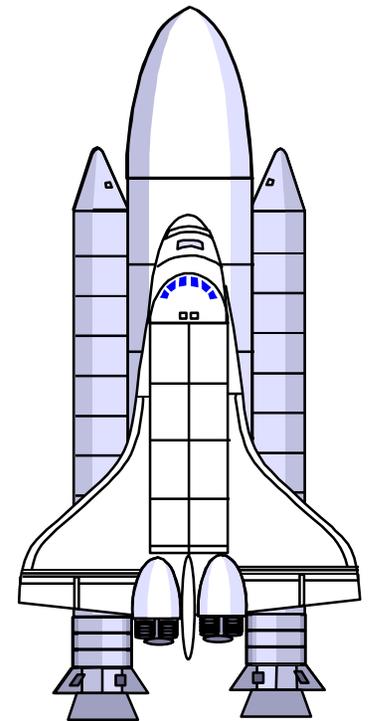
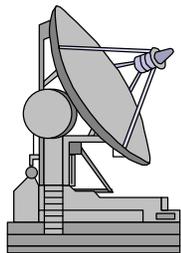


Introduction To

ISO 9000

NASA/MSFC



NASA's Transition to ISO 9000 Management Policy

- **NMI 1270.3 Management Policy (Signed by Mr. Goldin on 12/06/95)**
 - ▲ **NASA & NASA Suppliers comply with ISO 9000**
 - ▲ **Applicable to NASA Headquarters & Centers**
 - ▲ **NASA Center Directors have the authority, accountability, and responsibility for implementation and oversight at their Centers**
 - ▲ **Safety and Mission Assurance is responsible for facilitating, providing implementation guidance, training, and oversight**

Compliance vs. Registration

- ***Compliance*** - When we say we meet all the requirements of ISO 9000 via self assessments and self audits
- ***3rd Party Registration*** - When an outside registrar [certified by the Registration Accreditation Board (RAB) and with no interest in the company being audited] performs an audit(s) and certifies that all the requirements of ISO 9000 have been met.
 - ▲ Internationally recognized in meeting standards
 - ▲ Enables us to deal with contractors already registered

Reasons and Benefits for Transition

- **One Quality System for everyone**
 - ▲ **Within MSFC**
 - ▲ **Within NASA**
 - ▲ **With our Future Contractors**
 - ▲ **With out International Partners**
- **Consistent implementation**
- **Simplicity and Efficiency**
- **More compatible with the International market**
- **Market direction**
- **Purge redundancies**

MSFC ISO 9000 Implementation Team

- **An Implementation Team has been established with key individuals from a cross section of MSFC**
 - ▲ **Core Team, approx. 40 people**
 - ▲ **Sub-team, approx. 100 people**
- **Bob Schwinghamer is the Management Representative for MSFC and Chairperson of the MSFC Implementation Team**
- **Implementation Team has established:**
 - ▲ **A Scope for Registration**
 - ▲ **A Quality Policy**
 - ▲ **Draft Quality Manual**
 - ▲ **Draft System Level Procedures**

MSFC Scope

MSFC Scope is from the Quality Manual:

This quality manual (QM) establishes a quality management system (QMS) to ensure consistent quality of NASA MSFC products and services. The QMS “SHALL” apply to all onsite processes and operations for procurement, design, development, production, testing and servicing of flight hardware, flight software, protoflight units, qualification units, associated flight support equipment, for which MSFC has responsibility.

MSFC Quality Policy

Quality Policy

MSFC policy is to provide quality products and services to our customer.

MSFC is committed to:

***Excellence* -- Pursue excellence and continuous improvement in successfully accomplishing all programs and activities required for developing and operating safe, economical, and reliable space systems.**

***Quality, Safety, and Reliability* -- Maintain high quality, safety, and reliability standards in all our activities as the paramount elements of mission success.**

***Importance of Our People* -- Provide excellence in our work force by seeking and retaining high-quality employees; promoting employee development, reward, and recognition; providing an open and creative environment; emphasizing individual responsibility and initiative; and maintaining and enhancing “hands-on” competence.**

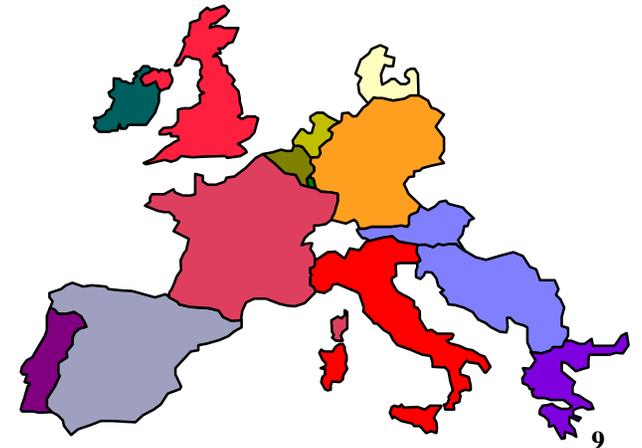
Quality Manual and System Level Procedures

- **Draft procedures are in review**
- **Web Site Location**
 - ▲ **Inside Marshall, <http://www/inside>**
 - ▲ **Select “Centerwide Initiatives”**
 - ▲ **Select “ISO 9000”**
 - ▲ **Select topic from selection of choices**



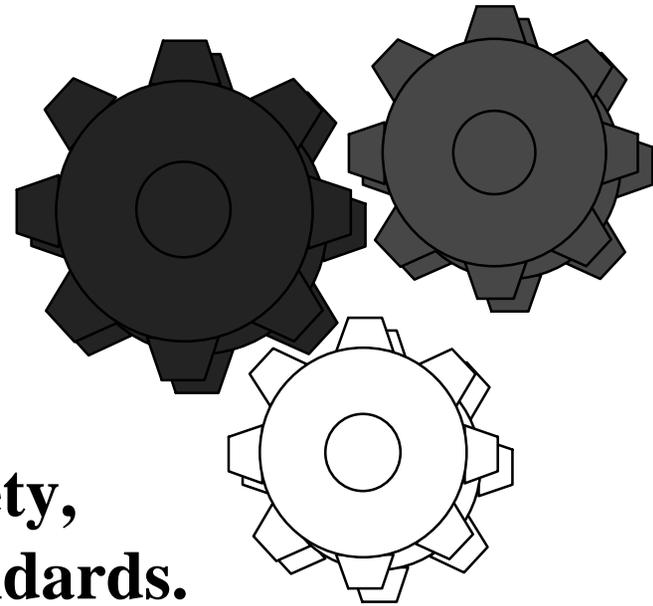
What Is ISO 9000?

