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Integrated management system: the experiences of three Australian organisations

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Abstract

Purpose – 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 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 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.

Design/methodology/approach – 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 were collected through in-depth interviews conducted with the managers responsible for quality, environment and OHS systems.

Findings – The interviews revealed a number of quantifiable and unquantifiable 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 accompanying integration of systems/standards. If these challenges are not addressed early in the process they can delay the completion of the integration process.

Originality/value – Recommendations for other organisations contemplating integrating their management system include: 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, it would result in lesser resistance for the organisations following them.

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 that may directly impact on the bottom line of the organization. Additional costs are incurred in obtaining certification by a third party that 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 implementing 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 organizational resources. The literature review highlights the potential benefits for organizations from integrating their different management systems into a single system. There are few case study examples that have documented the experiences of organizations with integration of the different systems. In order to add to the existing literature, this paper presents the experiences of three Australian companies that have successfully undertaken the integration of their management systems. The aim of the paper is to understand the challenges, benefits and the critical success factors relating to integration of the various systems.

The rest of the paper is structured as follows. The next section presents the literature review, followed by the research methodology used. The subsequent sections present the findings with respect to the benefits from integration, the challenges associated with integration and measures taken by organizations to overcome these. The major lessons learnt by the three companies from their integration approach are then identified and discussed. The final section presents the conclusions.

Literature review

Background to management systems and their integration

The ISO 9000 series of quality standards were released by the International Standards Organisations (ISO) in 1987 (Stenzen, 2000, p. 241) and they immediately received global recognition. The ISO 9000 was followed by the release of the environmental standards series, ISO 14000 (Environmental Management Systems – EMS) in September 1996 (Fielding, 1999, p. 32; Hogarth, 1999, p. 118; Proto and Supino, 2000, p. S767). Since then the number of organizations certified to ISO 14000 has increased proportionally to that of ISO 9000. Occupational health and safety (OHS) systems have also been in place in many

organizations for a long time, such as the Safety Act of 1984 in Australia or the AS4801:2000 standard, released in January 2000 (Davies, 2002). The safety systems/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.

Since the release of the environmental standards (such as the BS 7750, EMAS and recently the ISO 14001), both private and public sector organizations are replacing the old, rigid "command and control" (Black, 1998, 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 the Gates Rubber Company (Baird, 2000, p. 29), is providing organizations with a more flexible, open and cost effective option. Cichowicz (1996, p. 78) in her article shows that an important way of reducing ISO 14000 registration costs (which could be up to 30 per cent higher as compared to that of ISO 9000) is by integrating the standards.

Rhone-Poulenc S.A. is an example of an organization where benefits from integration of environmental and safety management systems have been achieved. According to its environmental affairs manager, Jacques Salamitov, the integrated system known as 'Simserp' "is much better and less disruptive to plant operations if procedures dealing with safety and environment are introduced at the same time" (Crabb and Fouhy, 1998, p. 47). Other researchers and authors supporting the integration process include Mohan (1998, p. lSA), Petts et al. (1998, p. 714), Wilkinson and Dale, 1999a, p. 97), Baird (2000), Steger (2000, p. 30) and Del Brio et al. (2001, p. 670).

Jean-Luc Monein, responsible for looking after the environment and safety management system at Elf Atochem, Paris, also favours the integration of standards in light of similarities in the areas of policy, training and strategy procedures (Crabb and Fouhy, 1998). 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" (Crabb and Fouhy, 1998, p. 47). In views of Terziovski et al. (1997, p.510), PDCA is the "core of continuous improvement concept" and depicts a learning organizational culture. Hale (1997, p. l) expresses similar views to Terziovski et al. (1997). Other researchers also favouring integration of the three systems – quality, environmental and safety and showing similarities to PDCA (see Figure 1) include: Anonymous (2000, p. l), Rezaee (2000, p. 66), Del Brio et al. (2001, p. 683) and Suarez-Garcia (2001, p. 56).

Integration would thus ensure that instead of two or more different standards/systems, only one integrated standard is present within the organization, which could be efficiently and effectively understood, implemented, and maintained, especially by its employees. In the view of White (1999, 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.

To be effective 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. 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 simultaneously assisting organizations to adopt and integrate ISO 14001 with their other management systems (Chan, 1998, p. 65).

