

# CHAPTER 1

## QUALITY MANAGEMENT

### 1.1 QUALITY POLICY

“Quality Assurance: all the planned and systematic activities implemented within the quality system and demonstrated as needed to provide adequate confidence that a product or service will fulfill requirements for quality.”  
ISO 8402

To meet the ambitious quality goals of SGS-THOMSON, a company quality policy has been implemented by top management, with the purpose of defining the course of actions and to state what is going to be done. Our primary goal is to create an environment for continuous improvement of quality, in order to achieve zero defects in our products and services. The improvement rate must be at least a factor of ten every four years.

Our policy is as follows:

- customers' needs and requirements must be met (through a market driven approach to business)
- quality must be designed in and built-in (to be prevention driven instead of correction driven)
- processes must be “capable” ( $C_p > 2$  both for manufacturing and business processes)
- processes must be kept under strict control (using SPC as the basic tool)
- investment for quality improvement must be equal or greater than a defined percentage of sales
- quality systems must meet ISO 9000/ QS 9000 requirements
- managers must be measured on quality results
- training on quality is a basic motivation and improvement tool
- product and process quality are the direct responsibility of all manufacturing personnel
- similarly R&D, Design Engineering and Marketing are responsible for design quality of processes and products
- Quality Assurance contributes with the “accounting”.

Each Group/Division in the company must issue its plans in conformance with corporate policy.

### 1.2 QUALITY PLANNING

“Management systems and styles, operating precedents and technologies must be examined to determine whether they support or inhibit the concept of never-ending improvement in the quality and productivity of every aspect of our business.”

From the Operating Philosophy  
of FORD Motor Company

At SGS-THOMSON, Quality Management is concerned with every area of the business that impacts on the quality commitment we give our customers. Consequently, nearly every aspect of the company is scrutinized for quality implications including the structure of organization, information systems, investments and human resources.

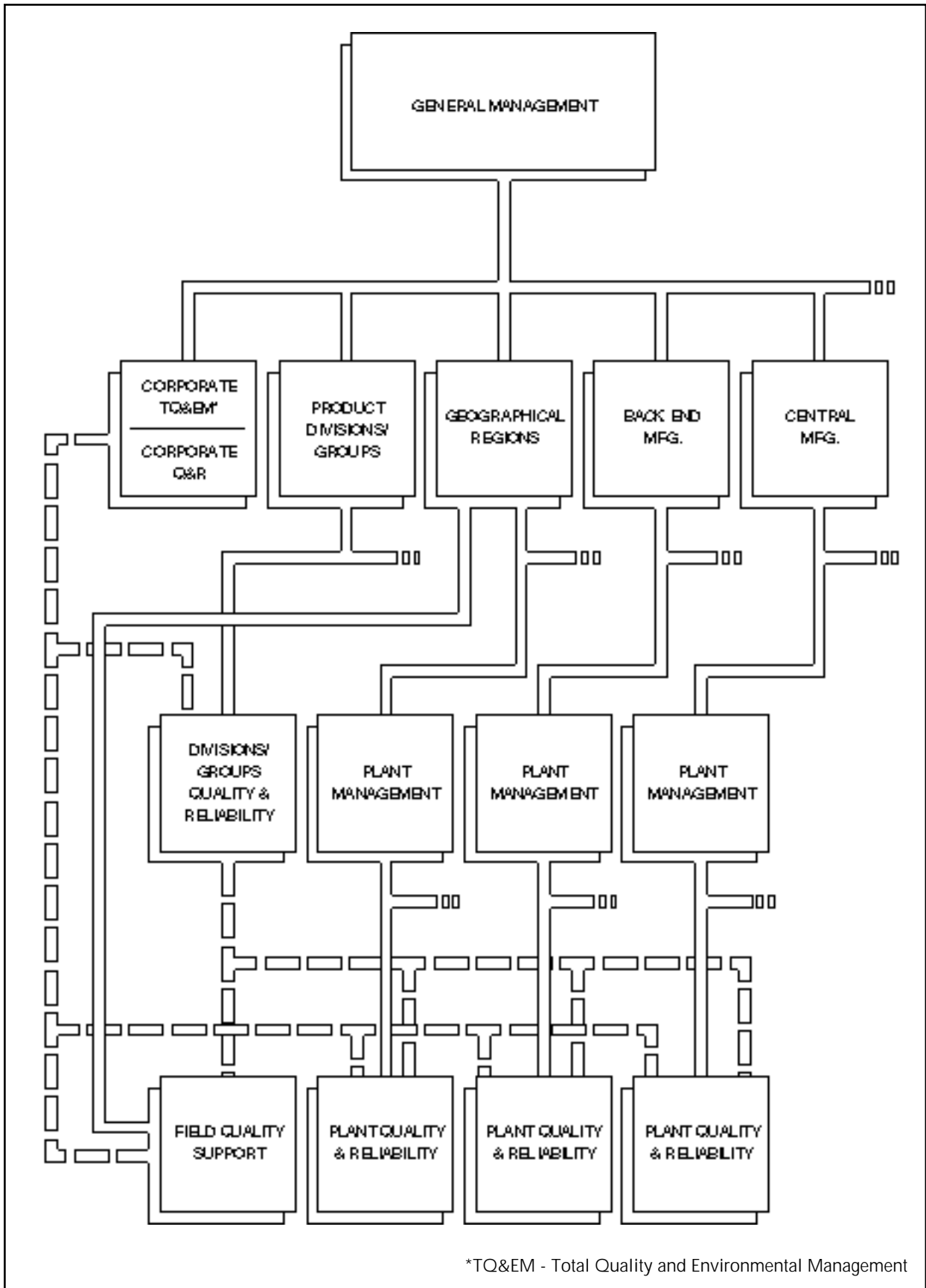
As the importance of built-in quality has increased, the role of Quality Assurance has shifted from primarily results orientation and score keeping, to primarily process orientation and coaching, guiding, training, monitoring. The modern QA Engineer now contributes in areas previously considered non-QA activities such as:

