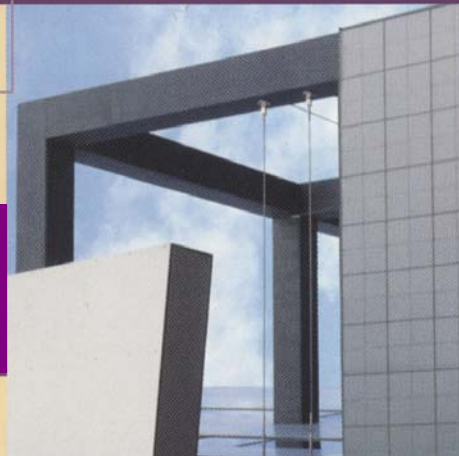


**REQUIREMENTS FOR A SUCCESSFUL INTEGRATED
MANAGEMENT SYSTEM: THE EXPERIENCES OF
AUSTRALIAN ORGANISATIONS**

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Abstract

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Abstract

Management systems and standards have become a key part of the organisation's lifeline and a prerequisite for survival in the twenty first century. Systems for quality (which can also include product and process based individual systems), environmental and occupational health and safety (OHS) now form the three main pillars of the organisation, the fourth one being financial accounting.

In light of the increasing pressure and demands from different stakeholders, it is becoming necessary for the organisations to adopt the different systems/standards. However, to achieve the benefits from the implementation and subsequently maintenance of these systems it is only a practical and logical step that the existing management systems/standards be integrated into a single system.

This paper presents the experiences of three Australian based organisations that have successfully undertaken the integration of their management systems/standards. Data for this paper was collected through in-depth interviews conducted with the managers responsible for quality, environment and OHS systems. The paper discusses the drivers, benefits and impediments experienced by these organisations during the integration process and the lessons learnt. These lessons would act as a set of recommendations for other organisations contemplating to integrate their systems/standards.

REQUIREMENTS FOR A SUCCESSFUL INTEGRATED MANAGEMENT SYSTEM: THE EXPERIENCES OF AUSTRALIAN ORGANISATIONS

INTRODUCTION

The implementation and certification of quality, environmental and Occupational Health and Safety (OHS) systems has been a major activity for many organisations in light of increasing pressure from their internal and external stakeholders including the regulatory bodies, community, customers, employees, suppliers and the government to name a few. Implementation and maintenance of systems/standards or making changes to existing systems requires the allocation of significant resources which may directly impact the bottom line of the organisation. Additional costs are incurred in obtaining certification by a third party which includes auditor and registration fees. Many small and medium-sized enterprises (SME) typically will not have the expertise in-house and will use the services of an external consultant to assist them in introducing the new system.

Integration of the different management systems is the call of the hour, as it can result in significant benefits including cost savings and/or reduction in the use of valuable organisational resources. The literature review (see the following section) highlights the potential tangible benefits for organisations from integrating their systems into a single system. There are few case study examples that have documented the experiences of organisations with integration of the different systems. In order to add to this literature, this paper presents the experiences of three Australian companies. The aim of the paper is to understand the challenges, benefits and the critical success factors relating to integration of environmental, quality and OHS systems.

The rest of the paper is structured as follows. The next section presents the literature review, followed by a section on research methodology used. The subsequent sections of the paper present the findings with respect to the benefits and challenges experienced from integration and measures taken by organisations to overcome the challenges. Recommendations for organisations currently contemplating to integrate their management systems are also discussed briefly, based on the experiences of the three interviewees. The last section of the paper presents the conclusion.

LITERATURE REVIEW

Background to Management Systems

The ISO 9000 series of quality standards were released by the International Standards Organisations (ISO) in 1987 [1, p.241] and immediately received global recognition. Their most important and only objective is “to provide the purchaser of a product or service with confidence as to a specified level of quality performance by the product or service provider” [2, p.147]. In other words, if a consumer buys a product or service from an ISO 9000 certified organisation, he/she can be completely assured that the product or service provided is at least of equal or above the prescribed quality standards and the purchase price is justified.

The release of the ISO 9000 standards were followed with the release of the environmental standards series, ISO 14000 (Environmental Management Systems – EMS) in September 1996 [3, p.32; 4, p.118; 5, p.S767]. Since then the number of organisations certified to ISO 14000 have increased proportionally to that of ISO 9000. Occupational health and safety (OHS) systems have also been in place in many organisations for a long time, such as the Safety Act of 1984 in Australia or the AS4801:2000 standard, released in January 2000 [6]. The safety systems and standards are strictly enforced especially by the government agencies to ensure a safe working place for all employees and stakeholders by preventing accidents and thus reducing the number of on-site injuries.

Introduction to Integration

Since the release of the environmental standards (such as the BS 7750, EMAS and recently the ISO 14001), both private and public organisations are replacing the old, rigid ‘command and control’ [47, p.25] systems

and procedures with the adoption of proactive measures. Implementation and integration of EMS with other standards such as quality and/or OHS, for example as done by Gates Rubber Company, [7, p.29] is providing organisations with a more flexible, open and cost effective option. [8, p.78] in her article shows that an important way of reducing ISO 14000 registration costs (which could be up to 30% higher as compared to that of ISO 9000) is by integrating the standards.

Rhone-Poulenc S.A. (Paris) is an example of an organisation where benefits from integration of environmental and safety management systems have been achieved. The integrated system known as 'Simserp' besides addressing the international safety standards, is also compatible with EMS standards such as ISO 14001. According to Jacques Salamitov, Rhone-Poulenc Environmental Affairs Manager, the integrated system "is much better and less disruptive to plant operations if procedures dealing with safety and environment are introduced at the same time" [9, p.47]. Other researchers and authors supporting the integration process includes [10, p.670; 7; 11, p.15A; 12, p.714; 13, p.30; 14, p.97].