For the integration process to be uniform throughout the organization it is essential that a fully integrated system be implemented as opposed to the current practice of integrating only the documentation and recording elements. Some aspects of the business that can be integrated in an organization include (Wassenaar and Grocott, 1999, 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 organizations;
- 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

Though the similarities are important, recognizing the differences between the various management systems is equally consequential. For instance, although both ISO 9000 and ISO 14000 standard series have the same "management systems focus, they greatly differ in their roles, applications, complexity, documentation and most importantly the people they affect – both in their nature (i.e. businesses) and customers/consumers" (Picard, 1998, p. 32). Henry Ailhaud, quality management director at Eily Atochem, emphasizing the same view, comments that "while quality programs are addressed to the needs of the customers, environmental programs target the concerns of regulators and the public". Other researchers also highlighting the differences between the two (QMS and EMS) systems in areas of complexity, documentation, stakeholders, certification and auditors qualification include Wilson (2000, p. 41), Stenzen (2000, p. 259) and Picard (1998, p. 33).

Before preparing themselves for or even before initiating the integration procedure organizations need to ask a very important question "Why"? This is because "why brings out the cause, the reason" (Sawyer, 1993, 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" (Wilson, 1997b, p. 47) to move towards EMS implementation and accreditation procedure. Furthermore, in the wave of new set targets and objectives, organizations should not forget or overlook the

balance between the "environmental values with financial and business goals" (Jackson, 1998, p. 67), as otherwise disputes between interests of different departments may ensue.

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, organizations should then work towards finding out the similarities, differences and other elements of the system to be integrated. For instance, Hemenway and Hale (2001, p. l) suggest that one should ask the question: "What elements of ISO 9000 can I use for ISO 14000?" to identify the similarities between the quality and environmental systems. The parallelisms found will act as a checklist (see Puri (1996, p. 172-4) and Wiemhoff (1999, p. 72-5)) for examples of checklists and strategies for integration) during the integration process and will thus assist organizations in identifying potential improvement or growth areas. A number of researchers have identified similarities between QMS/ISO 9000 (Affisco et al., 1997; Karapetrovic and Willborn, 1998; Picard, 1998), TQM (Zsidisin and Hendrick, 1998); QFD (Akao, 1999), Japanese 5-S (Law, 1999; Nwabueze, 1999) and EMS. Recognizing the differences between the various management systems/standards is equally consequential when merging them so as to avoid the common pitfall of, for instance, replacing the word "quality" with "environment" (Wilson, 1997b, p. 48, 2000, 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" (Minner, 1997, p. 41) it is easier and faster to implement ISO 14000 for ISO 9000 certified companies. A number of tangible and intangible benefits have been identified in the literature by Bragg et al. (1993), Hale (1997, p. 2), Black (1998, p. 27), Picard (1998, p. 32), Sultana (1998, p. 69), Wassenaar and Grocott (1999, p. 497), White (1999, p. 11), Wilkinson and Dale (1999b), p. 276), Douglas and Glen (2000, p. S689), Renzi and Cappelli (2000, p. S850), Del Brio et al. (2001, p. 679), Hemenway and Hale (2001, p. 2) and Owen and Brischetto (2000, p. 46), such as:

- Simpler, more focused management systems in the organization.
- 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 of paper and number of 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.
- It saves time for adopting different systems as common objective of continuous improvement are being followed.

- Improves communication across different organizational levels.
- Demonstration of due diligence.
- Better scope for input by stakeholders.
- Enhanced confidence of customers and positive market/community image.

Benefits resulting from integration of systems were also found in the results of the empirical (questionnaire) study of 50 SMEs in UK that had integrated both ISO 9000 and ISO 14000 in place (Douglas and Glen, 2000). In the view of Jim Dixon, director of business management and life sciences at the Canadian Standards Association (Toronto), 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" (Crabb and Fouhy, 1998, p. 47). Similar views were also held by James Highlands, president of the consulting firm, Management System Analysis Inc. in Royersford, Pennsylvania (Hale, 1997, p. 2) and Antonio Silva Tamez, the quality, safety and environmental vice president of Vitro Corporation, USA (Suarez-Garcia, 2001, p. 56).

Integration accompanied by barriers

Like any other system or procedure the integration process is also accompanied by some weaknesses. Some of the most common obstacles encountered by organizations during the implementation process include (Karapetrovic and Willborn, 1998, p. 208; Wassenaar and Grocott, 1999, p. 501):

- Interests concerning the environment are more homogeneous internally and externally than interest concerning assistance in product quality improvement.
- Obtaining the relevant expertise to cover all system requirements.
- Devoting too many or too few resources to the system. This results in either costs exceeding benefits or not obtaining the full benefits.
- Traditionally, organizations have separate, competing staff groups to handle the industrial management areas.

