



Lecture 8



Quality control in logistics management



Learning Objectives

- Identify logistics quality concept
- Identify the difference between Quality Assurance (QA) and Quality Control (QC).
- Identify ISO 9000 and Six Sigma programs.

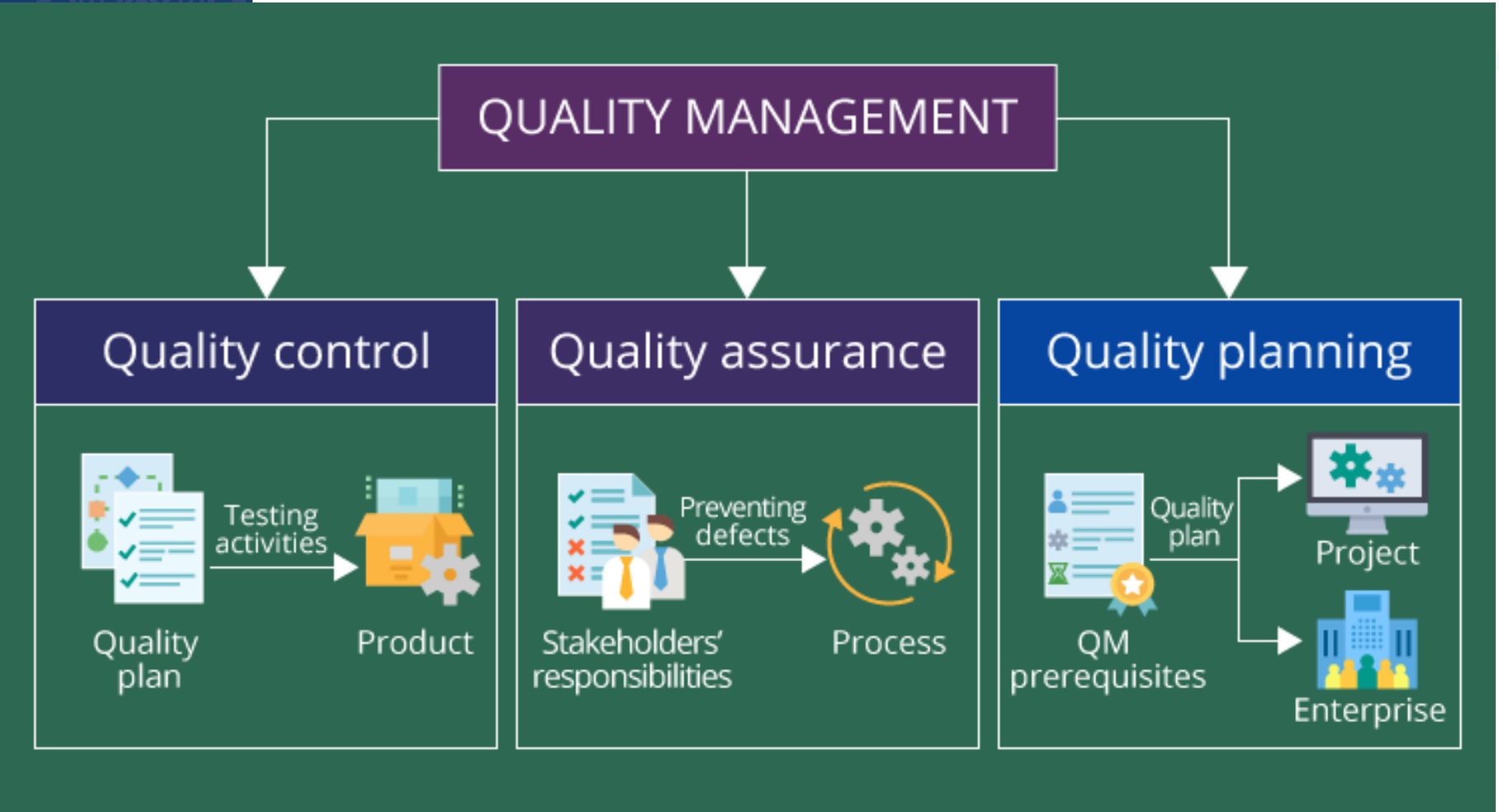


Logistics quality concept

The logistic concept of quality provides, on the one hand, the application of the principles and methods of logistics for quality management, and on the other hand, the formation of a logistics system of the relevant organization and adequate control actions on quality as a control object.







