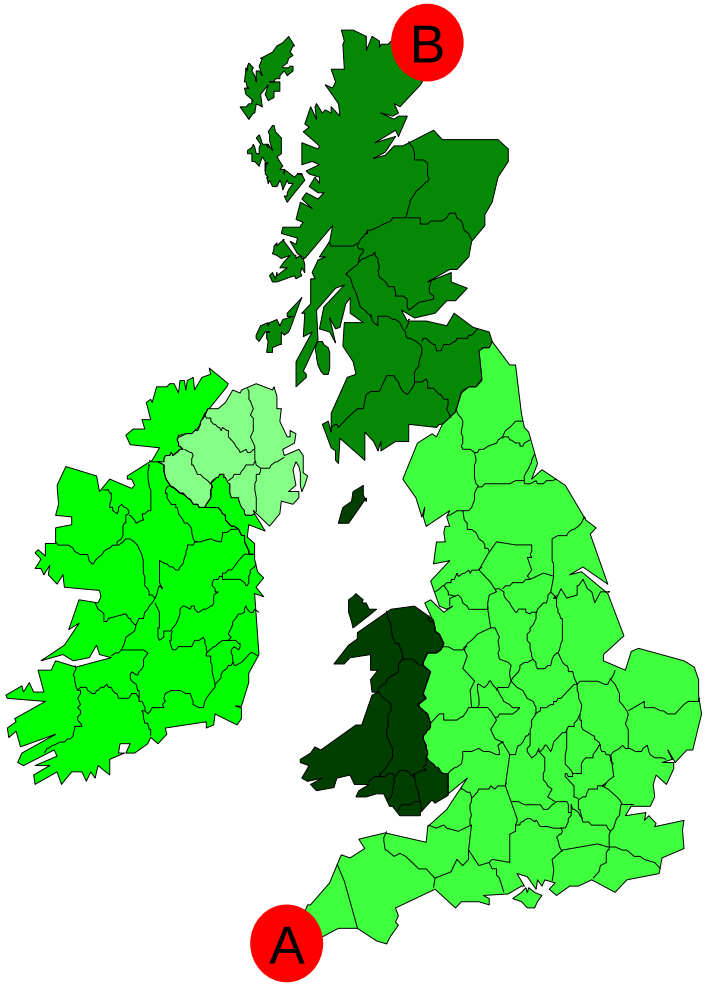
Management information systems
Project Management

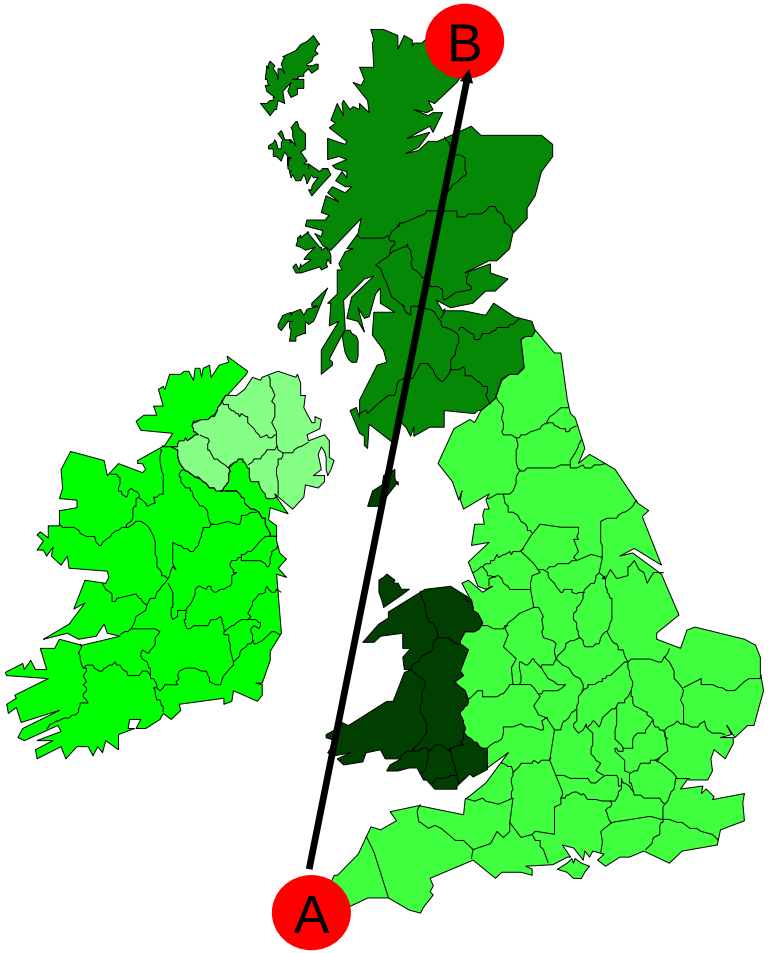
A Trip ... (1)