- International series of quality standards.
- Published by ISO (90 members) in 1987.
- Published in the U.S. as ANSI/ASQC Q9000.
- Adopted by over 80 nations.



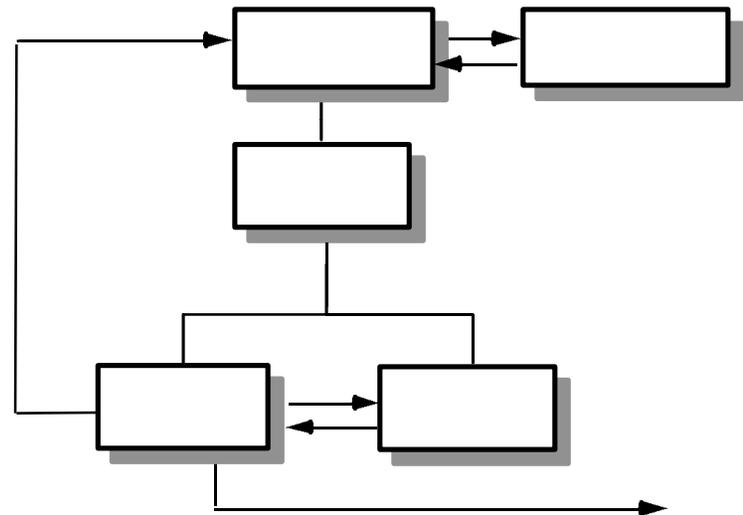
How Does ISO 9000 Work?

- It describes **WHAT** we need for an *effective quality system*.
- It does **NOT** tell us **HOW** to develop our system.
- It does **NOT** replace product, safety, environmental, or regulatory standards.



What is a Quality System?

- It's the organization, responsibilities, procedures, processes, and resources that are used to manage quality.



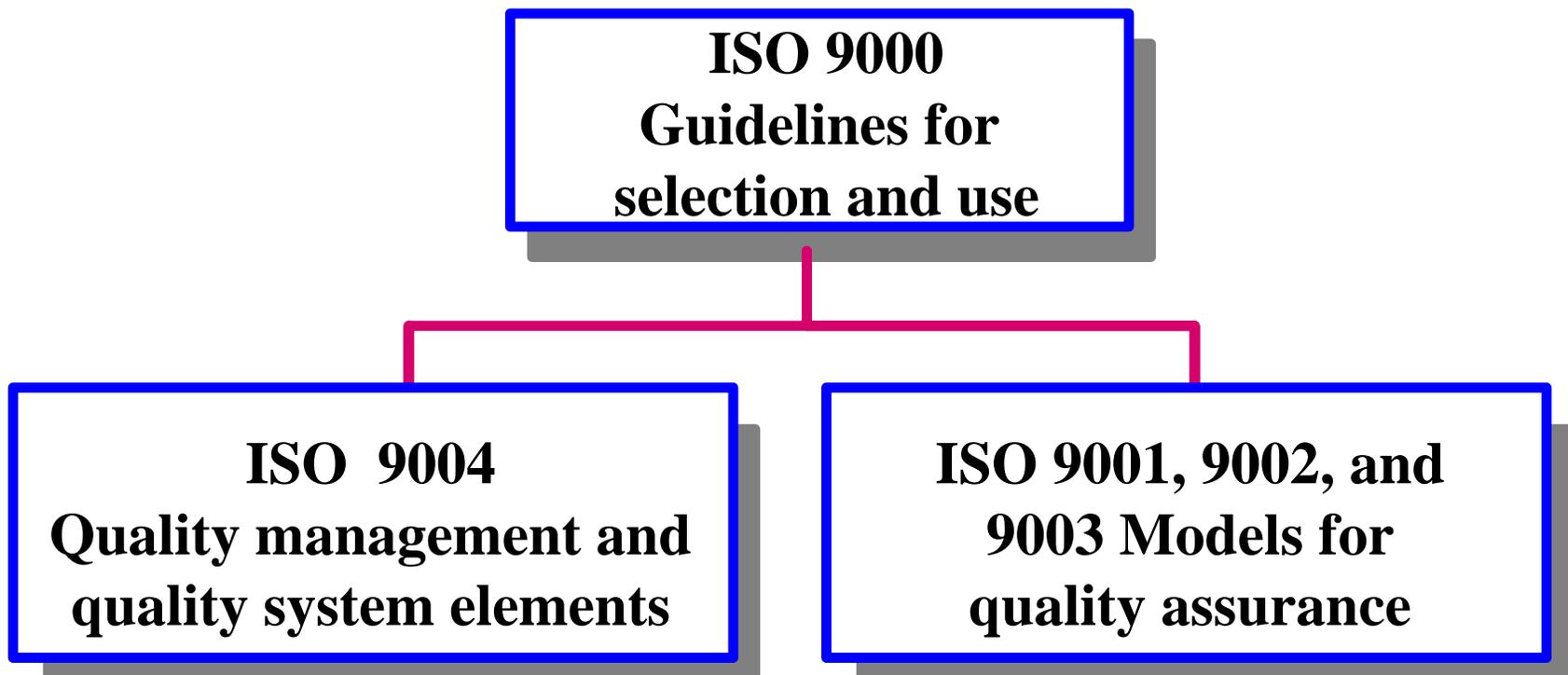


Goals of an ISO 9000 Quality System



- **Make sure the quality of the product or service we provide meets our customer's needs.**
- **Assure *ourselves* that we're getting the quality we planned for.**
- **Assure our *customers* that the quality they asked for will be delivered.**