Jean-Luc Monein, responsible for looking after the environment and safety management system at Elf Atochem, Paris, favours the integration of standards in light of similarities in the areas of policy, training and strategy procedures [9]. Monein further views that companies find ISO 14001 "more user friendly because of its framework ... built around the so-called Deming cycle of 'Plan-Do-Check-Act' [which] is very easy to understand and explain" [9, p.47]. In views of [15, p.510], PDCA is the "core of continuous improvement concept" and depicts a learning organisational culture. [16, p.1] expresses similar views to [15]. Other researchers also favouring integration of the three systems – quality, environmental and safety and showing similarities to PDCA includes [10, p.683; 17, p.66; 18, p.1; 19, p.56].

Integration would thus ensure that in place of two or more different standards, only one integrated standard is present within the organisation, which could be efficiently and effectively understood, implemented, and maintained by its stakeholders such as the employees. The various management systems and standards though differing in nature due to their drivers, focus and stakeholders, generally have the following common core elements in one way or another [20, p.3-4]: Policy; Defined organisation and responsibilities; Control of critical operations, including standard practices; Document control; Training; Records systems; Internal audits; Corrective actions systems; and Management review for continual improvement. In views of [21, p.11] the integration process depends on a number of factors, excluding the costs, expertise and resources availability. These factors include:

- Complexity of the company (single/multiple sites; national/multinational)
- How closely environmental issues are related to the company's key processes, and
- Whether QMS and EMS issues are included in the same document.

ISO 14000, like ISO 9000, is a process or specification [22, p.65] or management [1, p.258; 23, p.17] and not a performance [1, p.258; 23, p.17] or guidance [22, p.65] standard, even though ISO 14000 "seeks to balance socio-economic and business needs with support of environmental protection and prevention of pollution" [24, p.22]. Nonetheless organisations need to be cautious of the fact that in addition to integrating and implementing different systems, to be successful they, also need to integrate all "professional disciplines; basic sciences, social sciences, economics, theology, and sheer imagination" [25, p.201]. Furthermore the integration process should be initiated from the first stage of product design and development to its disposal (cradle-to-grave approach) in an attempt to identify opportunities to minimize environmental impacts. Accordingly "efforts have been directed [by organisations] towards an integrated systems approach which involves manufacturing, product design, and the overall corporate organisation" [26, p.108]. This is the objective underlying integration of environmental concepts within the "industrial production chain" [27, p.38]. In other words, it could be said that the EMS is driving organisations to "find the right balance between efficiency, economy, and quality of products and a promotion methodology which takes care of the environment" [27, p.38]. This is in accordance with the suggestion given by the employees of the 'Auditor General Office', according to which, "environment should be the fourth 'E' along with economy, efficiency, and effectiveness" [28, p.44].

A practical illustration of systems integration can be seen in the Hong Kong industrial sector. The Hong Kong government in association with the Hong Kong Productivity Council is motivating and at the same

time assisting organisations to adopt and integrate ISO 14001 with their other management systems. Together they have been running “demonstration programs to provide local companies and industries with an opportunity to gain the technical know-how and practical experience in ISO 14000 implementation” [29, p.65]. It is the call of the hour that other countries follow the example of Hong Kong and encourage their respective industrial and service sectors to adopt EMS and integrate it with their existing standards.

For the integration process to be uniform throughout the organisation it is essential that a fully integrated system be implemented. In contrast to the current practice of integrating only the documentation and recording elements, an integrated system should encompass all the “facets of an organisation, [such as] operations, including quality of product and service delivery, legislative compliance and financial management” [30, p.459]. Some aspects of the business that can be integrated in an organisation include [30, p.500]:

- Purchasing-which includes procurement, inwards goods receiving, process planning, accounts payable, management of suppliers and subcontractors
- Staff induction, training and development-where the impact is felt across the organisations
- Identifying and documenting responsibilities and accountabilities
- The review of tenders and customer order requirements, and
- Most process related activities.

However the extent of integration of the different systems would be determined by the culture, nature and size of the business.

Precaution before Integration

Before preparing themselves for or even before initiating the integration procedure organisations need to ask a very important question ‘Why’? This is because “why brings out the cause, the reason” [31, p.43] to proceed with the specified or desired process or system (in this case, integration of systems such as QMS, EMS and OHS). The answer to the ‘why’ question would ensure that the decision for integration is correct and whether or not the existing QMS/OHS could be used as a ‘springboard’ [32, p.47] to move towards EMS implementation and accreditation procedure. This is based on the simple fact that most of the companies moving towards EMS adoption and implementation have one commonality, that is, “they [all] have a QMS in operation” [32, p.47]. Furthermore in the wave of new set targets and objectives, organisations should not forget or overlook the balance between the “environmental values with financial and business goals” [33, p.67], as otherwise disputes between interests of different departments may ensue.

Irrespective of the strategies employed by organisations to integrate their existing management systems, some of the issues that needs to be considered first includes [34; 35, p.47]:

- Should the entire organisation integrate its quality and EMS simultaneously?
- Should integration take place in phases?
- How should the integration project be funded?
- Should the project be funded for all units at once or in phases at appropriate intervals? and
- How to organise a cross-functional team, which ensures input from key departments of the organisation, their representatives, experience, expertise concerns resulting in a balanced team aware of quality, environmental and OHS systems/standards and the technical requirements.

