

SITE PRODUCTION AND PROJECT MANAGEMENT

11. QUALITY

11.1 QUALITY MANAGEMENT



ISO 9000 2015

Definition of quality

"Degree to which a set of inherent characteristics fulfills a set or requirements"



EXERCISE 1

¿WHICH REQUIREMENTS
WOULD YOU LIKE FOR A CAR
TO HAVE QUALITY?



EXERCISE 1

¿WHICH REQUIREMENTS
WOULD YOU LIKE FOR

A FORD GALAXY?

A FORD KA?



Steps in the procedure of quality:

- 1° Desire it.
- 2° Define it.
- 3° Obtain it.
- 4° Check it.
- 5° Demonstrate it.
- 6° Document it.



QUALITY LATEST HISTORY

- Taylor. Increase efficiency in production**

“Workers should be controlled not only by giving orders and maintenance of discipline, but also by removing any decisions about the manner in which work was to be carried out”

Payment by results. No account of human behaviour (job satisfaction, etc.)

- Shewart. Precursor of Statistics.**

- Application to the US Army (Second World War)

- Japan.- Shewart, Deming, Juran**

- Transformation of companies concept

- 70s.- First standards for quality assurance**

- BS 9000 (1971) UK standard for quality assurance

- BSI 5179 (1974) Guidelines for Quality Assurance

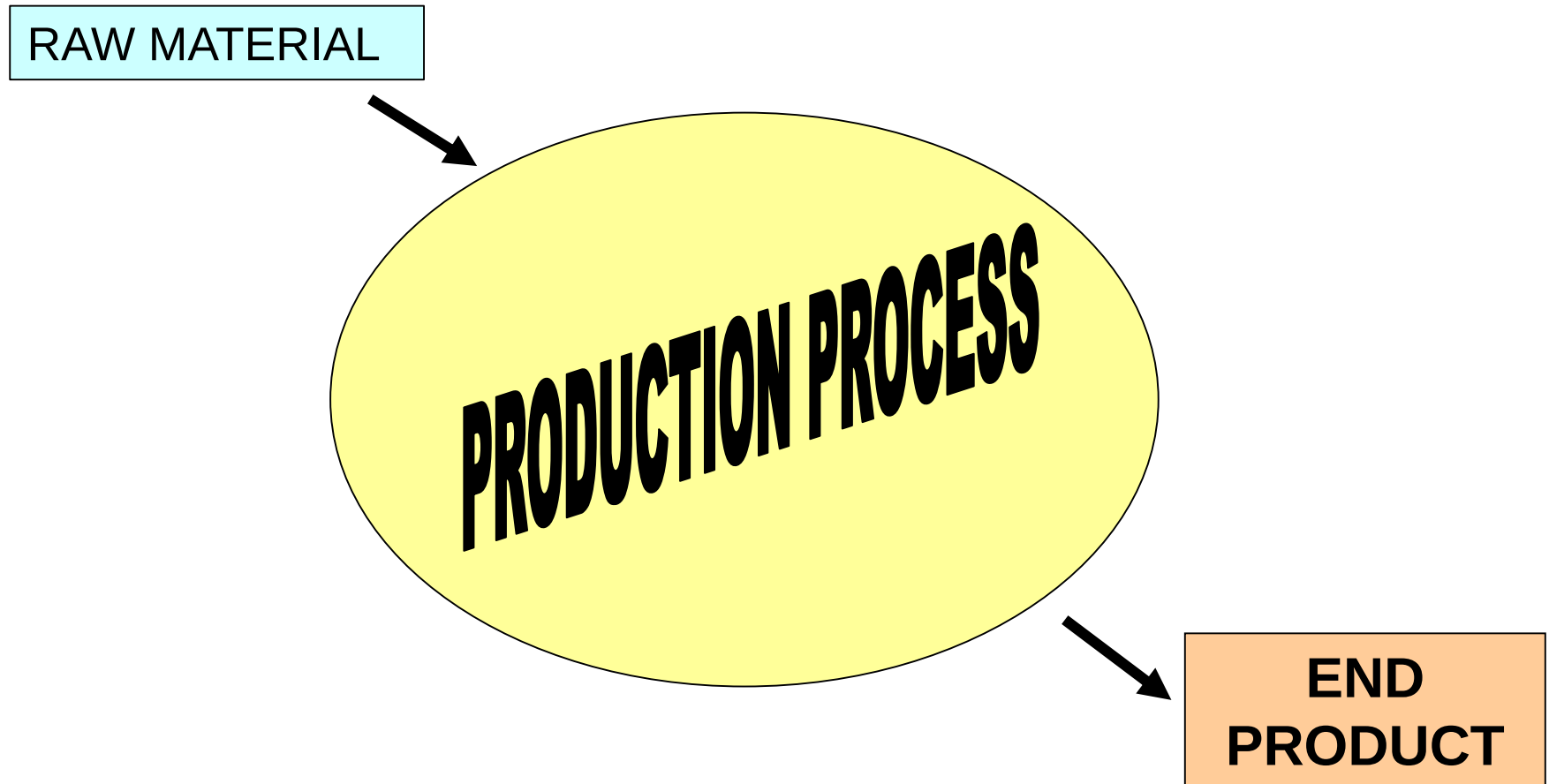
- BS 5750 (1979)

- ISO 9000 standards (1987)**



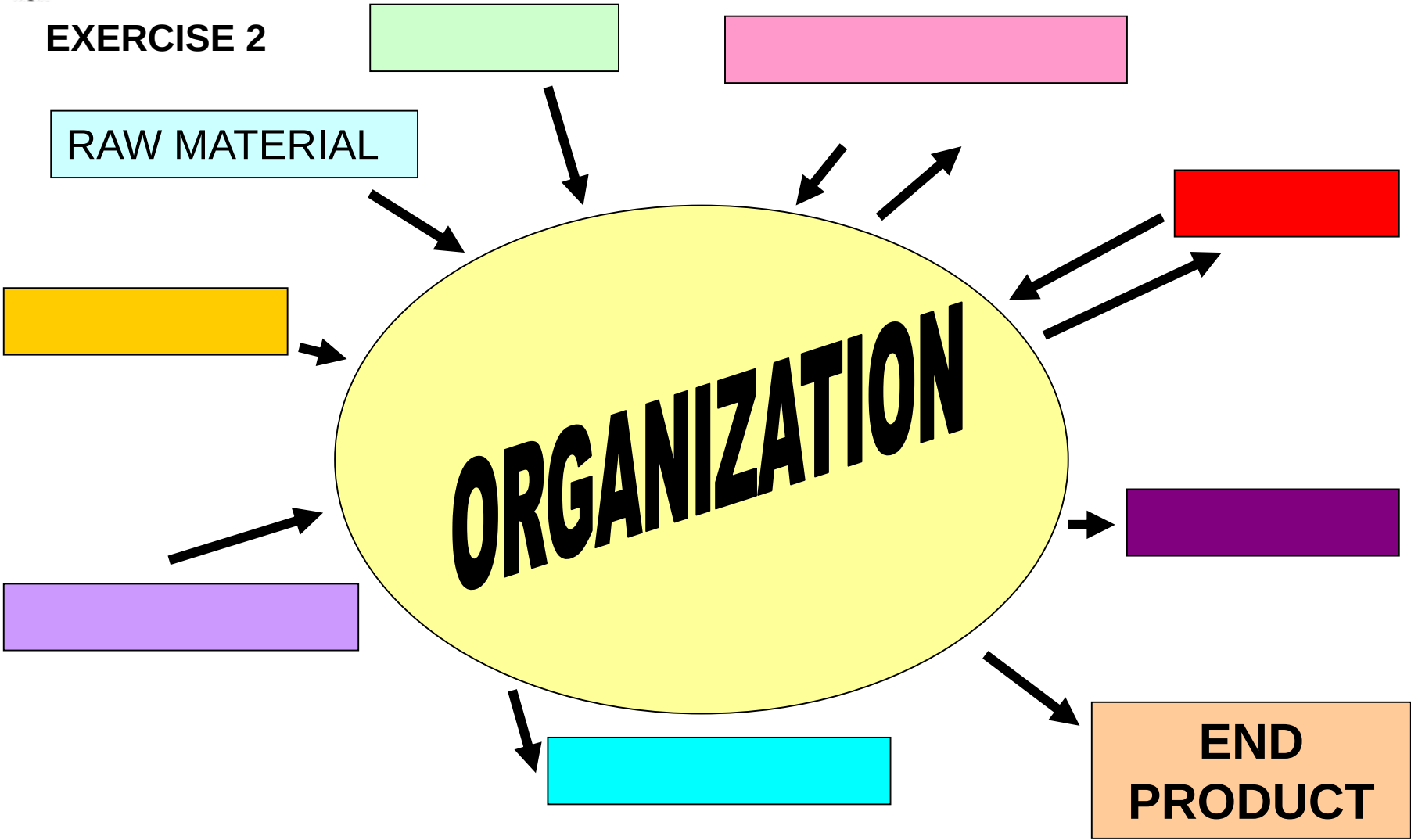
EVOLUTION OF QUALITY CONCEPT

- **SELF-CONTROL.**- handmade
- **INSPECTION.**- Especialization. Made at the end of the work
- **QUALITY CONTROL.**- Over the process
- **QUALITY ASSURANCE.**- Prevention of non-conformities (BS 5750)
- **QUALITY MANAGEMENT.**- Over the organisation (ISO 9000)
- **TOTAL QUALITY MANAGEMENT.**- organizational excellence (BS 7850 – ISO 9004)



