

ROADMAP TO REALIZATION

**GETTING STARTED WITH YOUR
QMS/EMS INTEGRATION PROCESS**

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Among the choices made by organizations around the world as they deal with the challenge of avoiding the costs of environmental incidents and regulatory compliance activities is to streamline their environmental and quality programs. Just as quality conscious CEOs have applied total quality management (TQM) principles to prevent quality problems and improve profitability, many organizations are realizing the financial benefits of improved environmental performance managed in concert with their business processes.

Last year, at least one-third of certifications performed worldwide by ISO registrars were of integrated quality and environmental management systems. This volume of integrated system certifications is continuing to increase, largely because the new ISO 9001:2000 standard and ISO 14001 incorporate the same TQM-based business model.

Early ISO implementers have found they are more able to control the costs of quality nonconformity and environmental noncompliance by leveraging the ISO 9001 and ISO 14001 elements under a single, integrated management system umbrella. Potential cost savings can stem from: more efficient use of resources, eliminating duplicate functions in quality and environmental management systems, reducing the number of audits, and improving environmental performance. If two systems can be integrated within a short time span, there may be added competitive advantages from meeting windows of opportunity.

By following a roadmap as a guide to implementing an integrated quality and environmental management system (QEMS), organizations can achieve certification within 6 to 9 months. Before starting, however, several factors should be considered, including:

- Roadblocks, which may not readily be apparent, as you begin to combine documentation systems
- Your critical path process, which you should follow from start to finish
- How best to leverage your existing environmental and quality management systems
- How to identify and utilize your internal resources to build a strong system

A sustainable integrated QEMS extends beyond documenting the integration of the ISO 9001 and ISO 14001 standard elements. ISO documentation, on its own, can actually become a roadblock unless it is recognized that a formal quality management system is not necessarily the key characteristic that contributes to bottom line improvement. Documentation is simply the shell of a QEMS “tool kit.” Other factors influence the long-term success of integrating a QMS and EMS, such as having the appropriate company culture that embodies the principles of total quality management. One should not be deceived into believing that by just developing a set of documented procedures, an organization can attain sustainable improvement in business performance effectiveness and growth. Success cannot be fully achieved unless an organization’s leadership is focused on implementing planned processes, monitoring daily practices and overcoming roadblocks to change.

Businesses and governmental organizations use various approaches to meeting quality and environmental quality expectations, depending on their size, structure, and business strategy. Implementing a full or partial QEMS depends on how well your quality and environmental management activities can be synchronized with your existing organizational structure. With bureaucratic organizations, full integration is difficult because of their non-flexible and rigid functional divisions and departments. More participative organizations, which lean towards teaming, have a much better opportunity for full QEMS integration. Those organizations, which have succeeded in combining environmental consciousness in their business operations, tend to have one characteristic in common. They all embrace the core TQM principles (described below) almost seamlessly into their environmental quality and performance improvement practices

CORE TQM PRINCIPLES - THE KEY TO A SUSTAINABLE QEMS

Both TQM and environmental management are systems that depend on four core TQM principles that are essential to the survival of an integrated QEMS (Williams 1997). These principles are:

- Customer focus
- Employee involvement.
- Monitoring and measurement
- Continuous improvement

Customer Focus

This TQM principle is based on the understanding that the entire quality deployment process begins with and is driven by a “thorough understanding of customers’ satisfaction with those things that they deem important” (Berry 1991). Customer focus is both a driver and a distinguishing characteristic between a quality management system and an environmental management system.

In a customer-focused quality management system, a company is driven to continually conduct surveys, measure customer satisfaction, and utilize all surveyed data in the design of its products and services. Similarly with an EMS, an organization must continually assess the environmental aspects of its operational activities with a focus on reducing or eliminating negative environmental impacts on external and internal parties, or “environmental customers”.

One of the primary goals of ISO 9001 is to eliminate waste in business activities and to produce products and services for optimum efficiency, but not necessarily effectiveness. ISO 9001 standards are written around conforming to prescribed requirements dictated by *customers’* expectations related to a product, service or activity. In contrast, the ISO 14000 standards and guidelines are focused on controlling and reducing the effects of business activities on the *environment*. This distinction is shown below.

