

IIRSM Technical Paper:

Management Integration: Benefits, Challenges and Solutions

An abstract graphic featuring several 3D arrows pointing upwards. The arrows are in shades of orange and grey, with some overlapping. They are set against a background of blurred, diagonal light and dark bands.

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Contents	Page
I. Abstract	2
II. Introduction	2
III. What do we understand by integration?	5
IV. Integration of the different disciplines	6
V. Unifying principles that support integrated management	18
VI. Conclusion	24
VII. References	26

Management integration: Benefits, challenges and solutions

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Abstract

With a plan-do-check-act and risk based approach being applied to health, safety, quality and environmental management, we have seen the development of individual standards, such as ISO 9001 ISO14001 and OHSAS 18001. Between the risks in each of these areas and the way they can be managed, there is much that is common. As a result, many organisations are merging the fragmented management systems into a single integrated management system. In addition, with the increasing acceptance that all these types of risk can be seen as threats to the business, organisations are now looking at how business opportunity and risk can be universally managed using a truly integrated management system that covers the totality of the business operations.

This paper addresses; the unifying principles that support integrated management, the benefits of different approaches as well as the barriers which need to be overcome and concludes that integrated management provides an opportunity to manage organisations much more effectively and efficiently.

1. Introduction

Historically health and safety, along with other risk areas such as quality and environmental management have been viewed by organisations as disciplines which may be necessary but which are not directly related either to each other or to the core activities of the business. However, in the 1950s the work which was instituted in Japan by Deming and Juran, related to statistical process control and quality management systems demonstrated that the benefits of viewing this as an integral component of business were clear. Subsequent developments have led to concepts such as Total Quality Management, Six-Sigma, Kaizen and many others including the establishment of the ISO 9000 series of quality assurance standards. These are based on the principle that the quality of a product and the consistency with which it is produced are the result of a process and it is this process on

which the ISO 9000 standard is focussed. In fact, in its original format ISO 9000 was criticised for being a consistency standard which could have been achieved by organisations that did not produce high quality output even though the public perceived it as almost a guarantee. This was rectified when the standard was reviewed and ISO 9000: 2000 introduced the requirement for a continuous improvement programme to be in place. In 1989, a model for quality management had been established by the European Foundation for Quality Management whose Excellence Model is used by more than 30,000 organisation, mainly in Europe.

This requirement for continuous improvement had been incorporated in the ISO 14000 series of environmental management standards which were published in 1996 which in turn developed out of BSI standard BS 7750, published in 1992, the year of the Earth Summit in Rio de Janeiro. This standard was also based on the belief that responsible environmental management was a benefit for businesses although this was being increasingly driven by legislative changes. In particular many countries were introducing the principle that “the polluter pays”. In other words, in addition to direct penalties such as fines, environmental pollution could result in the clean-up costs being met by the organisation responsible. This has been highlighted by a number of major incidents, most recently the BP Deepwater Horizon incident in the Gulf of Mexico in April 2010. In addition to being the second largest oil spill in US history, this incident proved that there is a close link between management of environmental risks and health and safety as it also resulted in the deaths of eleven employees. In the US, comprehensive environment legislation was introduced in 1969 with the passing of the National Environmental Protection Act. In the UK, we have seen the introduction of the Environment Protection Act 1990 and the Environment Act 1995 which were aimed at controlling the more polluting industries.

In contrast to the development of quality and environmental management the protection of employees has been driven primarily by legislation. In the UK, following the rapid development of the factory system, in 1802 the Health and Morals of Apprentices Act was introduced with the aim of controlling working conditions of children employed in textile mills. This then led to the introduction of a whole series of Factories Acts between 1844 and 1961. In the US, a law was passed in the state of Massachusetts requiring safeguarding of machinery and in 1970 the Occupational Safety and Health Act was introduced, founding

the Occupational Safety and Health Agency (OSHA) and the National Institute for Occupational Safety and Health (NIOSH). This led to the establishment of specific standards for hazardous activities.

Historically, most of this legislation was prescriptive, in that it related to specific activities and their required control measures. In the UK in 1972 a committee was established under Lord Robens to review the basis of UK health and safety legislation. The report recommended a major shift toward a risk based approach which required employers to set standards aimed at safeguarding the health, safety and welfare of their employees and others. This approach was incorporated into the Health and Safety at Work, etc. Act 1974 and has subsequently been built into the risk based approach of the EU. The recent review of UK legislation carried out by a committee chaired by Prof. Ragnar Löfstedt has underlined this commitment to a risk based approach.

What has become evident is that in spite of the different ways in which the management of the disciplines have developed a common thread runs through the approaches and that they can all be seen as aspects of a successful business. It is therefore unfortunate that we have seen the management of health, safety, environment and quality develop into individual silos sometimes even in competition. These fragmented management systems were generally separately documented in non-uniform styles under the control of separate managers, separately audited and where certified would be managed separately leading to multiple management system certificates. These fragmented management systems would generally be complying with discreet parcels of standards and legislation. Project based organisations would typically produce a quality plan, a health and safety plan and an environmental plan. Project risk assessments would often use different risk rating scales depending on the type of risk.

However we are now experiencing a trend for organisations to see benefits in regarding the disciplines, which focus on a particular aspect of performance, as needing a common management approach and building on these similarities as well as recognising the value in looking at them not as supplementary to the actual business but as an integral part of strategic and business planning.

This paper aims to look at the benefits and barriers to integration of the individual disciplines and the way they can be built into the strategy.