Parallels between Management Standards and Systems

Once the answer to the question ‘Why’ has been established, and the decision to proceed with the process of integration has been finalized, organisations should then work towards finding out the similarities, differences and other elements of the system to be integrated. [36, p.1] suggests, for instance asking the question: “what elements of ISO 9000 can I use for ISO 14000?” to find the similarities between the quality and environmental systems. The parallelisms found will act as a checklist (see [37, p.172-4]; and [38, p.72-75] for examples of checklists and strategies for integration) during the integration process and will thus

assist organisations in identifying potential improvement or growth areas. For instance the similarity in purpose for integration of quality, environmental; and OHS systems can be summarized as follows [39, p.238]:

- Strong parallels exist between work safety and environmental protection in the handling of dangerous materials
- A global sight for their own actions is necessary. Environmental themes should not be seen as isolated, and
- If the necessary audits are carried out together, the acceptance of management systems is likely to increase.

Number of similarities have been highlighted in the literature, for instance between quality and environmental standards such as the procedures; documentation; audit criteria; supplier partnership; prevention; and registration process [27; 40, p.694]. Though similarities are important but recognizing the differences is equally consequential when merging different standards so as to avoid the common pitfall of, for instance, replacing the word ‘quality’ with ‘environment’ [41, p.48; 42, p.41].

Benefits of Integration

Integration of systems can save both time and costs for companies. Bob Ferrone, President of the Ferrone Group, Waltman, MA, is one of the supporters of the integration process and he outlines that as “a cultural change has [already] occurred and savings have been realized” [43, p.41] it is easier and faster to implement ISO 14000 for ISO 9000 certified companies. Accordingly it is easier for the ISO 9000 certified companies to adopt new systems and accept the changes as a part of the improvement process. Other advantages, the list while not being exhaustive, resulting from the integration process include [30, p.497; 44, p.S689; 45, p.S850; 21, p.11; 10, p.679; 46; 47, p.27; 16, p.2; 48, p.276; 49, p.69; 36, p.2; 50, p.32]:

- Simpler, more focused management systems in the organisation
- Reduction in duplication of policies, procedures and records resulting in reduced effort for system implementation and maintenance. This also results in the decrease in volume and number of paper and forms in the company
- Reduced costs and more efficient re-engineering, due to improvement in data and personnel management. The costs are also reduced as the audit team has to travel to the facility only once
- More efficient use of internal audits to prepare for third party assessments
- Greater acceptance by employees as the three objectives of customer satisfaction, environmental compliance and employee safety are considered for all operations resulting in higher staff motivation and lower inter-functional conflicts. Integrated audits also makes it easier for the employees to prepare for the audit only once
- It saves time for adopting different systems as common procedures are being followed
- It has a common objective; all the standards include the continuous improvement element of the system
- Improves communication between managers and hourly employees
- Places greater attention on significant issues not driven by regulations, establishing a safety culture and raising employee morale
- Easier understanding in the staff of their role in the organisations and their impact on the quality of outputs, especially with respect to environmental impacts
- Increased sharing of information on environmental matters across the organisation
- Reduced potential for liability
- Faster development of effective EMS and improvement in environmental performance
- Inter-discipline learning providing the opportunity for safety development and succession planning
- Demonstration of due diligence
- Reduction in time for system audits, both internal and external
- Identification and implementation of improvement strategies across the whole of the organisation
- Improved technology development and transfer
- Improved joint operational performance, and
- Enhanced confidence of customers and positive market/community image.

Some of the benefits listed above were also found in the results of the empirical (questionnaire) study of 50 SME's in UK that had integrated both ISO 9000 and ISO 14000 in place [44]. In views of Jim Dixon, director of Business Management and Life Sciences at the Canadian Standards Association (Toronto) and member of the Technical Assessment Group, the integration process when practiced will “minimize repetition and streamline procedures [and] make it easier, quicker and less expensive for companies to implement [different] standards” [9, p.47]. Similar views were also held by James Highlands, President of the Consulting firm, ‘Management System Analysis Inc.’ in Royersford, Pennsylvania [16, p.2]; and Antonio Silva Tamez, the Quality, Safety and Environmental Vice President of Vitro Corporation, US [19, p.56].

Barriers Accompanied with Integration

Alike with any other system or procedure the integration process is also accompanied with some weaknesses. The most common obstacles encountered by organisations during the implementation process include [30, p.501; and 51, p.208]

- Insufficiently harmonized standards from the ISO 9000 and ISO 14000 series
- Different perceived customers and stakeholders; for QMS, customers are individuals purchasing a product or service; for EMS, customers are general public, local communities and the government; and for OHS the employees, government and community
- A clash of objectives for safety, quality and the environment, for instance achieving the best outcome for the customer may not always align with environmental improvements
- Interests concerning the environment are more homogenous internally and externally than interest concerning assistance in product quality improvement
- Disputes over responsibility and authority requirements relating to the different disciplines resulting in inter-functional conflict because of varying interests and motivation, ie., workers are also interested in EMS as members of the local community
- Obtaining the relevant expertise to cover all system requirements
- Evaluating the costs and benefits of a fully integrated system. As some costs are intangible, or will not apply until an incident occurs, they may be difficult to evaluate
- Devoting too many or too few resources to the system. This results in either costs exceeding benefits or not obtaining the full benefits
- Traditionally organisations have separate, competing staff groups to handle the industrial management areas
- Specialists are normally trained in one or another of the disciplines, and sometimes lack the confidence to develop systems that can address all three, and
- The development of systems for the benefit of external auditors than the organisation.
- It would thus be beneficial for the organisations to try to reduce and if possible eliminate as many obstacles as possible before the actual implementation process. Learning from other organisations' experiences is one way to enhance the implementation process.

How can Integration be Achieved

Survey conducted by Mobil Corp, New York of 127,000 quality certificate holders in 1996 found that some companies with ISO 9000 “questioned the value of also pursuing ISO 14000, particularly when there is so much duplication and disparity between the two standards” [9, p.47]. However, time and again it has been proven that “operating a QMS and an EMS as two separate systems is wasteful and redundant [and] integration is the key to streamlining an organisations' operations and realizing maximum efficiency” [34, p.33].

