D 58

Quality manager

Objective of the module: Master the quality manager function to be able to:
• contribute to the sustainable development of the company
• ensure risk prevention
• make work more attractive for everyone

1 Quality approach

1.1 History

1.1.1 The word quality

Quality comes from the Latin word qualitas, "way of being", itself derived from the adjective qualis, "as it is".

There are many definitions of the word quality. Some examples:

- state, disposition - Aristotle
- property, attribute - René Descartes
- compliance with requirements - Philip Crosby
- anything that can be improved - Masaaki Imai
- fitness for use - Joseph Juran
- ability to satisfy the customer - Kaoru Ishikawa
- degree to which a set of inherent characteristics of an object fulfils requirements, ISO 9000: 2005, § 3.6.2 (in other words: the ability of a product or service to meet needs)
- absence of defects, Joseph Juran
- seeking the satisfaction of all parties involved in a transaction - Yvon Mougin
- level of excellence
- take pride in your work (work well done)
- do it right the first time and all the time
- it is when the customer likes the product and the employee likes to make the product
- it's when the customer comes back and not the product

The Petit Robert alone gives us six different meanings for the word quality.

Our choice:

Quality: *aptitude to fulfill requirements*

Everyone makes quality, like Monsieur Jourdain made prose.

Everyone has a point of view on quality, often personal and interesting.

No one is against quality and in principle everyone accepts that:

Quality is a journey, not a destination

1.1.2 The quality department

True story

In the code of King Hammurabi of Babylon (1730 BC), we find one of the oldest written traces of quality requirements:

- *if an architect builds a house and one of the walls falls, this architect will consolidate this wall at his own expense*
- *if an architect builds a house and the house collapses and the master of the house is killed, that architect is liable to death*

For centuries, quality was intrinsic to all craftsmanship (facilitated by direct contact with the customer).

With the advent of industrialization (mass production) appeared the division of labor (design, production and inspection) and the interchangeability of parts (beginning of standardization).

In 1924, for the first time, a "quality assurance" department was created in the Bell Telephone company to better satisfy the end customer. At that time in this company, people who would become world-renowned thought leaders such as Shewhart, Deming and Juran worked on and developed the "statistical quality control" approach.

In the 1930s, excesses were reached. For example, in the same Bell Telephone company, it was noticed at one point that the inspection staff was more numerous than the workers!

Until the early 1940s, the inspection department (often called "control") had the mission of verifying the conformity of finished products. It was expensive (lots of checks) and not very efficient (defects were discovered at the end of the production cycle).

During the Second World War it was realized that poor quality could be very expensive – a direct link to human lives. Use of inspection at all stages of production began and certain requirements became mandatory (including reception). A finished production with a lot fewer defects was obtained (they were discovered quite early).

The first American military standards for inspection by sampling were put in place.

In 1949, the American Society for Quality Control (ASQC) was created.

The 1960s and 1970s saw the appearance of quality department, continual improvement, prevention, the daily use of statistics in production, the involvement of all personnel and team spirit for quality. Many approaches and various tools emerged (see Chapters 9 and 10 of this module).

The first international standards related to quality (ISO 9000 family) appeared in 1987. We talk about quality assurance, zero defects, prevention, corrective and preventive actions and supplier quality assurance (SQA).

During the 1980s, the quality system encompassed all departments, all activities and all personnel.

To stand out, you have to surprise (pleasantly) the consumer with additional services, innovative and unexpected characteristics.

Since the 2000 version of the ISO 9001 standard, quality assurance has been replaced by quality management, the structure has been simplified and the mandatory procedures have reduced. Customer satisfaction, the process approach, efficiency and continual improvement have become priorities. Service activities have been added to (classical) industrial production.

Slowly but surely the quality department is transforming itself from a compliance expertise department into a cross-functional support department. The control of processes and the effectiveness of the management system are beginning to include new expectations related to efficiency, innovation and sustainable development. We talk less about quality but more

about performance and excellence. Some stages in the history of the quality department are shown in figure 1-1.
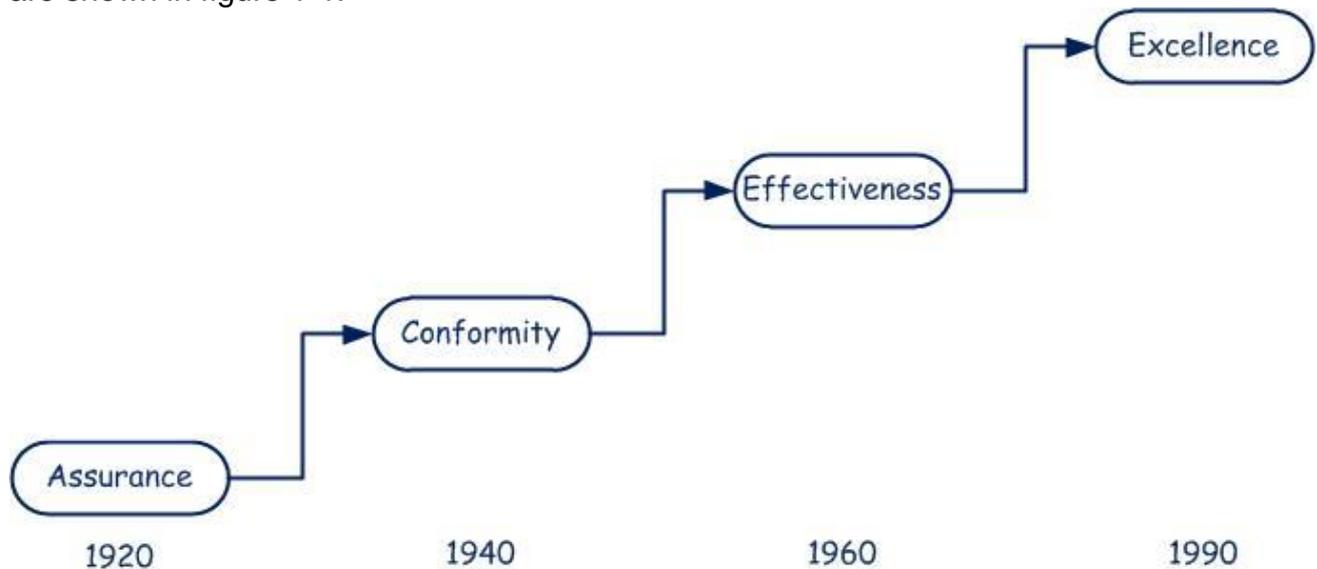

Figure 1-1. History of the quality department

1.2 Principles

1.2.1 Management principles

The quality approach is a state of mind that starts with top management as a priority strategic decision and extends to all staff. Top management defines the quality policy, in which the quality objectives are set and applicable to all activities. The tool used to achieve the objectives is the quality management system. The concept of prevention is generalized.

The purpose of a management system (MS) is to increase customer satisfaction (external and internal) by meeting their needs and expectations by continually improving process efficiency.

Quality costs almost nothing when customers are satisfied: they remain loyal to us. It is only when the customer is not completely satisfied that quality becomes very expensive for us: sooner or later the customer goes to a competitor.