It would thus be beneficial for the organizations to try to reduce and if possible eliminate as many obstacles as possible before the actual implementation process. Learning from other organizations' experiences is one way of enhancing the implementation process.

How can integration be achieved?

A 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" (Crabb and Fouhy, 1998, 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 organization's operations and realizing maximum efficiency" (Wilson, 1999, p. 33).

As with any other system or standard adoption and implementation, the role of top management (commitment, communication, support, funds, leadership) is equally crucial and inevitable in the case of integration too. Top management's responsibility does not end

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 organizations’ chief decision makers are crucial for the project to evolve” (Wilson, 1999, p. 33).

The literature also highlights various levels of integration that can be achieved within an organization depending on its individual requirements. Examples of four levels each has been provided by Wilkinson and Dale (1999a) and Douglas and Glen (2000, p. S687) based on their descriptive and empirical research. If organizations want to procure benefits from the integration of quality, environmental and OHS systems/standards then the management can choose any one of the following strategies to integrate QMS, EMS and OHS successfully according to their respective systems or operations (Jackson, 1998, p. 66; Karapetrovic and Willborn, 1998, p. 694; Karapetrovic and Willborn, 1998, p. 208; Lawrence and Andrews, 1998, p. 243; Wilkinson and Dale, 1999a, p. 95; b, pp. 281, 282; Douglas and Glen, 2000, p. S687; Chandran and Chidambaram, 2002, p. 64):

1. Establish QMS first and subsequently EMS.
2. Establish EMS first and subsequently QMS.
3. Establish EMS and QMS simultaneously.
4. Strategy deployment.
5. Implementation of a system throughout the whole organization.
6. Combining of systems through structural similarities.
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 organization irrespective of whether or not they are certified, leading to a complete, truly integrated management system (IMS).
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 and profile of the companies

The researchers opted for the case-study approach, 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 Wallace (1984), Eisenhardt (1989), McCutcheon and Meredith (1993), Greenwalt (1994), McGuire (1995), Simon and Sohal (1996) and Terziovski et al. (1997). Another advantage accompanied by case-studies is that its results, and though “general [and] tentative” in the view of Zikmund (1997, p. 108) can be easily coupled with explanatory and descriptive methods. In Yin's (1994, p. 12) view, the case studies try 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" (Wallace, 1984, p. 181; Yin, 1994, p. 3; Zikmund, 1997, p. 38) 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 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 validation. Any changes as required were made accordingly before each case study was finalized. Site visits and review of companies" documentation also assisted in learning and confirming the content of the case studies. The finalized case studies were cross-analyzed for similarities and differences relating to the various aspects of integration. Conducting cross-case analysis has been supported by researchers including Eisenhardt (1989) and Ndonzuau et al. (2002, p. 282), as it increases the validity and reliability of the case-study methodology. The next section presents the findings of the case studies. To protect confidentiality, the three companies are referred to as Companies A, B and C.

Table I presents a brief overview of the three companies interviewed. The Appendix presents a more detailed background on the three companies and their management systems.

The three companies represent different industry sectors and are all multinational organizations. All three companies implemented their EMS, QMS and OHS systems at about the same time and also initiated the integration process at about the same time.

The key driver for integration for all three companies was to make better use of resources.

The following sections of the paper present our analysis in terms of the benefits of integration, challenges associated with integration and the key lessons learnt from the experiences of the companies involved in this study.

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.

Strategic planning

An integrated management system ensures that the daily operations are being performed effectively without the need for top management 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 organization because the environmental issues are covered as part of the normal running of the business”.

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 organization 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”.

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 organization 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 are too focused [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 organization. This holistic view reduces the chances of taking a narrow, functional approach in satisfying individual system goals, as experienced by company A.

Acceptance and understanding among the employees

All the three companies interviewed had experienced less resistance, better uptake and understanding of the integrated system among its employees, as the integrated system was based on the existing quality system, already accepted and practised 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, they are now 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.

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”.

Enhanced communication

Better utilisation of resources and effective training leads to more effective communication across the organization 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 organization.

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 you are keeping your 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.

