Developing an ISO 14001 Environmental Management System for Aerospace Suppliers

Presented By:

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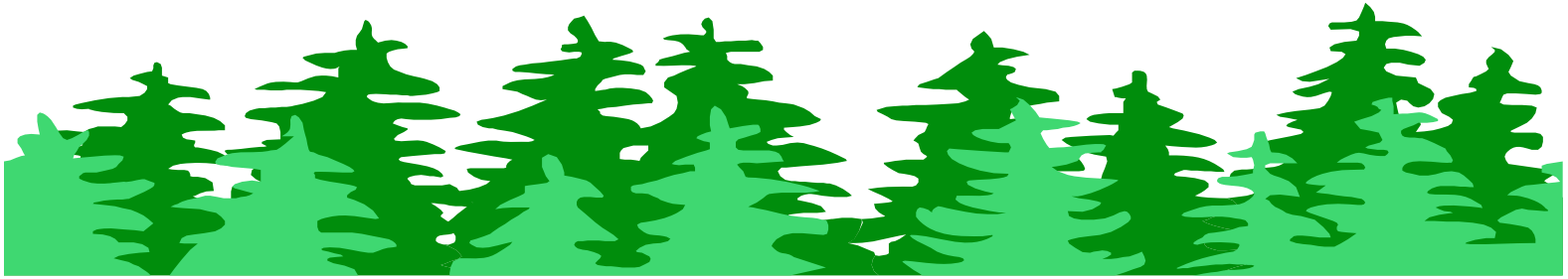
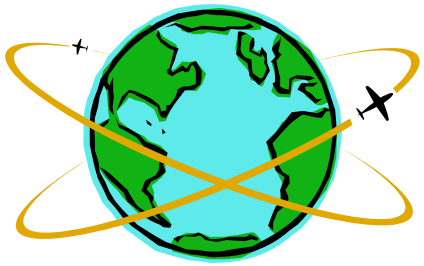


Course Objective

- **To give participants an overview of ISO 14001 and identify an efficient and effective way to integrate the requirements with their company's AS9100 Quality Management System**
- **To explore how to implement a cost effective ISO 14001 system that will provide a return on the investment**

Training Overview

- History of ISO 9000/14000 Series
- Adoption by Industry
- ISO 14000 Series Structure
- Procedures and Processes
- Integrating ISO 14001 with AS9100
- Benefits and Limitations
- Registration Process



ISO 14000 Series

What Is ISO?

The International Organization for Standardization (ISO) is the specialized international agency for standardization. The American National Standards Institute (ANSI) is the member body representing the United States.

Who Developed The ISO 14000 Series Standards?

The ISO Technical Committee, TC 207 developed the ISO 14000 Series in 1996. The committee released a new version in 2004.

What Are The ISO 14000 Series Standards?

The original ISO 14000 Series was a set of three individual, but related, international standards on environmental management. Unlike the ISO 9000 series, ISO 14000:1996 was originally process based and therefore maintained the basic structure upon the release of the updated version in 2004.

Historical Developments

1957	Six European Countries Form Common Market (EEC)
1979	ISO 9000 TC 176 Formed
1987	ISO 9000:1987 First Release
1994	ISO 9000:1994 Second Version Release
1996	ISO 14000:1996 First Release
2000	ISO 9000:2000 Third Version Release
2004	ISO 14000:2004 Second Version Release
2007	ISO 9000 Adopted by all Industrialized Countries
Nov 2008	ISO 9000:2008 Fourth Version Release

Growth of Certifications

- Automotive industry has been the leader in ISO 14001 certificates
  - Certificate requirement imposed by customers
  - Certificate number reduced by consolidation and closures
  - Asian automotive supplier certificates are expanding
- Certificates growth is occurring in other manufacturing such as electronics, petrochemical, and food
- Large retail companies are beginning to require suppliers to have 14001 certificate
- European and Asian companies are requiring certification
  - Right thing to do
  - Can lower cost and improve efficiencies