2. What do we understand by integration?

Before considering issues relating to integration, it is important to understand that when we see this term in reference to health and safety, it can mean distinct things to different people. For example, one organisation, Gulf Petroleum Industries Corporation in Bahrain, has developed an integrated management system encompassing not only ISO 9001, ISO 14001 and OHSAS 18001 but also included the OSHA Process Safety Management Standard, Chemical Industries Association Responsible Care programme and the ISO 27001 standard for information security management. (Holt (ed.) 2011). As early as 1988 the Central Electricity Generating Board which became Nuclear Electric implemented fully integrated management systems across its nuclear power plants covering the totality of their operation including all relevant standards, legislation and the nuclear site licensing arrangements.

To link the various operational disciplines has considerable logic to it as the management systems which would apply to each individually, are essentially the same in structure and contain the same elements. If the words quality, health and safety, environment etc. are removed from any management system standard then the standard, with appropriate interpretation, can be used to structure any management system relevant to all aspects of performance.

Integration can be taken further merging the combined system into the overall strategy of the business. When the culture of an organisation is one where health, safety, quality and environmental performance are regarded as just as important as the traditional financial measures such as turnover, profitability and shareholder value, we see real improvements in terms of injury reduction, quality improvement and environmental management.

2.1 Definitions of Integrated Management and Integrated Management System

Integrated management and integrated management system has been defined by the CQI Integrated Management Special Interest Group as follows:

Integrated Management is the understanding and effective direction of every aspect of an organisation so that the needs and expectations of all stakeholders are equitably satisfied by the best use of all resources.

An Integrated Management System is a single integrated system used by an organisation to manage the totality of its processes, in order to meet the organisation's objectives and equitably satisfy the stakeholders.

In practice organisations often refer to an integrated management system as covering more than one aspect of management such as health and safety whereas the CQI Integrated Management Special Interest Group would refer to a fully integrated management system as covering the totality of the organisation's operations. The terms integrated management system and fully integrated management system are now often being used by management professionals to differentiate the degree of integration.

3. Integration of the different disciplines

As discussed above, the way in which management of certain operational risk has developed has been driven by changes in legislation. This is particularly true of health, safety and environment where society is the principal stakeholder and less so with quality where the customer is the principal stakeholder. This has resulted in the way they are managed on the basis of compliance. It has also resulted in the creation of individual silos for managing health, safety, and environment and quality. This has been of particular concern in the area of health and safety which from a legislative perspective have been regarded as a single discipline. However, we now find the health and safety within many organisations has become synonymous with 'safety'. This has created a barrier to achieving the overall aim of protecting life and preventing injury and ill-health. If we look at the 2010-11 figures from HSE, while there were 174 fatal accidents there were over 12,000 deaths relating to workplace illness and 1.2 million cases of occupational illness of which 495,000 were newly reported.

In the case of environmental management we have again seen the development of a silo because as legislation has developed it has been perceived as requiring a different skill set as well as knowledge of different legislation. With regard to quality management, this has

developed independently as a result of the desire for what are fundamentally business reasons. As an example, the Japanese motor industry was in the forefront of adopting the theories and practices advocated by Deming, Juran, Ishikawa et al, and in particular Deming's emphasis on statistical process control. This established a reputation for reliability and quality for which the industry had not previously been recognised. As a result companies such as Toyota were able to show benefits in terms of the traditional financial performance measures.

What has been significant has been the emphasis by Juran on the management systems approach. In the UK it was recognised by the Health & Safety Executive that this was equally applicable to health and safety management. In 1997 they published "*Successful health and safety management*" (HSG 65) which outlines a model for the management of health and safety with elements that can be identified that correspond to the Deming , '*plan do check act*' model. This had much in common with the quality management standard, ISO 9000, particularly after this had been revised in 2000 to include the requirement for a continuous improvement programme. This had already been incorporated in the environmental standard ISO 14001. In HSG65 HSE introduced a six element management system model as shown in Figure 1.

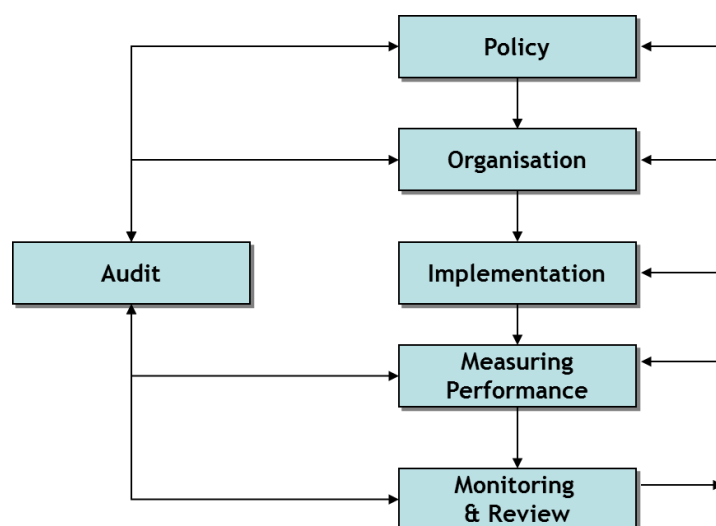


Figure 1: Health and Safety Executive: "*Successful health and safety management HSG65*"

We can see that the '*Policy*' and '*Organisation*' elements correspond to Deming's '*Plan*', the '*Implementation*' element corresponds to '*Do*' stage. '*Measuring Performance*' and '*Audit*'

elements corresponds to 'Check' and 'Monitoring and Review' corresponds to 'Act'. It should be noted that in 2011 the HSE issued a new draft of HSG65 restructured according to the 'plan do check act' model for consultation. It is not clear why the first published version did not do this? In 1996 a guide on occupational health and safety management (BS8800) was published in two forms but with identical requirements because the HSE insisted that it aligned with HSG65 while others wanted it in the ISO structure. Later BS8800 became the basis for OHSAS18001.