Quality remains long after the price has been forgotten

The seven principles of quality management (see figure 1-2) will help us achieve sustainable performance (see ISO 9001: 2015, § 0.2):
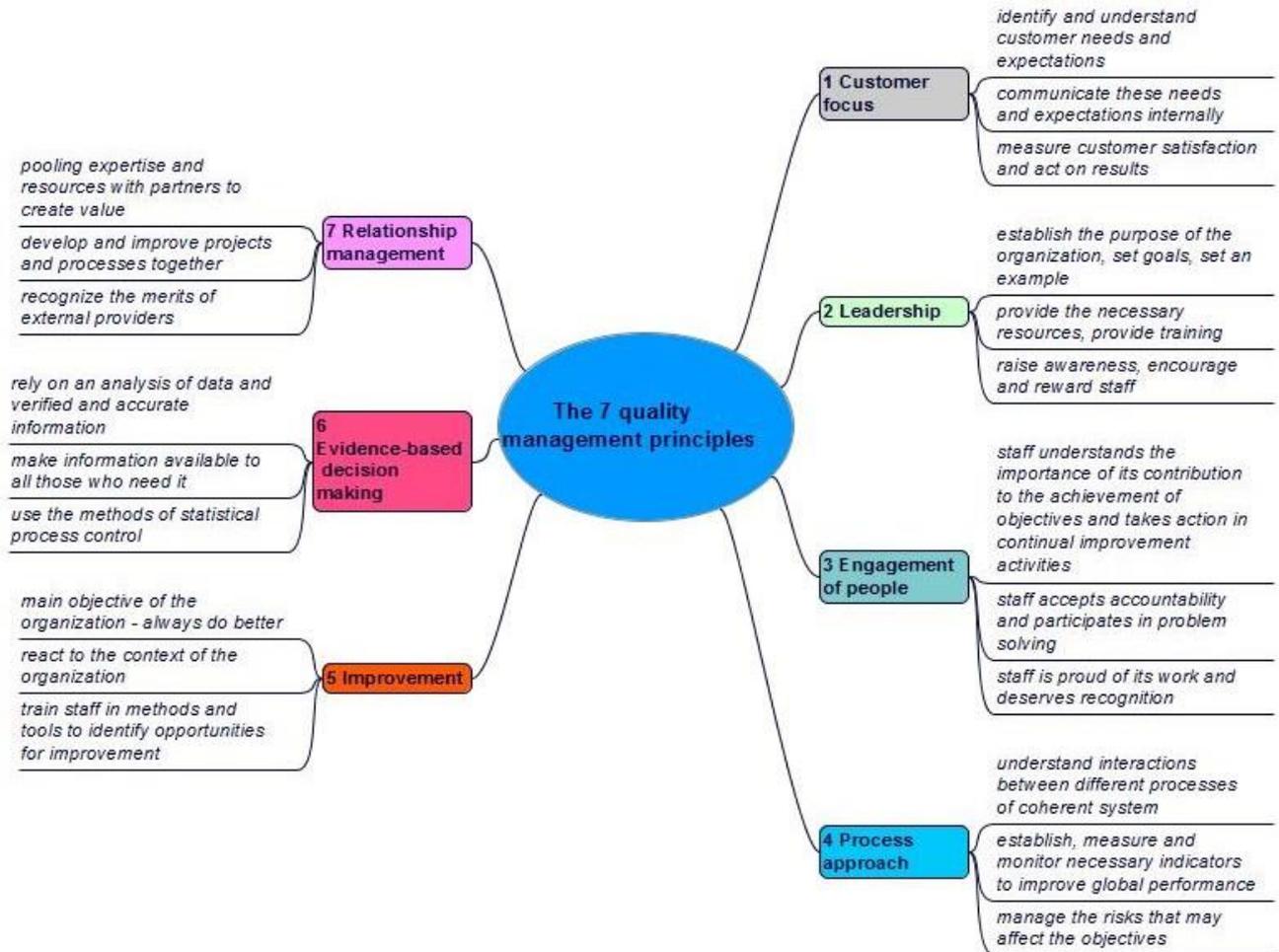
Figure 1-2. The seven principles of quality management

1.2.2 PDCA cycle

The PDCA cycle, also called Deming cycle, applies to the control of any process. PDCA (Plan, Do, Check, Act) cycles are a universal basis for continual improvement (see figure 1-3).
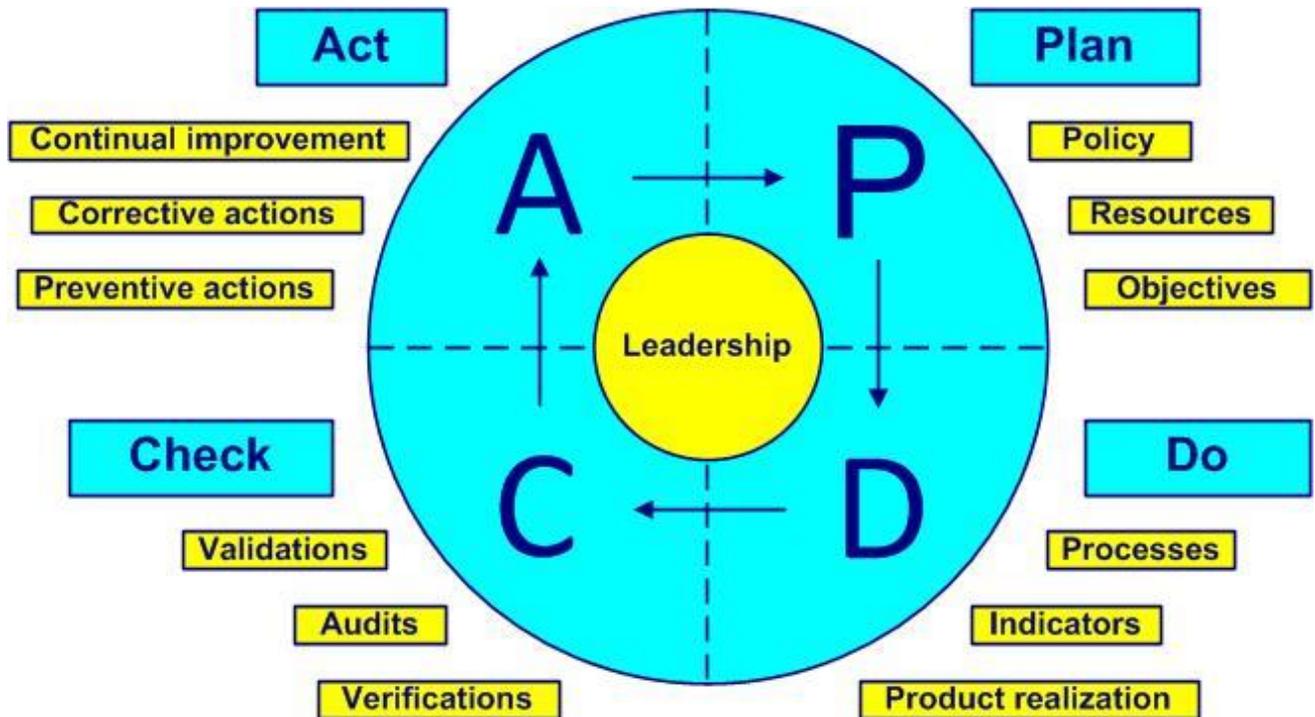
Figure 1-3. Deming cycle

- Plan – define and establish strategy, customers, policy, resources, objectives, documentation, products, processes, training, deadlines
- Do – organize, implement processes, indicators, produce the product
- Check – compare, inspect, analyze data, verify if objectives are met, validate, audit, learn
- Act – improve, react with actions and find new improvements (new PDCA)

1.3 Process approach

If you cannot describe what you are doing as a process, you do not know what you're doing. Edwards Deming

1.3.1 Process types

The word process comes from the Latin root procedere = go, development, progress (Pro = forward, cedere = go). Each process transforms inputs into outputs, creating added value and potential nuisances.

A process has three basic elements: inputs, activities and outputs.

A process can be very complex (launch a rocket) or relatively simple (audit a product). A process is:

- repeatable
- foreseeable
- measurable
- definable
- dependent on its context
- responsible for its external providers

A process is, among other things, determined by its:

- title and its type
- purpose (why?)
- beneficiary (for whom?)
- scope and activities
- initiators
- documents and records
- inputs
- outputs (intentional and unintentional)
- restrains
- people
- material resources
- objectives and indicators
- person in charge (owner) and actors (participants)
- means of inspection (monitoring, measurement)
- mapping
- interaction with other processes
- risks and potential deviations
- opportunities for continual improvement

A process review is carried out periodically by the process owner (cf. annex 01).

The components of a process are shown in figure 1-4:

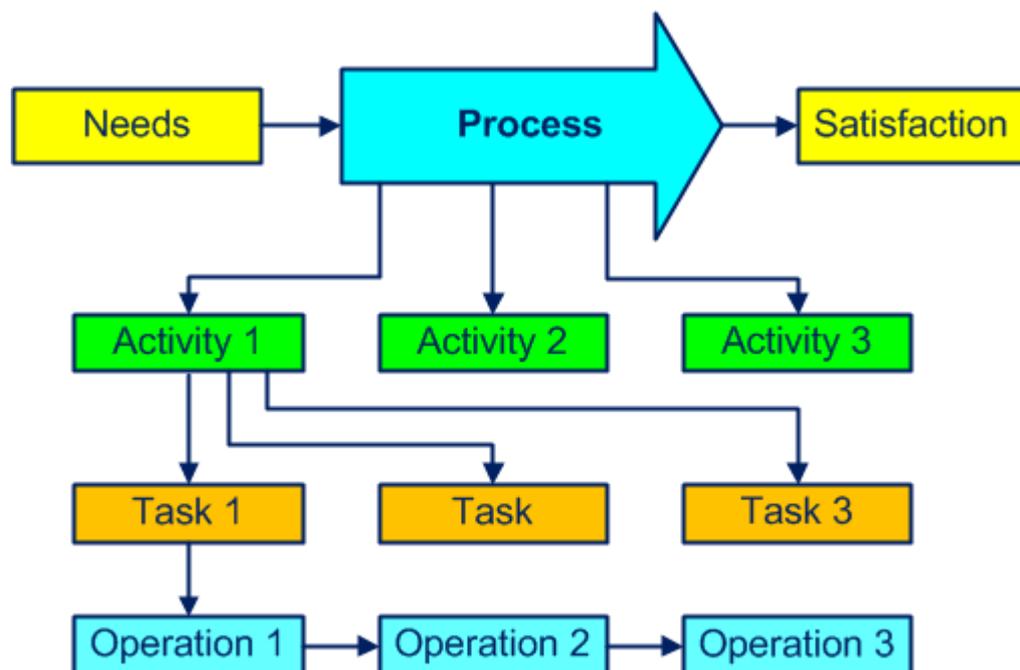*Figure 1-4. Components of a process*

Figure 1-5 shows an example that helps answer the questions:

- which materials, which documents, which tooling? (inputs)
- which title, which activities, requirements, constraints? (process)
- which products, which documents? (outputs)
- how, which inspections? (methods)
- what is the level of performance? (indicators)
- who, with what competence? (staff)

- with what, which machines, which equipment? (material resources)
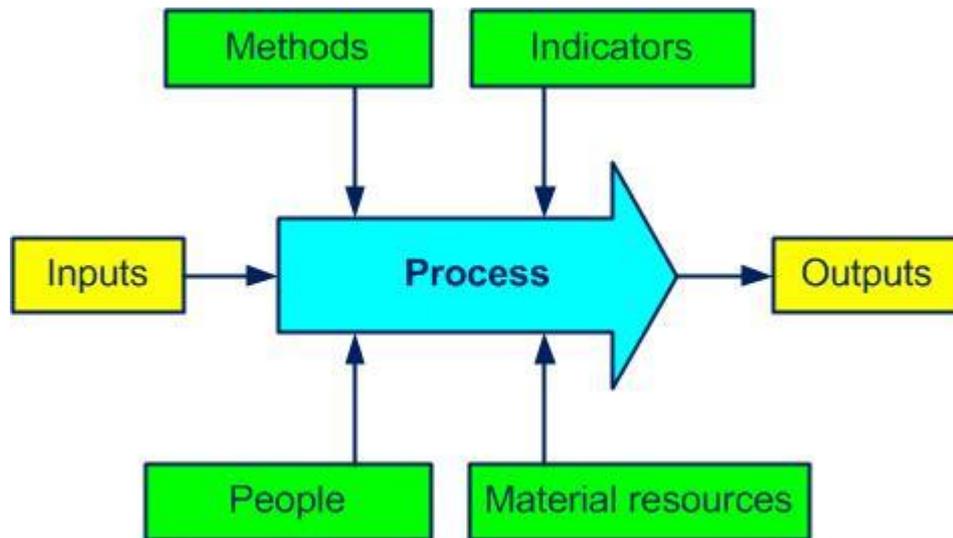
Figure 1-5. Some elements of a process

Often the output of a process is the input of the next process.

You can find some examples of process forms in the document pack <u>D 02</u> and <u>annex 02</u>.

Any organization (company) can be considered as a macro process, with its purpose, its inputs (customer needs and expectations) and its outputs (products/services to satisfy customer requirements).

Our preference is to identify a process using a verb (buy, produce, sell) instead of a noun (purchases, production, sales) to differentiate the process from the company's department or procedure to maintain and recall the purpose of the process.

The processes are (as we will see in the following paragraphs) of management, realization and support types. Do not attach too much importance to process categorizing (sometimes it is very relative) but ensure that all the company's activities at least fall into one process.

1.3.1.1 Management processes

Management processes are also known as piloting, decision, key or major processes. They take part in the overall organization and include development of the policy, deployment of the objectives and all needed checks. They are the glue of all realization and support processes.

The following processes can be part of this family:

- develop strategy
- manage risks
- develop policy
- deploy quality objectives
- establish process ownership
- improve
- audit
- communicate
- plan the QMS

- acquire resources
- carry out management review
- measure customer satisfaction
- negotiate contract
- analyze data

1.3.1.2 Realization processes

The realization (operational) processes are related to the product, increase the added value and contribute directly to customer satisfaction.

They are mainly:

- design and develop new products
- purchase components
- produce products
- sell products
- inspect production
- maintain equipment
- implement traceability (identify and keep history)
- receive, store and deliver
- control nonconformities
- implement preventive and corrective actions

1.3.1.3 Support processes

The support processes provide the resources necessary for the proper functioning of all other processes. They are not directly related to a contribution of the product's added value but are still essential.

The support processes are often:

- control documentation
- provide information
- acquire and maintain infrastructure
- provide training
- manage inspection means
- manage staff
- keep accountability

1.3.2 Process mapping

Par excellence process "mapping" is a multidisciplinary work with the quality manager as the natural owner. This is not a formal requirement of the ISO 9001 standard but is always welcome.

The three types of processes and some interactions are shown in figure 1-6 and annex 02.
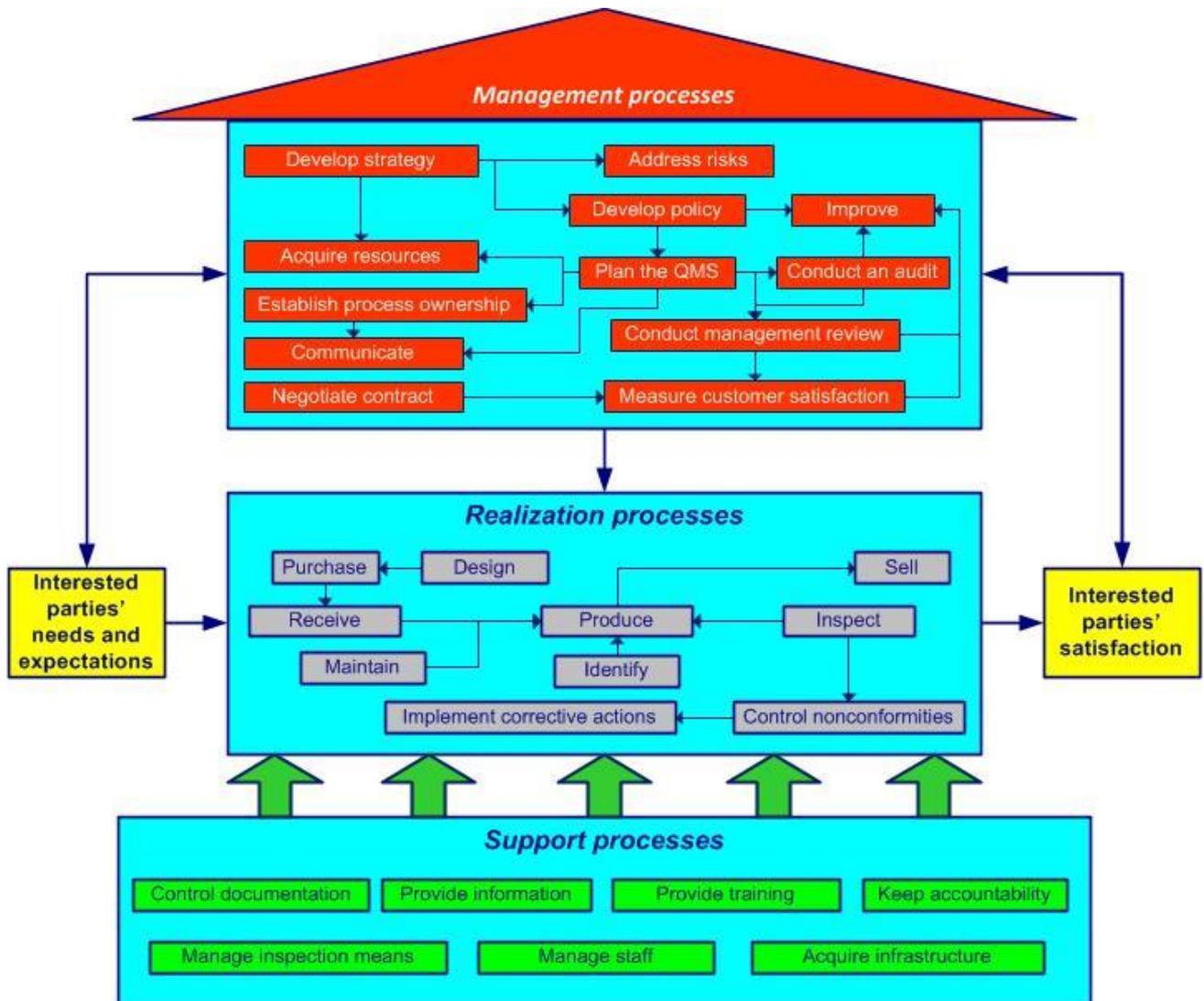
Figure 1-6. Process house

Mapping, among other things, allows you to:

- obtain a global vision of the company
- identify the beneficiaries (customers), flows and interactions
- define (simple) rules for communication between processes

To obtain a clearer picture, you can simplify by using a total of about 15 core processes. A core process can contain several sub-processes: for example, the process "develop the QMS" can involve:

- develop strategy
- manage risks
- develop policy
- plan the QMS
- deploy objectives
- acquire resources
- establish process ownership
- improve

1.3.3 Process approach

Simple solutions for now, perfection for later

The fourth principle of quality management is "Process approach" (see § 1.2.1). Some benefits:

- obtain a global vision of the company thanks to the mapping
- identify and manage responsibilities and resources
- achieve effective management of the company based on process indicators
- manage risks that could influence the objectives

Process approach: *management by the processes to better satisfy customers, improve the effectiveness of all processes and increase global efficiency*

When the process approach is integrated during the development, implementation and continual improvement of a quality management system, it allows one to achieve objectives that are related to customer satisfaction, as is shown in figure 1-7 (cf. ISO 9001, 0.2).
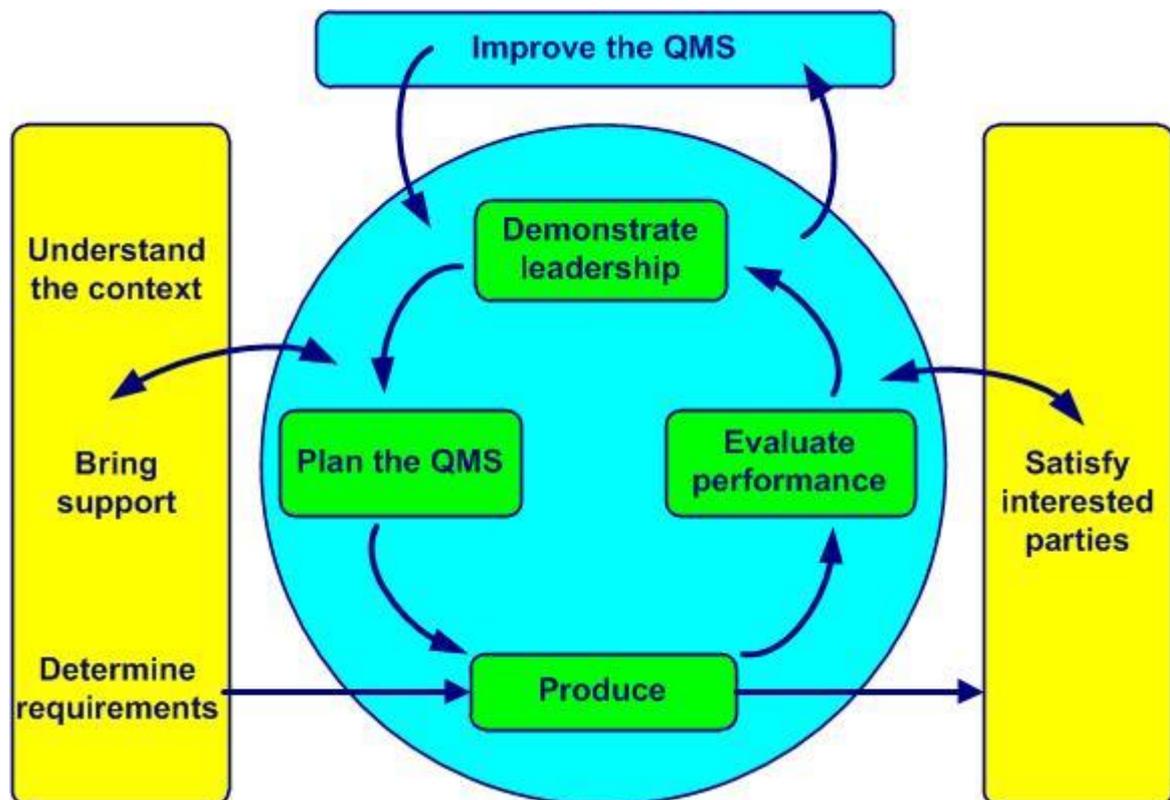
Figure 1-7. Model of a QMS based on the process approach and continual improvement

The process approach (cf. annex 03):

- emphasizes the importance of:
  - o understanding and complying with customer requirements
  - o prevention so as to react to unwanted elements such as:
    - ▪ customer returns
    - ▪ waste
  - o measuring process performance, effectiveness and efficiency
  - o permanently improving objectives based on pertinent measurements
  - o process added value
- relies on:
  - o methodical identification
  - o interactions
  - o the sequence and

- o process management, which consists of:
  - determining objectives and their indicators
  - piloting related activities
  - analyzing obtained results
  - permanently undertaking improvements
- allows one to:
  - o better view inputs and outputs and their relationship
  - o clarify roles and responsibilities
  - o judiciously assign necessary resources
  - o break down barriers between departments
  - o decrease costs, delays and waste
- and ensures in the long run:
  - o control
  - o monitoring and
  - o continual improvement of processes

For a consulting, support or repair business, identifying and defining processes and mapping may not be very useful. More important is to establish and describe for example:

- job descriptions
- staff competence
- the tools to use
- preferred methods for certain recurring cases

The process approach **is not**:

- crisis management ("You will not solve the problems by addressing the effects")
- blaming people ("Poor quality is the result of poor management" - Masaaki Imai)
- prioritizing investments ("Use your brain, not your money" - Taiichi Ohno)

2 Definitions and books

2.1 Definitions

The beginning of wisdom is the definition of terms. Socrates

The word responsible comes from the Latin respondere "to answer for one's actions".

Some authors replace the term quality manager (QM), with more or less success. Some synonyms, of which for the moment none manages to impose itself include:

- quality specialist
- animator
- facilitator
- responsible for non-quality
- administrator
- manager
- decision maker
- coordinator
- agent
- stirrer
- correspondent
- quality director
- management representative (term used in the ISO 9001: 2008 standard)
- quality engineer
- quality delegate
- responsible for continual improvement
- adviser
- consultant
- in charge of mission
- assistant

Of course, neither the quality manager nor the department are solely responsible for quality in a company. Deming says that 94% of the troubles belong to the system for which top management is responsible.

In a company, everyone assumes their responsibilities, but the responsibility for quality begins with top management because, as the Romanian proverb says:

When you sweep the stairs, you start at the top. Romanian proverb

Some definitions and acronyms:

5 M: *Mother nature, Material, Method, Machine and Manpower (or Ishikawa diagram)*
5 P: *five times Why ?*
5 S: *from Japanese Seiri = sort, Seiton = set in order, Seiso = shine, Seiketsu = standardize and Shitsuke = sustain*
Anomaly: *variation compared to what is expected*
AV: *added value*
Conformity: *fulfillment of a specified requirement*
Control plan: *document describing the specific measures to carry out the control of a product or process*
Control: *ensure compliance with the specified criteria*
COQ: *cost of obtaining quality*

Corrective action: *action to eliminate the causes of nonconformity or any other undesirable event and to prevent their recurrence*
Criticality: *level of a potential risk*
Curative action: *action to eliminate a detected nonconformity*
Customer satisfaction: *top priority objective of every quality management system related to the satisfaction of customer requirements*
Customer: *the one who receives a product*
Defect: *nonconformity related to a specified use*
Direction: *group or persons responsible for management at the highest level of the company*
Dysfunction: *deviation in the ability of a functional unit to perform a specified function*
Effectiveness: *capacity to perform planned activities with minimum effort*
Efficiency: *financial relationship between achieved results and resources used*
Fail safe device: *system allowing the prevention of errors by eliminating the human factor*
Failure: *variation of aptitude of a functional unit to satisfy a specified function*
FMEA: *Failure Mode and Effects Analysis*
Gemba: *from Japanese, = real place, in the field*
Indicator: *value of a parameter, associated with an objective, allowing the objective measure of its effectiveness*
Interested party: *person, group or organization affected by the impacts from a company*
ISO: *international organization for standardization*
Kaizen: *from Japanese, kai = change et zen = good (for the better, better), Kaizen = continual improvement*
Management system: *set of processes allowing objectives to be achieved*
Manager: *someone who gets results through other people*
Muda: *from Japanese, waste*
Mura: *from Japanese, irregularity*
Muri: *from Japanese, difficulty*
Nonconformity (NC): *non-fulfillment of a specified requirement*
Non-quality: *gap between expected and perceived quality*
Organization: *a structure that satisfies a need*
Poka-Yoké: *from Japanese Poka – unintentional error, Yoké – avoid. See Fail safe device*
Preventive action: *action to eliminate the potential causes of nonconformity or any other undesirable event and to prevent their appearance*
Problem: *gap that must be reduced to obtain a result*
Process: *activities that transform input into output*
Product (or service): *any result of a process or activity*
QCDSE: *Quality, Cost, Deadline, Safety, Environment*
QM: *quality manager*
QMS: *quality management system*
Quality management system (QMS): *everything necessary for the quality management of a company*
Quality management: *activities allowing the control of an organization with regard to quality*
Quality objective: *quality related, measurable goal that must be achieved*
Quality policy: *statement by top management allowing the establishment of quality objectives*
Requirement: *implicit or explicit need or expectation*
Risk: *likelihood of occurrence of a threat or an opportunity*
Safety: *aptitude to avoid an undesired event*
Scrap: *treatment of an unrecoverable product*
SMED: *Single Minute Exchange of Die*
SPC: *Statistical Process Control*
Stakeholder: *person, group or company that can affect or be affected by an organization*