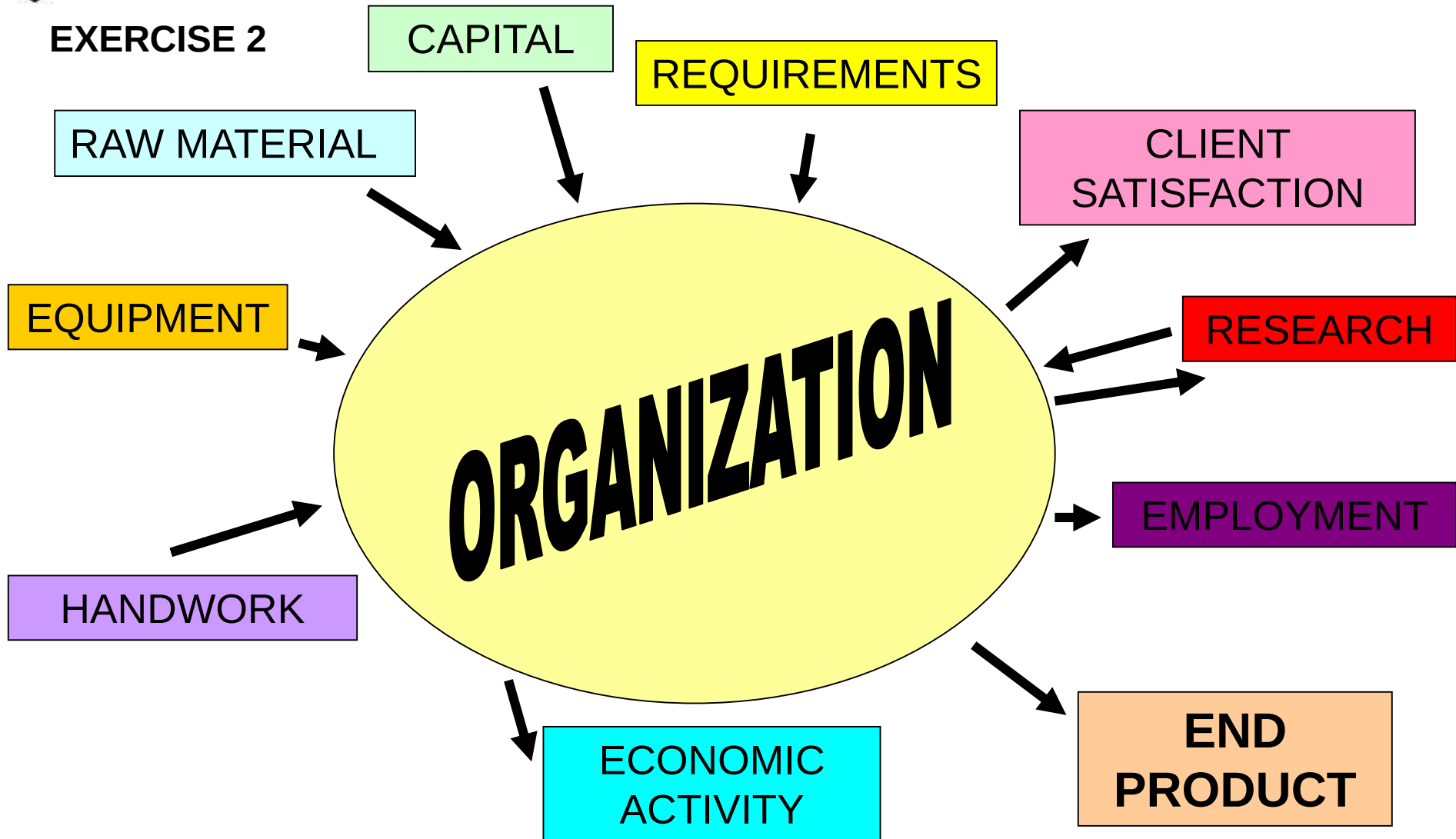


EXERCISE 2





EXERCISE 2





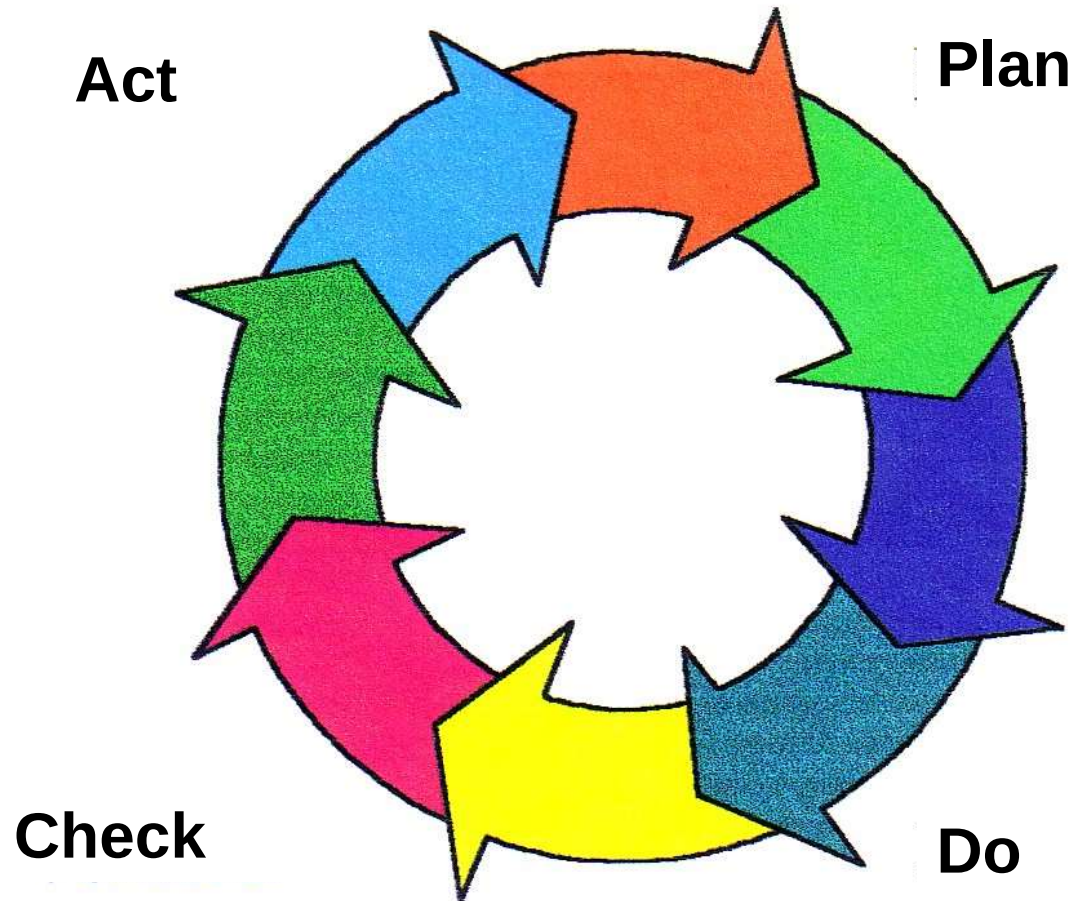
QUALITY MANAGEMENT

DEMING

- The improvement of quality brings to the improvement of productivity.
- The improvement of productivity brings to a cost reduction.
- The cost reduction brings to the reduction of price.
- The reduction of price brings to the improvement of the market share.
- The improvement of the market share brings to the creation of employment.
- The creation of employment brings to the improvement of benefits.
- The improvement of benefits brings to the organization survival.



CONTINUOUS IMPROVEMENT





THE 14 DEMING POINTS

1. Create constancy of purpose for improving products and services.
2. Adopt the new philosophy.
3. Cease dependence on inspection to achieve quality.
4. End the practice of awarding business on price alone; instead, minimize total cost by working with a single supplier.
5. Improve constantly and forever every process for planning, production and service.
6. Institute training on the job.
7. Adopt and institute leadership.



THE 14 DEMING POINTS

8. Drive out fear.
9. Break down barriers between staff areas.
10. Eliminate slogans, exhortations and targets for the workforce.
11. Eliminate numerical quotas for the workforce and numerical goals for management.
12. Remove barriers that rob people of pride of workmanship, and eliminate the annual rating or merit system.
13. Institute a vigorous program of education and self-improvement for everyone.
14. Put everybody in the company to work accomplishing the transformation.