Audits and housekeeping

Companies A and C have witnessed a 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 organizations, 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 by 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 include:

1. *People's attitudes*. Behaviour and attitudes of the employees within the organization 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 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 organizations 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 organizations, 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 systems, they cannot assist the organization in maintaining these, which has to be done by internal people. In the view of the interviewee, it is thus preferable and recommended that the system is implemented and maintained internally by the organization.
4. *Continually changing regulations and guidelines*. Due to the continually changing regulations and guidelines, for instance in the environmental field, organizations are faced with the challenge of updating their procedures and systems. These changes consequently force the organizations 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. For this to be successful, managers should ensure that there exists a fast reporting system across the organization and its national subsidiaries around the globe.
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, organizations contemplating integrating 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 learned during integration

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

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 organization. The managers consequently 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 organization, as experienced by both companies A and B. The problems being experienced with the operation and maintenance of the system need to be reviewed at this meeting along with the results of the internal audits. These management review meetings should also discuss the overall direction of 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 now and where you want to go to, so that you actually set direction".

Appointing a champion

Both companies A and B stressed on the appointment of a "champion" within the organization for the successful implementation and maintenance of an individual or integrated system. In their 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 organization 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.

Training

Both companies A and C found "training" as an effective way to reduce anticipated impediments before they were experienced. Organizations thus need to allocate sufficient resources for the purpose of providing adequate training for all their 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 second 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 of increasing 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 organization [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 organization and the skills of its employees. In some instances "refresher courses" may be required to 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 the view 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 organization can have regulatory/compliance issues.

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 essential that the companies continually train their employees in new procedures, systems and technologies and involve 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 the view of the interviewee from company C “to be able to utilize [these] resources in the best way possible”.

Documentation system/control

One of the key impediments faced by many organizations 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 among the employees. According to the interviewee from company A, if an organization 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 organization 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 organization are able to refer back/view the three or more management systems being integrated. The current/valid documents thus need 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.

Auditing and addressing of waste issues

The organization 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 organization [should be] comfortable with”, it 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 organization. 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 organization”. 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 organization obtain a holistic view of the improvements required across its various departments.

Wastes produced from organizational processes, collected either on-site or sent for recycling or landfill, also need 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.

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 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 practise an integrated system it is also essential that the organization has a “culture that's willing to embrace change” as commented by the interviewee from company C. This culture, as recommended by the interviewee, starts from the top of the organization and spreads throughout the organization. Being “innovative” and “open-minded” about the changes taking place is also required by the organization, for integrating the systems.

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, on 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.

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

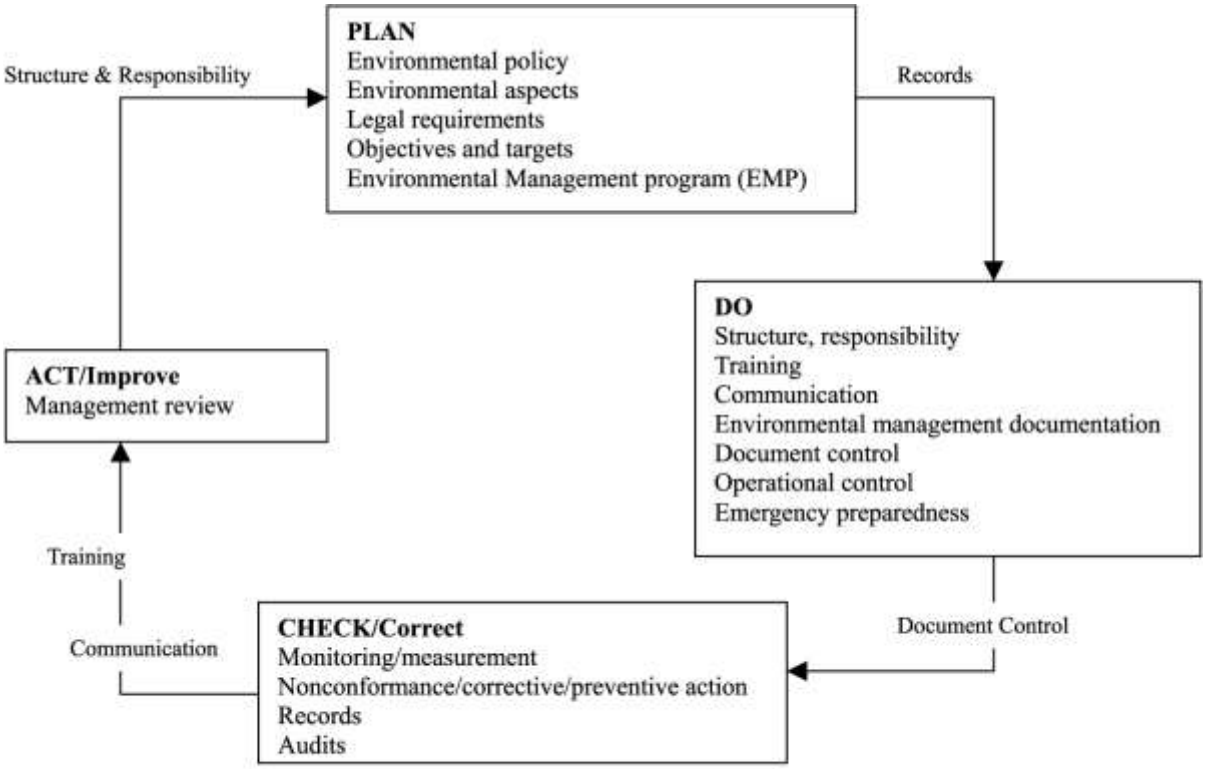
benefits attached to effective utilization of resources and integration of systems. This awareness and communication has been especially effective in light of the nature of business – manufacturing, which must remain “mean and lean” (Ayres et al., 1997) and for which it requires understanding across the various departments.