If we compare this model with those recommended in the relevant ISO standards, we can see that all the elements are present in each standard although ISO 14001 built in an upward spiral to emphasise the continual improvement element as shown in the model in Figure 2.

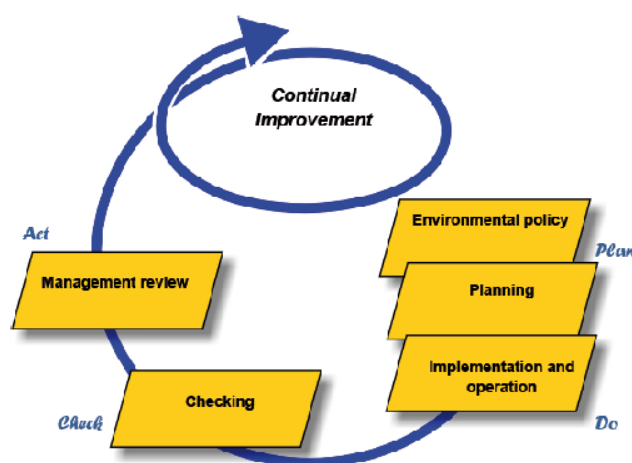


Figure 2: ISO14001 System Model

In addition to the common factors incorporated in the various management systems, some of the tools which are associated with a particular system can be applied to the other disciplines. One example is the risk assessment process which was initially applied in the areas of health and safety. With the development of environmental management "environmental impact assessment" has become an integral part and the more formal approach can be applied to quality, with techniques such as failure mode & effect analysis (FMEA) being used to provide reliability data. Similarly quality techniques such as statistical process control have provided useful approaches to the analysis of injury accident data. In

fact SPC can be applied to any process, not necessarily manufacturing, where there is a frequently repeated measurable outcome. This allows managers to identify data which indicates a likely failure of control rather than a one-off random event.

An example of the common ground between safety and quality was an incident which resulted in a fatal accident at a rubber manufacturer. One of the root causes of the accident was poor communication with the line management structure which led to employees taking short cuts. Further investigation into high rates of product wastage identified the same causal link. When employees fully understood the procedures in place and their reasons, the accident performance measures showed a significant decrease whilst wastage fell by 90% during the following 12 month period.

In 1997 Dalling published a unified model of management to support integrated management and to define the context of an integrated management system and other principal elements of an organisation and is shown in one of its forms in Figure 3.

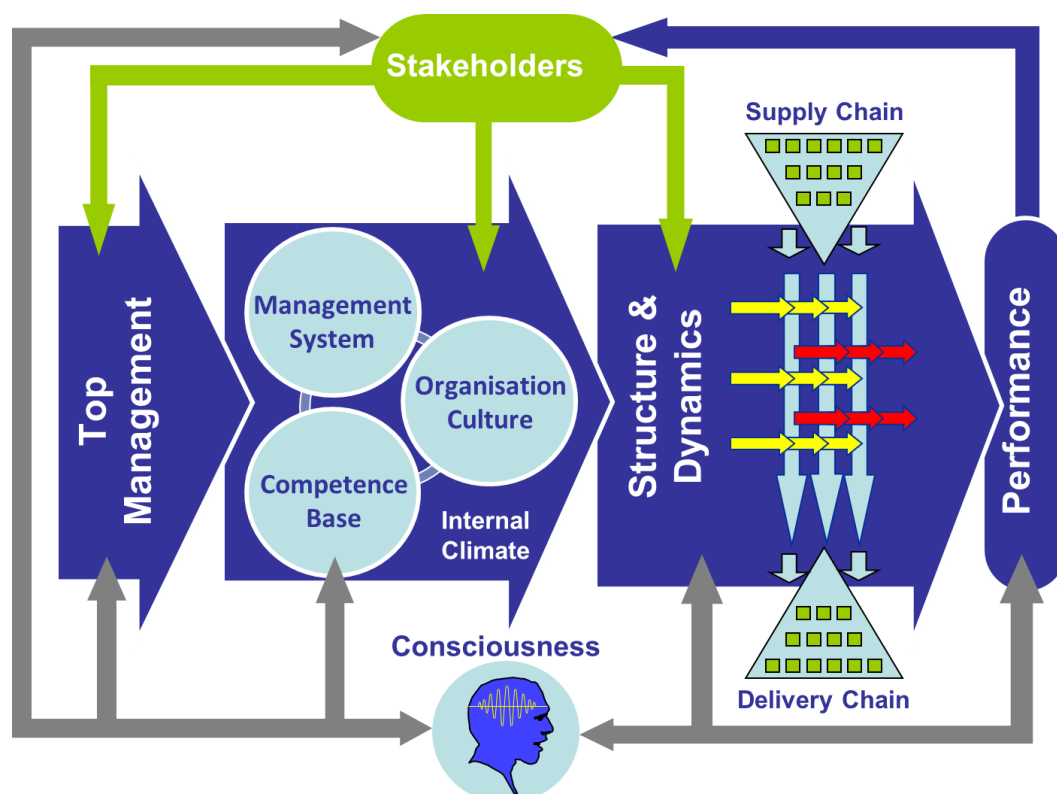


Figure 3: Dalling Unified Organisation Model

This model was described in more detail in a Quality World article in 2000 including the elaboration of the dynamics of interaction between the principal elements. The objective