Worldwide Adoption

ISO 14001 Certificates

	2005	2006	2007
World Totals	56,593	128,211	154,572
World Growth	21,225	17,049	26,361
Number of Countries	138	140	148

2007 is 21% increase over 2006

Source: The ISO Survey of Certificates 2007

Worldwide Adoption

ISO 9001 Certificates

	2005	2006	2007
World Totals	773,867	896,929	951,486
World Growth	113,735	123,062	54,557
Number of Countries	161	170	175

2007 is 6.1% increase over 2006

Source: The ISO Survey of Certificates 2007

Worldwide Adoption

Top 10 Countries with ISO 14001 Certificates

1	CHINA	30,489	6	REPUBLIC OF KOREA	6,392
2	JAPAN	27,955	7	UNITED STATES	5,462
3	SPAIN	13,852	8	GERMANY	4,877
4	ITALY	12,057	9	SWEDEN	3,800
5	UNITED KINGDOM	7,323	10	FRANCE	3,476

Source: The ISO Survey of Certificates 2007

ISO 14001 Certificate Comparison

ISO 14001 Certificates Totals

	2005	2006	2007
Europe	30,642	55,919	65,097
# of countries	39	46	46
China	12,683	18,842	30,489
Japan	23,466	22,593	27,995
US	5,061	5,585	5,462*

* Methodology for reporting certificates changed in 2007

Source: The ISO Survey of Certificates 2007

ISO 9001 Certificate Comparison

ISO 9001 Certificates Totals

	2005	2006	2007
Europe	377,196	414,232	431,479
# of countries	48	49	49
China	143,823	162,259	210,773
Japan	53,771	80,518	73,176
US	44,270	44,883	36,192*

* Methodology for reporting certificates changed in 2007

ISO 14000:2004 Structure

Environmental Management Systems - Guidelines on Principles, Systems and Supporting Techniques

ISO 14000

ISO 14001

Environmental Management Systems - Specification With Guidance For Use

The Standard

ISO 19011

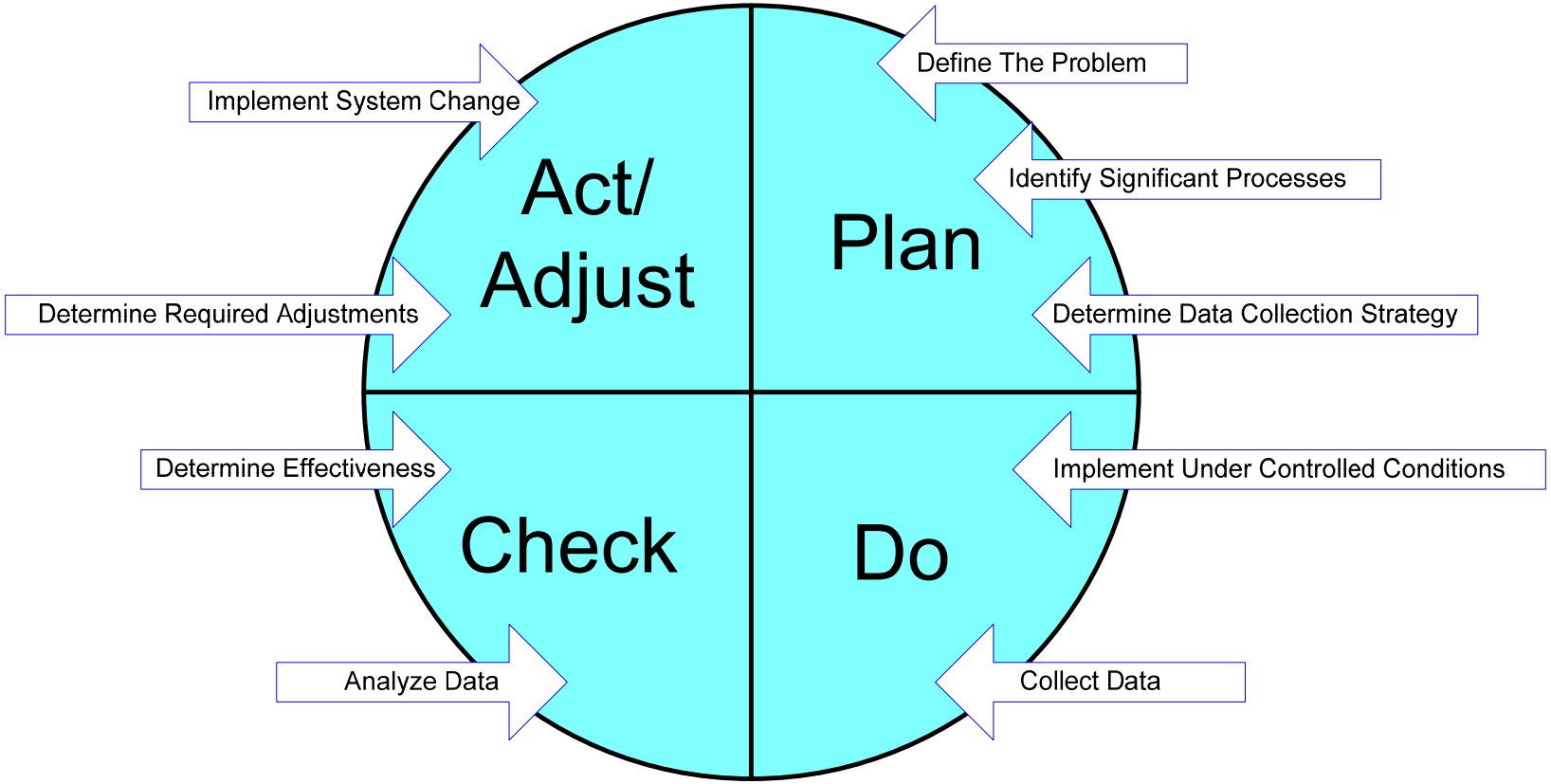
Guidelines on Auditing Quality and Environmental Management Systems