Supplier: *the one who provides a product*
System: *set of interacting processes*
TQC: *Total Quality Control*
Waste: *anything that adds cost but not value*
WWWWHHW: *Who, What, Where, When, How, How much, Why*

In the terminology of quality management systems, do not confuse:

- accident and incident
    - an accident is an unexpected serious event
    - an incident is an event that can lead to an accident
- anomaly, defect, dysfunction, failure, nonconformity, reject and waste:
    - an anomaly is a deviation from what is expected
    - a defect is the non-fulfillment of a requirement related to an intended use
    - a dysfunction is a degraded function that can lead to a failure
    - a failure is when a function has become unfit
    - a nonconformity is the non-fulfillment of a requirement in production
    - a reject is a nonconforming product that will be destroyed
    - a waste is when there are added costs but no value
- audit program and plan
    - an audit program is the annual planning of the audits
    - an audit plan is the description of the audit activities
- audit, inspection, auditee and auditor
    - an audit is the process of obtaining audit evidence
    - an inspection is the conformity verification of a process or product
    - an auditee is the one who is audited
    - an auditor is the one who conducts the audit
- control and optimize
    - to control is to meet the objectives
    - to optimize is to search for the best possible results
- customer, external provider and subcontractor
    - a customer receives a product
    - an external provider provides a product on which specific work is done
    - a subcontractor provides a service or product on which specific work is done
- effectiveness and efficiency
    - effectiveness is the level of achievement of planned results
    - efficiency is the ratio between results and resources
- follow-up and review
    - follow-up is the verification of the obtained results of an action
    - review is the analysis of the effectiveness in achieving objectives
- inform and communicate
    - to inform is to give someone meaningful data
    - to communicate is to pass on a message, to listen to the reaction and discuss
- objective and indicator
    - an objective is a sought after commitment
    - an indicator is the information on the difference between the pre-set objective and the achieved result
- organization and enterprise, society, company
    - organization is the term used by the ISO 9001 standard as the entity between the supplier and the customer
    - an enterprise, society and company are examples of organizations
- process, procedure, product, activity and task
    - a process is how we satisfy the customer using people to achieve the objectives

- o a procedure is the description of how we should conform to the rules
- o a product is the result of a process
- o an activity is a set of tasks
- o a task is a sequence of simple operations

Remark 1: the use of ISO 9000 definitions is recommended. The most important thing is to determine a common and unequivocal vocabulary for everyone in the company.

Remark 2: the customer can also be the user, the beneficiary, the trigger, the ordering party or the consumer.

Remark 3: documented information is any information that we must maintain (procedure) or retain (record).

Remark 4: each time you use the expression "opportunity for improvement" instead of nonconformity, malfunction or failure, you will gain a little more trust from your interlocutor (external or internal customer).

For other definitions, comments, explanations and interpretations that you don't find in this module and in annex 06, you can consult:

- • ISO Online Browsing platform (OBP)
- • IEC Electropedia
- • ISO 9000: 2015 - Quality management systems. Fundamentals and vocabulary, (ISO, 2015)

2.2 Books and standards

When I think of all the books still left for me to read, I am certain of further happiness. Jules Renard

Books for further reading on quality:

- • Armand V. Feigenbaum, Total Quality Control, McGraw-Hill, 1951

- • Kaoru Ishikawa, Guide to Quality Control, APO, 1971

- • Philip B. Crosby, Quality is Free; the Art of Making Quality Certain, McGraw-Hill, 1979

- • Kaoru Ishikawa, What is Total Quality Control, The Japanese Way, Prentice-Hall, 1981

- Charles Kepner, Benjamin Tregoe, The New Rational Manager, Princeton Research Press, 1981

- Edwards Deming, Out of the Crisis, MIT Press, 1982

- Kenneth Blanchard, Spencer Johnson, The One Minute Manager ; The Quickest Way to Increase Your Own Prosperity, Berkley Books, 1982

- Masaaki Imai, KAIZEN, The Key to Japan's Competitive Success, McGraw-Hill, 1986

- James H. Harrington, Poor-Quality Cost, Dekker, 1987

- Taiichi Ohno, Toyota Production System: Beyond Large-Scale Production, Productivity Press, 1988

- Stephen Covey, The Seven Habits of Effective People, Franklin Covey Co, 1989

- Peter Senge, The Fifth Discipline, The Art & Practice of The Learning Organization, Doubleday 1990

- Edwards Deming, The New Economics, MIT Press 1993

- Masaaki Imai, GEMBA KAIZEN, A Commonsense Low-Cost Approach to management, McGraw-Hill, 1997

- Peter Scholtes, The Leader's Handbook, McGraw-Hill, 1997

- Jeffrey Liker, The Toyota Way, McGraw Hill, 2004

- Nancy Tague, The Quality Toolbox, ASQ Quality Press, 2005

- Larry Webber, Michael Wallace, Quality Control for Dummies, Wiley, 2007
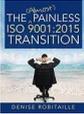
- Denise Robitaille, The (Almost) Painless ISO 9001:2015 Transition, Paton Professional, 2015

- Jan Gillet, Implementing Iso 9001:2015: Thrill your customers and transform your cost base with the new gold standard for business management, Infinite Ideas, 2015

- Charles Cianfrani, John West, ISO 9001:2015 Explained, ASQ Quality Press, 2015

- Craig Cochran, ISO 9001:2015 in Plain English, Paton Professional, 2015

- Denise Robitaille, ISO 9001:2015 Handbook for Small and Medium-Sized Businesses, Quality Press, 2016

- Jeremy Hazel, José Dominguez, Jim Collins, Memory Jogger ISO 9001:2015: What Is It? How Do I Do It? Tools and Techniques to Achieve It, Goal/QPC, 2016

- Alka Jarvis, Paul Palmes, ISO 9001: 2015: Understand, Implement, Succeed!, Prentice hall, 2016

- Ray Tricker, ISO 9001:2015 for Small Businesses, Routledge, 2016

- Christopher Paris, Surviving ISO 9001: 2015, Oxebridge Quality Press, 2016

- Team, Quality Manager A Complete Guide - 2021 Edition, The Art of Service - Quality Manager Publishing, 2020

- Massimiliano Mazzei, Being a Quality Manager: Quality Manager's Notebook, Independently published, 2023

The ISO 9000 family of standards includes three essential booklets:

- ISO 9000 (2015): Quality management systems – Fundamentals and vocabulary
- ISO 9001 (2015): Quality management systems – Requirements
- ISO 9004 (2018): Guidelines for achieving sustained success

A standard added in 2002 and revised in 2018 is:

- ISO 19011: Guidelines for auditing management systems

The standards in the ISO 10001 to ISO 10019 series are guidelines for quality management systems and will help you find many answers (see ISO 9004: 2018, Bibliography).

Standards related to risks:

- ISO 31000: 2018, Risk management – Guidelines
- ISO 31010: 2009, Risk management – Risk assessment techniques
- ISO Guide 73: 2009, Risk management - Vocabulary

FMEA document:

- AIAG & VDA FMEA Handbook, AIAG, 2019

For automobiles:

- IATF 16949 - Quality management system requirements for automotive production and relevant service parts organizations, IATF, 2016

Other standards related to the quality approach:

- CEI 60812: Failure modes and effects analysis (FMEA and FMECA), IEC, 2018
- PAS 99: Specification of common management system requirements as a framework for integration, BSI, 2012
- The EFQM model, EFQM 2019

None of these standards are mandatory, but as Deming said:

It is not necessary to change. Survival is not mandatory

3 Function

3.1 Mission

A vision without action is a dream. Action without vision is a nightmare. Japanese proverb

If the vision is what we want to create, the vision of top management and staff must be shared.

True story

The story of the three stonecutters conveys a great deal. When asked about their work:

- *the first replied that he is cutting stones for a living*
- *the second that he tries to be the best stonemason in the country*
- *while the third answered that he is building a cathedral*

Hence the three main types of relationship to work:

- *livelihood*
- *career*
- *vocation*

Quality manager: *leader in the journey to excellence*

The main mission of the quality manager is to contribute to the sustainable development of the company. For this the quality manager is not a technical expert but masters, maintains and improves the quality management system. The quality manager actively supports:

- the realization of a remarkable system
- obtaining results of excellence

This fundamental goal must be achieved through ordinary efforts by ordinary people.

The quality manager must also anticipate and lead change (see § 8.4).

Priority areas:

- support staff to do their job well
- analyze the level of conformity of the outgoing product to:
  - customer requirements
  - regulations
- optimize and simplify the management system
- explain the benefits of the management system
- evaluate the means put in place and the results obtained
- monitor the perception of customer satisfaction
- compare yourself to the competition

A few ways to fulfill your mission:

- create conditions in which staff:
  - participates and gets involved in the life of the company

- o is in direct contact with the customer
- o deploys their talents
- o enjoys working
- o is proud of their results
- o knows that their efforts will be recognized and rewarded
- train and guide all staff in good practices
- manage risks (essential process) to make the right decisions at the right time (see § 7.4)
- promote sharing of ideas
- show and praise the contribution of each to the purpose of the company
- anticipate the future
- ask yourself the question before each activity and decision: will this help to improve overall performance?