Would a trip without ...

A reason?

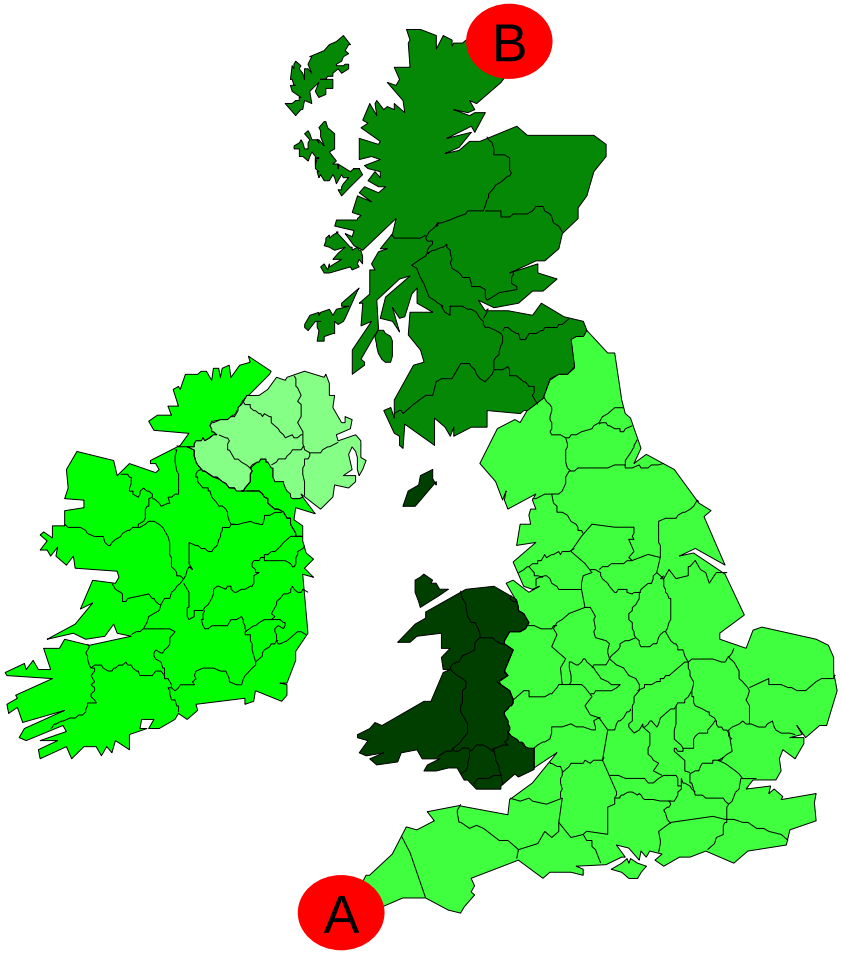
A Trip ...(2)