ISO 9000 Quality Management and Quality Assurance Standards: 1994



ISO 9000

Quality Assurance Models

- **ISO 9001–**
For design, development, production, installation and servicing
- **ISO 9002–**
For production, installation, and servicing
- **ISO 9003–**
For final inspection and test

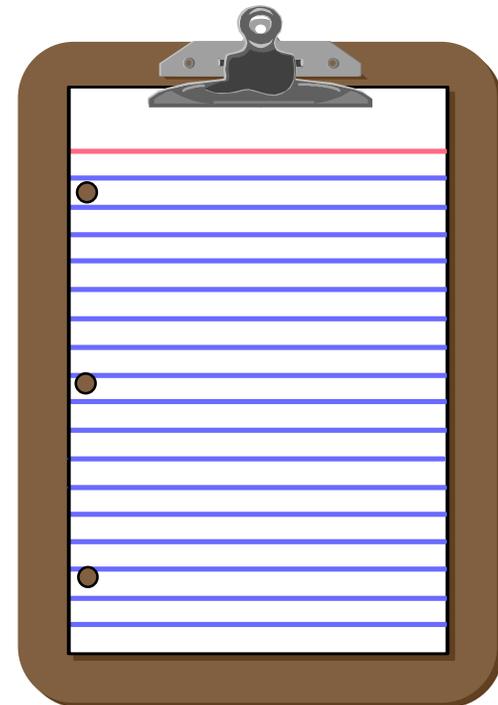
ISO 9001 Requires *Documented* Systems for

- 4.1 Management responsibility
- 4.2 Quality system
- 4.3 Contract review
- 4.4 Design control
- 4.5 Document and data control



ISO 9001 Requires *Documented Systems for*

- **4.6 Purchasing**
- **4.7 Control of customer-supplied product**
- **4.8 Product identification and traceability**
- **4.9 Process control**
- **4.10 Inspection and testing**



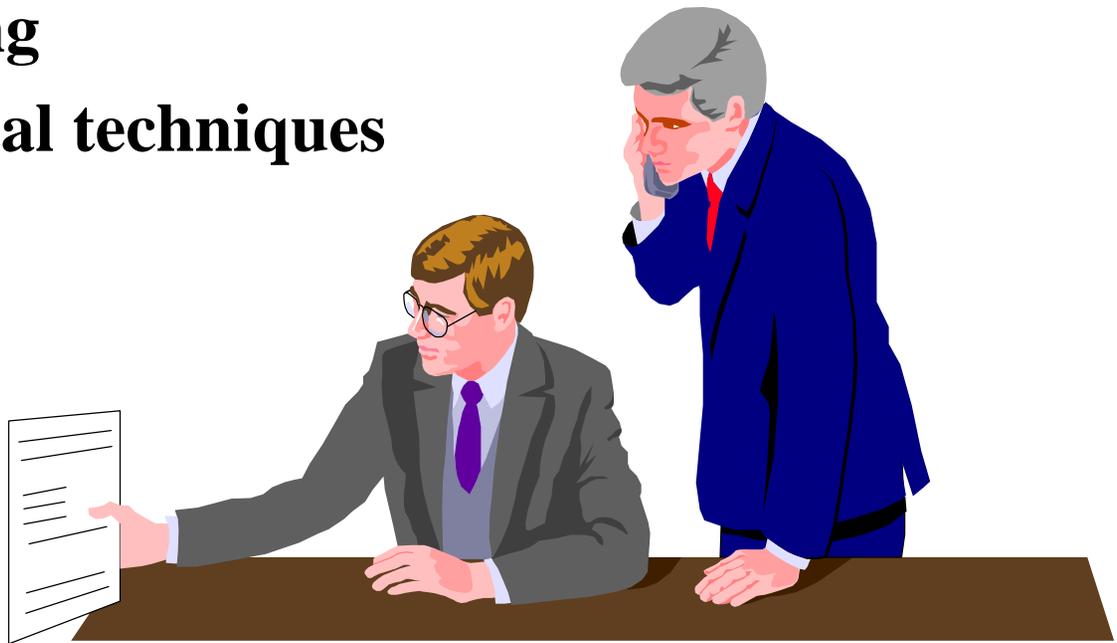
ISO 9001 Requires *Documented Systems for*

- 4.11 Control of inspection, measuring, and test equipment
- 4.12 Inspection and test status
- 4.13 Control of nonconforming product
- 4.14 Corrective and preventive action
- 4.15 Handling, storage, packaging, preservation, and delivery



ISO 9001 Requires *Documented Systems for*

- 4.16 Control of quality records
- 4.17 Internal quality audits
- 4.18 Training
- 4.19 Servicing
- 4.20 Statistical techniques



ISO 9001 and 9002

Emphasize *Self-Checking*

- Internal audits
- Document control
- Management reviews
- *Records*



Why Are Records Important?

- They are the *objective evidence* that we're doing what we say we're doing.