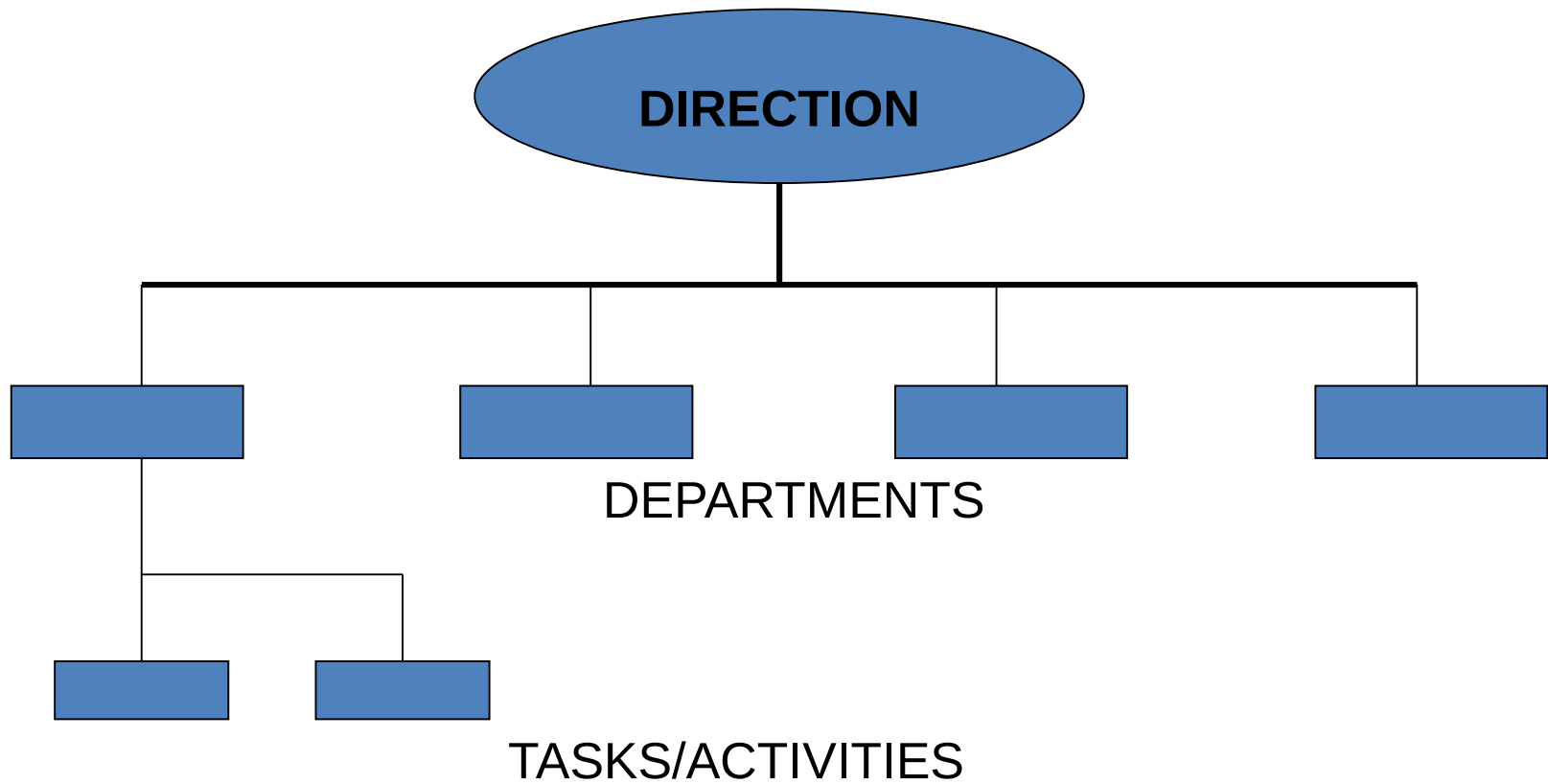


EXERCISE 3

¿HOW WOULD YOU
INTRODUCE THE DEMING
THEORIES IN THIS
MODULE?



BUSINESS ORGANIZATION CHART





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QUALITY MANAGEMENT SYSTEMS

Lead and operate successfully an organization requires:

1. Manage it systematically and visible
2. Introduce and maintain a management system designed to improve performance continuously
3. Satisfy the necessities and expectatives of all interested parties

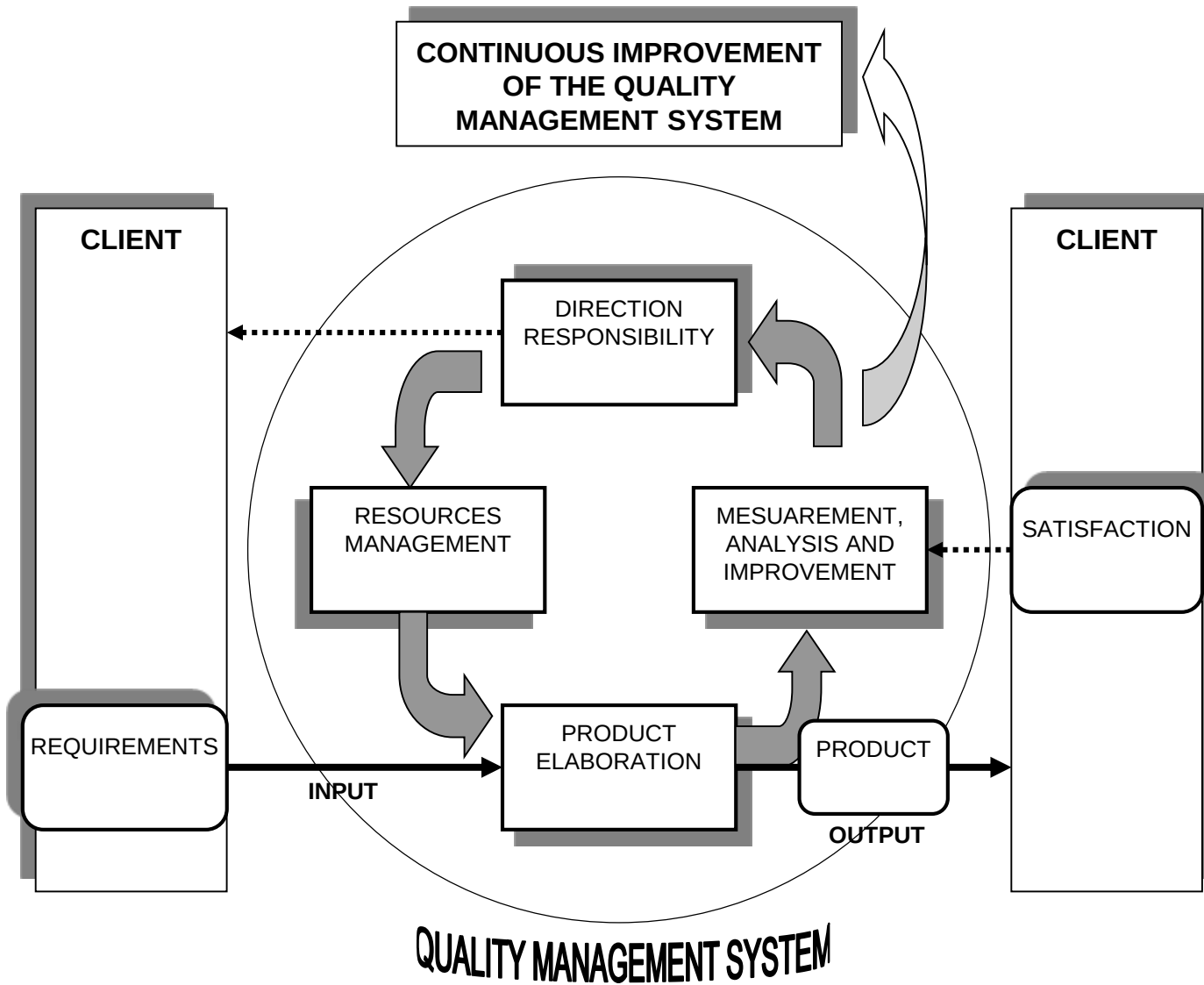


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QUALITY MANAGEMENT SYSTEMS

It is based on eight management principles:

1. Customer focus
2. Leadership
3. Involvement of people
4. Process approach
5. System approach to management
6. Continual improvement
7. Factual approach to decision making
8. Mutually beneficial supplier relationships





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QUALITY MANAGEMENT SYSTEMS

Why to introduce a QMS?

The introduction of a QMS is due to:

1. Necessity of the performance improvement in the organization
2. A better market share wanted
3. A clients requirement
4. Legal requirements (National or European Directives)



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QUALITY MANAGEMENT SYSTEMS

What benefits can a QMS bring?

1. Improvement of staff motivation, as they are involved in decision-making
2. Improvement of all management systems
3. Improvement of operative systems
4. Reduction of quality costs, such as rework, waste, etc.
5. Improvement of client-supplier relationship through mutually beneficial actions
6. Improvement of competitiveness through the process excellence
7. Improvement of profitability as a result of all mentioned



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QUALITY MANAGEMENT SYSTEMS

Some drawbacks with the introduction of QMS:

1. To put it in practice needs an effort and resources.
2. Certifications, records, they all produce costs.
3. A wrong design can represent a load and not be cheap
4. Individual practices do not drive to good quality.
5. The need to change some attitudes and accept new practices can put at risk the system.



EXERCISE 4

- There is a producer who owns a factory for concrete blocks.
- This producer has found that the quantity of orders delivered and returned is very high.
- His clients say that these blocks are “very bad”.





EXERCISE 4

¿What happens?

The producer is worried with it, so he develops a small survey to his clients, and they say the following:

- Some of blocks are broken when they reach the site.
- In the last month, there are more broken blocks than before.
- The new technicians requires much more documentation and tests.
- Other producers sell the same kind of blocks at the same price and with better results.