Quality Assurance (QA):

Planned actions (programmatic) necessary to provide adequate confidence or a performance guarantee that a product will perform satisfactorily:

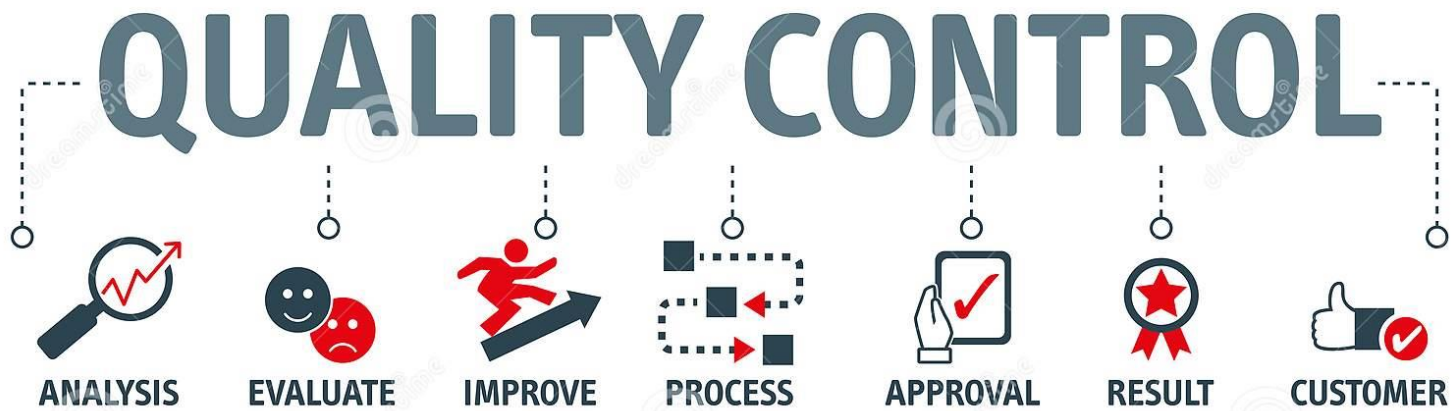
- Following defined processes before production.
- Systematic approach for evaluation, inspection, testing, calibration, or whatever is needed to monitor and assure the quality of your product.
- Use of checklists, company audits, and project audits.



Quality Control

Physical actions taken on items or activities to verify conformity to specified requirements. QC, is generally included as a segment of QA and includes:

- Adherence to predefined quality assurance requirements.
- Failure testing by physical examination, inspection, walk-through, or measurement of product for defects.
- Verification that deliverables are of acceptable quality and that they are complete and correct.





Quality Standards Defined

- A set of quality attributes which, through consensus of its developers, provides a consistent process for producing the exact same product each time. Standards may be adopted voluntarily or by regulation and should be reviewed regularly for ways to update or improve process(es).
- Benefits of standards include:
 - Documenting quality standards forces you to review all aspects of your process.
 - Providing a way to assure that an item complies with contract specifications.
 - Attracting buyers, including the government, because of its repeatable quality.
 - Saving money by providing the necessary indicators and tools to identify problem areas and ways to correct those areas.



What are ISO 9000 Standards?