As with any other system or standard adoption and implementation, the role (commitment, communication, support, funds, leadership) of top management is equally crucial and inevitable in the case of integration too. Top management's responsibility does not finishes once the decision to integrate the systems has been finalized, rather it begins from here, as to be successfully implemented, completed and maintained, their contribution needs to be continuous or on-going. Here “*on-going* is the key word because once the project is underway, the constant support and leadership of the organisations' chief decision makers are crucial for the

project to evolve” [34, p.33]. This is where the role of the managers comes into picture – to keep the top management interested and involved throughout the process, which in views of [34, p.33] can be achieved by:

- Showing and promoting economic benefits (ie., return on investment) from integration (for instance how waste reduction would result in cost saving for the company)
- Demonstrating how companies would have a competitive and market advantage from becoming ‘green’, and
- Benchmarking with other companies who have benefited from the integration of systems.

The literature also highlights various levels of integration that can be achieved within an organisation depending on its individual requirements. Examples of four levels each has been provided by [48; and 44, p.S687] based on their descriptive and empirical researches. If organisations want to procure benefits from the integration of quality, environmental and OHS systems/standards then the management can chose any one of the following strategies to integrate QMS, EMS and OHS successfully according to their respective systems or operations [48, p.281, 282; 14, p.95; 40, p.694, 51, p.208; 33, p.66; 52, p.243; 44, p.S687]:

1. Establish QMS first and subsequently EMS: This is a cost-effective and simple way for organisations already having a QMS in place. The appropriate/common elements of EMS can be implemented and documented accordingly. Documentation; procedures; audit criteria; and registration process are few examples where this method can be followed.
2. Establish EMS first and subsequently QMS: This is a more reactive approach for organisations under pressure to implement an EMS. These organisations following the implementation of EMS can then implement QMS elements such as document control that is similar in both the systems. Note that the literature indicates that ISO 14000 may gradually become a prerequisite especially for “obtaining ISO 9001 re-certification” [17, p.57].
3. Establish EMS and QMS Simultaneously: This is presumed to be one of the efficient ways of implementing the systems. As the two different systems are implemented simultaneously, the integration process is faster and cost-effective.
4. Strategy Deployment: This method of integrating the systems, especially quality and environmental, is based on the fact that both of them have originated from ‘total quality management’. Accordingly organisations can integrate their management systems in four main areas: process, product, customer and employee [52, p.243]. Use of this method has also been highlighted by [14, p.96].
5. Implementation of a system throughout the whole organisation: In this method all the system elements are integrated and implemented in every function and process of the organisation.
6. Combining of systems through structural similarities: This method involves identification of the similar elements in the various systems and only integrating the common elements.
7. The use of a separate system to deal with activities such as training, which are common elements in other systems
8. Integrating all the systems existing within the organisation irrespective of whether or not they are certified, leading to a complete, truly Integrated Management System (IMS). Concept of IMS has also been supported by [14, p.95].
9. A combination of the points 5 to 8 above, with the policy and objectives of each system aligned to and supporting the overall company policy.

Depending on the size and nature of the company and its culture and resources available, it can use one or more methods to integrate its existing management systems.

RESEARCH METHODOLOGY

The researchers opted for the case-study methodology, in alignment with the scope and benefits offered by this methodology. In addition to finding answers or clarifying ambiguous or uncertain issues, the exploratory case studies also serve the purpose of narrowing the research topic or field. This aspect has been supported by a number of researchers including: [53; 54; 55; 56; 57; 15; and 58]. Another advantage accompanied by case-studies is that its results though “general [and] tentative” in views of [59, p.108] can be

easily coupled with explanatory and descriptive methods. In [60, p.12] views the case studies tries to uncover the answers to “a decision or a set of decisions [for instance] why they were taken, how they were implemented and with what result”. Case studies thus provide a holistic view of the variables by going into the depth of the topic in consideration (for instance as in the case of interviews) by the use of “Why, When, Who, What, Where [and] How” [58, p.181; 59, p.38; 60, p.3] questions. The results obtained following the case studies, though general in nature, can be presented in a coordinated and holistic manner.

The three companies involved in this study were selected based on previous contacts and communication with the managers from the respective companies. After re-establishing contact with the relevant managers and informing them of the objectives of the study, interviews were arranged to be conducted on-site. The interviews lasted between one and two hours and were taped, transcribed and written up as individual case studies. The case studies were then sent to the interviewees for validating the interpretation and content. Any changes, as required were accordingly made before the case study was finalised. Site visits and review of companies’ documentation also assisted in learning and confirming the content of the case studies.

The finalised case studies were cross-analysed for similarities and differences relating to the various aspects of integration. Conducting cross-case analysis has been supported by researchers including [61, p.282; and 56], as it increases the validity and reliability of the case-study methodology.

The next section presents the findings of the case studies. To protect the confidentiality, the three companies are referred to as Companies A, B, and C.

Profile of the Companies and their Management Systems

This section presents some background information of the three companies interviewed. Also presented is the background of the implementation of the individual management systems within the three companies and subsequently leading to their integration. The main drivers for integration of the different management systems are also briefly discussed in this section.

Company A

This is one of the ten largest pharmaceutical companies in the world and employs approximately 70,000 people worldwide and had sales revenue of over US\$13.7 billion in the 2000 financial year. As an organisation, company A is very conservative in nature and is known primarily only within the health care sector. It provides a large number of hospitals and home-care nutritional products worldwide and about 95-98% of all inhalation anaesthetics in Australia. It has more than thirty manufacturing plants worldwide, with seventeen manufacturing locations in the USA. The Australian plant employs approximately 250 people. Due to the small scale of the Australian manufacturing operations and the excess capacity available in other manufacturing locations internationally, the Australian plant will cease to manufacture products from August 2002.