- Failure Modes and Effects Analysis (F M E A)
- Design Of Experiments (D O E)
- Total Productive Maintenance (TPM)
- equipment set-up
- cycle time management
- process improvement
- poka-yoke, etc.

Ignorance of these disciplines disqualifies the QA Engineer or Manager today.

### 1.3 QUALITY ASSURANCE ORGANIZATION

SGS-THOMSON is organized in a matrix structure with product groups/divisions, geographical sales regions and corporate level functions. Within this structure the Quality and Reliability activities are managed and performed at both strategic and operative levels.



SGS-THOMSON quality organization chart and main activities

## 1.4 QUALITY RESPONSIBILITIES

### CORPORATE Q&R

- Manage the company's Quality and Reliability departments oriented to TQM and ISO 9000/QS 9000 concepts.
- Establish quality strategies, targets and Q&R programs for the whole Group.
- Generate and enforcing quality policies and procedures.
- Collect, analyze and disseminate Q&R data from customers and local quality assurance departments. Summarizing the results for top management to emphasize preventive actions required or in progress.
- Coordinate the company-wide program for Statistical Process Control through a steering committee.
- Manage incoming material quality through suppliers' audits, data collection and analysis.
- Assist the Corporate Human Resources Department in quality and excellence training and education programs.
- Audit quality systems of manufacturing/group activities.
- Evaluate customers' general Q&R specifications or contracts in cooperation with divisional Q&R departments.
- Support customers in order to understand their quality needs, requirements and trends.
- Manage the Corporate Document Control System.
- Evaluate Cost of Non Quality (CONQ).

### GROUPS/DIVISIONS Q&R

- Assure the quality and reliability of their products regardless of production location.
- Qualify new materials and new products and certify new processes.
- Create customer satisfaction by directly interfacing with customers from design phase to approval of new products to insure compliance with customers' specifications and needs.
- Test for reliability and collect results necessary to assess process and product reliability.
- Coordinate corrective actions needed to improve Q&R of products and processes as planned in quality budgets, also taking into account Failure Analysis results and customer feedback.
- Assure the quality of purchased material through vendor certification and Ship-To-Stock programs.
- Coordinate and approve the quality specifications for Group/Division's products/processes.
- Self-audit on processes, SPC, specifications and procedures applications.
- Assure a uniform quality approach throughout the company under the direction of Corporate Q&R, and update group quality manuals.