EXERCISE 4

The problems

The producer faces the following problems:

- The clients stop buying these blocks
- The producer can't get new clients
- New and better blocks are being introduced in the market
- His storage is constantly increasing as he doesn't sell as before



EXERCISE 4

Objectives for the producer

- Not to produce “bad blocks”.
- Optimize the production.
 - Minimum stock.
 - Maximum production.
- Achieve to be the leader in production and sale of concrete blocks.



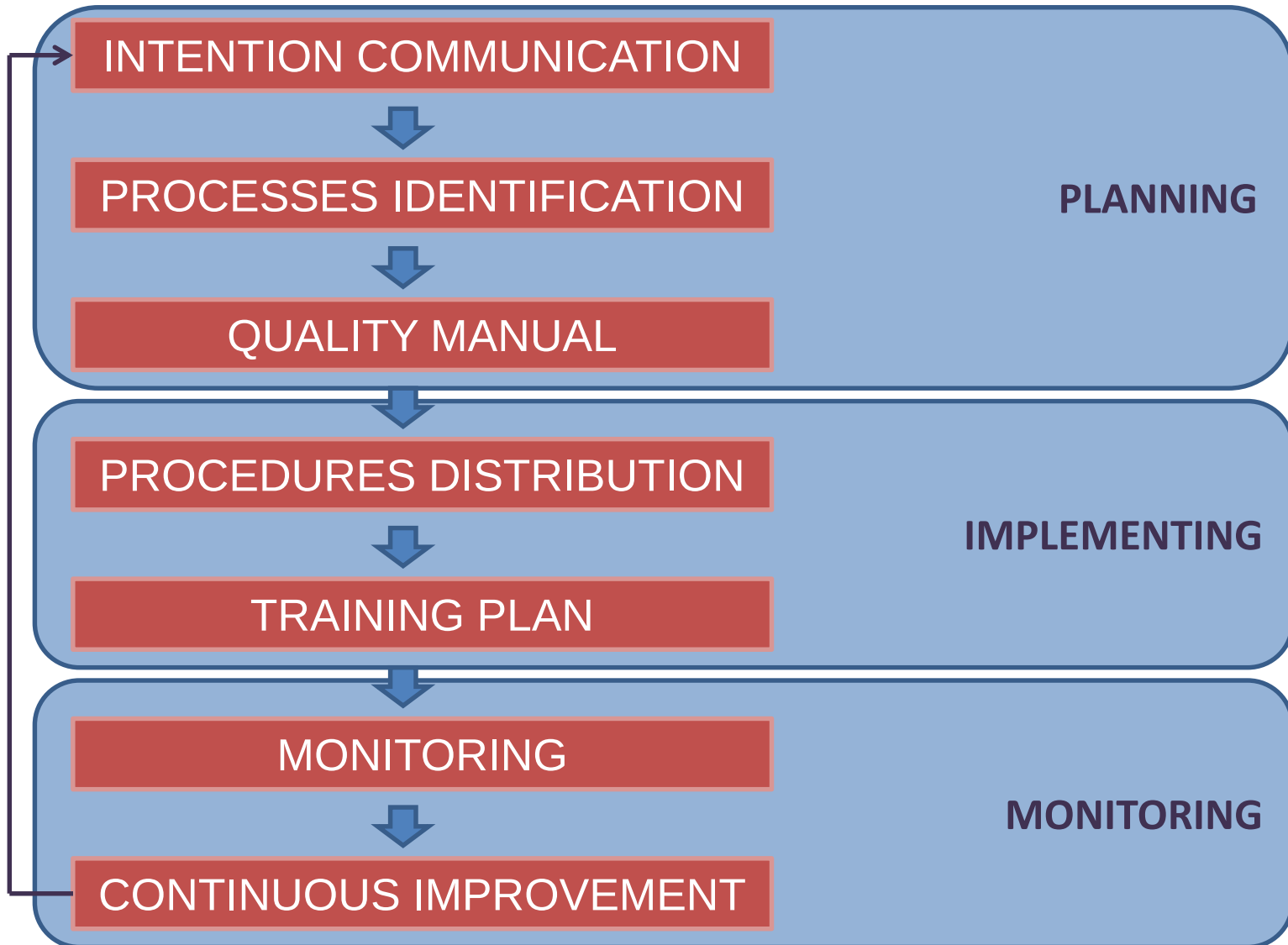
EXERCISE 4

¿Solutions?

- This producer hires you as QUALITY EXPERTS. List possible solutions for this producer and what he should do to achieve his objectives.

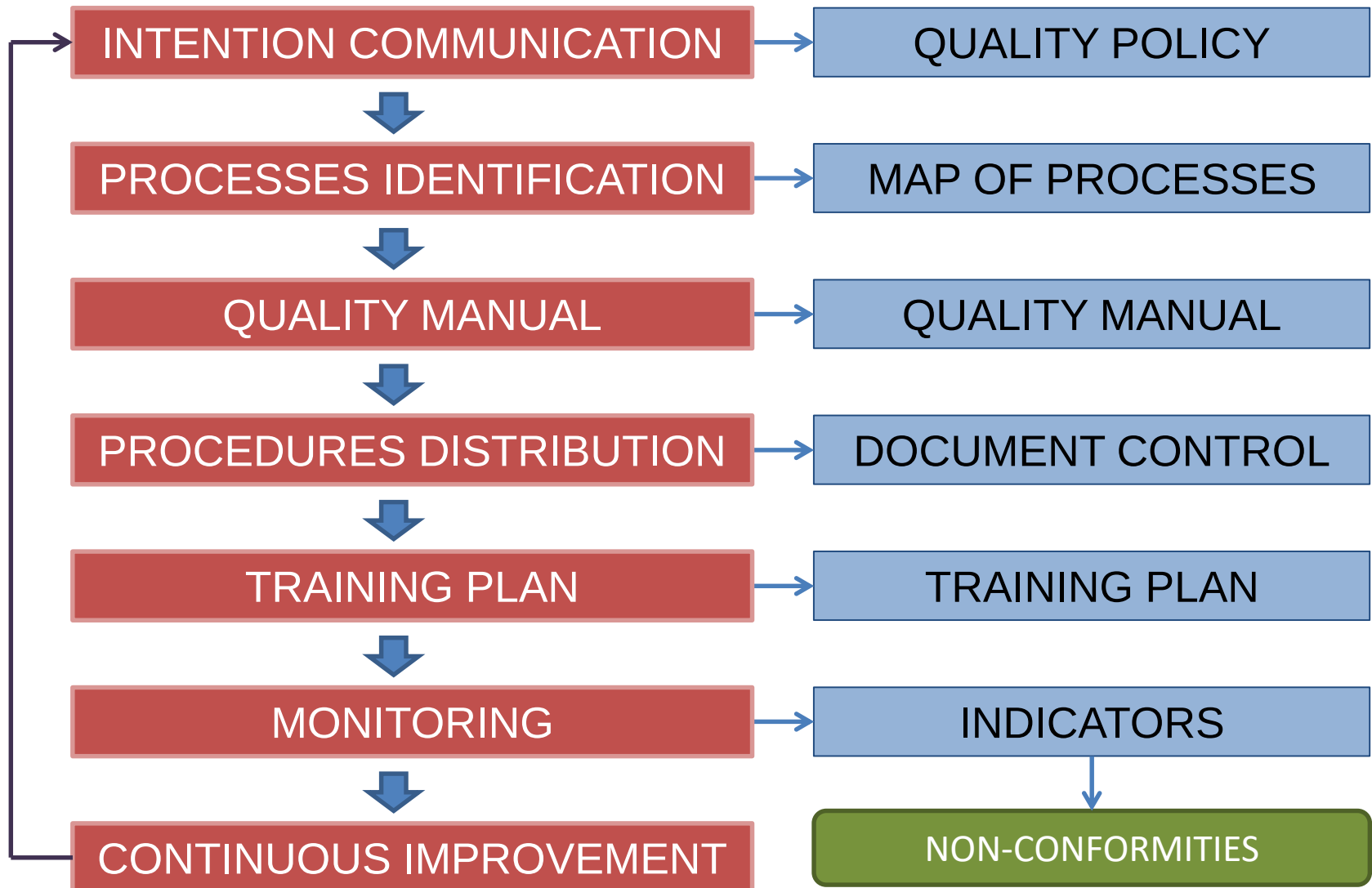


Definition of a Quality Management System (QMS)



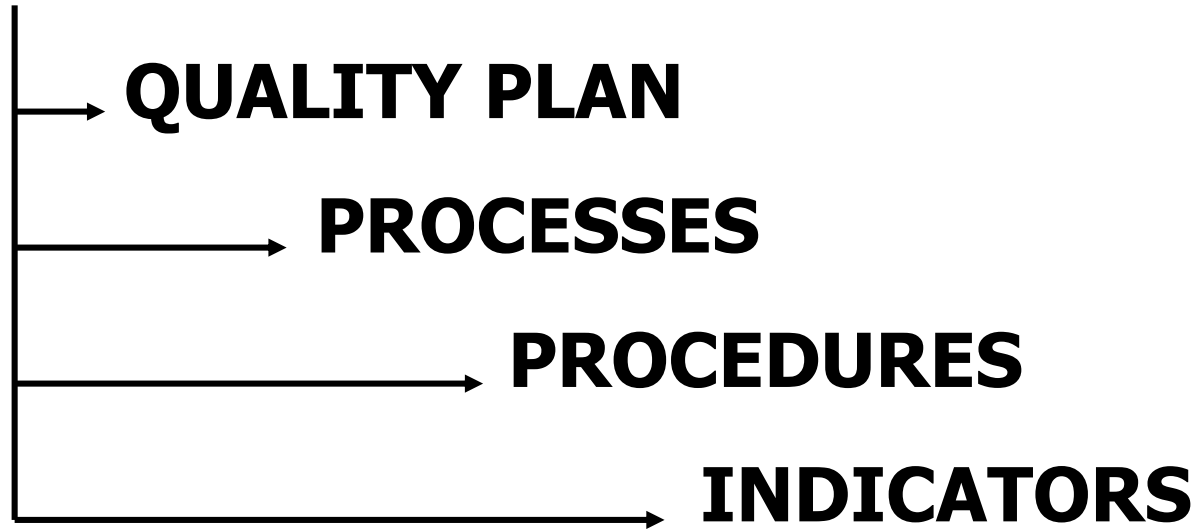


Definition of a Quality Management System (QMS)





QUALITY MANUAL





QUALITY POLICY

Established the vision and mission of the organization oriented to the expectatives of its customers and the achievement of its quality objectives.