Pharmaceutical companies are generally classified as part of the manufacturing sector and accordingly are under intense pressure to maintain the quality of their products and impact of their operations on the ecological and social environments. Implementing and maintaining a number of management systems such as quality, environmental, OHS, Good Manufacturing Practice (GMP) and national and corporate systems is thus a common practice. In words of the interviewee, the pharmaceutical industry is “one of the most regulated industries, second only to the aviation industry as far as standards and requirements” are concerned due to the basic nature of its products and services provided to its customers. Every component and raw material used in its products can accordingly be traced back to its manufacturer. As a result of the number of systems being practiced within the pharmaceutical industry and the resources required to maintain these, it has become necessary to move towards a single system that integrates as many of these as possible.

The quality system was formally implemented and certified to by the company in 1994, followed by the implementation and certification to the environmental management system (EMS), ISO 14001, in 1997. At the same time the company was also having in place the GMP, corporate systems and OHS systems (such as the Safety and Industrial Hygiene Management System and the Five Star Standard). Separate audits were conducted covering all the systems. The formal integration process was initiated during 1997 when EMS

was being implemented. The main driver for the company to integrate its management systems was the need to better use its resources and achieve cost savings.

Company B

This company was established in the mid-1960's by two brothers as a small family business that designed and manufactured furniture. Currently (early-2002) the company employs more than 1000 people, operating not only in Australia, but also in Tokyo, Singapore and Los Angeles along with its distributors located in New Zealand, Hong Kong, South Africa and the Middle East. The company has captured about 35% of the Australian office-furnishing market by fulfilling its customers requirements of a comfortable, productive, flexible and not to mention safe offices. To consummate its business objectives, the company specialises in four business divisions: Project Solutions; Technologies; Interior Fitout/Constructions and Systems Furniture. It manufactures its products primarily in seven sites in Melbourne, Australia, in addition to having marketing offices in Sydney and Brisbane. The company has achieved a number of export awards for its projects that has been possible from the combination of dedication from its workforce and integration of technology, safety and environmental issues.

The implementation and practice of a formal Quality Management System (QMS) started in the company in early 1990 and by early 1994 the company had been fully certified to the ISO 9001 standard. The company currently operates two separate quality systems. One system covers the production function whilst the second system covers the sales side of the business. Some of the forces that had driven the company to implement a QMS were; quality was becoming a pre-requisite to enter and compete in the market place; regulatory pressure to have a quality system/standard in place; and requirement from the company's major customers to have a formal QMS in place, if they wished to continue business with them.

The integration process was initiated within the company during 1997, when a formal EMS was being implemented. At the same time an OHS system was also initiated that became formalised in early 2000. Some of the elements currently integrated by the company within its three systems (QMS, EMS and OHS) includes, the management review; audits; corrective and preventive action; document control; work instructions; responsibility statements; process controls; and the training systems. Even though the managers have fortnightly meetings to discuss the issues and progress of the integration process, in views of the interviewee the company did not require additional resources to integrate its existing management systems. The only commitment required was of time from the managers overseeing the current systems.

Company C

This company manufactures radio and other telecommunication components and devices for a number of customers, with Ford Australia and General Motors Holden being its major customers in Australia. It also exports to BMW in Germany. As a multi-national organisation, company C has thousands of employees worldwide, with the Melbourne plant employing approximately 300 people.

A quality department was established in company C in the early 1980's and has been responsible for maintaining the Quality Management System (QMS). Top management has provided considerable leadership over the past two decades with respect to quality improvements. The EMS and OHS systems were introduced and maintained separately from the QMS through the Human Resources department. The need to adopt EMS and OHS elements had been driven by a number of internal and external forces, including legislation, savings of dollars, and reduction in the number of accidents, to name a few.

The company, with three separate certifiable systems, decided to integrate these due to a number of drivers and benefits identified. Some of the drivers for integration of its systems included:

- Avoidance of duplication of resources resulting in cost savings due to efficient and effective utilization of resources.
- Remaining competitive in the business world by keeping quality high and prices low, once again only possible if there is minimal use of resources.
- The trend within the new standards, such as the new quality standard (ISO 9001:2000) encouraging integration of management systems, and

- Effective utilization of resources and cost savings, once again driving the company globally towards the trend of integration of systems, regardless of the nature of their industry sectors.

The process of integration started in late 1998 when the company was implementing a formal EMS (ISO 14001) and the OHS standards. The management decided to use the existing quality system as the basis for adopting the EMS and the OHS systems. The current integrated system is thus based on the existing quality system, accepted and understood by the employees. All the documents for the integrated systems are now based on the “corrective and preventive action form”, adopted from the QMS 8D’s (8 Disciplines) “method of investigating accidents and breakdowns”. All its three systems are thus “structurally the same”. This provided an added benefit to the organisation in terms of saving of resources as the EMS and OHS systems, even though being formally implemented from scratch, were based on an existing, acceptable system. The organisation also encountered very little resistance from its employees when implementing the integrated system as people did not have to adapt to something new, rather still carry out the procedures and complete forms they were used to with the QMS. If the organisation were to practice three separate systems there would be lot of resistance as employees would be vary of accepting something new. Accordingly the procedures and the manual, except for the headings, look fundamentally the same. In other words, the integrated system is an extension of the quality system.

In addition to the comparison matrix present behind ISO 14001 standard listing the similarities and differences between the three standards/systems (EMS, QMS, OHS), the company learnt about integration from studying the elements of the individual systems themselves. Training, audits, records, management review and corrective and preventive actions were some of the common elements identified by the company across the three management systems that could be fully integrated. The company currently operates the electronic ‘outlook system’, which lists all its policies and procedures. Every employee having access to computers also has access to this ‘outlook system’. The organisation also has an integrated manual for the three systems, with links to each individual system.

