified, Italy with 64,120 companies certified and the UK with 45,465 certified. However, and in contrast to that, several of the countries used for this research have less registrations such that Turkey, UAE and Libya have 3,248, 892 and 5 organisations respectively that are registered as certified to ISO 9001:2000 and are also shown in Figure 1. Clearly if other organisations are to engage in certifiable quality management systems, then a competence in building systems is required.

This paper suggests that the ISO 9001: 2000 standard promotes the adoption of a process-based management system in order to achieve an ongoing improvement measured through customer satisfaction. For many organisations, implementation of a process approach represents a fundamental step in their management systems, which means a fundamental change from a functionally oriented organisation to a process oriented system. This paper is consequently, the result of the ongoing research co-operation between researchers in the research Centre for Organisational Excellence (COrE) at the University of Salford in the UK and organisations in the UK, Turkey, UAE and Libya. The aim of this paper is to determine the factors affecting successful implementation of process-based management and hence
identify the enablers to obtaining certification to ISO 9001: 2000. To fulfil this aim, this paper discusses a theoretical model of the factors affecting implementation of ISO 9001:2000 within organisations and discusses the implications from several case study organisations in four countries.

Many organisations are becoming aware of the importance of trading in the world market and as such are beginning to understand the benefits of third party certification to quality standards. In particular, Sharif (2005) has shown within his PhD research that quality awareness within organisations, in some counties, is lagging behind the leading countries.

**Functional versus process-based organisation**
An organisation viewed through processes resembles a matrix of chains that focus on inputs, outputs, functions and relationships among processes as they progress and spread through an organisation (Swanson, 1995). Managers often perceive the organisation as a mixed collection of functions managed by heads of individual departments bound by hierarchy. This leads to particular departments working preferably in their field to meet their internal targets first, and hence create in extreme cases empires. This introspective view discourages the transfer of information, sharing of knowledge and diminishes the teamwork culture (Castka et al. 2001 and Sharp et al 2001). Consequently, it is impossible to establish process-based management in some companies because of their strong hierarchal and functional view (Bamber et al. 2000). Figure 2 aims to clarify the difference between a traditional static view of an
organisation based around functions and hierarchy at the top of the figure and the actual workflow cutting across the boundaries of the functions (Balzarova et al, 2002). However, managing the processes is harder than it may be perceived because processes do not stand-alone but interact with one another.

Llewellyn and Armistead (2000) stated that: “A business process is a series of inter-related activities that cross functional boundaries with individual inputs and outputs.” Therefore, it is important to see the whole organisation in terms of the relationships between the interdependent elements (Senge, 1990) and understand these relations. In doing so, the organisation is able to manage its operations and tasks based on the monitoring and analysis of its key processes. Key processes (KPs) are understood as processes that add value to the business. Key performance indicators (KPIs), then, are measures of performance of KPs (Sanger, 1998; Jones, 1994). KPs and KPIs vary from organisation to organisation. Generally speaking, the success of an organisation depends on how effectively it manages three key areas (Jones, 1994): product and services; business processes; and people.

Quality Management Systems
Deming (1986) in his, “System of Profound Knowledge” encourages people to appreciate the system. A system can be defined as a collection of interrelated parts, materials or even abstract entities, that function together to achieve a common purpose (Lim, 1998).

A Quality Management System (QMS) is the formal management system which defines the quality environment within an organisation (Munro-Faure and Munro-Faure 1992). Bailey (1998) states that: “Quality assurance assumes that the quality or effectiveness of the final output is crucially dependent upon the quality of the initial inputs and the operational process”. Therefore it is necessary to design procedures that will avert problems that would otherwise reduce the quality of output.

Lau and Anderson (1998) note that the design and implementation of quality programmes used today have their roots in the USA. Before the 1980’s US companies focused on
productivity as a strategy to meet the market demand. As competition became more fierce in the 1980’s, offering high quality was regarded as the strategy to counter foreign competition particularly from Japan. Ultimately, in an effort to narrow the gap US companies adopted the Japanese quality principles. These initiatives eventually evolved into Total Quality Management (TQM) and also have major influences in designing the criteria for the Baldrige Awards and the ISO 9000 series of standards.