ISO 14001:2004 Content

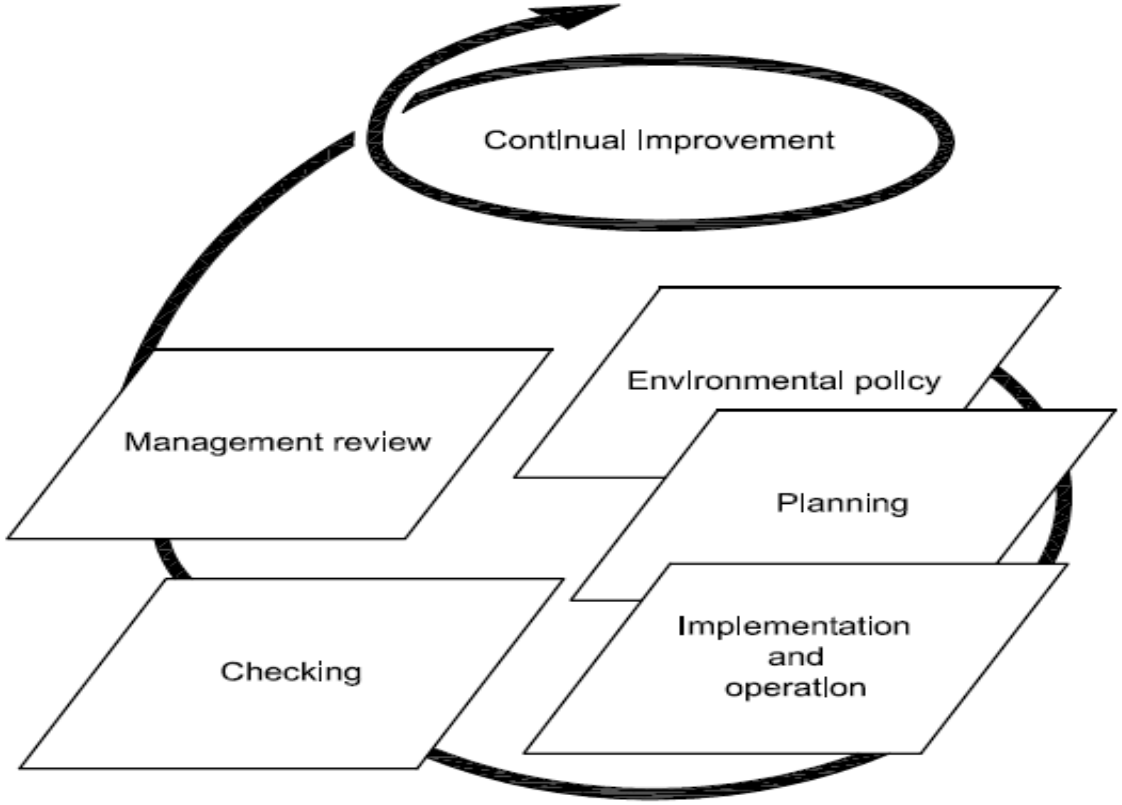
1. Scope
2. Normative References
3. Definitions
4. EMS Requirements
   - 4.1 General Requirements
   - 4.2 Environmental Policy
   - 4.3 Planning
   - 4.4 Implementation and Operation
   - 4.5 Checking
   - 4.6 Management Review