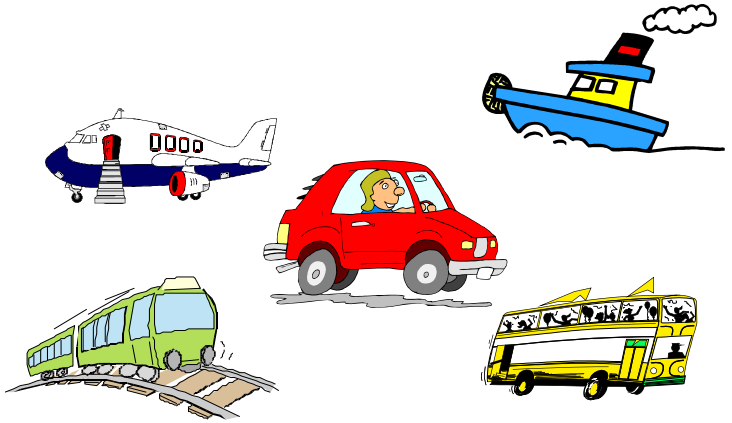


Would a trip without ...

Planning WHERE?

A Trip ...(3)

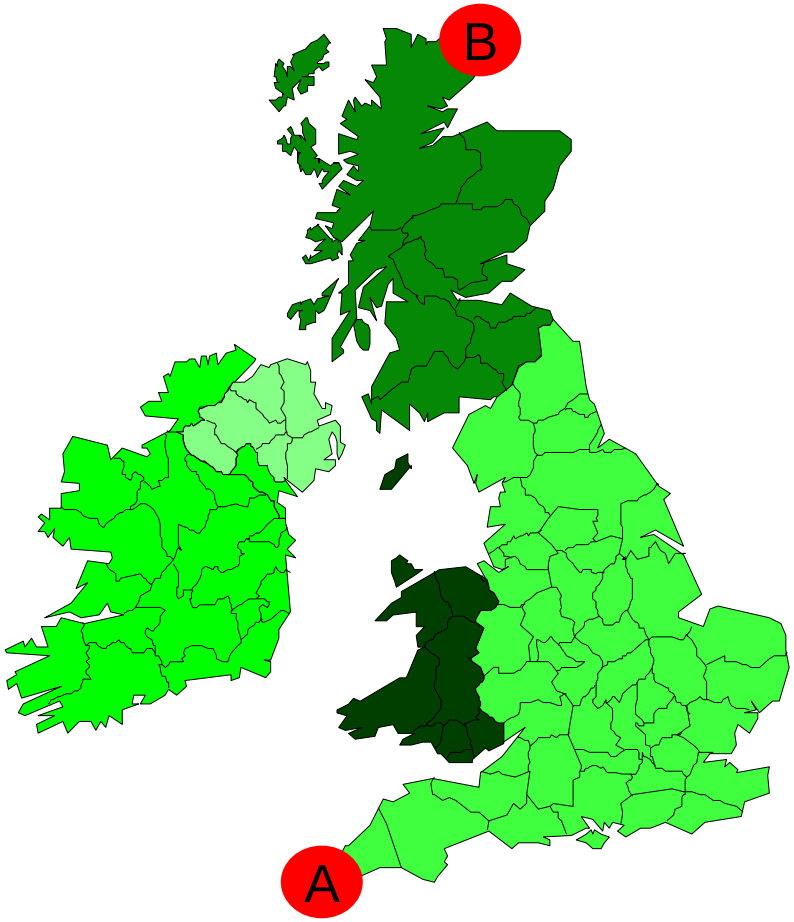




Would a trip without ...

Planning HOW ?