BENEFITS FROM INTEGRATION

Integration of separate management systems (QMS, EMS and OHS) into one operational system has provided the three companies with a number of tangible and non-quantifiable benefits. These are discussed below:

1. Strategic Planning

An integrated management system ensures that the daily operations are being performed effectively without the need for top management’s input. For instance integration of management systems provided the top management of company A with more time to spend on strategic issues. An integrated management system provides up-to-date information from a single source and hence improves the decision-making process. This was explained by the interviewee from company A by giving the example of addressing environmental issues as part of their integrated system, “we [the company] go into a lot of detail as part of our EMS to look at all of the possible environmental risks on-site. So, it has allowed the senior management to just continue doing business and concentrate on running the organisation because the environmental issues are covered as part of the normal running of the business”.

2. Resource Utilisation

All three companies reported improvements in resource utilisation following the integration of their individual systems. Reduction in the duplication of processes and procedures and time spent in the review of documentation procedures was acknowledged by all the three companies. There has thus been better utilisation of resources such as employee skills, expertise, time and dollars. This was commented by the interviewee from company C in the following words, “as an organisation you could spend a lot of money on duplication of effort if you continued to have all those three disciplines totally separate”. On similar lines of avoiding duplication in procedures and reviews, the interviewee from company C commented that, “it [integration] is the only logical way, that you have one set of procedures which includes all the issues, one set of review mechanism”.

3. Holistic View

An integrated system provides a higher level of management control than is the case with the management of a number of individual systems. It is also easier to address the people related issues if the organisation has an integrated system as opposed to different individuals being responsible for a number of systems. This was highlighted by the interviewee from company A in the following words: “if you have separate systems ... it is very difficult to make advances in every single one of them because they’re too focussed [and it] comes back to who has the responsibility for the systems. If you have got one person responsible for each of the separate systems it makes it harder” to make changes. With an integrated system overseen by a single person, who is aware of all the operations of the company, this person can provide input into developing the overall goals and objectives of the organisation. This holistic view reduces the chances of taking a narrow, functional approach in satisfying individual systems goals, as experienced by company A.

4. Acceptance and Understanding within the Employees

All the three companies interviewed had experienced less resistance, better uptake and understanding of the integrated system amongst its employees, as the integrated system was based on the existing quality system, already accepted and practiced within the companies. Hence, the changes implemented were readily accepted by all employees who also became increasingly aware of the inter-relations existing between the different systems. This was explained with an example by the interviewee from company C: the employees now understand that if there is a spill on the floor due to leakage from a screw/joint, it not only shows that a defective screw is being used, however are also aware that the spill has environmental (if the spilled oil/chemical flows down storm water drain) and OHS (if somebody slips/falls from the dripped oil/chemical) implications.

5. Training Programs

An integrated management system training program for employees saves both time and dollars and avoids confusion that may result from conflicting messages that may be conveyed through separate/individual training programs. This has been experienced both by companies A and C. The interviewee from company A highlighted the benefit of having an integrated training program in the following words: “you tend to make better use of resources from a management point of view because it means that you can have one person doing the training, and when you get up and do training, they can cover all the subjects, or [when] you’re [completing] documentation, they will make sure that one document covers all the relevant issues associated with it”.

6. Enhanced Communication

Better utilisation of resources and effective training leads to more effective communication across the organisation as employees across different functions and levels are using the same language. Furthermore employees benefit from learning new skills and/or exchange of ideas and expertise across the different departments. This also contributes to creating a ‘team approach’ atmosphere across the organisation.

7. Dollar Savings and Positive Market Image

All three companies reported substantial cost savings and a positive impact on their bottom-line as a result of more effective and efficient operational processes and procedures and better utilisation of resources. These improvements have enabled all three companies to maintain market share and competitive advantage. In this respect the interviewee from company C commented, “you have got more efficiency and you’ve got better utilisation of resources so it has given you some competitive advantage because I guess your are keeping you overheads down”. Companies A and C have also experienced improved reputation and a positive image within the community, as they are now seen to be doing the right thing for the environment (for instance by recycling its products, paper and other materials and by reducing its usage of resources). Resulting from integration of procedures and processes, company C moreover is viewed by external parties as “working as a unit rather than separate systems”, which in turn has enhanced the ‘credibility’ of the company.

8. Audits and Housekeeping

Companies A and C have witnessed reduction in the number of internal and external audits (as the audits

are now integrated) once again directly resulting in the savings of dollars. The number of on-site accidents and occupational injuries have been reduced in both companies A and B from integrating their management systems. Housekeeping issues, usually a major challenge for manufacturing organisations, are also being addressed as part of the integrated system as there is, for instance, “no rubbish lying around, leaking drums” etc, as commented by the interviewee from company A. Accordingly the site has become safer for the company as many of the potential environmental and OHS impacts have been reduced.

The realisation of these benefits has provided further motivation to both management and employees in all three companies to continue with their efforts in re-examining their processes and procedures to make further improvements.

CHALLENGES/IMPEDIMENTS ACCOMPANIED WITH INTEGRATION

Even though the three companies interviewed did not experience all the impediments listed below, these are nonetheless recognised as potential challenges commonly experienced by companies integrating their management systems. The challenges/impediments includes:

1. People’s attitudes

Behaviour and attitudes of the employees within the organisation can act as a determining factor for successful integration of the systems and its maintenance. It is common knowledge that nobody likes to change their old ways of doing things and implementing new systems or even updating existing procedures can involve substantial change. It is thus sometimes both challenging and frustrating for people to communicate and explain their system requirements to others and explain how their systems may be best integrated with the other system(s). Some resistance is thus to be expected during integration of the systems, which can generally be addressed by educating and training the employees. Some resistance may also be experienced from people who lose ‘ownership’ of, for instance, forms or procedures resulting from integration of the systems.