As "no one is supposed to ignore the law", no one is supposed to ignore the standard in a certified company. In the company, the quality manager is the person who translates the requirements of the standard into simple terms.

To justify their function (and that of their department) the quality manager must also speak the language of top management: money.

By carrying out FMEAs upstream, which we will see in § 9.1, the quality manager can easily explain how many losses are avoided by:

- designing right the first time and
- making it right the first time, all the time

By training all staff to make small, common-sense improvements on a daily basis, the quality manager will help ensure that objectives are met. The contribution of the Kaizen philosophy (see § 9.2) to the development of staff at work is decisive.

By setting up the COQ approach (costs of obtaining quality), which we will see in § 9.3, the quality manager can easily demonstrate how much conformity and nonconformity cost and above all quantify the reduction in real costs or profits made.

By hunting down waste, the quality manager can easily quantify how much the waste that the Lean approach has helped to eliminate would have cost (see § 9.4).

3.2 Position

It is not the employer who pays wages, it is the customer. Henry Ford

The quality manager constantly seeks (and often achieves) a reasonable balance between their position and that of the customer (see figure 3-1):
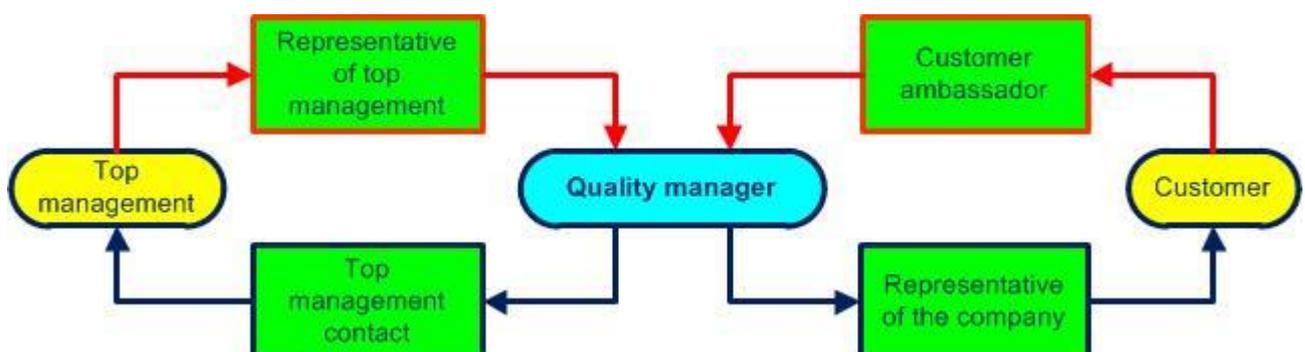
Figure 3-1. Position of the quality manager

It's no coincidence that the term "customer-king" is sometimes replaced by "customer-boss".

The quality manager is always and at the same time:

- top management's representative within the company
- top management's privileged contact
- customer's ambassador within the company
- company's representative to the customer

This position, of always preserving the balance (reaching an acceptable compromise) between the (often contradictory) expectations and needs of all stakeholders, is at the heart of the quality manager's job. Let's not forget that for our supplier we are their customer, and for the customer we are their supplier.

Examples of stakeholders:

- customers, consumers
- employees
- environment
- shareholders, investors
- suppliers, subcontractors, partners
- industry organizations and associations
- legal and regulatory authorities

When choosing between the interests of the customer and those of the company is difficult, do not hesitate to ask top management to have the last word.

As the customer's ambassador in the company, the quality manager imports the customer's requirements into each department. The quality manager constantly monitors their application and compliance.

A proof of the deep commitment of top management for the continual improvement of the performance of the company is the participation of the quality manager in the management committee.

The job of quality manager is exciting because their interlocutors are many and varied:

- top management
- executives
- heads of departments
- process owners
- customers
- suppliers
- auditors from certification bodies and
- other stakeholders

The communication of the quality manager (cf. paragraph 8.1) with all these people is:

- regular (often daily)
- bilateral (in both directions)
- direct (as few intermediaries as possible) and
- priority (privileged interlocutor)

The quality manager is also an internal balancing act because this role is in the middle of the company's pyramids, cf. figure 3-2:
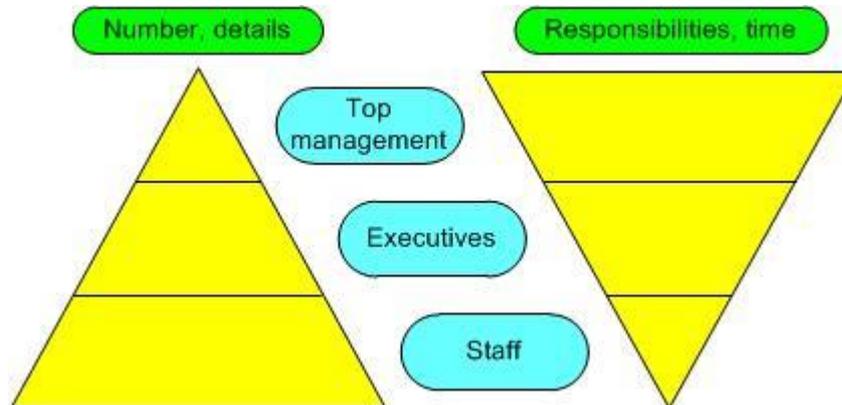

Figure 3-2. Company pyramids

To the hierarchical pyramid (on the left) representing the number of people and the level of detail corresponds an inverted pyramid, showing the responsibilities and the relationship to time.

The quality manager is always between top management (who are not concerned with the details but who have great responsibilities and a distant view of time) and the staff (who are overwhelmed with details and have a fairly short time horizon).

The function of quality manager is transversal: the quality manager is present in all departments to support them in the quality process. But it's up to the process owners to:

- manage the documentation
- establish and monitor the indicators
- hunt for waste (activities without added value)
- lead process reviews
- optimize opportunities for improvement

The quality manager must translate certain notions (concerns and problems) to top management (who must have their last word) but also to staff (such as strategy, long-term project) so that motivation is there.

It would be a waste of time to use management phrases like "improved working capital" on the shop floor. It is better to explain that a customer may not return due to problems with our products or that any waste is expensive and it is blessed bread for competitors.

> *True story*

A team leader explains to the quality manager that we quickly need at least three new multimeters in the workshop so that the verification activities can be done in parallel (thus saving time).

The purchase validation procedure being what it is (four signatures), the young quality manager decides to go directly to see the director and asks him to sign an exceptional purchase authorization.

The director refuses and tells him that this is not the right method. He is the director for making decisions, managing conflicts, negotiating consensus and not for solving everyday problems.

The director explains to the quality manager that he should submit to him either the validation of a simplified purchasing procedure or a decision to allocate an annual sum to each team leader for this type of tool.

Maintaining the delicate balance at all times to satisfy everyone (the customer, the staff, top management) is an exercise that sometimes requires virtuoso qualities on the part of the quality manager, but often simple common sense is enough.

Minute of relaxation. Cf. joke "Golden contract"

3.3 Role and responsibilities

3.3.1 Role

The quality manager prepares, implements, maintains and improves the quality culture in the company on a daily basis. The quality manager is more:

- conductor and not one-person-orchestra
- mentor and not administrator
- advisor and not leader
- project manager and non-expert
- coach and non-manager
- guide and not director
- consultant and not boss
- inspiration and not master

The quality manager demonstrates, explains and teaches the use of quality approaches and tools. Sometimes the quality manager gets personally involved but does not forget that:

When a man is hungry, it is better to teach him to fish than to give him a fish. Lao Tzu

Sometimes the quality manager has to put out the fire, but the role is precisely to do everything to avoid the role of the firefighter because:

Prevention always costs less

The traditional role of a quality manager is to:

- help meet the needs and expectations of customers (see the first principle of quality management, § 1.2.1)
- prepare the implementation of the QMS
- ensure that quality is not seen as a burden but as an advantage
- coordinate QMS maintenance and improvement activities

- show the link between improvement and result obtained
- translate the requirements of the standards into the language of the company
- ensure regulatory monitoring (legal watch)
- control risk prevention
- coordinate and facilitate the application of quality approaches and tools
- contribute to the success of continual training
- make working conditions more attractive

Some believe that the quality manager must also translate the customer's requirements into internal requirements. The quality manager can and even must help the project manager in this activity, but it must remain within reasonable limits, it's like believing that the quality manager must write all the procedures of the company!

3.3.2 Responsibilities

The quality manager has obligations (responsibilities) and rights (authorities), cf. annex 04. As the name of the function indicates, above all, the quality manager has responsibilities that are fully assumed.