The implementation of the ISO 9001: 1994 version of the standard has been given much discussion in management literature but few writers have commented on the implementation of the more recent version of the standard published in 2000. Those experts that have commented however, have often discussed the transition from the old to the new version and interestingly have suggested that a cultural shift is required to take the organisation from thinking quality assurance, into total quality management thinking paradigms, (Meegan, 1996). Unfortunately, the work of Meegan, in those early days must be considered hypothetical as no organisation had attained ISO 9001: 2000 at that time, because the standard was not a published document. Furthermore, the first certification was not until 2000. Authors such as Ho (1998) and Lazlo (2000) have commented on the virtues of the revised standard, and Bamber, et al, (2000) discussed the development of systems to meet the new requirements, but there is still little comment, at the moment, on the implementation issues surrounding the new version.

In fact, Lazlo (2000), although providing a good theoretical critique of companies transitioning from the ISO 9000:1994 version does little to discuss issues facing organisations that are implementing ISO 9001:2000 that have not had previous certification. Lazlo (2000), does however, provide theoretical insights into implementing quality management that could be of use to this study. For instance, Lazlo provides the readers of his article with various theoretical “must do” practices for organisations that wish to embed quality management principles into their organisations, which are distilled for clarity below:

- The ongoing organisations’ ability to research in pursuit of opportunities to improve.
- The principles of quality must be embedded into the culture of the organisation to foster the climate of open co-operation and teamwork among members of staff, suppliers and customers.
- Quality must be sponsored and championed by senior management.
- Improvement must be seen through lessons learned, innovation and benchmarking.
- Efforts shown toward attaining goals and objectives of the business and meeting customer satisfaction must be communicated.
- Management is expected to participate on operations and demonstrate leadership.

In contrast to the above theory based discussions of Lazlo, a recent study by two of the authors of this paper (Balzarova et al, 2002), showed research was carried out that based discussions and conclusion in a practical and real world setting. It is from that published real world research, to which this paper draws its research framework and hence the model depicted in figure 3. Thus the implementation of ISO 9001: 2000 issues explored in the case study organisations, for this paper, are derived from grounded theory (Balzarova et al, 2002). Furthermore, it is accepted by the authors of this paper that the discussions of Lazlo (2000) have been incorporated in this research and thus the authors maintain a certain amount of congruence with those bullet points above and this is shown later in figure 3.
Critical factors of successful implementation of ISO 9001: 2000
This section aims to provide a critical understanding of factors affecting successful implementation of a process-based management system derived from grounded theory. That grounded theory is from research carried out by the authors of this paper, but admittedly that theory is not specific for the case study organisations nor was that theory proven as being generalisable. Nevertheless, the following seven organisational factors, shown in table 1, have been developed from previous case study research in the UK by Sharp et al (2003).

1. Failure to allow sufficient time for the evolution
2. Lack of communication and awareness
3. Process mapping, its integration and understanding
4. Measures of performance (system and process level)
5. Resistance to change
6. Teamwork and team development
7. Training and learning by doing

| Table 1: Seven Organisational Factors of Successful Implementation of ISO 9001: 2000 |

A more detailed review of each of these factors is presented in Sharp et al (2003) and likewise figure 3 is from that academic conference paper presented again here for clarity. While, the theoretical model in figure 3 has been shown to be relevant in UK organisations, prior to this research the question still remained as to whether these factors are relevant to other organisations. Although, the aim of this paper is to determine the factors affecting successful implementation of process-based management and hence identify the enablers to obtaining certification to ISO 9001: 2000, in the case study organisations, it was hoped that the case study approach to researching that aim, would actually provide new and exciting insights into existing knowledge of implementing ISO 9001: 2000 in organisations.

![Figure 3: Process-based management implementation model](image)
Assessing the Model
The authors adopted a qualitative (De Poy and Gitlin, 1998) research design and methodology as explained by Balzarova et al (2002) where they used participating observation, semi structured interviewing and archival sources of data as primary methods of research. The researchers, broadly speaking, conducted the research using the case study methodology advocated by Yin (1994) and consequently there was no expectation to consider that this research would lead to generalisable discussions, conclusions or recommendations. However the researchers followed a research process that has been both case study informed and practitioner led, thus placing the research in a “Real World” setting (Lawrence and Phillips, 1998).

The research team has been conducting the research into problems and barriers of process-based system implementation in organisations in the UK, Turkey, UAE and Libya. All the case study organisations had no certified quality system before implementing ISO 9001:2000 (i.e. none had previously implemented ISO 9001:1994). The following is a brief description of the case study organisations:

- Company A in the UK, an Information Technology (IT) provider, with 40 employees had been developing a quality system where they had detailed procedures for absolutely every activity, however they did not fit into a holistic system which was compounded by their strong functional hierarchy and a lack of awareness of the “bigger picture”.