2. Lack of strategic planning

Companies that lack a formal long-term ‘strategic plan’ can experience resistance and delays in the completion of the integration of their systems. Due to communication gaps between the top/middle management and employees of the aspects of the integration process, resistance would be experienced within the various management levels.

3. Lack of Expertise and Use of Consultants

One of the most common challenges faced by a number of companies when integrating its management systems is the availability and/or lack of qualified personnel to complete the job. Many-a-times when the companies are able to find an expert in the area, paying them appropriate salaries becomes an additional challenge/problem for them due to lack of, or limited resources, once again restricting them from recruiting such a person.

Consultants are generally used by a number of organisations to implement their management systems. One of the problems associated with the use of consultants is the very high fees charged by them and many organisations, particularly SMEs, are unable to pay the consultation fees over an extended period of time. Another disadvantage of using consultants is that even though they can implement the system, they cannot assist the organisation in maintaining the system, which has to be done by internal people. In views of the interviewee, it is thus preferable and recommended that the system is implemented and maintained internally by the organisation.

4. Continually Changing Regulations and Guidelines

Due to the continually changing regulations and guidelines, for instance in the environmental field, organisations are faced with the challenge of updating their procedures and systems. These changes consequently force the organisations to continually review their procedures, targets and objectives and update them accordingly.

5. Reporting of Results

To avoid delays in the finalisation and facilitation of the future improvement plans, the company's top management needs to receive and review the progress/audit reports promptly. This method can be successful only if the company ensure that their exists a fast reporting system across the organisation and its national offices, if that is the case.

6. Time-delays in Integration

Some departments within the company could take more time than anticipated to initially understand and implement the integrated system. This could delay meeting the target completion date set by the management. Nevertheless, this possibility needs to be considered and taken into account when finalising the target dates.

By being aware of some of the challenges experienced by companies within the same or different sectors, organisations contemplating to integrate their systems can accordingly prepare themselves to meet and address these challenges, thus making the implementation of the systems and their integration faster and smoother.

LESSONS LEARNT DURING INTEGRATION

The major lessons learnt by the three companies are identified below. These can be used as recommendations for other organisations currently undertaking or contemplating to integrate their management systems:

1. Top Management Commitment and Management Review

Before integrating its management systems the company needs to have 'top management commitment' to do so. Without top management commitment, as commented by the interviewee from company C, "you are just banging your head against a brick-wall". Top management commitment must be in the form of hands-on involvement in all phases of the integration process as realised by company A. The leader must personally be involved in communicating the company's goals and plans and in motivating and rewarding the employees. Top management must be seen by the rest of the employees to be totally committed and involved. This commitment is also true for implementing individual management systems. The motivation for top management to provide commitment should come from the saving of resources and reduction in costs that will result from operating an integrated system. Top management support and commitment is thus essential for the integration process to be initiated, completed and subsequently maintained within the organisation. The managers thus need to recognize that for the integrated system to be implemented and maintained, they must continuously push it forward.

For the maintenance and progress of the system it is also necessary that a management review is held regularly with key personnel representing management from across the organisation, as experienced by both companies A and B. The problems being experienced with the operation and maintenance of the system needs to be reviewed at this meeting along with the results of the internal audits. These management review meetings should also discuss the overall direction the company and set long-term targets to be achieved by the company. The interviewee from company A emphasised the same in the following words: "you need to make sure that you have a regular [management] review that goes over and looks at where you were, where you are and where you want to go to, so that you actually set direction".

2. Appointing a Champion

Both companies A and B stressed on the appointment of a 'champion' within the organisation for the successful implementation and maintenance of an individual or integrated system. In the company's experience the person appointed in this position must be a representative from the middle to top management level, someone who, as commented by interviewee from company A "takes directives [from] senior management and puts them in place so that people at the lower levels of the organisation can use them [directives/systems] to [deliver] the services", in other words carry out their jobs/tasks effectively. The essential skills that this person must have include being a good communicator,

negotiator, coach and trainer.

3. Training

Both companies A and C found ‘training’ as an effective way to reduce anticipated impediments before they were experienced. Organisations thus need to allocate sufficient resources for the purpose of providing adequate training for all its employees. The aim of the training program should be first to provide awareness for the need for and the benefits of an integrated system and secondly how the integrated system would be implemented, utilised and maintained. It has been shown again and again that employees’ understanding and involvement results in eliminating employee resistance to the change initiative. Company C, as a means to increase understanding of the systems and reduce resistance, is currently training its employees to do internal audits, so that they “have knowledge about the system”. This was also highlighted by the interviewee from company C as a means to “empower people [so that] the more people know about the system and can use it, then that will make them better people for the organisation [and it will provide] more skills [for the employees] and the skills won’t be just what the systems are, the skills will be communication, like talking to people, asking the questions in a certain way, getting information, so it will be double-folded”.

For both the individual systems or an integrated system to be successfully implemented and maintained, it is essential that all personnel are trained regularly in the new systems and procedures and this was emphasised by all the three companies interviewed. This training is especially required during the early stages of the implementation process and if possible even before the actual implementation stages, depending on the type of the organisation and its employee’s skills. In some instances ‘re-fresher courses’ may be required to refresh/re-emphasise the understanding of the individual system(s) and/or integrated system.

To be effective, this training should include “small lectures [as well as] taking people on specific site tours”. Methods such as site-tours would “reinforce the fact that they [employees] are living in a natural environment” with other species of plants and animals and thus it is essential to maintain that natural environment. Once the systems have been integrated, the training should reflect the same, that is, integration of procedures and systems. The interviewee from company A stressed this point by giving the example of a ‘spill training’ program. In views of the interviewee, spills are associated with regulatory issues (for instance what impact is the spill going to have on a product and contamination of other products). There are also the OHS aspects of spills, as they are dangerous and people can get hurt themselves. From an environmental point of view spills are risky because if they get into drains, the organisation can have regulatory/compliance issues.