Plan - Do - Check - Act

The Shewhart Cycle/Deming Circle



EMS Plan – Do – Check - Act



Definition

Environmental Management System Policy

Overall intentions and direction of an organization related to its environmental performance as formally expressed by top management

NOTE: The environmental policy provides a framework for action and for the setting of environmental objectives and environmental targets.

ISO 14001:2004

Environmental Management System

Definition

Environmental Management System (EMS)

Part of an organization's management system used to develop and implement its environmental policy and manage its environmental aspects

NOTE 1: A management system is a set of interrelated elements used to establish policy and objectives and to achieve those objectives.

NOTE 2: A management system includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources.

ISO 14001:2004

Aspects and Impacts

Definitions

Environmental Aspect

Element of an organization's activities or products or services that can interact with the environment

Environmental Impact

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects

ISO 14001:2004

Application of the Standard

Size and Complexity of EMS Depends on:

- size of organization
- location of organization
- nature of activities, products, and services
- scope of environmental management system
- content of environmental policy
- environmental impact of environmental aspects
- legal and other requirements that must be met

Procedures & Work Instructions

4.4.4 Documentation

"The environmental management system documentation shall include

a) the environmental policy, objectives and targets,

b) description of the scope of the environmental management system,

c) description of the main elements of the environmental management system and their interaction, and reference to related documents,

d) documents, including records, required by this International Standard, and

e) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects."

ISO 14001:2004

Procedures Defined

ISO Procedure Definition

3.4.5 Procedure
"specified way to carry out an activity or process"

Note 1: Procedures can be documented or not.

Note 2: When a procedure is documented, the term "written procedure" or "documented procedure" is frequently used.

ISO 9000:2000 Ref ISO 14001, 3.19

Documented Procedures

Processes requiring "documented procedures":

4.4.6 Operational Controls

Only required if the absence of a documented procedure could lead to deviation from the environmental policy, objectives and targets

ISO 14001:2004

Required Procedures

Processes requiring "procedures":

- **4.3.1** Environmental Aspects
- **4.3.2** Legal and Other Requirements
- **4.4.2** Competence, Training and Awareness
- **4.4.3** Communication
- **4.4.5** Control of Documents
- **4.4.6** Operational Control
- **4.4.7** Emergency Preparedness and Response
- **4.4.7** Review & Revise Emergency Preparedness Practice
- **4.5.1** Monitoring and Measurement
- **4.5.2** Evaluation of Compliance
- **4.5.3** Nonconformity, Corrective Action and Preventive Action
- **4.5.4** Control of Records
- **4.5.5** Internal Audit

Documented Procedures

Procedure Requirement Example

4.4.3 Communication

With regard to its environmental aspects and environmental management system, the organization shall establish, implement and maintain a procedure(s) for

a) internal communication among the various levels and functions of the organization,

b) receiving, documenting and responding to relevant communication from external interested parties.