- Company B in the UK in public relations with 10 employees, suffered from a lack of process based knowledge and had several staff changes which affected the implementation time of ISO 9001:2000. Creative staff did not like detailed procedures but in small teams developed key processes and KPIs, especially when set deadlines for ISO implementation.

- Companies C and D in the UK, a housing association and a training/consultancy specialist employing 60 and 8 staff respectively. Both organisations researched the implementation process in advance and spent time on awareness, education and training of staff on all aspects of ISO 9001:2000 implementation and operation. Both kept their quality management systems as simple as possible and successfully implemented ISO 9001:2000.

- Company E in Turkey; a manufacturer of steel cord products with around 250 employees, with an extraordinary level of top management commitment and active involvement, first focused on transforming the company gradually towards a process based organisation from a traditional hierarchical one (by actually redefining the organisational structuring). With a thorough understanding of a process approach they successfully implemented ISO 9001:2000. Since the company had top management commitment, external facilitators played a role more in the area of managing the certification process.

- Company F in Turkey, a textile manufacturer with 150 employees, also had a quality system in place certified to ISO 9001:2000. They incorporated process understanding into their existing organisational hierarchy. The researchers observed that since only a few key individuals were involved in the implementation, with some support from top management, their quality system was dominated by detailed procedures that did not fully capture the essence of the holistic view offered by ISO 9001:2000. It was also observed that this has led to some difficulties in identifying and prioritising key processes and also conveniently labelling some of their existing functions as a key process. The
utilisation of external consultants in providing training and promoting awareness towards a process based approach proved to be essential for this company since they had a strong hierarchical system and a traditionally family run business recently adopting a professional management approach.

- Company G in Turkey, also a textile business with around 100 employees, arguably representing the majority of SMS’s operating in Turkey, showed a noticeable difference in approach in comparison to the previous two companies (E and F). They neither had a fully committed top management, nor a true will to implement ISO 9001:2000. Their interest in ISO 9001:2001 was because of the marketing edge the certification provides. In this case, the external consultant only guided the company towards a certification in a mechanistic way.

- Company H in UAE, a part of a utilities provider with 600 employees, relied on internal and external consultants to facilitate the implementation of ISO 9001 who also assisted with awareness and training and ensured a process based approach was implemented which was customer focused. Top management were fully supportive.

- Company I and J in Libya, a chemicals company with 900 employees and a service company with 65 employees. Company I relied on an external consultant to ensure there were detailed procedures for all activities prior to implementing ISO 9001, which did not fit into a holistic system and was compounded by their strong functional hierarchy and a lack of awareness of the “bigger picture”. Company J used an external facilitator for awareness, education and training of staff on all aspects of ISO 9001:2000 implementation and operation, keeping their quality management systems simple and effective.

The researchers carried out in-depth interviews with employees at various levels from senior management down to shop floor employees to gain an appreciation of the factors (including barriers) that affect the implementation of ISO 9001:2000. The information was triangulated by reviewing ISO documents such as management review reports, internal auditing reports, quality records, quality manuals and other related documentation.

Factors affecting successful implementation of ISO 9001: 2000 and Discussion

The rationale for this research was to carry out case study research that enabled a greater understanding of the implementation of ISO 9001:2000 in other settings, particularly, organisations in the UK, Turkey, UAE and Libya. 52 individual factors affecting implementation were found by the researchers (Sharp et al, 2003) and are being reported elsewhere (Al Haj, 2005 and Sharif, 2005) in more detail. These individual factors found in the case study organisations can be loosely assigned to the elements of the model shown in figure 3 such as government interventions are part of the ‘key stakeholder’ element of the model (in the base of figure 3) and supplier relationships can be part of the ‘process mapping and integration’ element (pillar) in the model.

Two factors were found to have a crucial affect on the implementation of ISO 9001:2000 namely the role of the top management and the role of the external facilitator/consultant. The role of top management, when implementing quality management, is well cited in the literature by authors such as Ashire and O’Shaughnessy, (1998), Wiele et al., (2001) and Quazi et al., (2002). The authors hence, consider the factors identified in this paper are relevant to the implementation of ISO 9001:2000 in the case study organisations. However,
a review of the case study organisations implies that each and every one of the seven factors identified from appropriate literature must be recognised and supported by the top management and other key stakeholders of key process within the organisation. This is shown in figure 3, where top management and the key stakeholders (the foundation of) support the seven factors (pillars) of successful implementation of process-based management (the roof).