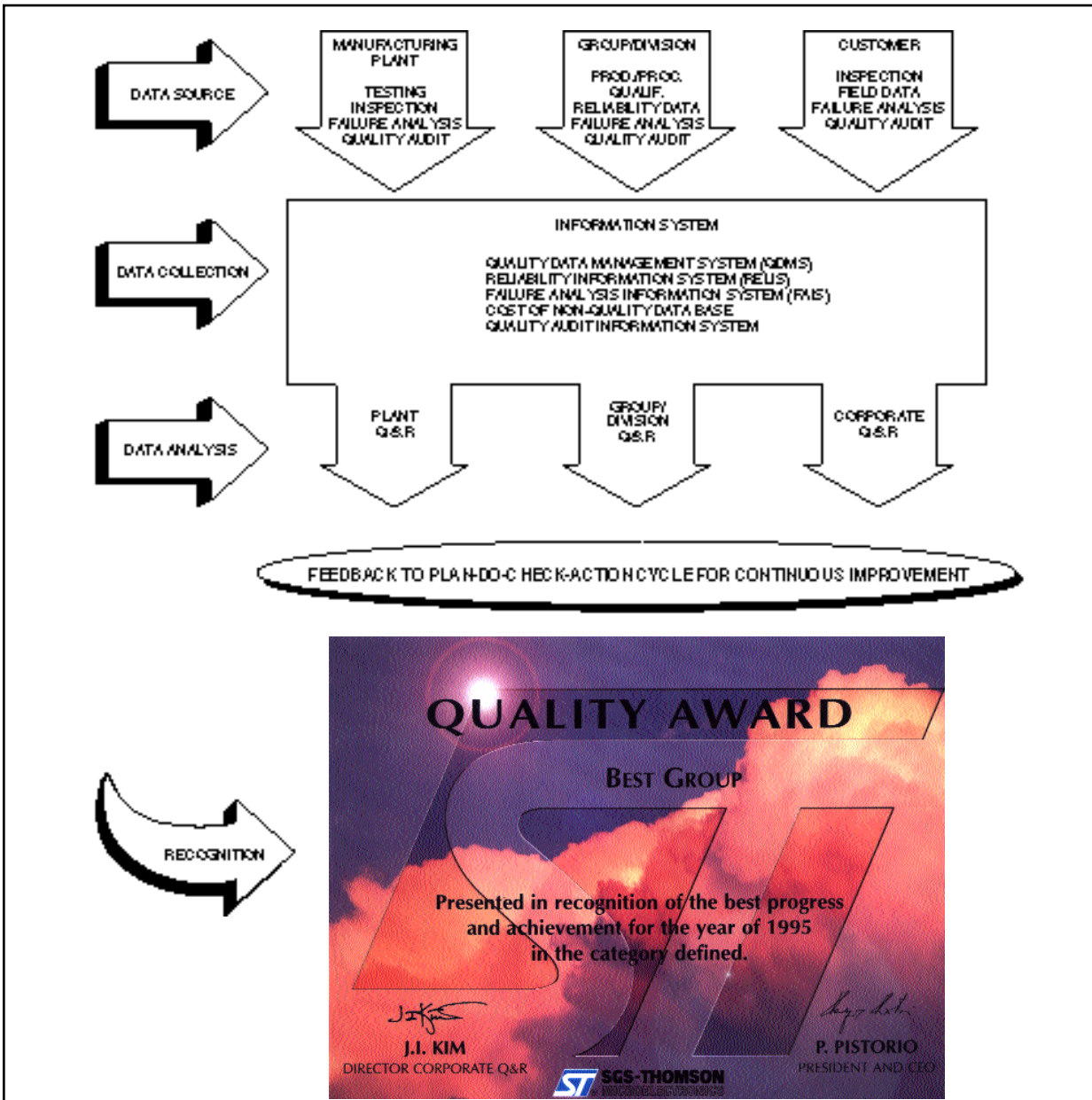
### PLANT Q&R

- Assure the quality and reliability of all manufactured products.
- Regular self-auditing on processes, SPC, specifications and procedures application.
- Achieve Q&R targets and uniform quality approach throughout the company, by maintaining a close liaison with Corporate and Group/Divisional Quality departments.
- Coordinate corrective and preventive actions in the plant, based on the feedback from Quality and Reliability tests, field data and Failure Analysis results.
- Assure that adequate Q&R inspections and controls are performed at the plants including incoming, SPC, outgoing, reliability testing and failure analysis.
- Assure the correct distribution and updating of specifications received through the central document control system and updating the plant quality manual.
- Liaise with the other plants in order to assure common quality approaches.
- Interface with customers for audits, certifications, etc.
- Assure the correct training and certification of all manufacturing personnel.