Factors:

- Requirements of ISO 9001
- Clients
- Market
- Organization
- Direction

**Developed and
approved by the
direction**



QUALITY POLICY STATEMENT

The management of David Payne Constructions have defined and documented the following commitment with respect to quality.

Every staff member has the responsibility to ensure that the intentions of this policy statement are understood, applied and maintained within their own activity area.

David Payne Constructions have made a commitment:

- To use the disciplines of ISO 9001 to develop and maintain the processes needed to produce a level of construction and project management of a consistent standard of quality and at competitive cost
- To foster good relationships with clients by effective communications with clients and encouraging feedback.
- To continually improve the effectiveness of the Integrated Management System.
- To document and measure quality objectives and targets through internal audit and management review.
- To deliver construction services in accordance with the specifications and requirements of our clients.
- That every employee constantly aims to improve the overall quality of Company products and services.

requirements of our clients.

- That every employee constantly aims to improve the overall quality of Company products and services.

By adopting this philosophy, the clients of David Payne Constructions will be assured of an excellent standard of completed projects and services in accordance with specifications and contracts.

Management has the ultimate responsibility to maintain the quality policy and shall promote all initiatives to attain and improve quality to:

- give all personnel adequate information and training to enable all tasks to be undertaken with a consistent standard of quality.
- ensure that excellent relations between the Company and employees are maintained.



DAVID PAYNE
MANAGING DIRECTOR



PROCESSES

Process

System of activities that are linked or interact between them, and transform input elements in results

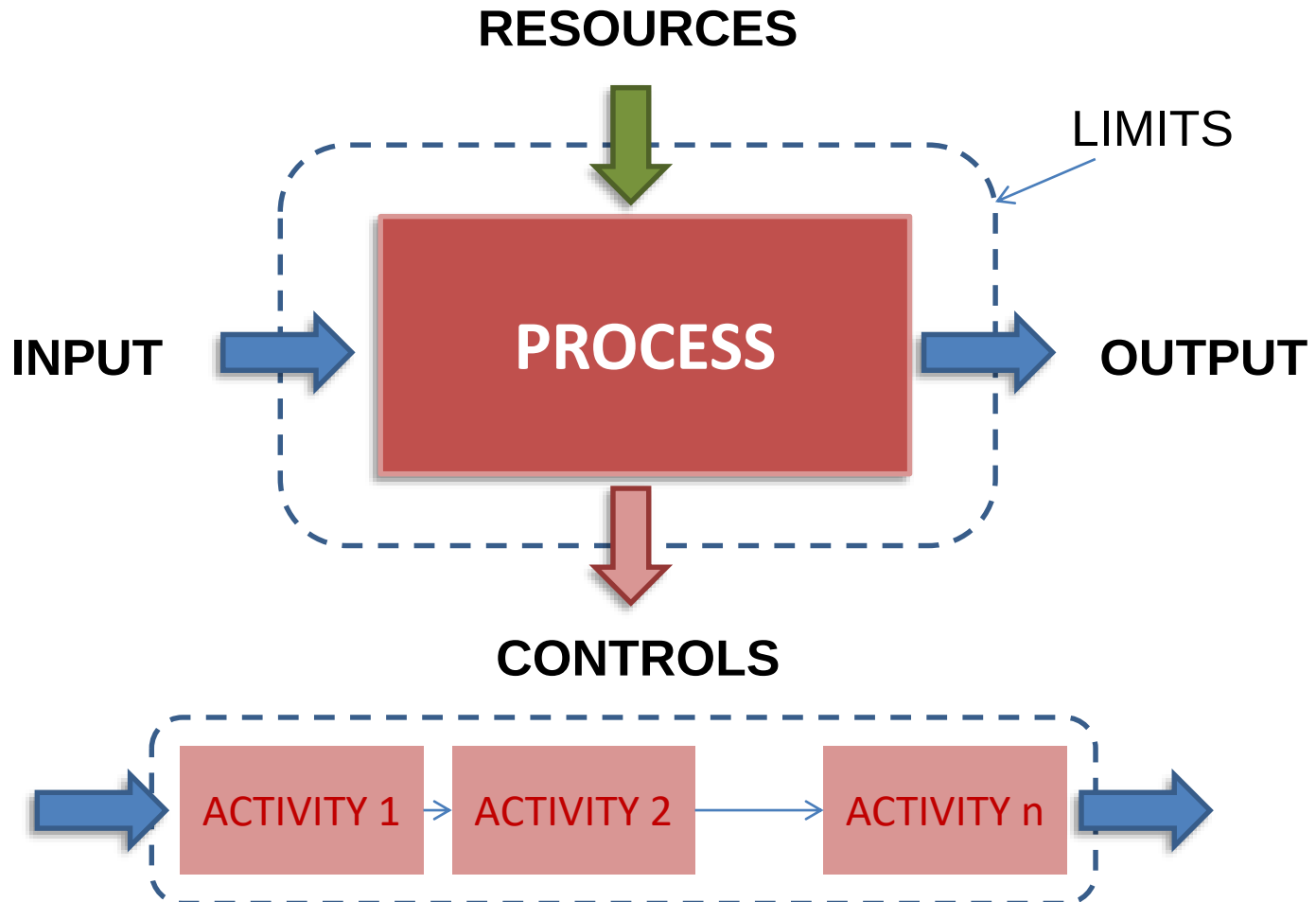
Product

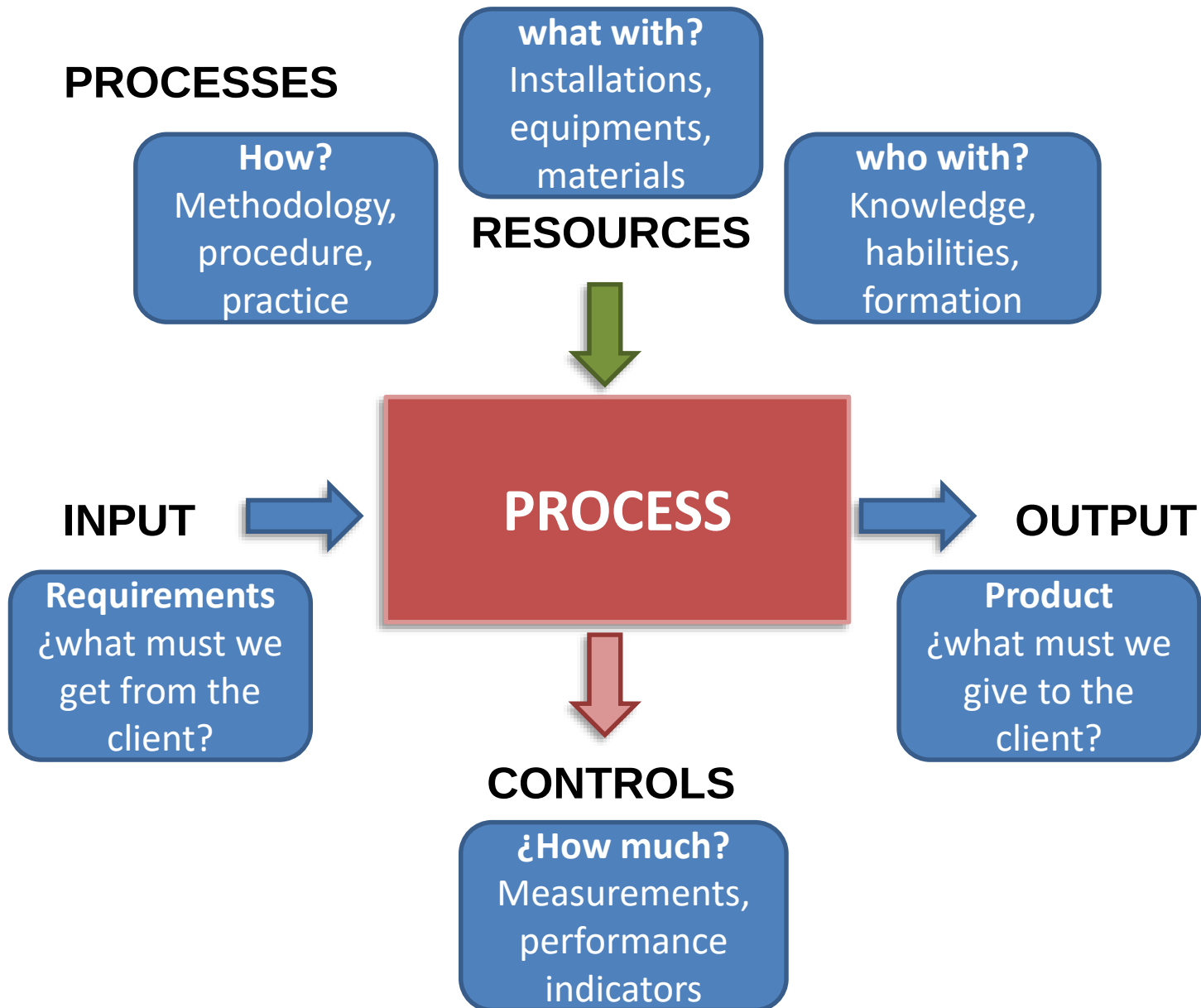
Result of a process

It can be tangible (processed materials) or intangible (services)