Example of a list of obligations of a quality manager:

- support top management for the establishment of the quality policy
- regularly ensure that the QMS is established, implemented, maintained and its effectiveness improved
- assist process owners in the analysis of indicators
- coordinate with the production and development teams:
    - o delivery of finished products
    - o process review
    - o the industrialization of new products
- manage risks upstream, exercise a risk alert role with top management
- continually improve the effectiveness of the QMS and regularly report the level reached to top management
- know how to adapt to changing customer requirements
- analyze customer complaints and participate in the implementation and monitoring of corrective and preventive actions
- ensure the achievement of quality objectives
- manage, improve and distribute the quality documentation system (including the manual, process forms, procedures, work instructions and job descriptions)
- keep the applicable regulatory texts up-to-date
- monitor the entire metrological fleet
- coordinate all continual improvement activities (including staff awareness of the quality approach)
- prepare and animate the management review
- plan and monitor audit activities:
    - o internal
    - o of suppliers
    - o of subcontractors
- analyze trends in customer perception (satisfaction surveys)
- represent the company for external QMS audits
- propose and monitor the training program
- master the reception inspections, in line, of the finished products
- regularly monitor quality indicators and other information on dashboards
- promote good practices and encourage the successes achieved
- take measures to analyze the failures and eradicate the causes

- communicate in time the information in its knowledge with the other departments

Example of a list of rights of a quality manager:

- give the green light for the launch of a new product
- stop production, block a delivery and withdraw from the market products that have shown a defect
- after risk analysis authorize derogations in agreement with the customer
- request and receive the necessary information of any activity
- stop using obsolete or non-compliant documents
- participate in management committee meetings
- coordinate the administrative management of the personnel of the department
- increase their qualification in accordance with the company's training program

4 Competence

4.1 General

The competence of the quality manager is the result of various factors. Figure 4-1 shows the Acquire competence process of the quality manager.
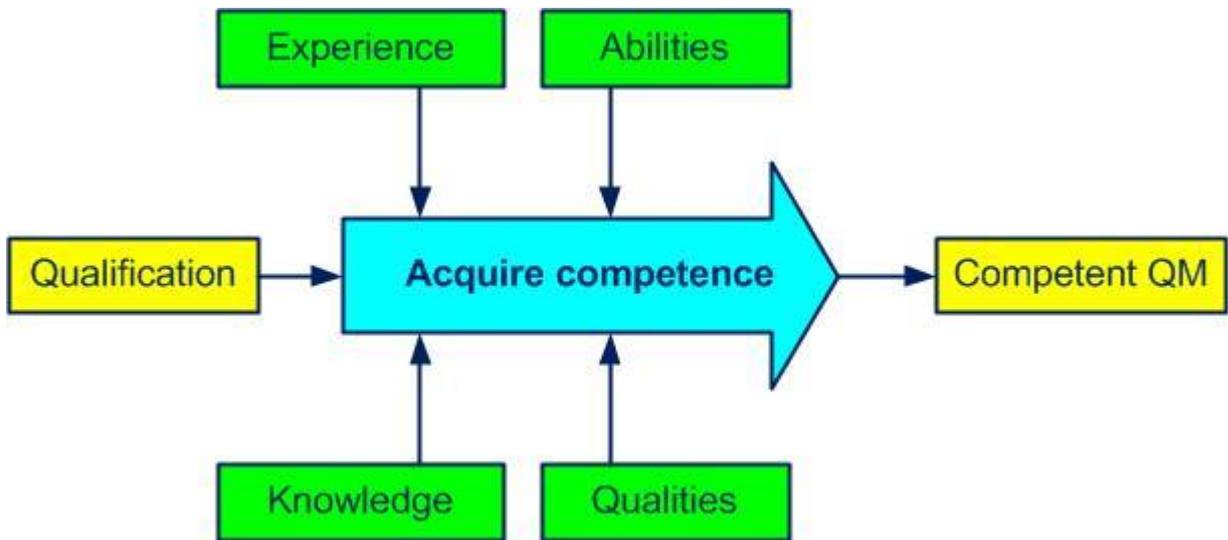

Figure 4-1. The acquire competence process of the quality manager

Competence: *personal skills, knowledge and experiences*

The competence of the quality manager is constantly improved thanks to:

- individual learning
- continual training and
- professional experience in the field

Imagination is more important than knowledge. Albert Einstein

Areas of expertise in which the quality manager excels:

- think system (understand the difference between a system and elements such as structure, policy, process)
- always consider all stakeholders
- pass on knowledge
- communicate clearly on:
  - the vision
  - the strategy
  - policy and
  - the objectives
- distinguish:
  - a common cause (inherent to the system as a defect, error, waste) of a special cause of variation (as a statistical measurement outside the limits, malfunction of a machine). This allows them to:
    - see the trends where there really are
    - attribute a priori the problems to the system and not to the individuals
    - identify opportunities for system improvement

- o the opinion from the fact
- o the modification from the improvement (the improvement is a modification at a higher level)
- o motivating factors from demotivating factors
- o customer's implicit expectations from explicit ones

4.2 Qualification

The quality manager has completed higher education (three to six years Bachelor's degree).

Now we can rejoice over the embarrassment choices for many diplomas (bachelor, master) that integrate quality delivered by a large number of universities or engineering and business schools.

4.3 Experience

The quality manager knows how to adapt to any environment. The quality manager aspires to entrance their close entourage. For this the quality manager will learn and assimilate very quickly, thanks to a successful experience in the field, the data specific to the company:

- • general organization
- • strategy (major projects)
- • the creation and history of the company
- • corporate culture (values, habits, practices, language)
- • the processes and their interactions (the trades)
- • products
- • the economic sector (competitors)
- • customers, suppliers, partners and other stakeholders
- • production flows
- • the technologies and materials used
- • the results achieved and the short and long term objectives
- • the documentary system
- • computer tools

True story

Following a serious problem, the director himself goes to the customer.

On the spot, he explains that everything will be done to resolve the situation. He's sorry for what happened. That it won't happen again.

When asked what the root cause of the problem is and what action plan is being considered his response is, "Oh, you know, I don't go into that kind of detail, but I promise you this will all be resolved very soon."

The market was lost.

Going, seeing and understanding in the field and always checking the facts yourself is not a wish, it is a prerequisite for any sustainable business.

4.4 Knowledge

There is no substitute for knowledge. Edwards Deming

The quality manager has solid knowledge in the following areas:

- management system (QSE, integrated and others)
- standards concerning management systems
- certification principles
- quality tools
- applicable legal and regulatory requirements
- computer science
- foreign languages. This is always a plus
- quality terminology

4.5 Abilities

The leader is the one who climbs the tallest tree, surveys the entire situation, and yells, "Wrong jungle!" Stephen Covey

The "ideal" quality manager is someone who:

- strongly believes in the necessity of its mission (quality is a profit center)
- think globally (system approach)
- always remembers to be the customer's ambassador
- is pragmatic
- is a natural leader:
    o is aware of the role's responsibilities and commitment
    o enforces authority
    o shows themselves to be at the service of the group
    o is results oriented
    o goes straight to the point
    o knows how to be flexible
    o defines coherent objectives and contributes to their achievement
    o knows how to gain everyone's trust
    o shares the hard times and the joys with the team
    o love the job
    o arouses creative tension
    o is capable of critical analysis on the work carried out and not on the people
    o knows how to initiate a dialogue on ideas:
        ▪ news
        ▪ extravagant
        ▪ sometimes provocative
    o launches stimulating challenges
    o is always open to learning more
- believes a priori that people:
    o are good
    o are trustworthy
    o want to do their best
- always wants to do better than yesterday (is never fully satisfied with the current situation)
- is sensitive to waste
- knows how to quickly find realistic solutions
- strives to:
    o convince rather than impose
    o influence rather than lead

- prefers to raise awareness by thinking (thinking about the why) than prompting the right answer (explaining the how)
- shows how to break down barriers between departments
- devotes sufficient time to anticipating the future
- dares to surprise
- shares the vision. Convincingly explains:
    - o the link between the purpose of the individual work, the team and the company
    - o how individual performance affects the overall performance of the company
    - o that the journey to excellence is our salvation
- is comfortable with:
    - o daily contact in the field
    - o team motivation
    - o the right behavior at the right time
    - o the PDCA cycle
    - o quality tools
    - o flow charts
    - o the spirit of the standards
    - o meticulous preparation, thoughtful planning
    - o collecting information
    - o identifying implicit customer needs
    - o statistical analysis of data and graphical presentation of trends
    - o the measurements, the analysis of the results and the actions to be taken
    - o inspection techniques
    - o running meetings
    - o top management, staff, customer
    - o the will to succeed
    - o discipline
    - o chasing the boredom of repetitive work
    - o negotiation (looking for a win/win result)
    - o observation (understand well before acting)
    - o adaptation to innovation
- has a good memory of:
    - o terms and definitions
    - o principles and methods
    - o requirements and constraints
    - o facts and ideas