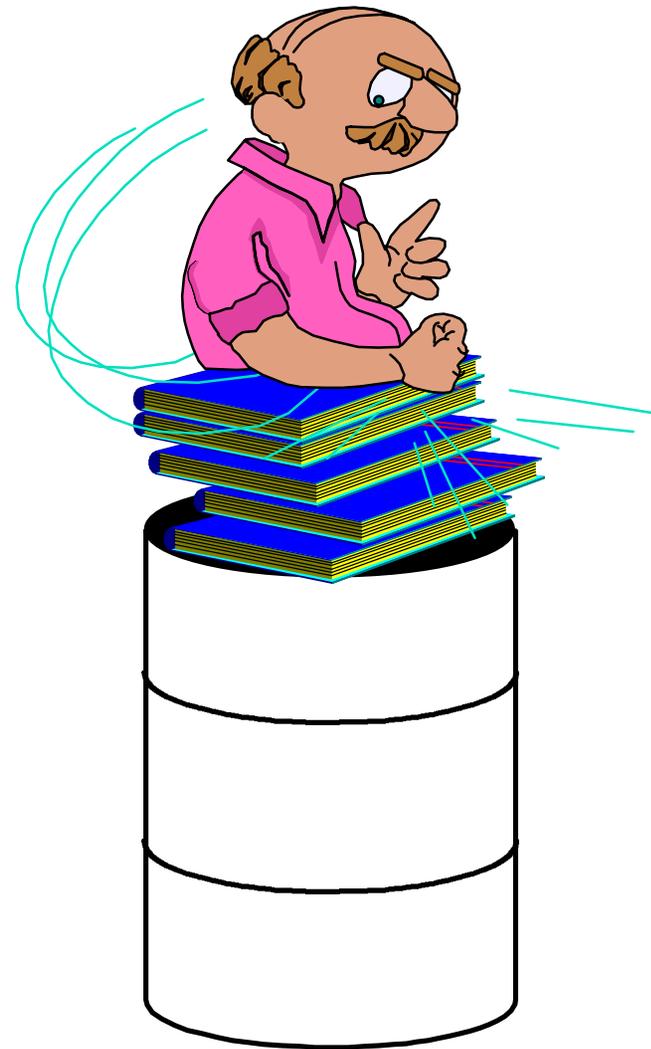
How Do We All Fit In?

- ***WE ARE*** the quality system.
- **We make it work.**
- **We have to understand our policy.**
- **We have to follow procedures and instructions.**
- **We have to understand our customers and meet their needs.**

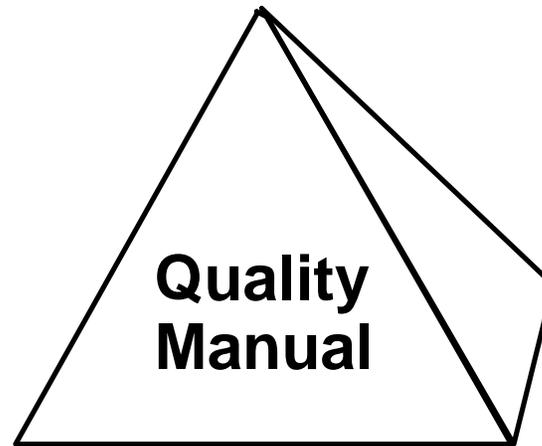


ISO 9000 Requires ***DOCUMENTED*** Quality Systems:

- Documentation must be kept up to date...
- controlled...
- and removed from use when it's obsolete.



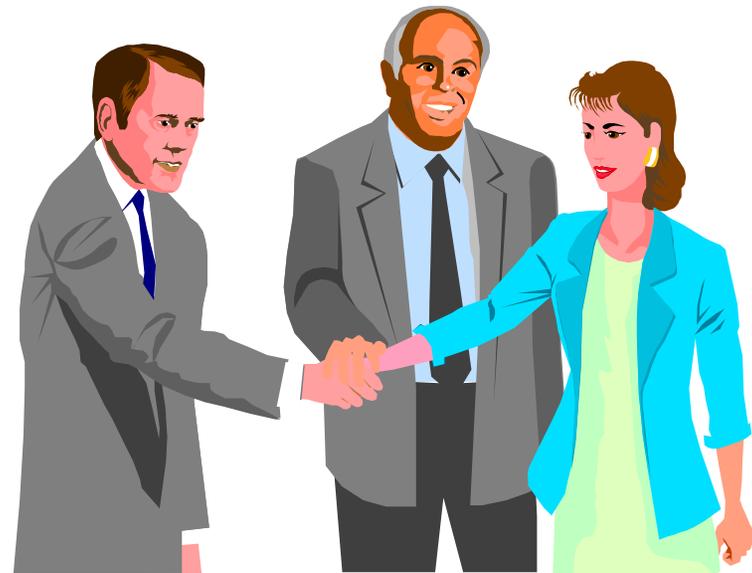
The Documentation Pyramid –1



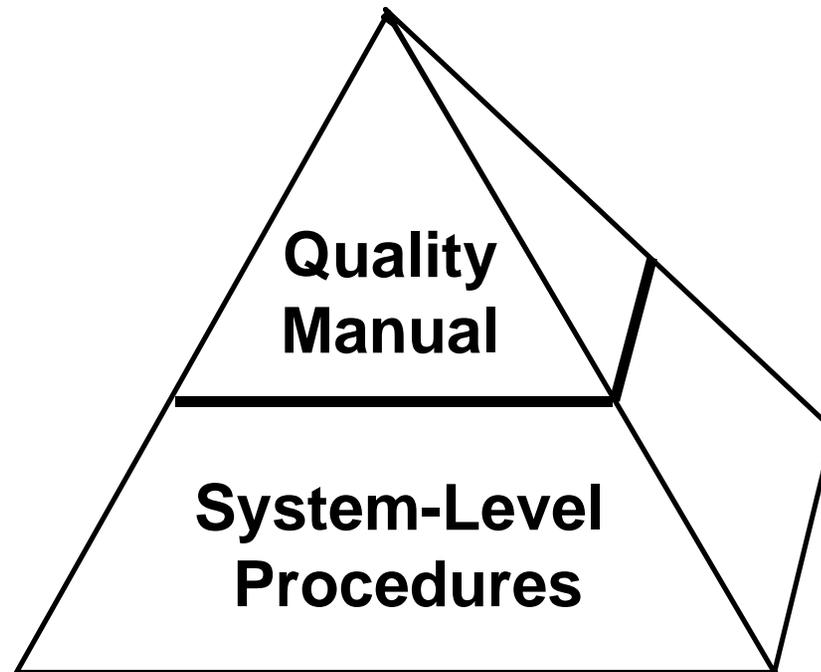
Quality Manual

(The top-level document)

- Describes quality
- States policy
- Commits to quality
- Lists authorities and responsibilities
- Outlines implementation