## 1.5 QUALITY INFORMATION SYSTEM

What once was a simple quality product reporting system is now an integrated, company-wide reporting program comprised

of a vast network of individual programs coordinated under the Quality and Reliability Information Control Program.



Augmenting the Q&R Information Control Programs are many other undertakings to ensure quality improvements:

- meetings with customers to review quality results and trends, promote corrective actions and present new quality goals
- world-wide quality council meetings with group/division Q&R managers
- steering committee meetings on SPC implementation
- world-wide purchased material reports and meetings
- monthly score card measuring group/divisional performance versus target
- yearly Q&R award presented by the CEO to the group and plants with the highest quality performance.

## 1.6 TOTAL QUALITY MANAGEMENT

"TQM is cultural and it is a mandatory way of life for everyone."

P. Pistorio,  
President and CEO

### Overview

TQM is a way of managing all aspects of a business to achieve the best results for the shareholders by providing customer satisfaction and employee motivation at the lowest achievable cost, through the practice of continuous improvement and defect prevention, involving all employees in the corporation.

TQM is a practical way of working and is implemented as part of the day to day managerial process. It is not an addition to the normal management load, but a better way of coping with the load.

TQM is owned and implemented by all line management. It is not delegated.

Top management provides the guidance and leadership, mobilizing all its determination and intelligence to effectively involve every level of the organization in quality management practices.

TQM leadership provides visible hands on commitment and involvement, and must be demonstrated in daily conduct and decisions. Words will not be effective. Actions will be.

TQM is market driven and people oriented. It is dynamic, flexible and innovative. It is systematic and also encourages entrepreneurship.

### Key Principles

SGS-THOMSON has defined five principles and each principle has a subset of four elements.

## THE 5 KEY PRINCIPLES OF OUR TQM INITIATIVE

### MANAGEMENT COMMITMENT

1. PLAN (DRIVE DIRECT)
2. DO (DEPLOY, SUPPORT, PARTICIPATE)
3. CHECK (REVIEW)
4. ACT (RECOGNIZE, COMMUNICATE, REVIEW)

### EMPLOYEE EMPOWERMENT

1. TRAINING
2. SUGGESTION SCHEME
3. MEASUREMENT AND RECOGNITION
4. EXCELLENCE TEAMS

### FACT-BASED DECISION MAKING

1. SPC (STATISTICAL PROCESS CONTROL)
2. DOE (DESIGN OF EXPERIMENT), FMEA (FAILURE MODES AND EFFECT ANALYSIS)
3. THE SEVEN STATISTICAL TOOLS
4. TOPS (FORD 8D - TEAM ORIENTED PROBLEM SOLVING)

### CONTINUOUS IMPROVEMENT

1. SYSTEMATIC MEASUREMENT & FOCUS ON CONQ (COST OF NON QUALITY)
2. EXCELLENCE TEAMS
3. CROSS-FUNCTIONAL PROCESS MANAGEMENT
4. ATTAIN, MAINTAIN, IMPROVE STANDARDS

### CUSTOMER FOCUS

1. SUPPLIER PARTNERSHIP
2. SERVICE RELATIONSHIP WITH INTERNAL CUSTOMERS
3. NEVER COMPROMISE QUALITY
4. CUSTOMER DRIVEN STANDARDS