4. Skilled Employees and Resource Utilization

For the integrated system to be implemented, practiced and maintained the company requires “skilled employees ... people who know a lot and [are] skilled and empowered”. This point enforces the importance of training and communication for all employees. To have skilled and empowered employees, it is thus essential that the companies continually train its employees in new procedures, systems and technologies and involves them in the decision-making process. This would ensure that the employees understand both “the product [and] the importance of the system” being implemented. The importance/significance of training as a way to empowering its employees was indicated by the interviewee from company C in the following words, “you can get the managers all inspired and you can get the employees all inspired but if you don’t give your employees the right sort of tools ... you basically fail as well”. Implementing and maintaining an integrated management system not only requires resources such as skilled and empowered employees, dollars and management time, more importantly it is also important in views of interviewee from company C “to be able to utilize [these] resources in the best way possible”.

5. Documentation System/Control

One of the key impediments faced by many organisations is the maintenance of their documentation system. This documentation system needs to be highly controlled so as to avoid duplication of procedures that may result in confusion amongst the employees. According to the interviewee from company A, if an organisation does not have “a system for recording things directly and with a proper

sign-off and the control of those documents, [they] can't drive the management system". The interviewee further commented that this documentation system may or may not be electronic in nature, depending on the size of the organisation and the resources available, however it is preferable to make it electronic. Having a controlled electronic document management system would ensure that all personnel within the organisation are able to refer back/view the three or more management systems being integrated. The current/valid documents thus needs to be appropriately approved, numbered and issued, with obsolete documents being removed from the electronic system. Nonetheless, the master copy of the obsolete documents should be kept for future reference and audits. The same views were also reflected by the interviewee from company B, according to whom it is not adequate solely to implement the changes, it is also essential that the changes are documented and maintained.

6. Auditing and Addressing of Waste Issues

The organisation needs to have regular internal and external audits of its systems and processes. This auditing system should be "secure and reliable [and] everybody in the organisation [should be] comfortable with" them as viewed by the interviewee from company A. The auditing should cover all management systems including the housekeeping (which may be part of the OHS system) of all the areas and departments within the organisation. The frequency of internal audits, however, will be dependent on the type of system implemented. The interviewee from company A also indicated that the management systems "will die very quickly" if not audited regularly "by a combination of senior people [and] people across different areas of the organisation". A multi-disciplinary team approach would emphasise the significance/importance of the audits to the rest of the employees and get their commitment. In addition to saving of resources, conducting integrated audits would also help the organisation obtain a holistic view of the improvements required across its various departments.

Wastes produced from organisational processes, collected either on-site or sent for recycling or landfill, also needs to be regularly audited. The level of waste produced and the effort needed to address this could also be used for training and educating the personnel of the impact of the company's operations on the ecological environment, once again reinforcing the message to reduce the impacts and protect the environment by reducing the usage of raw materials and saving of resources.

7. Change Culture and Avoidance of Personality Clashes

To integrate management systems across departments it is crucial that personality-clashes be avoided and people put their egos behind. This was highlighted by all the three companies. The interviewee from company C commented that, "if Australian manufacturing or Australian businesses wants to be competitive in the rest of the world, you have to look at smart ways of doing things and you can't have people building empires and you can't have big egos". This requires managers and the employees working together. To implement various management systems individually or to practice an integrated system it is also essential that the organisation has a "culture that's willing to embrace change" as commented by interviewee from company C. This culture, as recommended by the interviewee, starts from the top of the organisation and spreads throughout the organisation. Being 'innovative' and 'open-minded' about the changes taking place is also required by the organisation, for integrating the systems.

8. Working with Suppliers

By educating and working with the suppliers, a company can have positive effects on its quality, environmental and OHS systems or its integrated system. The interviewee from company A gave the example of a supplier supplying soap in 44 gallons drums. Earlier the company, upon receiving the drums, had to sample its contents and on the usage of the product transport the empty drum back to the supplier. By closely working with its suppliers, the company has made an annual savings of \$80,000 and has reduced the number of manual handling actions needed for transferring the materials from the drums. Also the supplier now takes back the drums when empty.

9. Communication

Communication was found to be the most effective way to overcome a number of different challenges. Company C had encouraged and spread the message of the significance and benefits attached with effective utilization of resources and integration of systems. This awareness and communication has been especially effective in-light of the nature of business – manufacturing, which must remain 'mean

and lean' and for which it requires understanding across the various departments.

Keeping in mind these recommendations, it is expected that these organisations would encounter/experience lesser challenges during their integration process.

CONCLUSION

This paper has presented some experiences of three Australian based organisations with respect to the integration of their quality, environmental and OHS systems. Based on the literature review and the experiences of these three organisations, it can be concluded that the 'integration of system/standards' is one of the major strategies for ensuring survival and savings (time, cost, resources) for the organisations in the twenty-first century. At the same time it is also strongly recommended that a multi-functional team be put together to manage the process. This would ensure that all areas of the organisation are represented and consulted and the positive and negative issues relating to each function are considered in the integration process.

The interviews revealed a number of quantifiable and un-quantifiable benefits experienced by the companies from operating one integrated system such as saving of dollars, better utilisation of resources and improved communication across the organisation to name a few. However, for the benefits to be realized it is essential that organisations are aware of the challenges and obstacles accompanied with integration of systems/standards. If these challenges are not addressed early in the process they can delay the completion of integration process. Recommendations for other organisations contemplating to integrate their management system includes, obtaining commitment from the top management; having adequate resources to integrate the systems; having communication and training across the organisation in aspects of integration and last but not the least having integrated audits. Implementation of these recommendations may vary from one organisation to another, however would result in lesser resistance for the organisations following them.

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