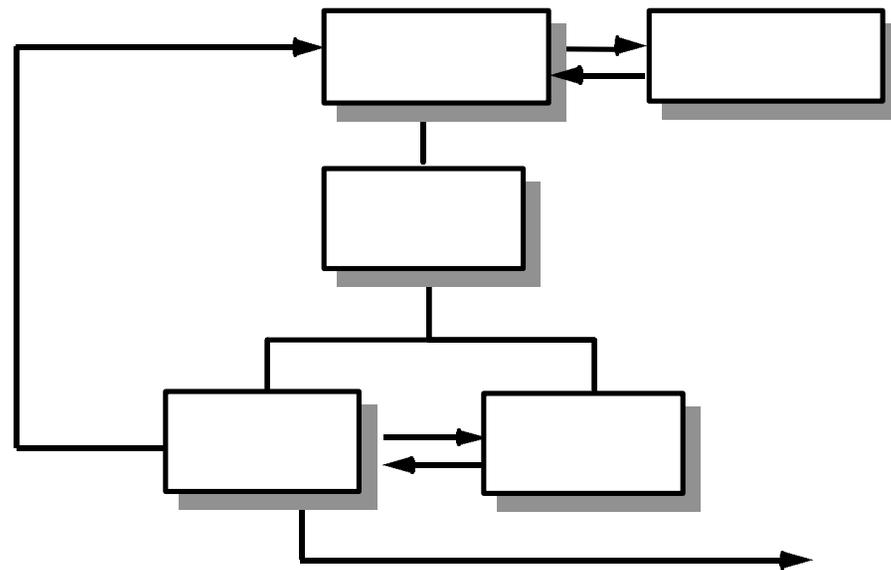
The Documentation Pyramid –2



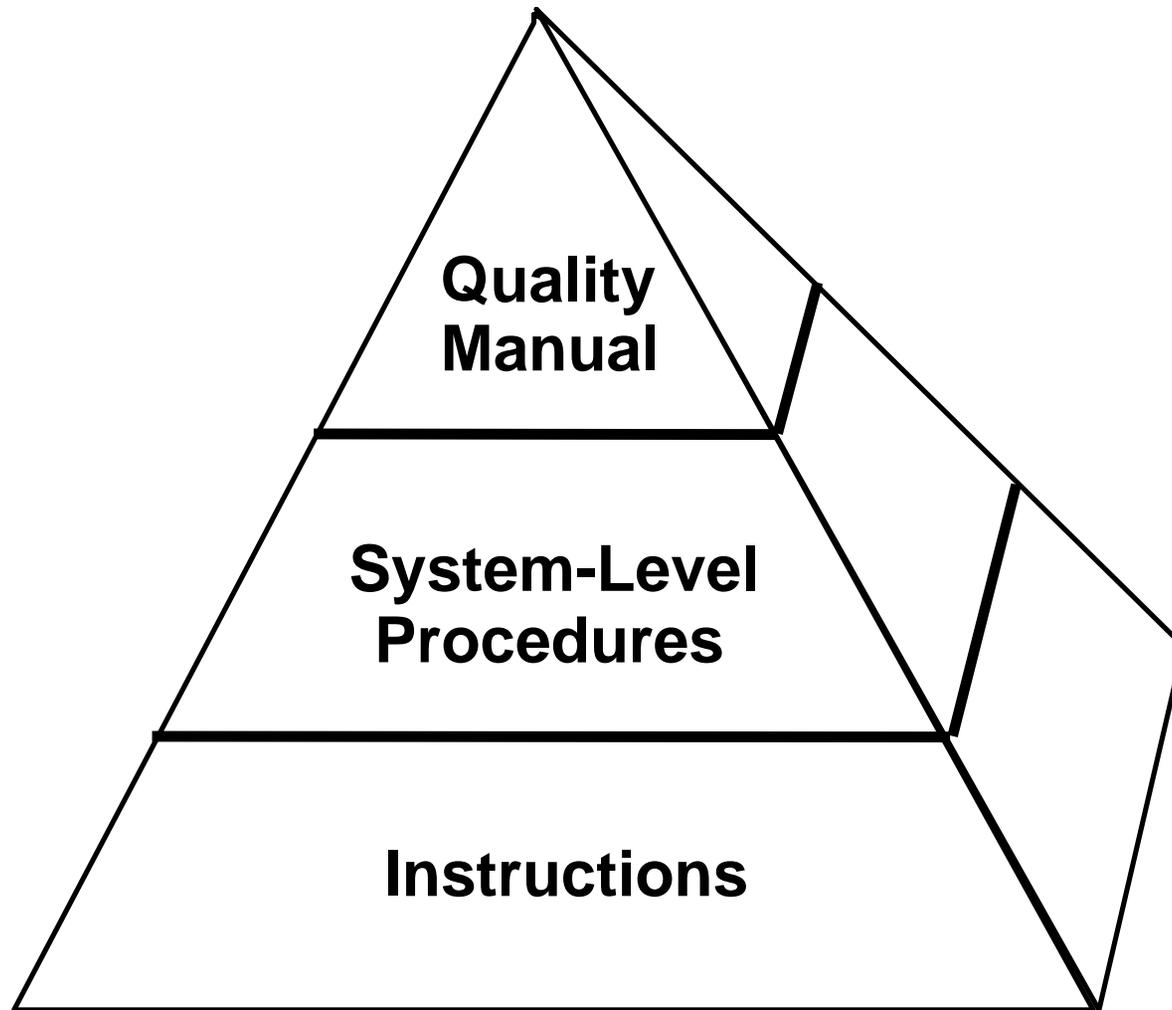
System-Level Procedures

(Describe how things move through the organization)

- How system is implemented
- Operating controls for quality processes and systems
- Interdepartmental (cross-functional) flows and controls