ISO 9000 Customers	ISO 14000 “Customers”
Focuses on customer expectations in a contractual situation and a prescribed set of	Addresses a broad constituency of stakeholders and external “interested

product-focused requirements. Customers include: <ul style="list-style-type: none"> • Buyers • Subcontractors • Vendors 	parties,” including: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"> <ul style="list-style-type: none"> • Purchasers • Regulators • Environmentalists • Suppliers </td> <td style="width: 50%;"> <ul style="list-style-type: none"> • Work force • Community • Ecosystems • Future generations </td> </tr> </table>	<ul style="list-style-type: none"> • Purchasers • Regulators • Environmentalists • Suppliers 	<ul style="list-style-type: none"> • Work force • Community • Ecosystems • Future generations
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The objectives of an EMS are different from ISO 9001 quality standards because of the needs of external stakeholders such as neighbors and the general public. The ISO 9001 quality culture, alone, is insufficient for environmental management systems because of its focus on internal production and customers.

Employee Involvement

A second core TQM principle for a sustainable QEMS is maximum employee involvement. TQM principles include tapping the skills and experience levels of all employees in quality improvement activities. Similarly, an EMS encourages involvement by all employees of the organization to contribute their ideas and efforts to improve environmental performance. To achieve these goals, employees at all levels of an organization and across all functional boundaries must be trained in integrating and leveraging quality and environmental management principles.

Human resources management of those who will lead the QMS/EMS integration effort may be the biggest challenge to implementing a sustainable QEMS. In today’s work environment, few organizations have integrated their quality and environmental management staff functions. Quality and environmental staff traditionally operate out of their own quality departments and environmental compliance departments. Quality management is typically delegated to quality auditors and inspectors and handling of environmental matters is delegated to environmental, health and safety specialists. In most cases, these staff people report to their respective functional managers, who may have only limited influence on production operations.

Monitoring and Measurement

Performance monitoring and measurement provides the metrics that enables management to plan and make decisions within an organization. In a QMS environment, metrics are used to link performance to organizational and quality objectives. Under an EMS, metrics link environmental objectives, generally focusing on compliance, with EMS program targets in specific operational activities.

Innovations in business performance measurement techniques introduced through the quality transformation in the 1980’s have fostered quality-driven environmental performance measurement practices in many companies. As a result of this transition, quality managers have become less dependent on “end-of-production line” inspections and are adopting quality assurance techniques implemented during design to prevent losses. Today, a similar phenomenon is occurring with the transition from “end-of-pipe” environmental compliance

actions to pollution prevention programs. Environmental management systems are now recognized for their value in reducing environmental compliance penalties, energy and resource waste, and lost time and money from accidents. The benefits of reporting EMS performance information, in the context of continuous improvement, are beginning to be recognized as more companies address environmental performance in their annual reporting strategies.

Continuous Improvement

Continuous improvement is the “golden thread” that links organizational strategies with the continuous need to maintain a given quality and performance level that meets customer expectations and enables businesses to remain competitive. This TQM principle is built around the universally applied quality improvement (QI) concept: **plan, do, check, act**. The aim of QI is to continuously identify and eliminate waste, or those activities that add little or no value to the product or service provided. When applied to an EMS, continuous improvement aims at reducing waste handling by modifying controllable activities related to business processes that have negative impacts on the environment.

