



Paragon Business Solutions, Inc.

Process Improvement Dedicated to Productivity and Profitability

EXECUTIVE OVERVIEW

A Business Case for ISO 14001 and Environmental Management Systems With Special Emphasis on Manufacturing Government and Municipalities

A Business Case for Implementing ISO 14001

Organizations from diverse industries and sectors are increasingly interested in demonstrating positive environmental stewardship by controlling the impact of their activities, products and services on the environment. This interest comes in the wake of increasingly stringent legislation, increased costs associated with poor environmental management, and demands for better environmental performance from the market place.

This review presents the current status of environmental management systems, examines ISO 14000 as a model for environmental management, and provides real life examples of how organizations have benefited from an environmental management system (EMS).

ISO 14000 Series of Standards

The ISO14000 series of international standards were developed for incorporating environmental aspects into activities, products, and services.

There are six standards in the ISO14000 series.

1. *ISO 14001:1996 Environmental management systems - Specification with guidance for use* This is the standard that specifies requirements for the Environmental Management System and is the only standard within ISO14000 to which an organization can register.
2. *ISO 14004:1996 Environmental management systems* This standard contains general guidelines on principles, systems, and supporting techniques.
3. *ISO 14010:1996 Guidelines for environmental auditing – General principles* This standard provides general principles for auditing of environmental auditing that are applicable to all types of environmental audits.
4. *ISO 14011:1996 Guidelines for environmental auditing-Audit procedures-Auditing of environmental management systems* The scope of this standard is to establish audit procedures that provide for planning and conducting an audit of an EMS to determine conformance with the EMS' audit criteria.
5. *ISO 14012:1996 Guidelines for environmental auditing –Qualification criteria for environmental auditors*

The intent of ISO14000 is to provide assistance to organizations throughout the world to achieve environmental and economic gains through the implementation of effective environmental management systems.

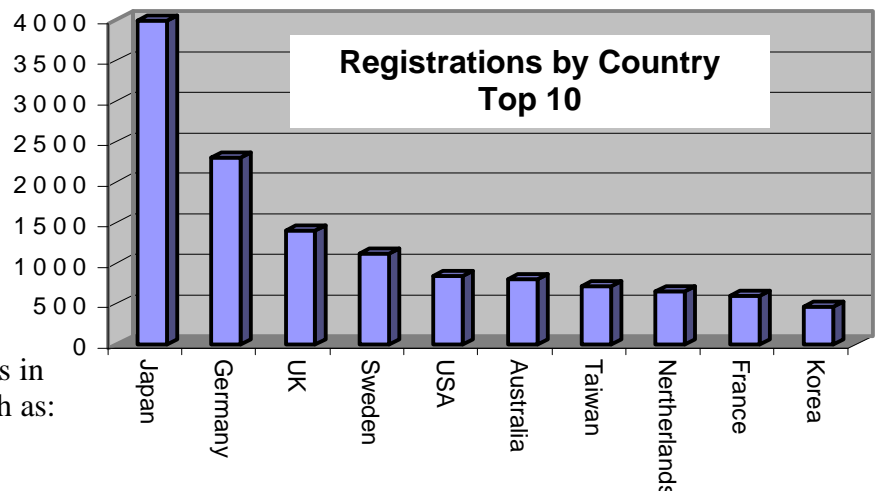
6. *ISO 14020: 1998 Environmental labels and declarations* The newest in the series, this standard contains general principles for labeling.

ISO14001 requires implementation of an Environmental Management System in accordance with defined internationally recognized standards. These internationally recognized standards were developed by world leaders in environmental management.

Registered Companies

Although interest in ISO14000 is gaining momentum in the US, we have not been the world leader in this area. Far more companies are registered in Japan and Europe than in the US.