The Documentation Pyramid –3



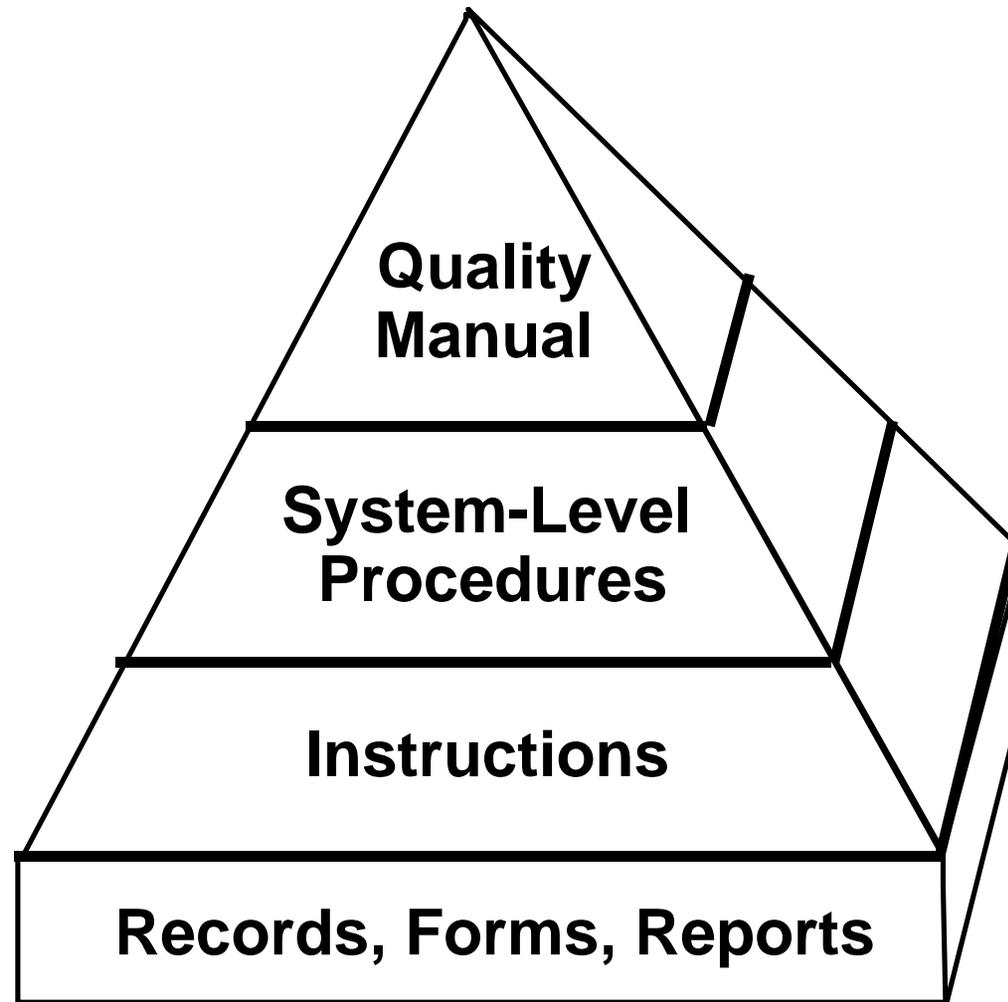
Instructions

(How we do our daily jobs)

- Provide detailed information for each of us
- How to:
 - ▲ Perform specific duties
 - ▲ Prepare forms
 - ▲ Handle *intra*departmental activities



The Documented Quality System

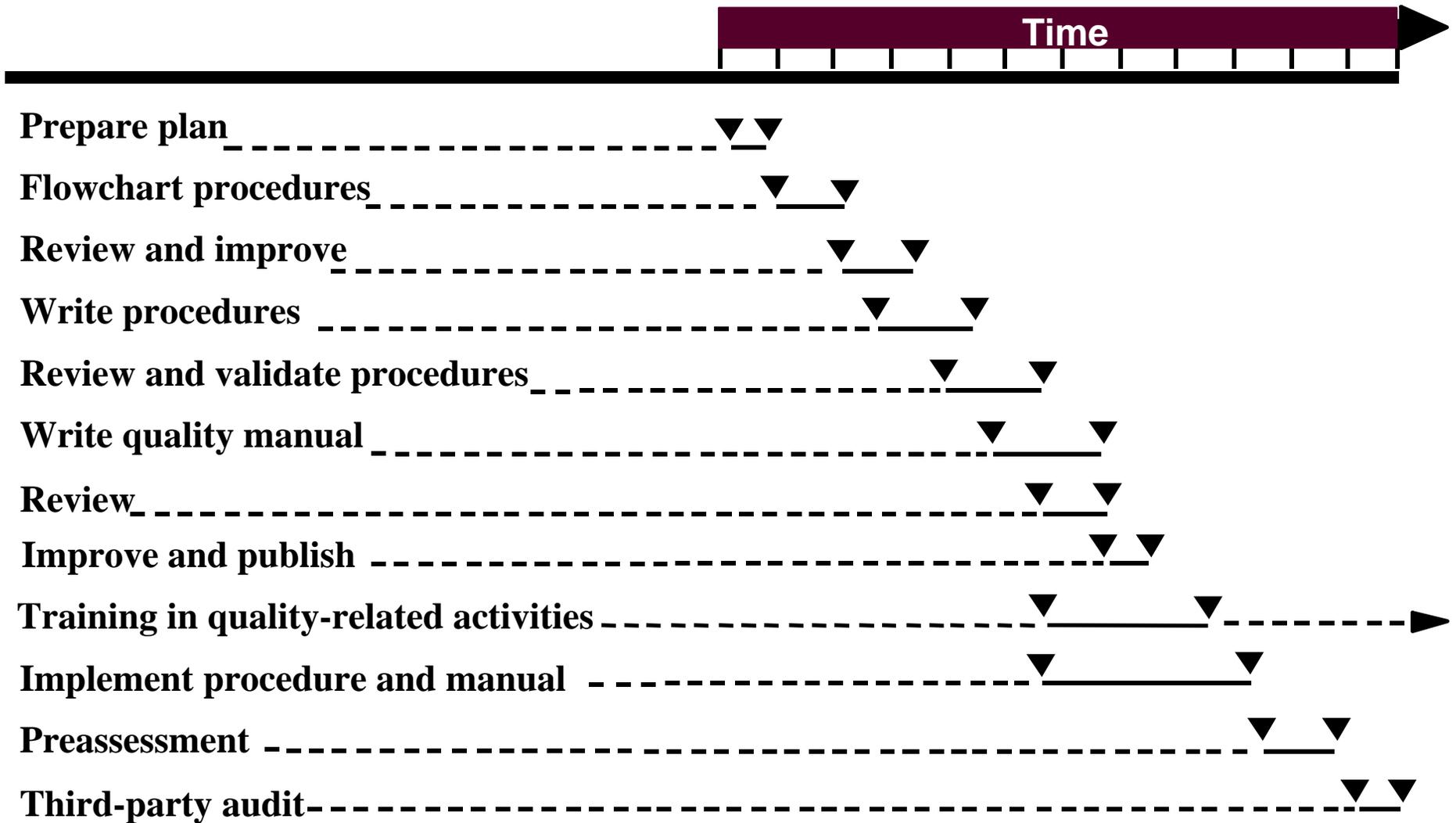


How Do We Become Registered?