(Slide 1 of 2)

- ISO 9000 is a family of standards for quality management systems.
 - They were developed by International Organization for Standardization (ISO), patterned from a British quality program and first published in 1987.
 - The American Society for Quality (ASQ) and the American National Standards Institute (ANSI) also produce standards and work with ISO.
- ISO standards are:
 - based on need to meet customer's requirements, regulations, and satisfaction.
 - adopted by organizations and then they must become accredited.
 - used worldwide—new edition is ISO 9001:2008.
 - applied broadly to all products; doesn't differentiate between picture frames and nuclear components.

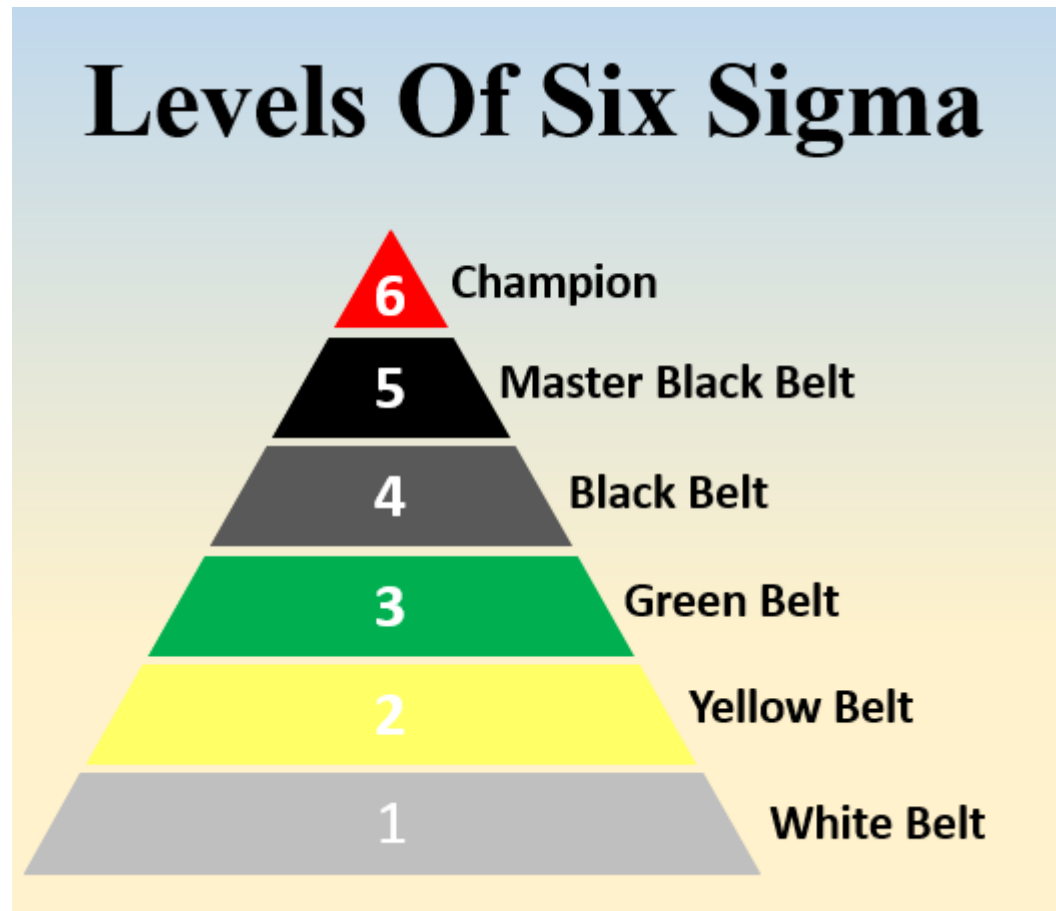


What are ISO 9000 Standards?

- ISO standards do not guarantee any quality of end products and services.
- Certification to an ISO 9000 standard certifies that formalized business processes are being applied, such as the following requirements for ISO 9001:2008:
 - Keeping a set of procedures that cover all key processes in the business.
 - Monitoring processes to ensure they are effective.
 - Keeping adequate records.
 - Checking output for defects, with appropriate and corrective action where necessary.
 - Reviewing individual processes and the quality system itself for effectiveness regularly.
 - Facilitating continuous improvement.