was to create a universal top level generic organisation model with subordinate models covering each of its elements e.g. refer to Figure 6: Dalling Management Topic Taxonomy. The model transcends and embraces all of the traditional management disciplines. The three types of process shown graphically as arrows within the structure and dynamics element include product and service delivery processes which connect with the supply and delivery chains, supporting processes e.g. HR and contingency processes e.g. emergency, crisis and disaster recovery. At the base of the model is consciousness which is the basis in which management is conducted and judged by the stakeholders. Also consciousness is impacted by fatigue and stress and is a key element that needs to be managed as a whole and not necessarily seen to be exclusive to health and safety management.

3.1 Benefits of integration

The examples given above demonstrate how an integrated management system could not only have improved product quality and reliability but could also have prevented a worker being killed. A thorough investigation into the reasons behind the high wastage rates would have revealed the problems with communication and the misunderstandings among the operators, who were led to believe that if output from a process fell below a certain level they would be disciplined. In fact the interview they were asked to attend by management was to identify the reasons for the problem. As a result, process problems were not identified and the employees tried to find ways of speeding up the process, with fatal results.

A common management system will allow issues which have arisen in one component to be analysed to determine whether there could be any impact in the others. For example, at one time the use of halogenated hydrocarbons such trichloroethylene for degreasing metal components was commonplace. When it was discovered that they were serious ozone depleting agents they began to be phased out in favour of water-based solvents. This in turn eliminated the exposure of workers to hazardous fumes which can result in liver or kidney problems, amongst other effects. Although the risks of ozone depletion are relatively recent other environmental hazards had been known for a while. These included potential risks from soil and water pollution.

This is an example of the general benefit of integrating individual health, safety, environment and quality functions. More specific benefits which can be either strategic or operational and can improve effectiveness and efficiency. They include:

- Increased profitability as a result of better risk management. As discussed, risks are more likely to be identified and treated when processes are reviewed from all angles. There are direct financial impacts arising from each of the functions, for example workplace accidents, pollution incidents with the potential clean-up costs, and major product recall. Elimination of these would have direct benefits for the bottom line.

In Jan. 2010, Toyota had a major product recall issue in the US as a result of “sticky pedal”. It was estimated that this resulted in lost US sales of \$2.47bn (Christian Science Monitor, 30/01/2010) with a further loss of sales worldwide of \$2bn (BBC News, 02/02/2010).

- In addition to the direct financial benefit of eliminating or controlling the functional risks, there will be an indirect benefit in terms of reputational risk. For most organisations this is one of the top strategic risks. For Toyota, what had started as quality issue which could have caused personal injury or death, the effect on their reputation caused Toyota Shares to fall in value by 15% between 25th Jan. and 29th Jan. (Guardian, 31/01/2010). As a result of the subsequent reputational loss, existing owners of Toyota cars saw a reduction in the resale value of their vehicles (Canadian Press, 27/01/2010).
- By combining the administration of the individual functions there should be opportunities to reduce costs through avoidance of duplication.
- If the functions are successfully integrated, it will be possible to rationalise roles and responsibilities. However, if this is not carefully organised, the result can be conflict within the integrated function.
- Integration can allow the development of common aims and objectives and will simplify aligning these with the strategic objectives of the business.
- Effective communication is a key element in successfully managing safety, health, quality and environment. Within a structure where these functions have been

successfully integrated there is an opportunity for better communication, top down, bottom up and horizontally. As poor communication is a frequent contributor to system failure, where the functions are integrated there should be less opportunity for a breakdown.

- For any management system to be successful there is a need for individual ownership. This can be facilitated where the systems are united and the people responsible are working together rather than competing.
- With a system which integrates the functional disciplines, staff training can be facilitated by elimination of unnecessary duplication.
- By using an integrated system for risk assessment and control it will be easier to compare risks arising from Environmental impact, process failure and health and safety permitting better prioritisation of issues and allocation of resources.

The Chartered Quality Institute Integrated Management Special Interest Group identified twelve key advantages of integrated management:

1. More concise minimalist management system with all aspects adding value without redundancy.
2. Enhanced communication through simplicity and uniformity.
3. Easier compliance, less violations, greater employee participation and ownership leading to stress reduction and better utilisation of creativity.
4. Better quality/risk issues conflict resolution and management.
5. Enhanced stakeholder understanding and satisfaction.
6. Accelerated training and reduction in training needs.
7. Reduced monitoring (audits/inspections) including certification surveillance with the ability to focus monitoring where it will be most effective.
8. Improved management and process transparency leading to more efficient and effective management review and action planning because of increased transparency
9. Faster change dynamics supporting optimal organisational evolution

10. Better implementation and return from initiatives such as the Business Excellence Model, TQM, Investors in People, 6 Sigma, ISO standards & regulations etc. because the requirements can be fully embedded in a management system designed to guide and control the business processes.
11. Enhanced competitiveness and business security because the direction, control and guidance of the organisation is improved.
12. Increased profitability through lower costs, improved productivity, risk control and creativity.