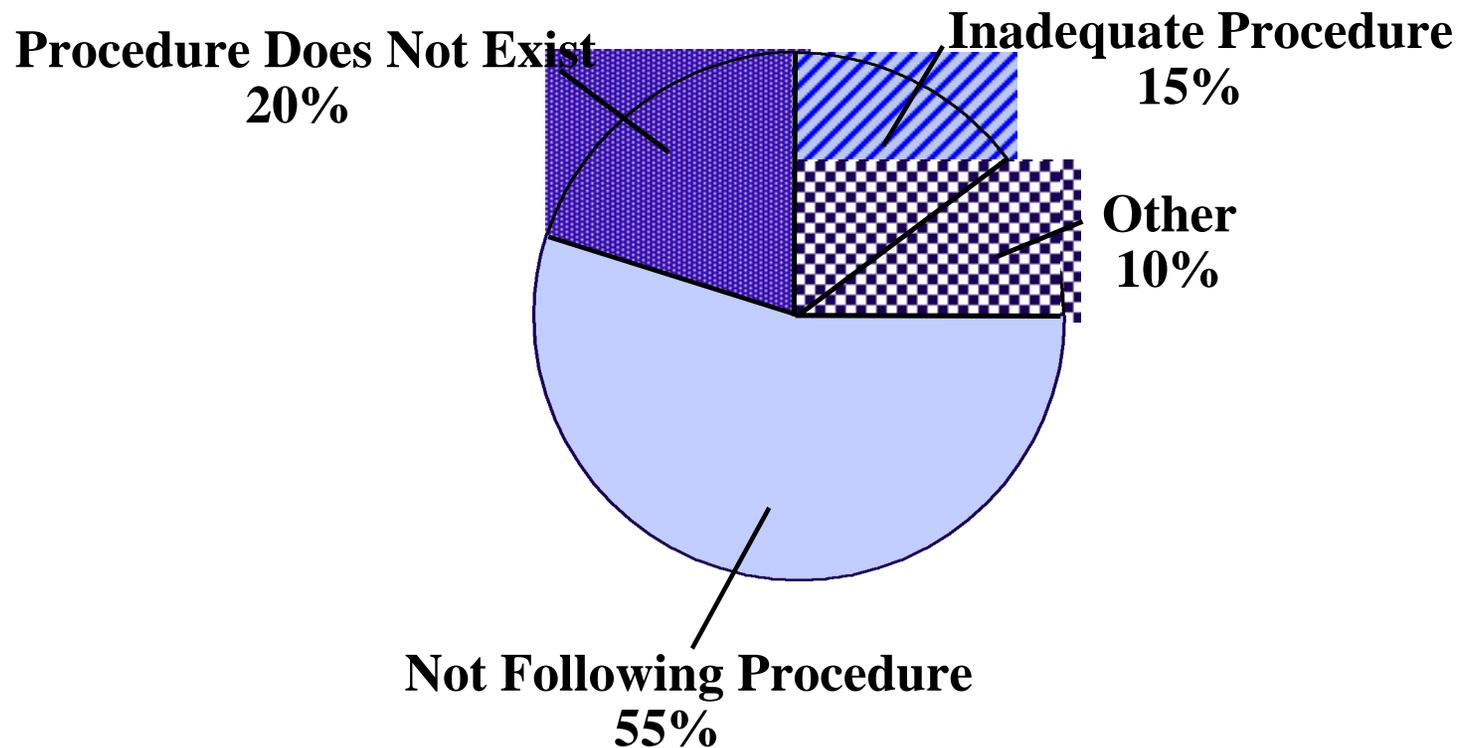
- **An impartial, independent, third-party auditor (or assessor), called a registrar, evaluates our quality system against the requirements of ISO 9001, 9002, or 9003.**
- **If we pass, we're registered!**



Typical Schedule for ISO 9001/9002 Registration

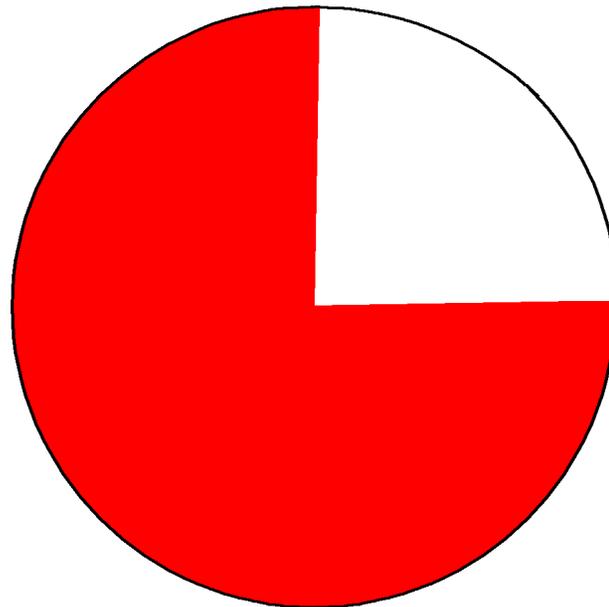


Typical Assessment Findings



The Bottom Line:

At least 75% of all findings are under our control



Common Deficiencies:

Document Control

- **Unapproved documents are in use**
- **Procedures don't match practices**
- **“Unofficial” changes are on procedures**
- **Obsolete documentation is in use**
- **Documents are not located where they're supposed to be**