This will be changing, as Ford and GM now both require their suppliers to be registered to ISO14000. They have until approximately 2003 to comply. IBM also strongly suggests registration to its suppliers, but has not made it a requirement. Many of the US registered companies are highly recognizable and leaders in their industry. Companies such as:



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Allied Signal
Borg Warner
Lucent Technologies
Philips Electronics
Sanyo
Johnson & Johnson
Kodak
Square D
Honda
Motorola

Dana
IBM
Ford Motor Company
Sony
Rockwell
Lockheed Martin
ITT Technologies
Hewlett Packard
Xerox
Sharp

Executive Order 13148 Greening the Government through Leadership in Environmental Management

A driving force for environmental management in government is Executive Order 13148. President Clinton signed executive order 13148 April 21, 2000. This order requires that all “appropriate” federal facilities implement environmental management systems by 12/31/05. Go to: <http://ceq.eh.doe.gov/nepa/regs/eos/eo13148.html> to see the executive order in its entirety.

Many federal facilities have postponed implementation waiting to see if the new administration would enforce EO 13148. It is now clear that the Bush administration will support the executive order.

The Army and several other federal organizations have adopted ISO 14001 as their EMS model.

Environmental Protection Agency’s (EPA) National Environmental Performance Track Program

For the last several years the US Environmental Protection Agency (EPA) has been evaluating new initiatives to help organizations address environmental problems “that have yet to be solved through the current system”. These initiatives include an emphasis on streamlining the regulatory process and introducing innovative programs for managing environmental issues more effectively. Environmental Management Systems are important new tools that encourage organizations to improve compliance, prevent pollution, improve environmental performance, and promote greater environmental stewardship throughout the workforce.

EPA’s National Environmental Performance Track, launched in July 2000, is a voluntary program that rewards top environmental performers that go beyond legal compliance. There are currently over 200 participants and new applications are reviewed twice a year. Entry requirements for Performance Track specify that an organization have an environmental management system in place, have a commitment to continuous improvement, have a community outreach plan and report on its progress, and have a history of sustained environmental compliance. Sustained environmental compliance means no criminal activities in the past 5 years and no civil activities in the past 3 years. Although registration is not required, 65% of charter members are ISO 14001 registered.

Benefits to organizations that become Performance Track members are public recognition by the EPA as Environmental Leaders and a low priority status for inspections. Pending benefits are reduced reporting requirements and extension of hazardous waste storage times.

EM\$ Experience

Why are high profile companies and government entities establishing Environmental Management Systems; because it makes great business sense for them to do so!

The environmental management system standard of ISO14001 requires companies to identify the impacts that they have on the environment and set objectives and targets to reduce these impacts. Reducing the impact can reduce operating costs through reduced consumption of resources and reduced waste generation.

ISO14000 embraces the Eco-efficiency management philosophy devised by the World Business Council for Sustainable Development. This organization of 125 multinational organizations was formed to develop a business response to the 1992 Earth Summit.

Their eco-efficiency philosophy states:

Eco-efficiency is reached by the delivery of competitively priced goods and services that satisfy human needs and bring quality to life, while progressively reducing environmental impacts and resource intensity throughout the life-cycle, to a level in line with the earth's estimated carrying capacity.

Eco-efficiency principles state that companies should:

- ?? **Reduce material intensity of goods and services**
- ?? **Reduce the energy intensity of goods and services**
- ?? **Reduce toxic dispersion**
- ?? **Enhance material recyclability**
- ?? **Maximize sustainable use of renewable resources**
- ?? **Extend product durability**
- ?? **Increase the service intensity of goods and services.**

These principles not only make good environmental sense they make good business since.

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The following charts describe the kinds of cost savings experienced with an effective Environmental Management System.

City	Environmental Improvement	Result
Scottsdale AZ	?? Air quality permits reduced from 23 to 8	?? \$16,000 per year

City	Environmental Improvement	Result
Lowell MA	?? Energy reduction strategies	?? \$20,000 per year

Company	Environmental Improvement	Result
IBM	?? Energy conservation	?? \$15.1 million savings reduced energy use by 226 million-kilowatt hours
	?? Reuse of rinse water	?? Savings to the city of Austin of \$179,000. Rebate of over \$30,000 to IBM
	?? Recycling	?? Recycled 1,669 tons of commodities
	?? Hazardous waste avoidance	?? Reduced 17,000 tons of hazardous waste ?? Reduced methanol emissions of 6,000 pounds and decreased process cycle time by 30%

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Company	Environmental Improvement	Result
3M	?? Waste Reduction	?? \$156 million since 1989 by finding buyers for their manufacturing waste
	?? Pollution solutions	?? Over 4,590 solutions to prevent pollution have been implemented. One example is a resin spray booth that generated 500,000 lbs. of overspray each year that required special disposal. New equipment was installed for \$45,000 that saves more than \$125,000 each year in resin and disposal costs.