Six Sigma Basics

- Six Sigma is the methodology for improving the performance of any organization by minimizing the defects in its products or services. Every error committed has a cost associated with it including:
 - Losing customers
 - Redoing a task
 - Replacing a part
 - Wasting time/efficiency





Six Sigma refers to a level of process efficiency where there are 3.4 defects for every million manufacturing operations.

It is this quality indicator that Motorola set for all production processes in the 1980s as an achievement of the goal, and since then this concept has been a trademark of the concern. Six Sigma was borrowed and popularized by such well-known companies as:





The theory of Six Sigma is based on six points on which the effectiveness of business processes depends:

- 1) Show interest in the client. This is reflected in the constant monitoring and analysis of customer needs.
- 2) Management on the basis of verified data and facts, and not on the basis of assumptions that can happen with a certain probability.
- 3) Orientation to the production process. Continuous process management, improvement, process improvement. The entire production cycle can be divided into separate processes and controlled - this is based on the process approach to management.
- 4) Proactive management (ahead of schedule). Leaders do not wait for what may happen, but anticipate possible changes.
- 5) Openness to cooperation, transparency of production for both customers and suppliers.
- 6) Continuous improvement. Any quality improvement process involves continual improvement, and a condescending attitude towards failure is to overcome and learn from them.



Applying Six Sigma

DMAIC: This methodology is required to modify an existing process and make it Six Sigma compliant and more efficient. DMAIC is an acronym for:

- **Define** the goals for process improvement in coherence with the customer's demand and the organization's strategies
- **Measure** the current performance and collect relevant data for the future
- **Analyze** the current setting and observe the relationship between key parameters and performance
- **Improve** the process based on the analysis to further optimize the process
- **Control** the parameters before they affect the outcome



When Implementing a QA Program

Begin by identifying the critical business tasks, processes, or systems and documenting instructions. Use the instructions for training and day-to-day reference. A QA program will reduce the:

- Number of errors
- Waste of time and materials associated with errors
- Number of customer complaints
- Number of problems to fix
- Time spent on giving day-to-day instructions
- Time needed to improve processes and systems (by establishing a stable base)



When Implementing a QA Program

Following a widely-accepted quality standard program, such as the ISO 9000 system, initially will save you time and money if you become certified. The implementation plan should include:

- Quality coordinator
- Discipline task teams
- Quality team
- Policy development—quality and operational
- GAP analysis
- Map processes
- Quality manual development
- Communication/education/training
- Audit procedures
- Accreditation (optional)



Quality Control Approach

- **Plan:** Establish the objectives and processes necessary to deliver results in accordance with the expected output. Making the expected output the focus, differs from what would otherwise be. The completeness and accuracy of the specification is part of the improvement.
- **Do:** Implement the process developed. Perform tasks as designed and expected by management, reinforced by training and guidance from key stakeholders.
- **Check:** Measure, monitor and evaluate the implemented process by testing the results against the predetermined objectives and compare the results to ascertain any differences.
- **Act:** Analyze the differences to determine their cause. Apply actions necessary for improvement if the results require changes. Determine where to apply changes that will include improvement.
- **Improve:** Improvement incorporates the tracking of individual processes with statistics on performance compared to stated objectives. This information can be used to work with internal stakeholders, customers, and suppliers to improve interconnected processes to enhance overall business performance.