3.2 Barriers to integration

Development of an integrated management system requires careful preparation as there are a number of potential barriers which may need to be overcome for it to be successful. Where integrated systems have failed to achieve the anticipated benefits, this has had a certain common causes including:

3.2.1 Failure to gain senior management commitment

For integration to be effective, it is essential that senior management are committed to this goal and more importantly seen to be committed. Organisations often complain that they suffer from “initiative overload” and it is important that the move to an integrated system is not simply seen by line managers and employees as just another management initiative which will soon be replaced by another and can be safely ignored. Senior management may not be conscious that integrated management is relevant to their organisation and that by not adopting it they may become less effective and efficient than their competitors. Organisations that have primitive management systems may well lack understanding of integrated management and its benefits and perceive it as too complex or not possible. Continually changing regulations and guidelines may be perceived as a barrier although others may see it as a benefit. If there is a lot of uncertainty about the future of an organisation senior management may be reluctant to commit to an initiative where there may be insufficient time to realise the benefits within the required timeframe.

3.2.2 Vested interests

In most organisations there will be functional heads of health and safety, environment and quality. When creating an integrated management system who would be the head of the integrated function? When one of the individual functional heads is given overall responsibility there may be a tendency for emphasis to be given to that individual's area of expertise. In the case of a food manufacturer the original head of EHS&Q was a health and safety specialist and in terms of resources, the health and safety function was the area which gained preferential treatment. However, on that individual retiring his successor was a quality specialist and again one particular function became dominant; in this case quality management.

In this situation there is a manager with the appropriate competence is required which means either using one of the existing team or an external appointee to take an even handed approach to the integrated system? Appropriate training is required of all staff is required to ensure that they are competent. In the longer term young employees from their initial induction should only be exposed to integrated management principles and their application. In 2007 the CQI Integrated Management Special Interest Group prepared an Integrated Management Education and Training Guidance document to aid universities and other education and training bodies to structure integrated management training. Although the staff within these integrated disciplines will have broader competences it does not preclude specialist competences help by individual staff.

Another example of vested interests is the danger of creating 'internal silos'. For example with both occupational health and safety being considered as a single entity for a long time we still have a situation where it is perceived as first and foremost safety. This is in spite of the far greater number of workers being affected by exposure to health risks than injured by physical hazards.

3.2.3 No stakeholder drivers for integration

We have discussed the business drivers and benefits to be gained from integrating our management systems. However, if we look at what motivates an organisation to implement certifiable management systems for the individual functions we see that in many cases it is customers. Procurement teams will often feel more confident if they can specify that

suppliers of products and services must have ISO 9001, ISO 14001 and OHSAS 18001 accreditation. As there is currently no equivalent standard for integrated management systems there is no advantage to be gained in specifying that to become an approved supplier, a company must have an integrated management system in place.

3.2.4 Lack of a universal integration methodology/model

As discussed earlier in the paper, there is generally a lack of uniformity in management standards and models and in particular ISO has generally made no significant attempt to unify the various approaches to management and there has been a proliferation of published management system standards each managed by separate technical committees with little cooperation and coordination.

3.2.5 Lack of understanding and concerns about competence

Organisations may perceive integration is just the merging of documentation and may not be aware of the full potential and implications of integrated management. They may also feel that they do not have the competencies in-house to change to an integrated management system or know-how to procure the necessary competent consultant to assist them.

3.2.6 Adverse organisational culture that resists change

The staff within the organisation may be change averse and perceive all change to be negative. Staff may be used to operating in silos and cooperating and coordinating behaviours may be alien to them.

3.3 Development approaches

There are several ways in which an organisation can develop and implement an integrated system. These can include:

- I. Developing a totally new integrated system from first principles based on the structures and processes of the organisation that require managing. This can be adopted regardless of whether or not there are already management systems for any of the individual functions. The main benefit of this approach is that the resulting system will be more coherent and will be consistent across and at all levels

of the organisation. This will take a top-down approach starting with the business needs of the organisation. This will allow easier integration of the resulting management system with the business planning and hence make risk management an integral part of business strategy. The main disadvantage will be that the development is likely to take longer than where there are already elements of a system in place.

- II. Using an existing management system which is currently used for a single discipline and extending it to cover two or more disciplines. It can form the basis of an integrated system by identifying and developing the additional elements which are necessary to include to cover the requirements of the other disciplines. The requirement for managing a particular aspect may be higher in one standard than another e.g. retention of records.
- III. Where two or more functions already have individual management systems it may be possible for these to be merged. This will require careful analysis of the common elements to decide which of these will be included and then apply to the management of both disciplines. All of the elements need to mutually harmonise if the management system is to be truly integrated and effective. When choosing what common elements to carry forward into the integrated management system decisions will be need to be taken on whether the required performance is relaxed or enhanced where the common elements require different standards of performance.

Whichever of these approaches is adopted the process needs to be managed as a project. There are key steps which need to be addressed particularly if the aim is to have the management system integrated into the totality of the management of the business. These include:

- Appointing a project team and leader and a senior management representative;
- Defining the scope of the integrated management system, production plan and implementation targets;
- Defining how the transition will be managed from the existing arrangements to the new integrated management system which may require liaising with regulatory bodies and other key stakeholders;

- Defining the key document types and the overall structure of the documented integrated management system, the associated stakeholders for each document type and how these document types relate to existing document types and groups;
- Defining a detailed project plan, including its periodic monitoring and review, and obtaining senior management approval and allocation of resources;
- Conducting a stakeholder analysis to determine their needs and aspirations;
- Analyses of the business processes, risk classification of the organisation's structures and processes, detailed risk analysis according to potential for loss and satisfying stakeholder requirements, developing opportunity and risk controls using appropriate management techniques and after appropriate iteration acceptance and approval of the controls by senior management and stakeholders, as appropriate;
- Formulating operational policies which will define structures and control and guide the organisation's management and business processes including who does what, where and how;
- Capturing requirements and explicit knowledge from existing documentation;
- Documenting the integrated management system;
- Briefing senior management and relevant stakeholders on the completed integrated management system and obtaining their approval;
- Briefing and training staff on new integrated management system;
- Withdrawal of existing arrangements and implementing the new practices, which may be done as a big bang or phased;
- Achieving continuity of management system standards certifications.