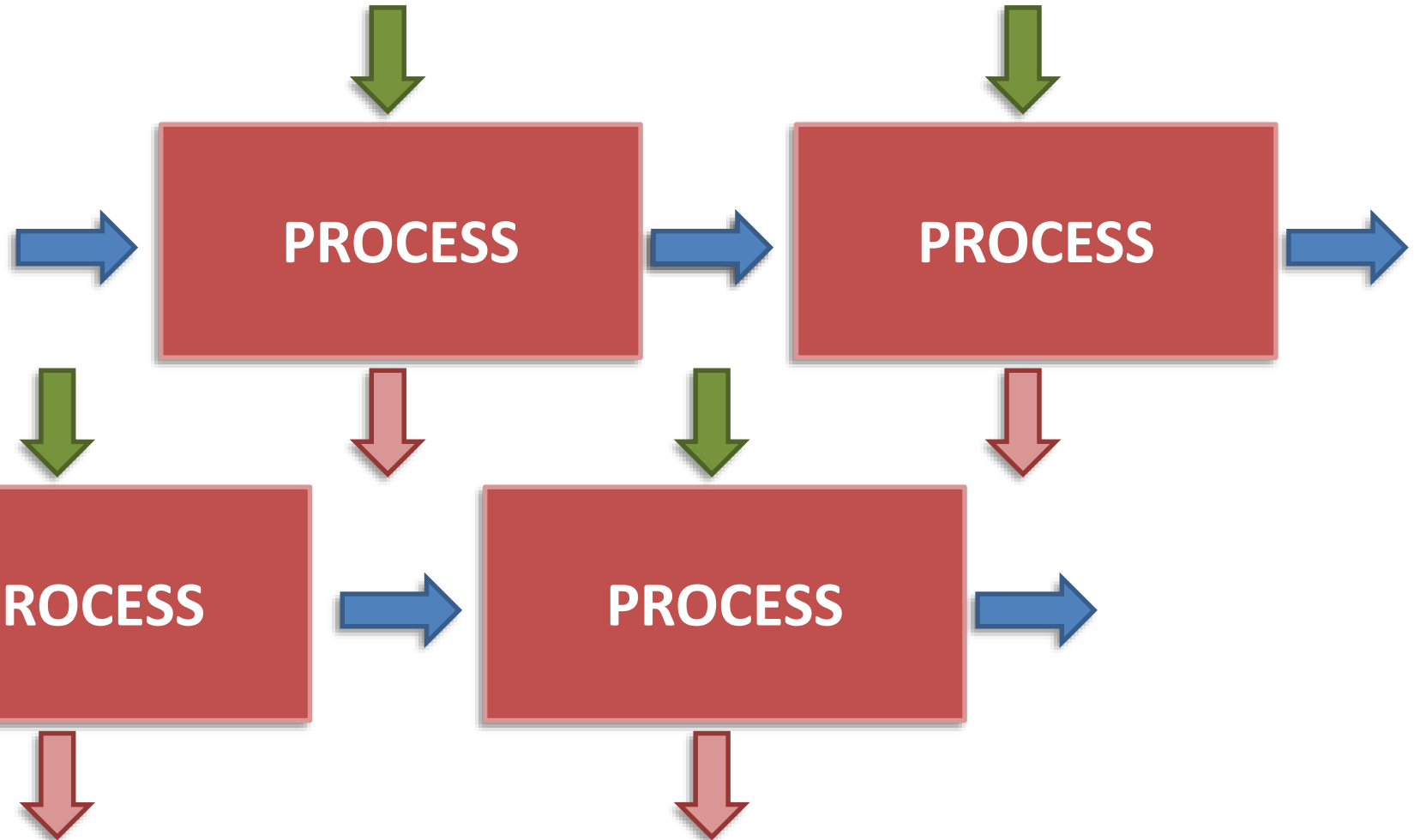
PROCESSES





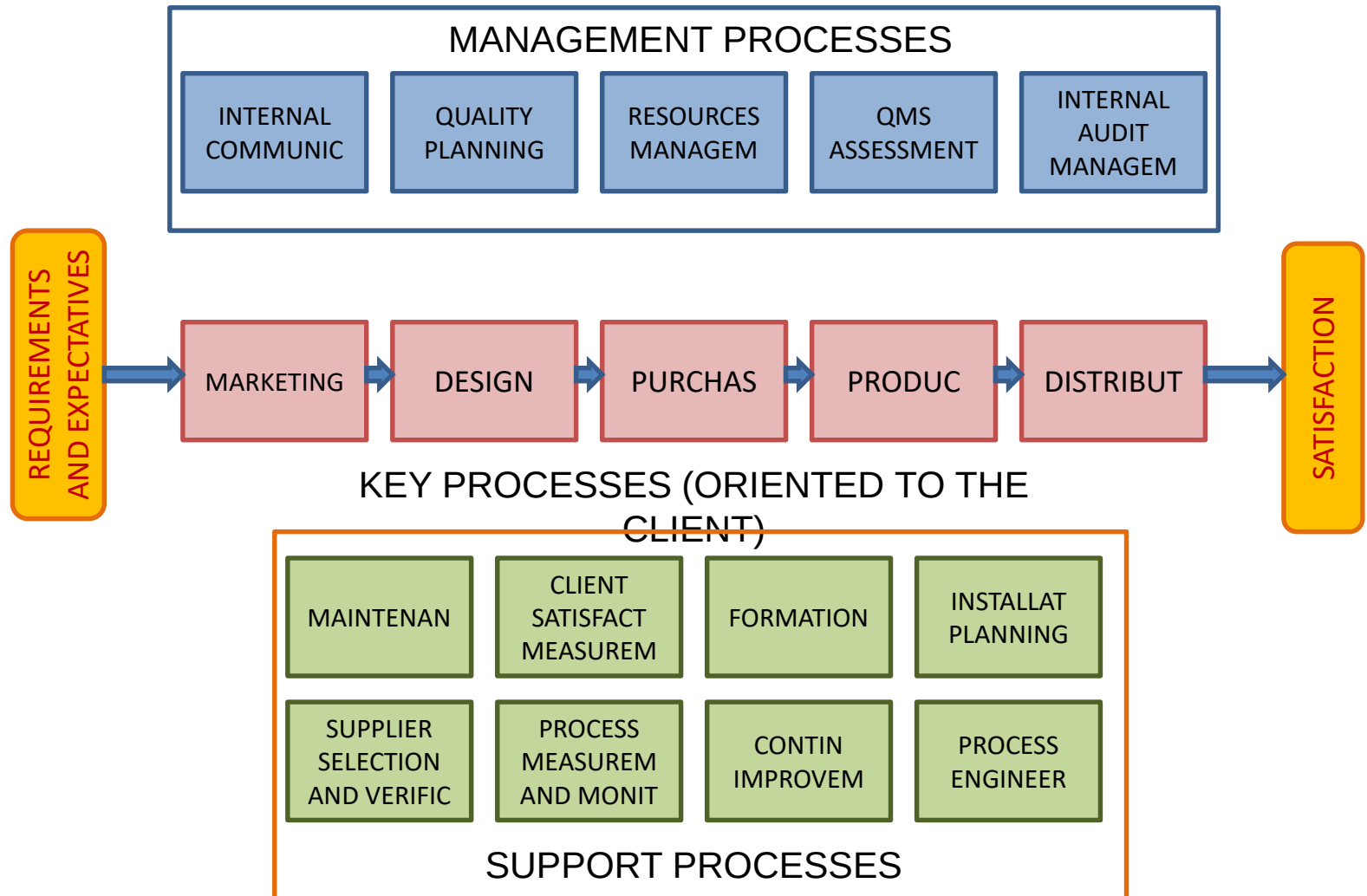


PROCESSES





PROCESS MAP





EXERCISE 4

CAN YOU DEFINE KEY PROCESSES
FOR A CONSTRUCTION COMPANY?

- a) What is your product?
- b) Who is your client?
- c) What activities do you make?
- d) What are the key processes then?



PROCEDURES

Documents that explain the linkage in time that exist between different departments, standardising the action procedures, and avoiding indefinition or improvisation that can produce problems or deficiencies in the work performance.