Continuous improvement works together with a key ISO element that is common to a QMS and an EMS – Corrective and Preventive Action. Other system elements that are addressed under common ISO 9001 QMS and ISO 14001 EMS elements can be integrated under a QEMS “umbrella”, including:

- Planning
- Objectives
- Management responsibility
- Communication
- System documentation
- Document and data control
- Control of records
- Product realization and operational control
- Training
- Monitoring and measurement
- Corrective and preventive action
- Internal system audits
- Management review

ESSENTIAL ROADMAP STEPS

Mapping the key steps in developing a QEMS is essential to translate the concepts embodied in the ISO 9001 and ISO 14001 standards. The difficulty with implementing an accelerated and comprehensive program is the reality that every organization faces these days – limited resources and conflicting priorities. Consequently, many activities are delayed or set aside because of lack of budget or resource. By prioritizing the activities during all stages of an implementation program, management can make better decisions as to how to allocate the scarce resources to what many consider to be an extra layer of activity. Essential steps within the QEMS implementation roadmap are:

- **Develop an ISO Map** - This tool displays the status of policy and procedure documentation needed to comply with the ISO standard, element-by-element. It cross-references between ISO 9001 and ISO 14001 and identifies specific Level 2 procedures and Level 1 quality/environmental manual sections, which correspond to elements of the standard. If desired, priorities are assigned based on identified need, gaps and other criteria reflecting importance or urgency. Process owners from the organization's functional groups are listed on this map to reflect assigned responsibilities for implementing each system procedure.
- **Prepare a Project Plan** - A Gantt chart project schedule is developed that identifies all key milestones, project activities, planned start and complete dates, responsibilities, and completion percentages. This chart is used to track progress against a baseline schedule.
- **Identify Process Owners** - Process owners are those individuals selected to be responsible for completing and implementing assigned procedures. They are charged with leading the process team and taking ownership of the process described in the procedure and arranging for awareness training of the procedure after its completion.
- **Develop QEMS policies and procedures** – Using a two-iteration process, policies and procedures are developed to reflect organizational policies and processes for identified processes, as needed and appropriate. The documents are prepared to a consistent format and may be text, 3-column, flowchart, or combination thereof.
- **Train Personnel** – Personnel are trained during documentation preparation meetings, formal awareness training sessions and, where needed, in on-the-job coaching situations. Personnel training includes internal auditor training for persons authorized to perform internal audits for the organization.
- **Perform internal audits** – Prior to the external registrar's initial audit, the organization's internal auditors should assess the operation of the QEMS under actual working conditions to identify and record any nonconformity from planned arrangements.
- **Implement Corrective Actions** – Input from the internal auditor reports and other suggestions/recommendations should be translated into corrective actions and implemented as part of the organization's continuous improvement process. Management on a regular basis should evaluate the effectiveness of these corrective actions.

Efforts to implement a QEMS can be quite difficult unless the motivated organization accepts and commits to the concept of value from integrating pollution prevention, energy and environmental management, and Emergency preparedness and response in its core business processes. Adopting ISO 9000-based quality management practices, alone, will not result in a sustainable environmental management system. Neither can ISO 14001 be viewed as the only management tool for implementing a QEMS (Hemenway 1996). Besides management standards, it takes top management commitment and buy-in from workers at all levels to transform existing environmental, health and safety practices to a business strategy, which supports a sustainable

QEMS. Combining core TQM principles and EMS practices with Kaizen process improvement techniques will have the best chance of success in implementing a TQM/EMS partnership.

Throughout each step of the Roadmap, the four core TQM principles must be consistently embedded in corporate business strategy in order for the organization to fully integrate a QEMS. Positive changes will occur if a strong quality foundation previously exists within an organization. For this to happen, an organization must have reached a stage of maturity as measured by four Critical Success Factors (Berry 1991) in developing and sustaining an effective QEM process. These vital factors go hand-in-glove with the core TQM principles discussed above and are:

- **Top management commitment** to the environment and involvement in sustainable development,
- **A supportive corporate culture**, which fosters systematic integration of environmental issues into the decision-making process of the organization
- **Top down training** from quality, environmental, health and safety awareness to on-going skills training
- **Customer communications**, including aligning customer needs throughout all aspects of the organization's human resource, business management and technical practices.

These success factors will empower traditional environmental management practices to move away from “command and control” regulatory response actions and focus on pollution prevention efforts. These factors, working synergistically with the core TQM principles, will help your organization to lower your cost of doing business, capitalize on new market opportunities and improve environmental performance.

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