A study in 1997 of US companies which had achieved both ISO 9000 accreditation and Star status under the OSHA Voluntary Protection Programme (VPP) actually looked at how the integration programme was carried out. Comments which were received included:

- "We did ISO 9000 first, now we are integrating safety"
- "Our ISO steering committee agreed to safety goals and to include the safety function in our membership"
- "We built our (quality) programmes together from the start and integrated safety later. The safety and health function is included in all our ISO plant teams"
- Make safety everyone's responsibility, using better procedures to enhance people's understanding of safety and compliance as it relates to their work"
- "Safety indirectly worked with quality using the Star (VPP) programme as guidance. Nothing was cut and paste, but the same framework applied"
- "All safety and health policies and programme reviews are put in the same ISO document format"

(Kozak & Krafcisin, 1997)

4. Unifying principles that support integrated management

The ultimate goal of an integration programme is achieved when the management of everything is integrated including health, safety quality, environmental, security and commercial management etc. and are not only seen to be part of the same discipline but are seen as part of the way the organisation conducts the totality of its business and function optimally as a coherent whole. An integrated approach to management has a totally inclusive focus on the needs and aspirations of all of the organisation's stakeholders. The management of the whole delivers more than the management of each discipline separately. Ideally a business should aim to deliver its products or services to a consistent quality whilst simultaneously nurturing and protecting people and the environment and safeguarding physical assets and data etc. Universal management principles must be understood and applied to the whole organisation and its interactions with stakeholders to drive an integrated management approach. Some of the unifying principles are elaborated below:

4.1 Strong stakeholder focus

Each stakeholder will have their own view as to what is optimal management and will have a different perspective on how the organisation should behave with respect to different facets of performance which, as discussed earlier, are often supported by specialist disciplines. Each organisation may come to a different conclusion regarding how this situation should be managed but it is important that the organisation attempts in the first place to understand what are the needs and aspirations of the stakeholders and attempts to rationalise them including possible conflicts and how the stakeholders can use their power to influence the organisation's policy and processes. The IMSIG definition of integrated management mentioned above includes the requirement to attempt to equitably satisfy stakeholders. This is both a pragmatic and defensible policy that should promote a good reputation and strengthening of the brand.

It should be noted that a strong stakeholder focus is much more inclusive than the classic quality management customer focus where the customer is considered to be the king. In

practice stakeholders other than customers can wield more power such as regulators, banks, insurance companies etc.

4.2 Structure and processes understood as common to all performance

Like biological systems, organisations have both structure and dynamics making it possible for them to fulfil their mission and deliver products and/or services. Structures and processes are generally described in terms of systems and processes respectively and have the potential to please or displease stakeholders with respect to the multiple facets of organisational performance such as product/service quality, health and safety, environment, security, human resource, finance etc. It is the same common structures and processes that determine this multifaceted performance so it is logical and pragmatic to manage them via a single set of integrated management arrangements rather than fragmenting them. By focusing management attention on each structure and process in a holistic way it creates the right management environment for the creative solution of problems and for the optimal design of structures and processes. Additionally, this facilitates integrated opportunity and risk assessments which will be covered in the next section.

4.3 Holistic application of opportunity and risk management

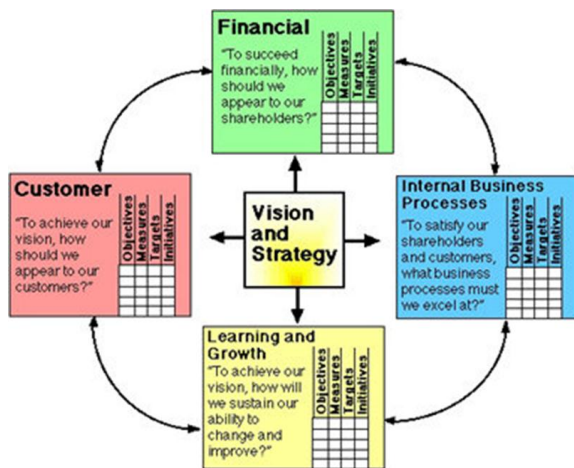
Inclusive universal opportunity and risk management is needed throughout a business from the top management to the shop floor with respect to the needs and expectations of the stakeholders. Correspondingly, stakeholders should understand the benefits and the part that they need to play in such a system. Key principles of the UK Construction and Design Management Regulations are the duties to coordinate and to cooperate.

The key to achieving this is an understanding of how the functions can contribute to the overall business objectives. However this requires an appreciation of the aims of the business and its strategy. Often the value of well managed health, safety, environment and quality etc. are not understood by senior management whilst at the same time functional managers do not demonstrate that their objectives add value to the business. This can only come about if the individual functional objectives are fully aligned with the overall business objectives and this is recognised at all levels. This is often referred to as vertical integration

and can only be effectively achieved if there is clear communication and exchange using integrated structures and methodologies e.g. integrated opportunity and risk assessments using common methodologies and measures across and at all levels of the organisation. It should be noted that security management requires that many aspects are managed covertly because the threats are intelligent and may also be internal. However, similar processes to the main management system may still be used with appropriate secrecy and the overt aspects fully integrated.