Ref ISO 14001 4.4.3

Required Processes

Processes Required in Addition to QMS Processes

Develop Environmental Management Plan

Establish Emergency Response Plan

Control Environmental Aspect

Control and Maintain EMS

Ensure Effective Communication

Updated Processes

QMS Processes That May Require Modifications

Select Qualify and Monitor Supplier

Identify and Package Products

Receive and Verify Materials

Develop and Control Documents

Manufacture Products

Control Monitoring and Measuring Equipment

Control BMS Records

Develop and Train Employees

Maintain Facilities and Equipment

Conduct BMS Audits

Perform Corrective Action

Review and Update BMS

Develop and Update Business Plans

Plan and Manage Projects

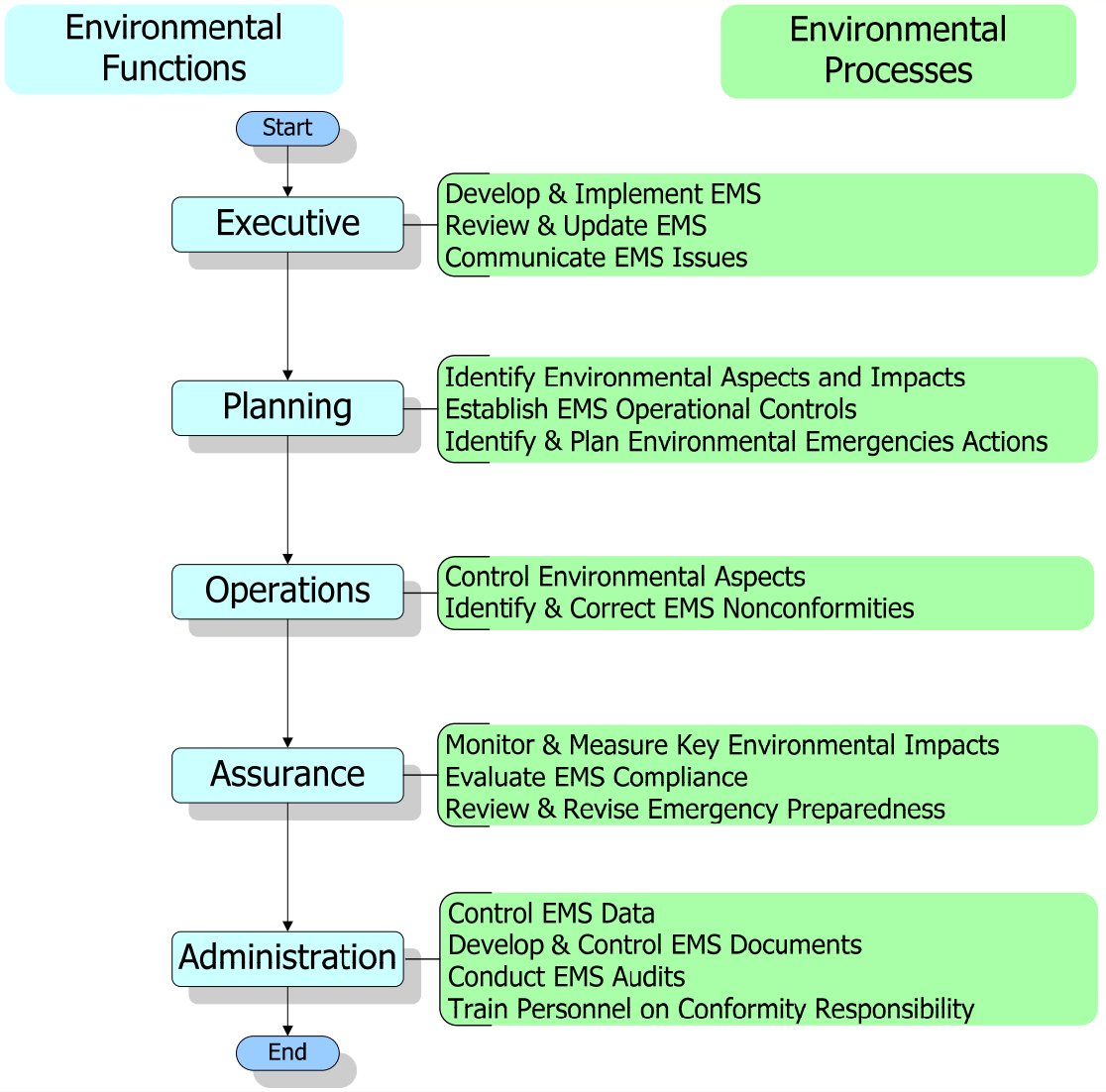
Establish Monitoring and Measuring Controls

