



# INFRASTRUCTURE AND SUPPORT




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## What is ISO?

- ISO is the “International Organization for Standardization”
- It is called “ISO” from the Greek work “isos” meaning “equal”.
- It is an federation of national standards bodies from various countries.
- Out of 198 countries in the world, 158 belong to ISO.



- ISO is able to enforce standards either through international treaties, or through its member national bodies.
- Home page: <http://www.iso.org>



## ISO Numbering

- ISO standards have a format that contains: *ISO[/IEC]/[ASTM]/[IS] nnnnn[:yyyy] Title*
- If included, IEC and ASTM imply that the standard is a joint effort with another organization.
- Nnnnn is the standard number
- The year “yyyy” and IS will be left off incomplete or unpublished standards

## Other ISO standards

- ISO 9660-Defines the filesystem used on CD-ROM disks
- ISO 5800-Defines the sensitivity for photographic film (also called the ISO number)
- The seven-layer OSI (Open System Interconnect) was a draft standard for Internet networking (*not implemented*)

- There are more than 16,000 ISO standards.
- Most can be purchased for a fee.
- A number are freely available (including many that are software related), see: <http://isotc.iso.org/livelink/livelink/fetch/2000/2489/litf/Home/PubliclyAvailableStandards.htm>

## What is Certification?

- Certification simply means that an organization, product or process means the relevant standard
- It is a measure of **consistency** and not necessarily **quality**
  - If you define a bad standard and then use it to manufacture a product, all your products should at least be consistently bad.

## What is ISO 9000?

- The ISO 9000 series of standards differ from other ISO standards.
- ISO 9000 does not define the standards for a particular product or process.
- Instead ISO 9000 defines a method for **quality management**
- It is a generic rather than a specific standard

## Generic Standards

- ISO 9000 is **Generic** because it can be applied to any organization regardless of:
  - Size;
  - What product or service it produces;
  - What industry or market it is in;
  - Whether it is for-profit, non-profit, public-sector, or government.

## Management System Standards

- ISO 9000 is a Management System because it is concerned with how the organization is structured to manage its processes and activities.
- How does an organization take its inputs and transform them to:
  - Meet the customer's quality requirements?
  - Meet applicable regulations?
  - Enhance Customer satisfaction?
  - Achieve continual improvement in performance?



## The Need for Management Systems

- In very small organizations, there is probably no “system” to doing work.
  - People just do it
  - They do it the way they want or know
  - Processes are all in people’s heads; nothing is written down
    - Training is done by mimicking or copying someone else
  - People assume that their work is done for a reason.



## What is Systemization?

- By putting these processes into a “System”, we:
  - Document them
  - We understand how each task fits together
  - We understand who is responsible for each task
  - We understand why each task is done
  - We understand how to improve tasks



## Why is Systemization Useful?

- It allows us to document how we do things so we can do them consistently (Standardization)
- It allows us to ensure that we are consistent (Quality Management)
- It helps us see how we can improve things



## Standardization

- Always viewed from the point of view of the Customer
- What features does the customer require from us?
  - These are the features we need to standardize
  - Standardization allows us to meet the customer’s expectations every time



## Tools for Standardization

- Documentation
- Training
- Automation
- Staff Retention
- Performance Management



## Tools for Quality Management

- Process Audits
- Performance Management
- Quality Testing
- Customer Feedback surveys
- Incentives/disincentives

## Certification Requirements

- The organization must have a plan to continually improve its processes.

## Certification

- An independent auditing firm is contracted to certify the organization.
  - If the organization meets all the requirements of the management system standard, it is certified.
- An organization can meet the ISO 9000 standards but not be certified
  - Certification only means that an outside auditor has assessed the organization's management system.
- There are 750 such auditing firms in existence

## If ISO 9000 is So Good...

- Why are there certified companies that we don't want to do business with?
  - ISO 9000 means that a management system is in place, not that it is a good system.
  - Processes can be documented in very vague terms thus meeting the standards.

## More Problems with ISO 9000

- The certification firm does not ensure that the Quality Management System is being used, only that there is one.
  - The organization must audit its own processes.
- Customer expectations may be met because these expectations are too low.

## Businesses are Unique

- ISO certification doesn't tell you what to do or how to run your business.
- It only asks you to explain how you run your business.
  - Good businesses that are ISO 9000 certified will have good processes.
  - Bad businesses that are ISO 9000 certified will have bad processes.

- ISO certification just means that you understand how you do business.
- It's up to you to decide whether and how to improve your processes.

## Other Problems with ISO 9000

- Expensive—While improving processes usually adds value to an organization, the process of becoming certified can be costly with some steps not being cost-effective.
  - Do we really need all this paperwork?
- Some companies are more interested in certification than quality
  - So what they “certify” is non-quality.

## ISO 9000 Family Standards

- ISO 9000:2005--Quality management systems -- Fundamentals and vocabulary
- ISO 9001:2005--Quality management systems – Requirements
- ISO 9004:2000--Quality management systems -- Guidelines for performance improvements

## ISO 14000 Standards

- Like ISO 9000, ISO 14,000 is a management standard, only it applies to environmental management instead of quality management.

## References

- <http://www.iso.org/iso/en/iso9000-14000/index.html>
- [http://en.wikipedia.org/wiki/ISO\\_9000](http://en.wikipedia.org/wiki/ISO_9000)