They define in detail **how, who, when and where** the activities/processes are developed.



PROCEDURES

Steps in procedure making:

- Draft redaction
- Launching
- Approval
- Distribution
- Review





PROCEDURES

How to write a procedure:

- Avoid ambiguous terms
- Write sentences in present and in chronological order
- Be accurate
- Define the objectives properly and check that the document achieves them
- Use flow charts



FLOW CHART SYMBOLS

START OR
FINISH OF A
PROCESS

This symbol is usually used to represent the source of an input or the destination of any output. It is used to express the beginning or end of a set of activities

ACTIVITY

This symbol is used to represent an activity or a set of activities

DECISION

This symbol is used to represent a decision. The output usually has 2 or more arrows (options)

DOCUMENT

This symbol is used to represent a document and is used to indicate the existence of a document for reference or recording at a specific point in the process

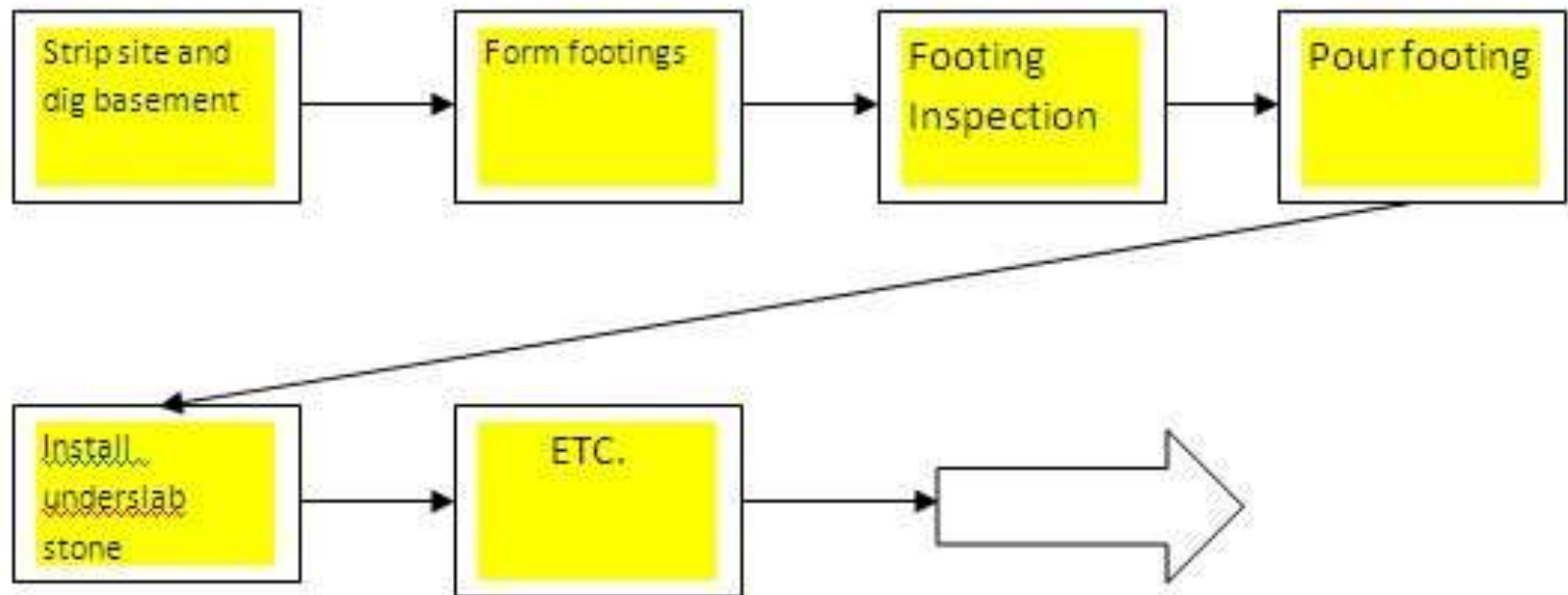
DATABASE

This symbol is used to represent a database and is usually used to identify a requirement in the process for recording data



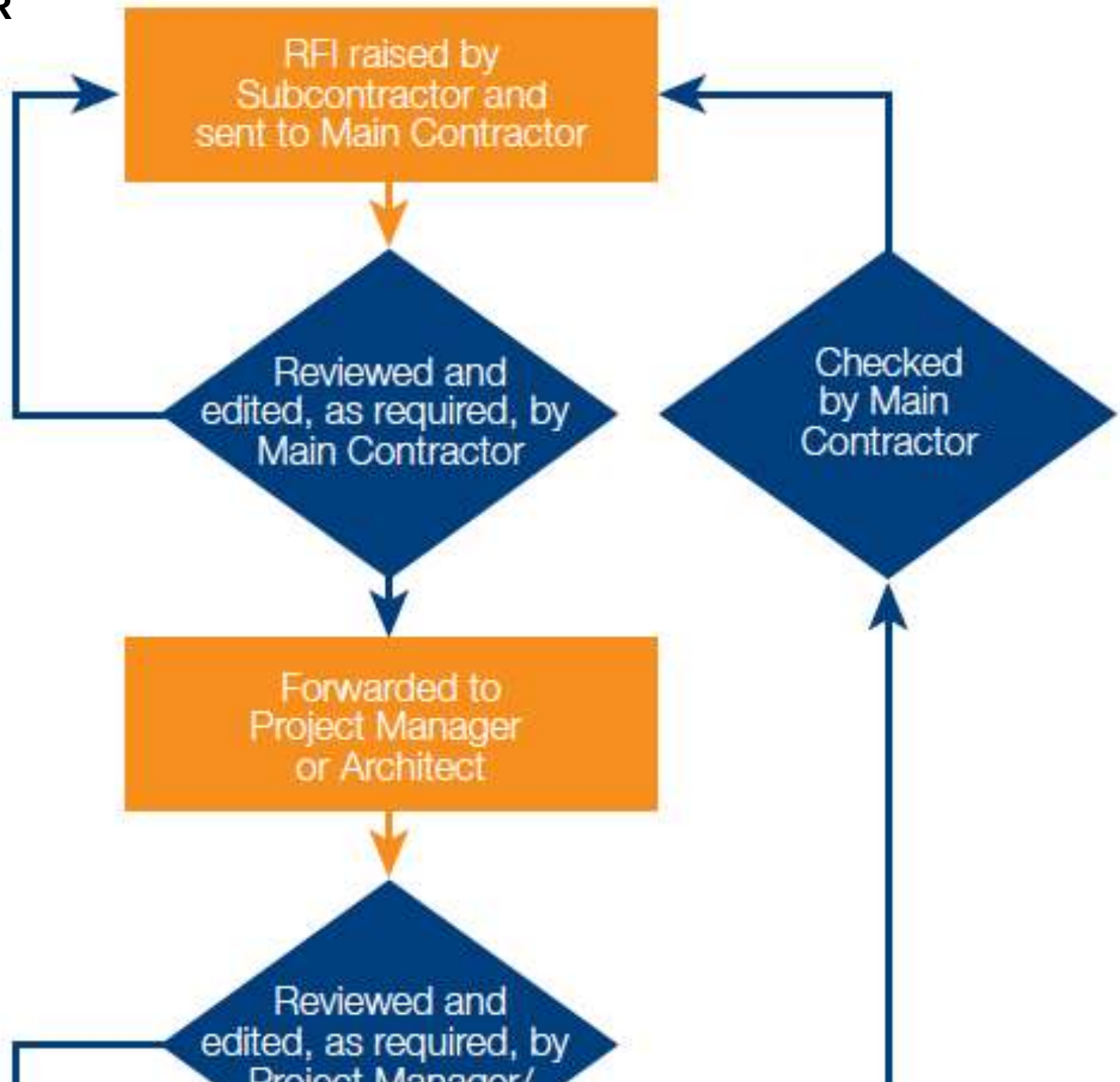
Represents the flow of product or of information, and/or the sequence in which activities are carried out