Benefits of Quality Assurance

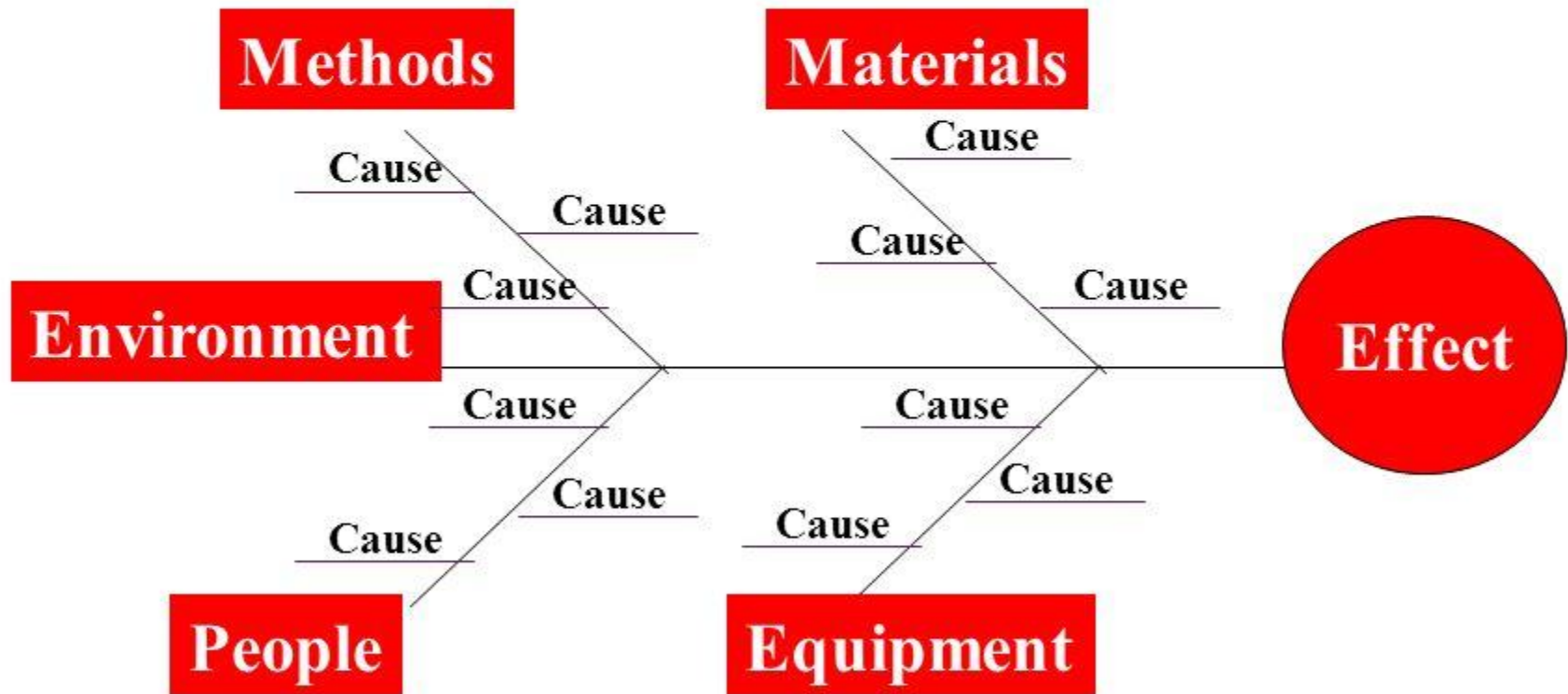
- Reduces cost
 - Product is right the first time, there are no rework costs, no waste of material, no waste of manpower, and no disruptions in the production process.
 - Fewer claims for warranties and guaranties.
 - Cost of poor quality goes down.
 - Operating costs reduced, resulting in increased profits.
- Improves reputation
 - Market reputation improved with organization's ability to produce good quality products that are made according to the requirements of the customers.
 - Satisfied customers are easier to retain and generate more business.
 - Solid reputation helps attract new customers. New customers equal an increase in revenue.
- Reduces execution time - Quality processes reduce the cycle time to complete orders and allows for more production time.