Company	Environmental Improvement	Result
Xerox	?? Waste reduction, including converting solid waste to usable energy	?? Saving of over \$12 million dollars in 1995
	?? Plastics recycling	?? 500 tons diverted from landfills and \$100,000 annual savings

Company	Environmental Improvement	Result
Polaroid	?? Toxic Use and Waste Reduction program	?? One of the top ten environmentally improved companies-Fortune 1993
		?? Battery redesign to eliminate the use of mercury

Company	Environmental Improvement	Result
Anheuser Busch	?? Solid waste reduction through employee awareness and a commitment to reduce, reuse, recycle	?? Annual savings of more than \$2.5 million
	?? Change to non-hazardous parts washing fluids	?? Reduced hazardous waste generation by 80% and reduced costs of recycling parts washing fluid by 30%

Company	Environmental Improvement	Result
Hallmark Cards, Inc.	?? Reduction, reuse, and recycle strategies including a collection center for employee's who do not have curbside residential recycling	?? Reduced the amount of materials going to landfills by 69%
	?? Energy conservation	?? Plan will reduce energy use by 11-million kilowatt-hours.
	?? Changed ink in lithography presses to soy-based ink.	?? Vegetable based ink

Company	Environmental Improvement	Result
Dow Chemical Company	?? Waste Reduction Always Pays Program (WRAP)	?? Re-engineered waste treatment center for \$250,000/annual savings of \$2.4 million.
		?? Increased the yield of a manufacturing process resulting in an 80% reduction in the use of a particular reactant that had previously been incarcerated as waste. Cost savings of \$750,000 per year

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There is also the possibility of increased market value. An article in the *Wall Street Journal Europe* (April 15, 1999) reported that Innovest Strategic Value Advisors put together a pilot portfolio of companies traded on the New York Stock Exchange that had strong environmental management systems. This portfolio outperformed the S&P 500 by more than two percentage points.

In the interview Mathew Kiernan - Innovest's Executive Managing Director - stated, "This out-performance premium can be expected to grow even larger in the future, as eco-efficiency factors become even more closely lined with companies competitiveness and financial performance."

Although not a specific requirement, ISO14001 supports designing for the environment to drive continuous improvement and achievement of objectives and targets. When a company's products and services are designed with the environment in mind, consideration is given to the materials and processes selected. This can reduce the overall cost of producing the product. Raw material costs may be more, but the costs for disposal could more than offset the difference.

Another advantage of designing products and services with the environment in mind is that companies can then market products as environmentally friendly. Star-Kist marketed their tuna as dolphin safe and differentiated it from their competitors. Their research showed that consumers would be willing to pay a premium for this differentiation. Padagona promotes its environmental focus when marketing sports wear.

Major components

The ISO14001 standard specifies requirements for the following:

- ?? Establishing an environmental policy,
- ?? Identifying legal and other environmental requirements,
- ?? Determining environmental aspects and environmental impacts of products, activities and services,
- ?? Planning environmental objectives and measurable targets,
- ?? Implementing programs to meet objectives and targets including emergency preparedness,
- ?? Training and communication,
- ?? Measuring and monitoring results,
- ?? Auditing conformance to the standard and procedures,
- ?? Corrective and preventive action,
- ?? Maintaining records as deemed appropriate by the organization, and
- ?? Management review of progress.

ISO14000 has many requirements virtually identical to ISO9000. We recommend that organizations combine the management system of the two standards.