Common Deficiencies: *People*

- **Not trained or otherwise qualified for their jobs**
- **Not aware of requirements**
- **Don't have access to procedures**
- **Not complying with procedures**
- **Organization and responsibilities not as described in quality manual**
- **Temporary employees not included in system**



ISO 9001/9002 Registration

Can/should be WIN•WIN for us



and our customers and suppliers

One Final Message

- 1. Don't panic**
- 2. Don't take it lightly**
- 3. Accept ISO 9000 as an opportunity for us to move toward even better quality and more business**



Internal Audit Process

- **Internal Audit Expectations**
- **150+ Internal Auditors at MSFC**
 - ▲ **33 Lead Auditors**
 - ▲ **120 Internal Auditors**
- **Audits between now and Registration**
 - ▲ **Verifies we are doing what we say and are ready for the Final Registration Audit**
 - ▲ **Verifies appropriate procedures are in place**
 - ▲ **We learn how to perform Audits**
 - ▲ **We learn how to be Audited**
 - ▲ **Prepares us for the final Audit**
 - ▲ **Allows us to identify and correct problems prior to the final audit**
 - ▲ **Management Awareness**

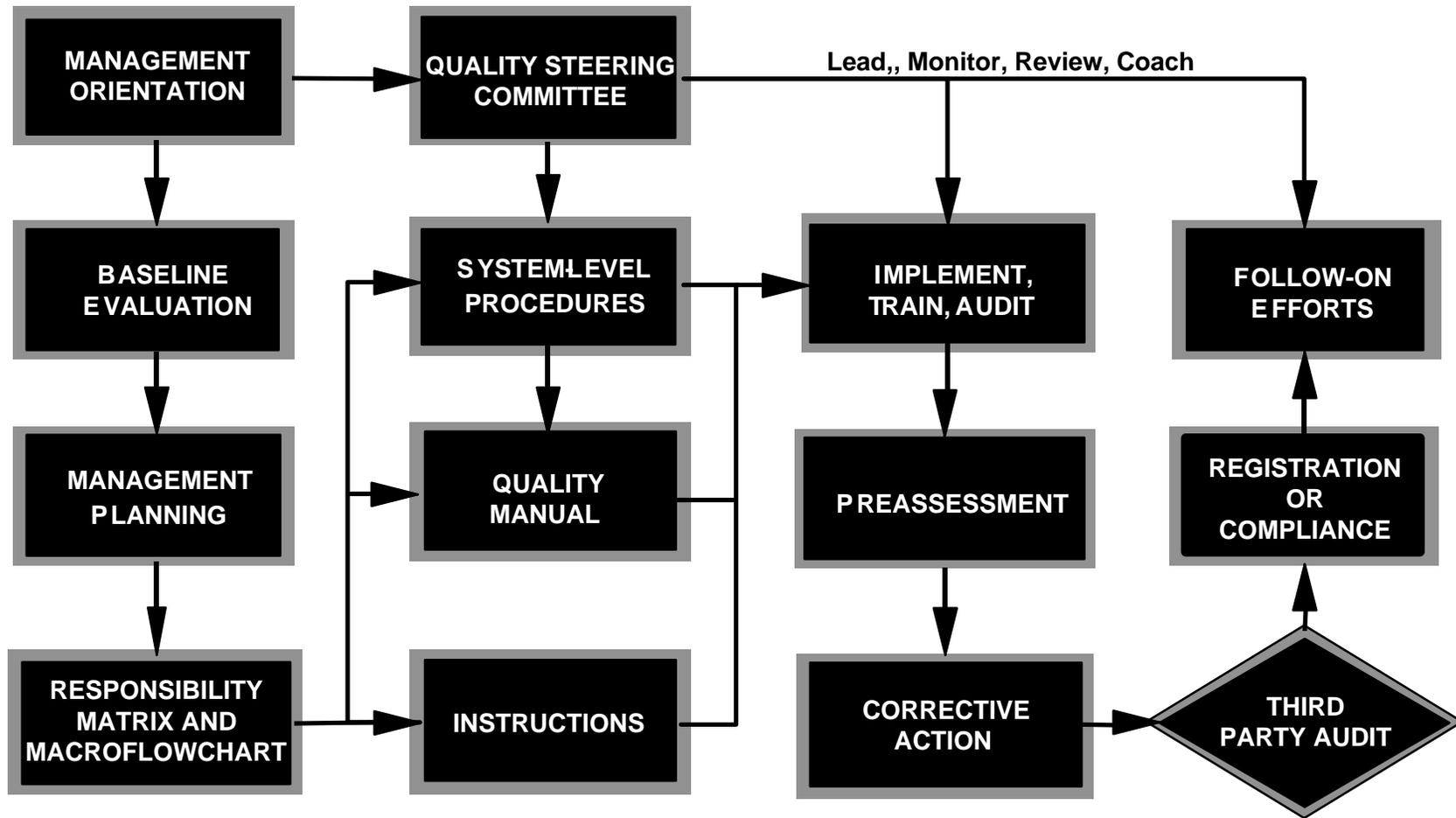
Registration

- **National Quality Assurance (NQA) is the company that MSFC has contracted to be our Registrar**
- **Preassessment Scheduled for Fall of 1997 (Oct-Nov)**
- **Registration Audit Scheduled for February 1998**
- **Typical Audit Questions**
 - ▲ **What is your Quality Policy?**
 - » **What does that mean to you?**
 - » **How does that apply to your job?**
 - ▲ **What is it that you do?**
 - » **What procedure(s) are you using to perform your tasks?**
 - **Where is your procedure for the task you are performing?**
 - **How do you know your procedure is the latest revision?**

Goals

- **Use as many existing procedures as possible**
- **Consolidate duplicative procedures**
 - ▲ **75 existing procedures (related to ISO 9000)**
 - ▲ **Reduce the number of procedures to implement ISO 9000 down to approx. 23 - 25**
- **Goal for Documentation Compliance Jun 1997**
- **Registration by February 1998**

The ISO 9001/9002 Implementation Process



Stay Focused!