Large organisations often employ standard models for strategic planning which can also be used at the functional level. For example a popular model is the Balanced Scorecard which was developed in the early 1980s. This replaces the classical approach where performance is measured in purely financial terms by one in which other measures are regarded as of equal importance. In the model proposed by Kaplan & Norton in their paper in the Harvard Business Review (Kaplan & Norton, 1982), performance measures are grouped in four 'perspectives' which address how different groups of stakeholders view the business. These are:

- *Financial*: these relate to high level measures which address how the organisation is viewed by shareholder.
- *Customer*: these measures relate to how the business is perceived by its customers
- *Internal Business Processes*: which look at the way in which we carry out our business and what do we need to do to improve.
- *Learning & Growth*: addresses issues which relate to the workforce and how it can improve its performance and motivation.



From 'The Balanced Scorecard', Kaplan & Norton

Figure 4: Balanced Scorecard

Under each of the perspectives, at strategic level the business agrees 'objectives', 'performance measures', 'targets' and 'initiatives'; in other words how they are going to achieve these objectives. Where organisations have used this as basis for integration, the strategic scorecard is established first and this is then cascaded down to individual functions, including health, safety, quality and environment. These functions then establish their own objectives and measures which are aligned with the top level scorecard. In this way it is ensured that the organisation can demonstrate that their activities are adding value to the overall success of the business and the achievement of its goals.

These objectives would normally be agreed with top management and the functions periodically report to the Board on performance against this scorecard.

4.4 Universal application of plan-do-check-act

Irrespective of who is managing and what is being managed a 'plan - do - check – act' approach to management can always be taken and this management cycle structure is reflected in common management system standards such as ISO 9001, ISO 14,001 and OHSAS 18,001 etc. The PDCA cycle operates at all levels of the organisation from top management down to task level, although the cycle frequency increases towards the task level and increasing cooperation and coordination increases towards top management, as shown in Figure 5.

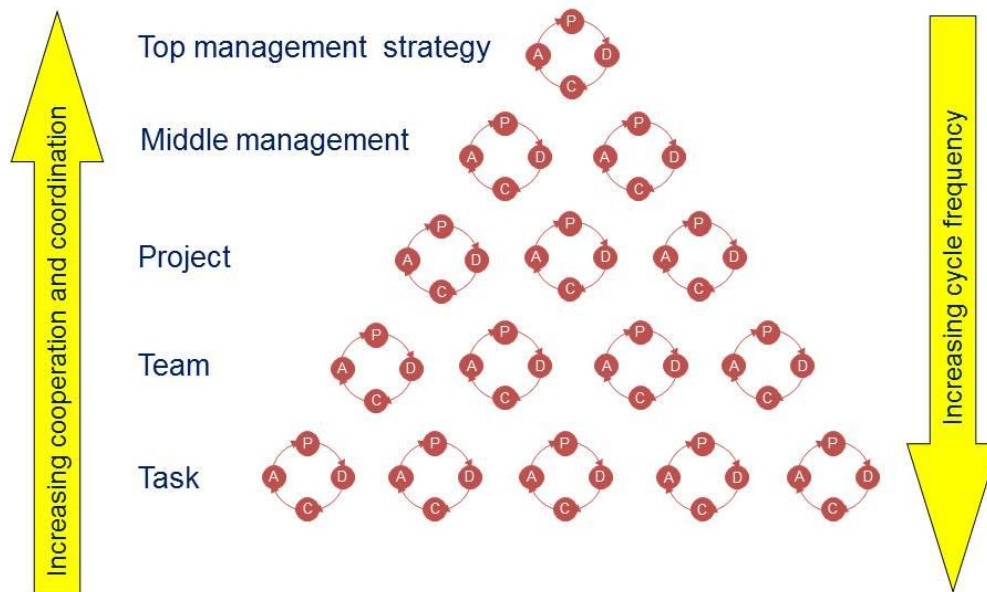


Figure 5: Plan-Do-Check-Act Management Cycle

One of the challenges that currently face organisations is how to structure an integrated management system that takes account of multiple standards and regulations with diverse structures and requirements. Choosing the right structure for an integrated management system helps its effectiveness as well as hopefully making it elegant and user-friendly. Since the turn of the millennium Dalling, as a consultant, has implemented several fully integrated management systems attempting to cover the totality of an organisation's business operations and has successfully achieved multiple certifications to ISO 9001, ISO 14,001 and OHSAS 18,001 etc. based on this practical work DALLING published a paper in the April 2011 Quality World explaining how only twelve management procedures are necessary to cover the total management of an organisation. The first two levels of the hierarchical management topic taxonomy are shown in Figure 6.