ISO14000 requires an organization to have a system in place that assures compliance to all legal and other environmental requirements to which the organization subscribes. However, ISO14000 goes far beyond compliance to the law. Conformance to ISO14000 ensures that the organization is continually improving its impact on the environment and actively working to prevent pollution.

To be successful, ISO14001 must be integrated into the overall management of the organization. Environmental management becomes part of everyone's job responsibility, not just the Environmental Manager.

Establishing an ISO14001 Registered Environmental Management System

Most companies begin by doing a GAP analysis that establishes how current practices compare to the requirements of ISO14001. This information sets the foundation for the overall detailed implementation plan including responsibilities and time lines.

The first major section of ISO14001 that is addressed is 4.3 Planning. This is an extremely important area as the entire EMS is driven by the outcomes of Planning. In Planning, environmental aspects and impacts for the entire organization are identified and prioritized. Objectives, targets, and environmental programs are established to address the significant environmental aspects of the organization plus legal and any

other requirements to which the organization subscribes. The Environmental Policy is also written at this time.

Guided by the results of Planning, the organization next develops the processes and procedures required by the ISO14001 standard and necessary to successfully implement their policy, objectives, targets, and programs. Documentation is developed where needed; employees are trained; the EMS is implemented.

A process of internal auditing acknowledges strengths in the EMS and flags areas for corrective action. Audit results and progress on objectives, targets, programs and the establishment of the EMS are taken to Management for review and action.

The EMS is now ready for the third-party registration audit by a Registrar Accreditation Board approved auditor.

The time and cost of establishing an Environmental Management System varies with each organization. Both time and cost can be reduced if ISO14001 is coordinated with an established ISO 9000 or a similar management system.

Major Steps to ISO14001 Registration

- 1. GAP Analysis**
- 2. Overall Plan, responsibilities and time lines**
- 3. Planning component**
- 4. Process development and documentation**
- 5. Training**
- 6. EMS implementation**
- 7. Internal auditing and corrective action**
- 8. Management review**
- 9. Third-party registration audits**

Benefits of ISO14001 Registration

Companies can realize benefits from an EMS whether or not they register their EMS to ISO14001.

But ISO 14001 is the internationally known and accepted model of environmental management. Having an EMS validated by a third party registration proves the EMS meets the requirements of ISO 14001.

There are additional benefits to registration.

✍✍ A third party registration of your EMS provides assurance to your customers that you have demonstrated a commitment to environmental management.

As large companies registered to ISO14001, they are pushing the requirements of ISO14001 down to their suppliers. Ford, GM and Rover have already made ISO14001 registration a condition of doing business with them. IBM recommends that their suppliers have an EMS that complies with ISO14001. Registration to ISO14001 provides an advantage in obtaining new business for Philips Electronics.

✍✍ A registered EMS can facilitate good public/community relations and satisfy investor criteria and improving access to capital.

Environmental risk is an area that is closely reviewed during due-diligence when a company is acquired and before money is loaned to the company doing the acquiring. Registration to ISO14001 provides investors and lending institutions confidence that there is an environmental management system in place.

✍✍ Registration can help reduce insurance cost.

✍✍ Market share and image can be enhanced. Honda motorcycle has advertised their ISO 14001 registration to differentiate their products in a very competitive market.

✍✍ Incidents that result in liability may be reduced.

The cost of registration is a small compared to the benefits of flying the ISO14001 flag and displaying ISO14000 registration status. The costs may be minimized when registrar audits are combined with ISO9000.

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✍✍ Six-month surveillance audits provide on-going assurance that the EMS continues to meet the requirements of ISO 14001.

✍✍ Registration to ISO 14001 demonstrates reasonable care.

✍✍ Registration can facilitate the attainment of permits and authorizations

✍✍ A strong EMS and registration can improve industry-government relations

In some states the EPA (or DNR) is a leader in ISO14001. Pennsylvania is an example. Several states are using ISO14001 as a negotiation when non-compliance is found. If organizations agree to implement ISO14001 fines are reduced or waved.

✍✍ When implemented correctly, employees feel they are a part of the environmental management system. Making environmental improvements becomes everyone's job.

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