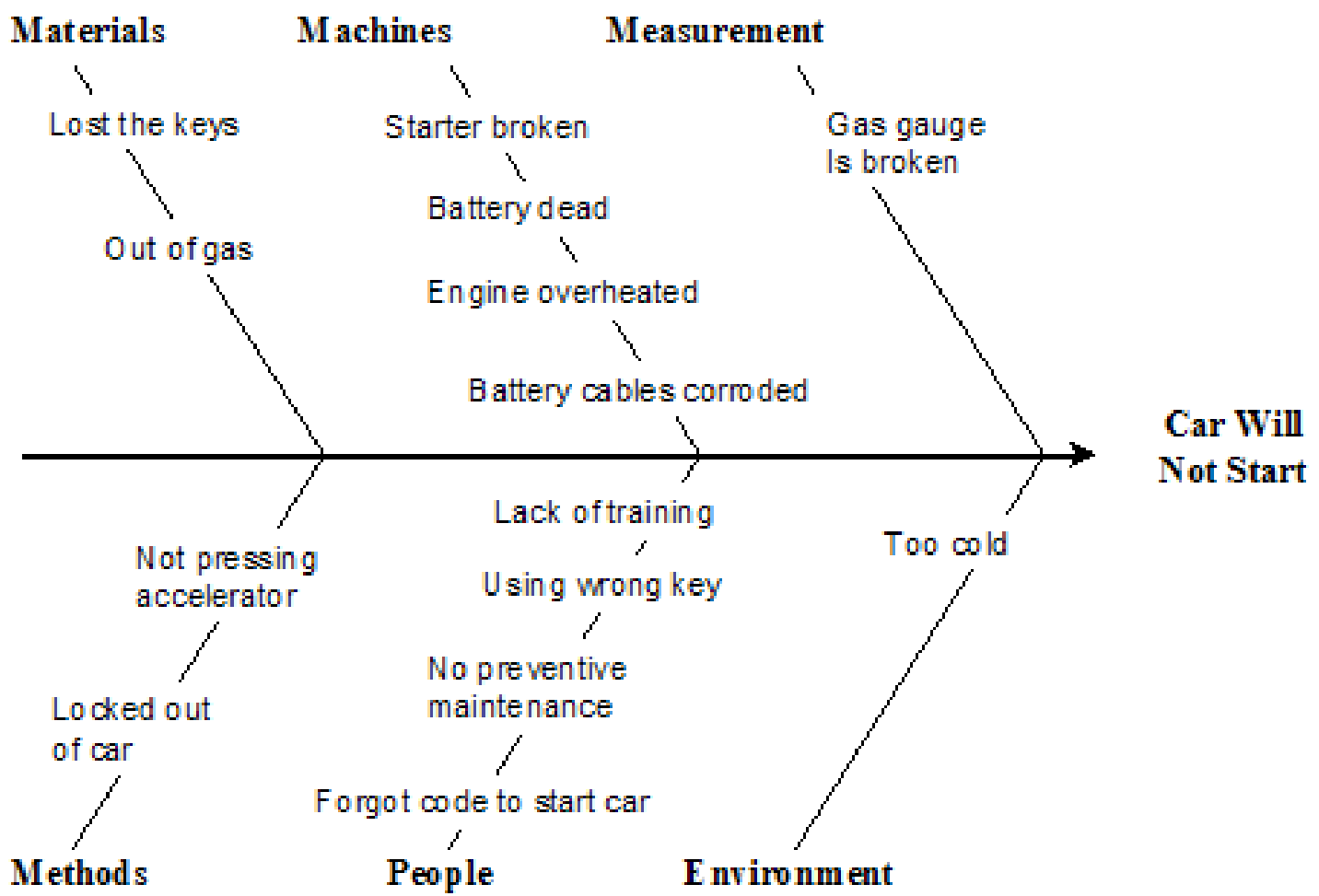


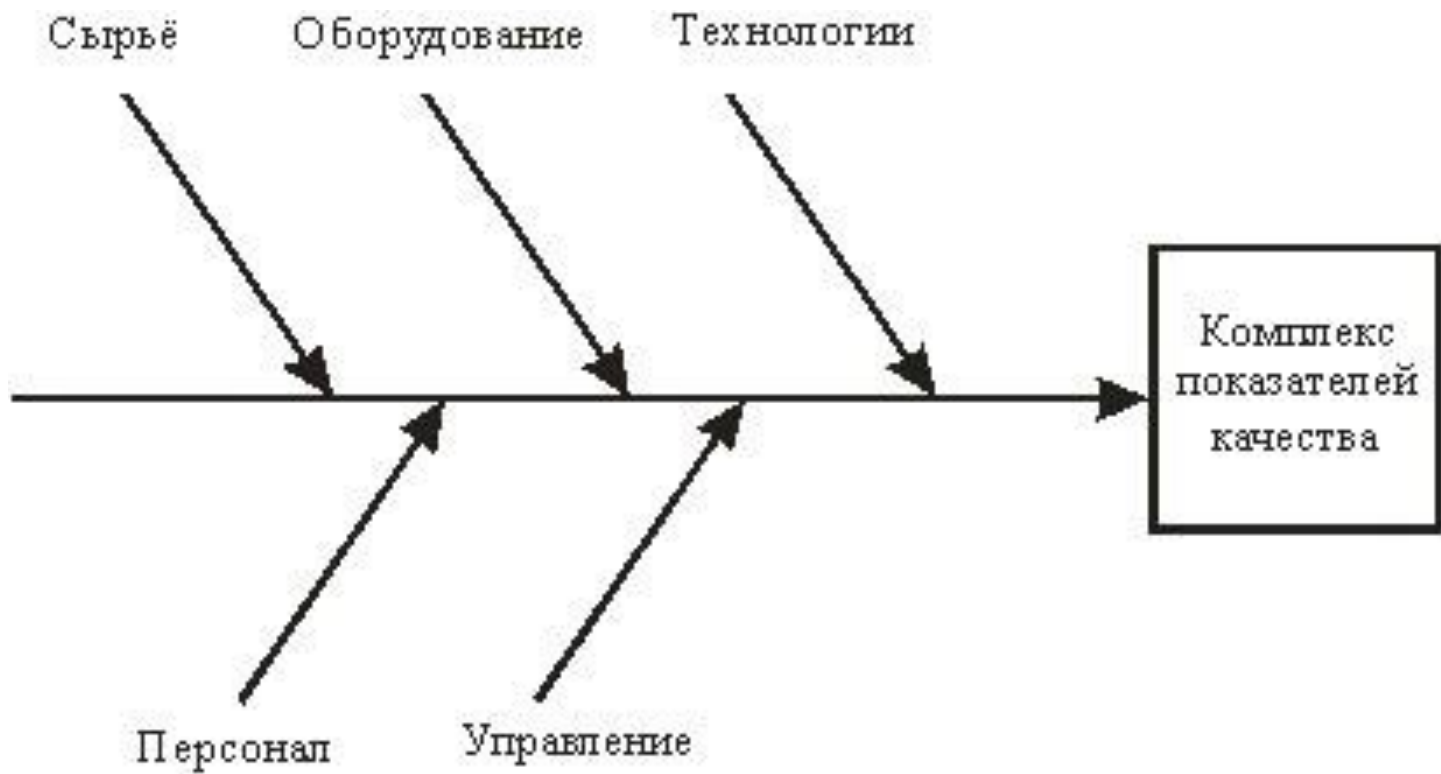
Key Takeaways from This lecture

- Without quality, your company will not survive.
- Use a written quality program to ensure you can offer your customers consistent products.
- Provide consistent products to keep production costs down and increase revenue.

Cause-and-Effect Diagram









Exercise

1. Find the lowest quality products.



1. Prepare suggestions for their improvement.