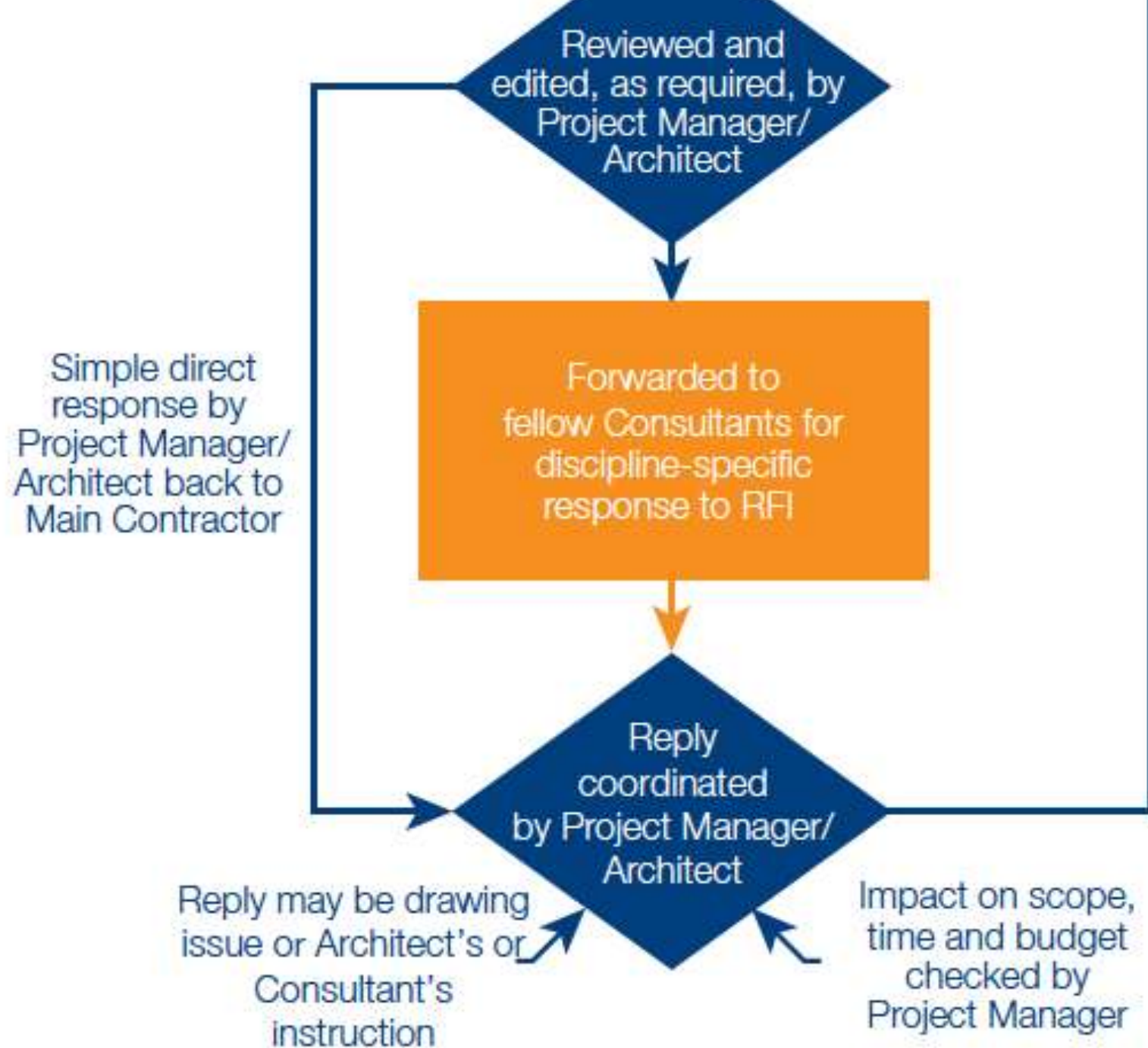
Sample Flow Chart

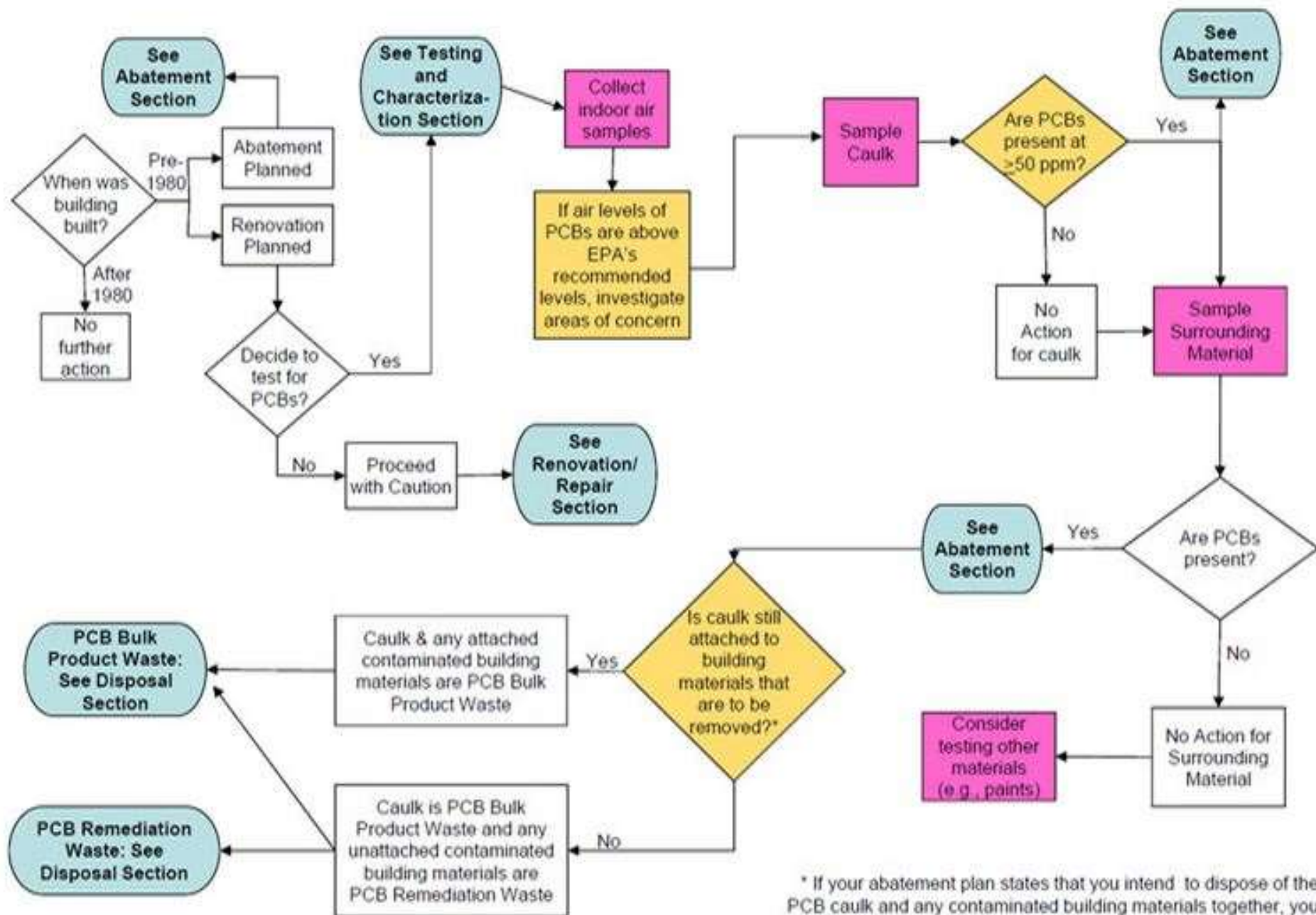


REQUESTS FOR INFORMATION

Answered or rejected by Main Contractor and returned to Subcontractor







* If your abatement plan states that you intend to dispose of the PCB caulk and any contaminated building materials together, you may dispose of all the materials as a PCB bulk product waste.



EXERCISE 4

DEVELOP A FLOW CHART
FOR THE PURCHASING DEPARTMENT
TO BUY BRICKS



QUALITY MANUAL

Document where it is clearly mentioned what the organization makes to implement a Quality Management System

Comprises:

The scope of the QMS

The procedures

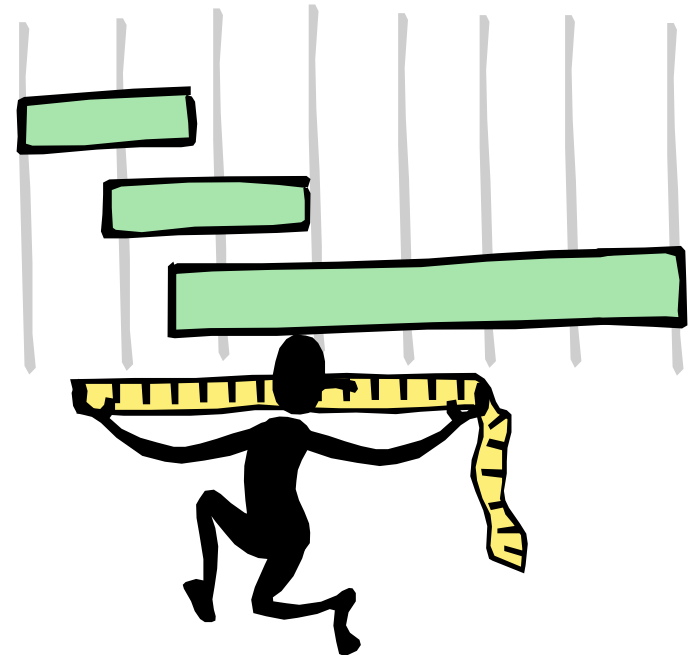
Process map





MONITORING AND ASSESSMENT

1. Measurement
 - Client satisfaction
 - The processes performance
 - The resulting product
 - Indicators
2. Data analysis
3. Improvement
4. Corrective action
5. Preventive action





INDICATORS

Measurement tools, based on facts and data, that allow assessment the quality of processes, products and services to ensure the client satisfaction.

Each indicator is associated to the monitoring and assessment of one or various procedures





INDICATORS

Components of the quality indicator:

- Indicator: what can be measured
- Units
- Reference values: minimum and maximum
- Data source: where the information come from
- Responsible for data collection
- Frequency: diary, weekly, monthly, etc.
- Tendency or desired evolution
- Data obtained



INDICATORS

Examples

Achievement of deadlines

Investment compared to expected

Average waiting time (personalized attention)

Average production time

Number of visits

Number of complaints