4.6 Qualities

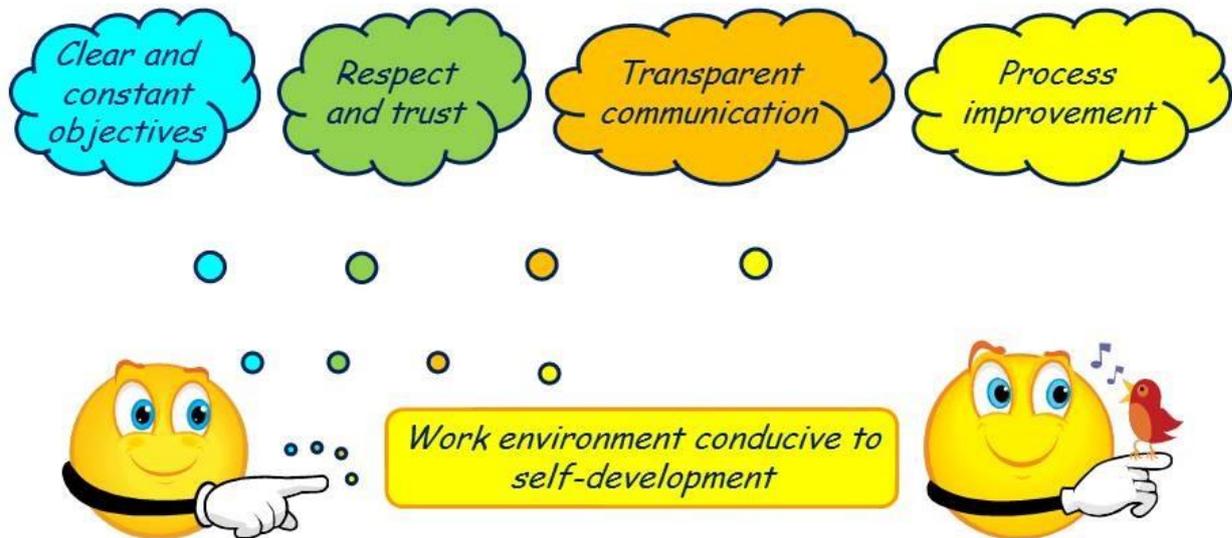Figure 4-2 shows some of the key factors that are essential for staff success.

Figure 4-2. Desirable work environment

A good leader gets extraordinary things from ordinary men. Peter Drucker

The "ideal" quality manager has qualities such as:

- o has:
    - o common sense
    - o the sense of reality
    - o innovative ideas
    - o charm
    - o want to:
        - ▪ learn more and more
        - ▪ pass on knowledge
- o knows how to:
    - o organize
    - o coordinate work
    - o make time an ally
    - o take a step back and think calmly
    - o delegate work, a responsibility
    - o distribute the work (one action, one goal, one responsible)
    - o lead by example, do and be what you say (speak especially with your actions)
    - o show how to eliminate waste
    - o generate support and enthusiasm to move towards a common goal (proposing dreamy goals)
    - o formalize and document
    - o lead a team, work in a team
    - o avoid conflicts
    - o lean on others
    - o appreciate, encourage and reward the work of others
    - o take staff comments into account
    - o assess the value of proposals
    - o measure performance
    - o separate:
        - ▪ the essential facts from the insignificant
        - ▪ the causes from the effects
    - o establish a harmonious work environment

- o eliminate fear, stress (return to realistic goals)
- o chase away anxiety (improve the know-how)

- o smile from time to time 🙂
- o take the right decision at the right time and apply it without delay
- o launch initiatives
- o listen carefully to all stakeholders with:
  - ▪ patience
  - ▪ willingness to understand (listening with empathy)
  - ▪ respect
- o speak clearly
- o communicate:
  - ▪ orally and via different media
  - ▪ internally and externally
  - ▪ on customer satisfaction and dissatisfaction
- o ask the right questions (with the help of Rudyard Kipling and his six faithful friends: "Their names are What and Why and When and Where and Who and How")
- o convince interlocutors of the merits of decisions
- o argue their point of view (entrance in order to convince)
- o raise awareness, mobilize, train staff in quality approaches
- o motivate, inspire and stimulate staff
- o say congratulations and thank you
- o question oneself ("What am I for?")
- o acknowledge mistakes and build on lessons learned
- o help and support initiatives
- o monitor any action taken
- o coordinate any improvement project
- o find the balance between action that is:
  - ▪ simple and perfection
  - ▪ agile and rigor
  - ▪ immediate and long term
  - ▪ small steps and big change
  - ▪ regular and the unusual
- o advise by remaining humble
- o explain the purpose, policy, objectives, procedures, tools
- o reassure top management, staff and the customer
- o simplify problems and solutions
- o train its team members and staff
- o apply methods, principles and ideas
- o involve suppliers
- o drive change
- o say no, resist pressure, use your right of veto
- o detect the warning signs (weak signals) of an unprecedented situation
- o anticipate problems
- o deal calmly with the unexpected
- o respond to emergencies with self-control
- o manage risks
- o is:
  - o rigorous (PDCA cycle)
  - o modest
  - o ambitious, but realistic
  - o tolerant, accepting and respecting interlocutors
  - o curious

- o a source of:
    - proposal
    - inspirational
    - progress
    - change
  - o action-oriented, dynamic
  - o responsive, agile
  - o objective, impartial
  - o an accomplice of the teams in the field
  - o accessible and available
  - o persevering (always go to the end without letting go)
  - o patient, but not too much
  - o motivated, passionate, enthusiastic
  - o a unifier
  - o reliable
  - o benevolent, but not naïve
  - o balanced
  - o a pedagogue in the face of resistance to change
- o favors:
  - o security
  - o prevention
  - o good mood
  - o the logic
  - o simplicity
  - o diplomacy
  - o impartiality
  - o honesty
  - o empathy
  - o careful observation
  - o precise writing
  - o standardized work
  - o in-depth analysis
  - o customer satisfaction, not top management
  - o feedback based on facts, not opinions
  - o tenacity
  - o autonomy
  - o discretion
  - o serenity
  - o the improvement of the system and not the pecuniary evaluation of performance

A presence of mind test can be found in annex 05.

Pitfalls to avoid:

- sharing advice or opinions
- neglecting the work place at the expense of your office
- being afraid to step out of your comfort zone
- saying "I will do…"
- using terms with ambiguous or incomprehensible meanings for staff
- exaggerating certain facts
- behaving like a policeman
- being perceived as a constraint

- addressing unjustified criticism
- making a promise and don't keep it
- showing that you feel more intelligent (or competent) than your interlocutor
- not accepting what the customer observed
- keeping people waiting for you
- being difficult to access
- raising voice
- showing irony
- forgetting to say hello
- ending an interview abruptly

Choosing priorities requires a great deal of effort and sensitivity to the individual's perception of their mission. Figure 4-3 shows the activities classified into four sections.
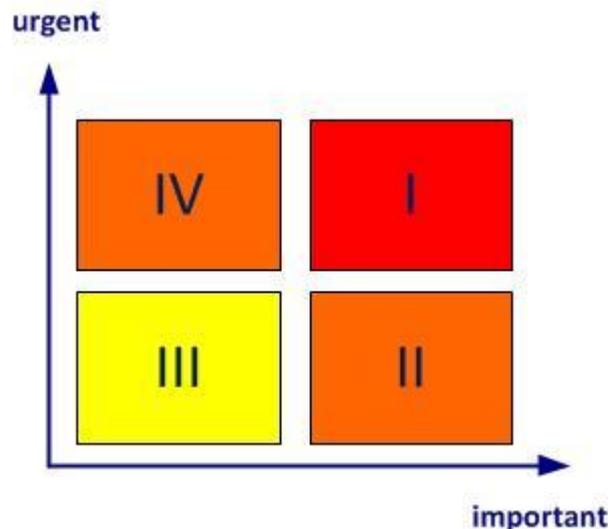

Figure 4-3. Priority of activities

Urgent and important activities (Section I) include, for example:

- crisis situation
- risk management
- customer returns
- treatment of nonconformities

Important and non-urgent activities (Section II) include, for example:

- staff involvement
- control of risk prevention
- hunting for waste
- application of quality procedures and tools
- personal education
- improvement of the QMS

Non-urgent and non-important activities (section III) include, for example:

- endless discussions (like the chicken and egg paradox)
- improvement of the form of procedures and other documents
- long and unnecessary meetings
- some phone calls
- monthly and quarterly reports
- some emails and letters (quotes, future projects)

Urgent and non-important activities (section IV) include, for example:

- some phone calls
- too frequent meetings
- reports that people from other departments should make
- certain emails and letters

The object of the game is to manage your time by giving high priority to the activities of section II, especially to the detriment of the activities of sections III and IV.

Minute of relaxation. Cf. joke "Is hell exothermic or endothermic?"