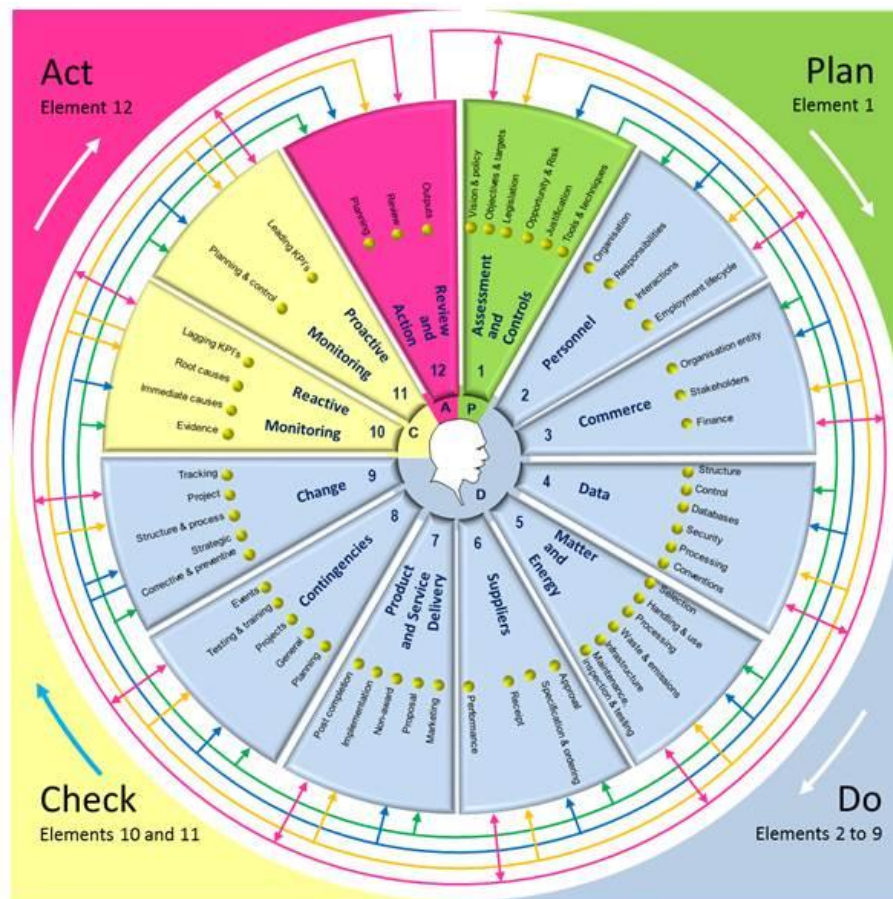


Figure 6: Dalling Management Topic Taxonomy

This structure allows any management standard, regulation, license or other stakeholder formal requirement to be completely mapped to a single integrated structure embedded into twelve procedures with no residual issues remaining requiring dedicated discipline based management procedures. This demonstrates that fully integrated management systems can be designed - all of the elements in Figure 6 are universal.

It should be noted that some of the applications of the elements vary very little across organisations while others vary considerably. The same arrangements for people (2) and data (4) can be applied almost universally across organisations. However, the commercial arrangements (3) and product/service delivery (7) which both act to characterise an organisation are usually unique but can be very similar within an industry sector. The management element taxonomy provides useful information for understanding the critical aspects of tacit knowledge and the expert assistance that a particular organisation needs to have either in-house or accessible externally via a consultant. The structure also aids the structuring of explicit knowledge. Some aspects of a management system can effectively be

taken out of a box while there are others that need to be individually designed to match the nature of the particular organisation.

The management element taxonomy has the potential to be universally applied to the structuring of management standards, legislation (overall structuring as well as individual statutes and regulations), licensing arrangements, databases, records, key performance indicators and dashboards, root cause analysis, problem-solving, education and training programs, knowledge structures, artificial management intelligence and research planning. With the right vision and commitment, the global application of management at every level could become significantly simpler and unified.

5. Conclusion

The stakeholder requirements placed on organisations have become increasingly onerous and complex. Facets of performance have traditionally been managed by specific disciplines and overall business strategy set by top management. To optimally manage all of these requirements and equitably attempt to balance the needs and expectations of the organisation's stakeholders there would appear to be no other choice for organisations than to design and implement integrated management systems to remain competitive and ensure sustainability. Integrated management brings about many advantages which improve effectiveness and efficiency and should not be thought of as just the merging management system documentation. The management integration principle can potentially be applied to the totality of management action so that it becomes a complete holistic approach to management.

There now appears to be a wide spread awareness within enlightened organisations that integrated management (joined up thinking) is needed and a large number of integrated management initiatives are either being planned, underway or have been completed. The resulting increase in business efficiency and effectiveness through integrated management should drive an evolution in management practice that becomes increasingly integrated. This rapid upsurge of integrated management activity has largely been promoted, developed and implemented within commercial and regulatory organisations leaving academic and professional bodies unable to effectively support this rapid evolutionary jump

in management practice. This situation is exacerbated because the existing management professional bodies all came into being to support different disciplines; the UK has about a hundred different management bodies. Management standard certification bodies initially were not prominent in promoting integrated management and the standards making bodies have been slow to develop an integrated structure for the various published management standards which continued to grow in number. The management professional bodies are threatened to various degrees because increasingly they will not be so closely aligned with the future needs of its members and organisations which appear to be focused on an integrated management approach. There is the opportunity for one or more of the management professional bodies to fill the integrated management needs vacuum through closer cooperation and in time there may be some merging of professional bodies. Academic institutions have an opportunity to provide degrees and other training in integrated management to meet the needs of organisations as various types of required integrated management competence are identified. National Governments need to be aware of the significant positive impact that integrated management can have on the success and prosperity of a nation and ensure that their vision, planning and resourcing fully exploits the opportunities and in particular the training of future managers and management professionals. How we manage in the future has the potential to be significantly more effective and efficient than how we have managed in the past and have a major global impact.

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