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

Conclusion

The paper presented experiences of three Australian-based organizations with respect to the integration of their quality, environmental and OHS systems. Based on the literature review and the experiences of these three organizations, it can be concluded that the “integration of systems/standards” is one of the major strategies for ensuring survival and savings (time, cost, resources) for the organizations 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 organization 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 organization, to name a few. However, for the benefits to be realized it is essential that organizations are aware of the challenges and obstacles accompanied by integration of systems/standards. If these challenges are not addressed early in the process they can delay the completion of the integration process. Recommendations for other organizations contemplating integrating their management system include, obtaining commitment from the top management; having adequate resources to integrate the systems; having communication and training across the organization in aspects of integration, and last but not least having integrated audits. Implementation of these recommendations may vary from one organization to another, however, it would result in less resistance for the organizations following them. More case studies and quantitative studies such as questionnaire surveys need to be undertaken to document the progress being made in the area of integration of management systems. Research also needs to identify the long-term effectiveness of integrated management systems on the overall performance of the organization.



Source: Begley (1996, p. 301A); Jackson (1997, p. 250); Whitelaw (1997, p. 167); Welford (1996, p. 79); Anonymous (2000)

Figure 1*PDCA-EMS cycle*

Table I.
Profile of the companies interviewed

	Company A	Company B	Company C
Sector	Pharmaceutical	Furniture	Radio and telecommunications
No. of employees (globally)	70,000	1,000 +	Thousands
No. of employees (Australia)	250		300
EMS implemented	1997	1997	1998
QMS implemented	1994	1994	Late 1980s
OHS implemented	1997	1997	1998
Integration started	1997	1997	Late 1998
Drivers for integration	Better use of resources Achieve cost savings	Better use of resources	Better use of resources Remaining competitive New Std. such as ISO 9001:2000

Table I*Profile of the companies interviewed*

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Appendix. Background of the three companies interviewed

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 per cent of all inhalation anaesthetics in Australia. It has more than thirty manufacturing plants worldwide, with 30 manufacturing locations in the USA. At the time of writing of this case study (mid-2002) the Australian plant employed approximately 250 people. Due to the small scale of the Australian manufacturing operation and the excess capacity available in other manufacturing locations internationally, the Australian plant ceased to manufacture products in August 2002 and now operates as a sales and distribution company centre.

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 practised 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 systems as possible.

The quality system was formally implemented and certified by the company in 1994, followed by the implementation and certification 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-1960s by two brothers as a small family business that designed and manufactured furniture. At the time of the interview (early-2002) the company employed more than 1,000 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 per cent of the Australian office furnishing market by fulfilling its customer requirements of a comfortable,

productive, flexible, 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 have 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 while 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 prerequisite 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 in 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 the view of the interviewee the company did not require additional resources to integrate its existing management systems. The only commitment required was that 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 1980s 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 such as:

- 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 the 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 sector.

The process of integration started in late 1998 when the company was implementing formal EMS (ISO 14001) and 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 8Ds (eight 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. In the view of the interviewee if the organisation were to practice three separate systems there would be lot of resistance as employees would be wary 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 has access to this "outlook system". The organisation also has an integrated manual for the three systems, with links to each individual system.