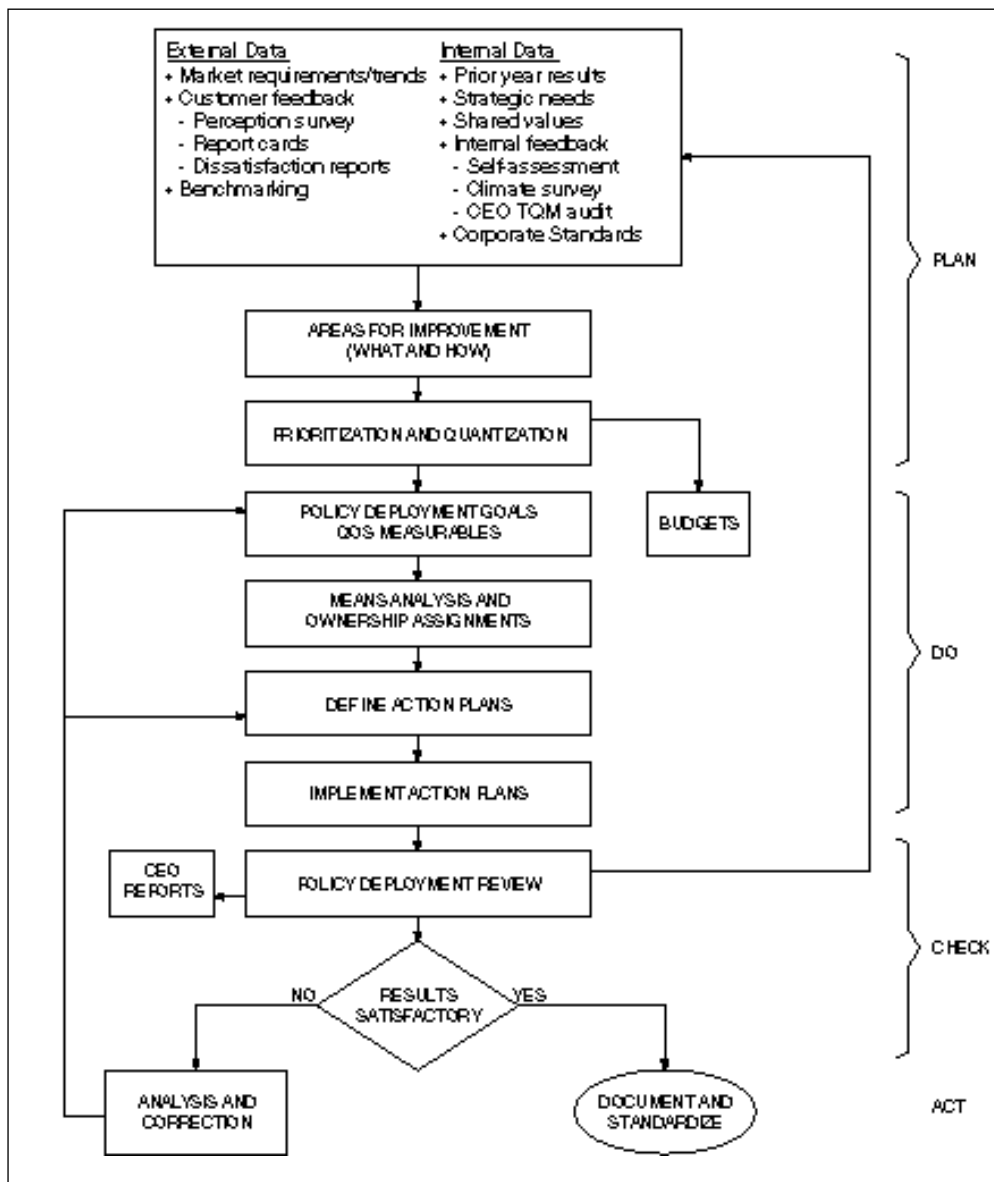
## 1.7 POLICY DEPLOYMENT

In TQM, strategy, philosophy, values and goals must be transmitted down the organization, from level to level in a systematic way, to provide focus, clarity, direction and alignment.

Policy deployment is the process through which goals, and the action plans to achieve them, in support of and consistent with the top level corporate mission, strategic guidelines and objectives are cascaded to all levels of the organization.

Effective policy deployment will:

- ensure that goals and actions are aligned throughout the organizations
- spread vision and priorities to all organization levels
- provide tools for issuing and promoting programs and tactics addressed to excellence goals achievement
- address resources on customer main issues and common cause problems
- improve communications and interactions among all employees and functions as a major supporting mechanism to make employee empowerment effective
- provide a management review process to ensure projects are meeting plans.



Policy deployment flow