The heart of the ISO 9000:2001 quality system is the process based approach with a view to improving key processes continuously to ensure customer satisfaction. Particularly as the cases in Turkey showed there appears to be levels of process understanding in companies' ISO 9000:2001 involvement. A company can go as far as redefining the organisation based on the process approach, or define processes within the existing organisation structure. The former approach represents noticeably an advanced level in the maturity of quality systems and can only be achieved with active involvement and championship from top management.

The research team found that in all the case study organisations, in the four countries, without the help of an external facilitator (quality expert not part of the company) the implementation of ISO 9001:2000 would have seriously been impeded. The benefits of using an expert facilitator are that the pace of implementation can be controlled through interventions such as training, building awareness, encouraging site visits and benchmarking activities and also guidance with tools and techniques of quality such as; auditing, policy writing, procedure writing and process improvement methods. There is no pillar entitled external facilitator/consultant as the researchers found that the role of external facilitators had dramatic affects in the pillars of the model of: ‘communication & awareness’, ‘training & learning by doing’ and ‘process mapping, integration & understanding’. So the external facilitators can be included as a key process stakeholder (see base of model in figure 3) and in general were very effective.

It is particularly interesting to note that in a couple of cases the facilitators/consultants spent less time on awareness and training and just concentrated on documentation, especially writing procedures. The researchers felt that this was probably due to the facilitators having previous experience implementing ISO 9000:1994. Those organisations were not achieving the full benefit of a process based management system, as they did not have a holistic view of their management systems. Interestingly these were the organisations where the top management had the least to do with the implementation of the quality system. The researchers observed that where there was clear ‘communication and awareness’ backed by active top management then the implementation of ISO 9001:2000 was successful.

Various factors were observed by the researchers that were specific to the individual countries such as problems getting certification bodies in Libya and having an ex-patriot workforce in UAE and variability of certification bodies in Turkey, however these could be incorporated into the key elements (pillars) of the model.

It is argued by the authors of this paper that the process-based management implementation model (figure 3) provides a valuable tool for this implementation. The factors were investigated over the period of 18 month using a qualitative research approach, with the researchers spending significant time in the organisations, thus providing a valuable first hand insight to events. Furthermore, it is argued by De Poy & Gitlin, (1998) and Bryman, (1989) that the qualitative approach to social research can provide a more holistic picture of managing organisations and as such figure 3 represents a holistic framework for managing a
process based management system. The key factors presented in this paper appear to be soft issues or human factors, while other authors such as Al-Mashari et al. (2000), have included more technical or hard issues within their own research. Nevertheless, the research carried out within the case study presented in this paper does show that these soft issues are significant and present within the case study organisations implementation of process-based management.

Additionally, the experience of all the individuals involved in the case study research has contributed to generating the process-based management implementation model. Consequently, in this report of case study research, the experience of the case study organisations was compared to theory, which the model shown by figure 3 is the result, has provided a valuable learning tool for the case study organisations. Finally, the research presented could have far reaching implications for other organisations wishing to move to a more process-based approach to managing their business and therefore the model presented could be used as a form of framework or self-assessment model for organisations. However, it is acknowledged that a small number of case studies present limitations in generalising to other organisations and therefore there is recognition that further research to explore the relevance and relationships within the model presented is required (figure 3). Nevertheless, this report is considered a useful benefit to organisations wishing to develop high performing processes and gain certification to ISO 9001: 2000. New real world elicited knowledge shall be the foundation for understanding the barriers that may effect an organisation’s journey to successful implementation of ISO 9001: 2000.

Conclusions
It is presented by the authors of this paper that with top management and key process stakeholders in complete support of the seven factors of successful implementation of process-based management, implementation is likely to be successful. Conversely, it must be said that without such support and acknowledgement of the seven factors (pillars) then implementation of process-based management is, considered by the authors, as extremely likely to fail. The role of the facilitator/consultant has also been presented as being crucial to implementing IOS 9001:2000. Acknowledging these propositions, several of the case study organisations are constantly developing relationships with the key stakeholders and top management in order to generate a shared purpose for their organisations. Further to this the critical factors presented in this paper have been discussed as soft issues, rather than hard or technical issues. This research indicates that these soft issues appear to be significant, however much more research is required to conclude these findings as generic. Although, many barriers existed to varying degrees they were overcome with training and expert facilitation, moreover, a commitment from the organisations to succeed was paramount to successful implementation of ISO 9001: 2000.

References


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