BMS Manual*

* Not a process but will need updates

EMS Processes

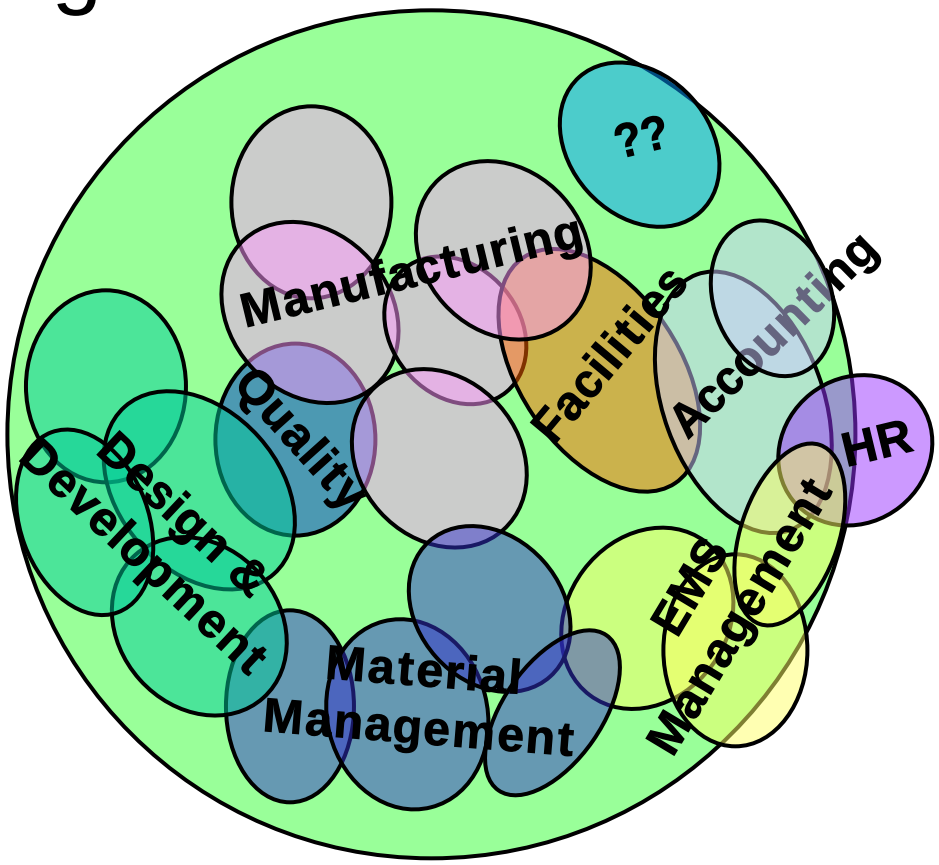
Stand Alone EMS



System Documentation Planning

No System Planning

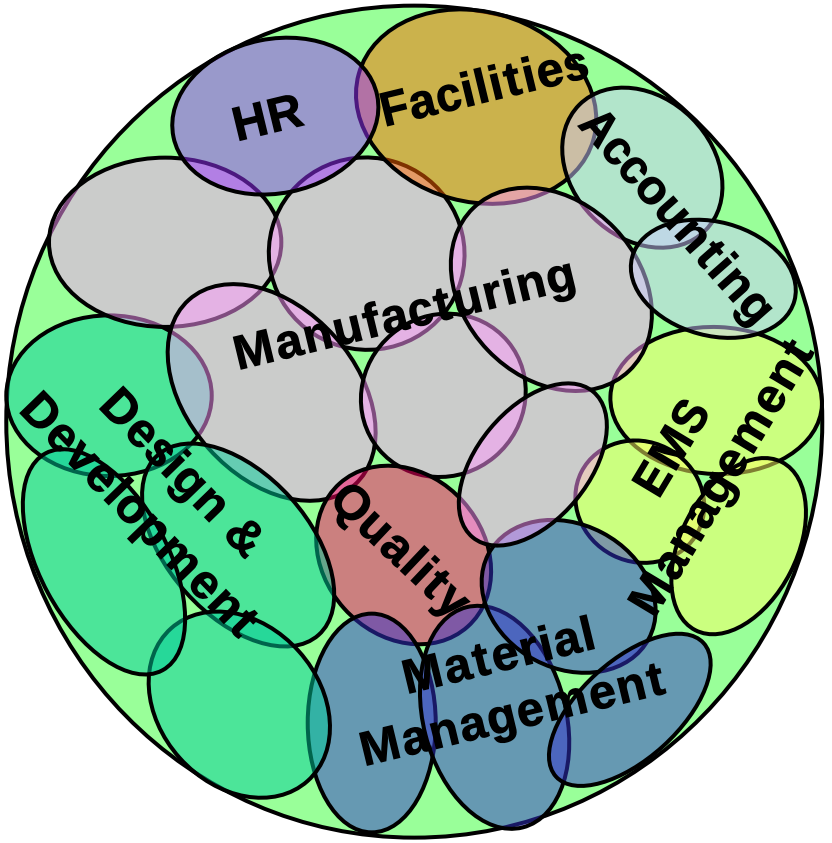
Typical Organizational System



System Documentation Planning

Good System Planning

Optimized
Organizational
System



Benefits of ISO 14001

- Improves environmental performance and compliance
- Establishes framework for continual improvement and pollution prevention
- Can reduce cost of satisfying environmental obligations
- Promotes predictability and consistency in managing environmental requirements
- Improves effectiveness of management resources
- Enhances public perception with stakeholders

Reported Benefits of ISO 14001

Study Conducted by U.S. Environmental Protection Agency

- Fewer environmental incidents, and reduction of impact and response time when incidents occur
- More efficient use of resources
- Better awareness of the effect on the environment, allowing the workforce to make more informed decisions
- Increased suggestions and initiatives
- Improved employee morale
- Improved customer service
- Better communication and relationships with all stakeholders

"EMS implementation steps and system benefits," office of the federal environmental executive, 2003

Limitations in Using ISO 14001

- Will not necessarily lead to significant environmental improvements
- May not help reduce costs and waste
- Does not ensure world class environmental management
- Subject to interpretation

An Integrated ISO 14001/AS9100 System

Benefits of an Integrated QMS/EMS

- Only need to develop three to five new processes
- About a dozen QMS processes need modification
- Eliminates redundancies and improves ability to reduce cost of system management
- Prepares management system for easy adoption of a health and safety system (ref OHSAS 18001)
- Fulcrum's BMS 2000-14 is an example of an integrated business management system – see **Info Center**

Key Points to Remember

- ISO 14001 is a powerful tool for assisting organizations with establishing an effective and efficient environmental management system
- Organizations that adopt the standard only get out of it what they put into it - many organizations only get a certificate
- When ISO 14001 is applied with a focus on the auditor and just getting a certificate, the benefit is marginal at best
- An ISO 14001 based system will provide a significant return on the investment if it is properly designed with a focus on developing a comprehensive and effective environmental management system

Registration

- FAQ on Registration

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