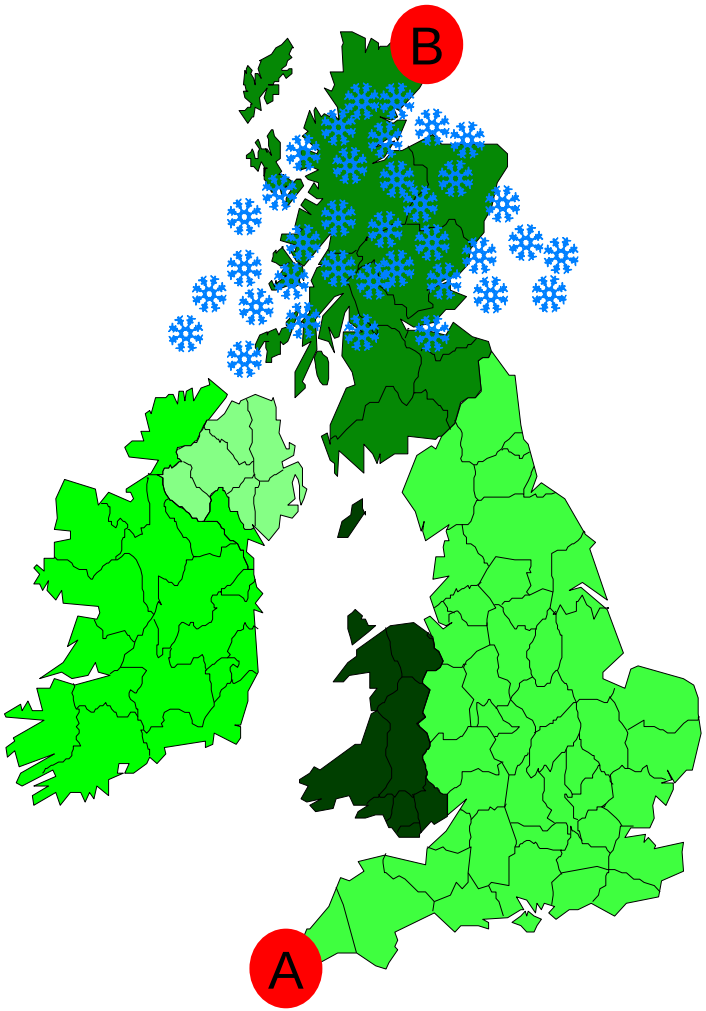
A Trip ...(4)



Would a trip without ...

Planning WHO ?

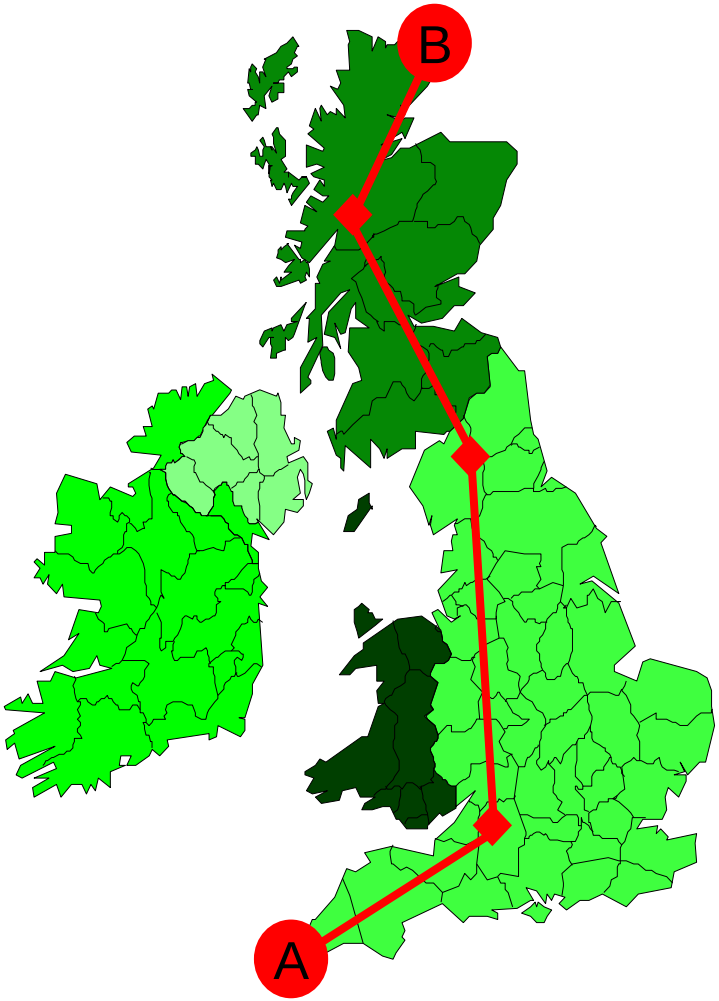
A Trip ... (5)



Would a trip without ...

Predict THE RISK?

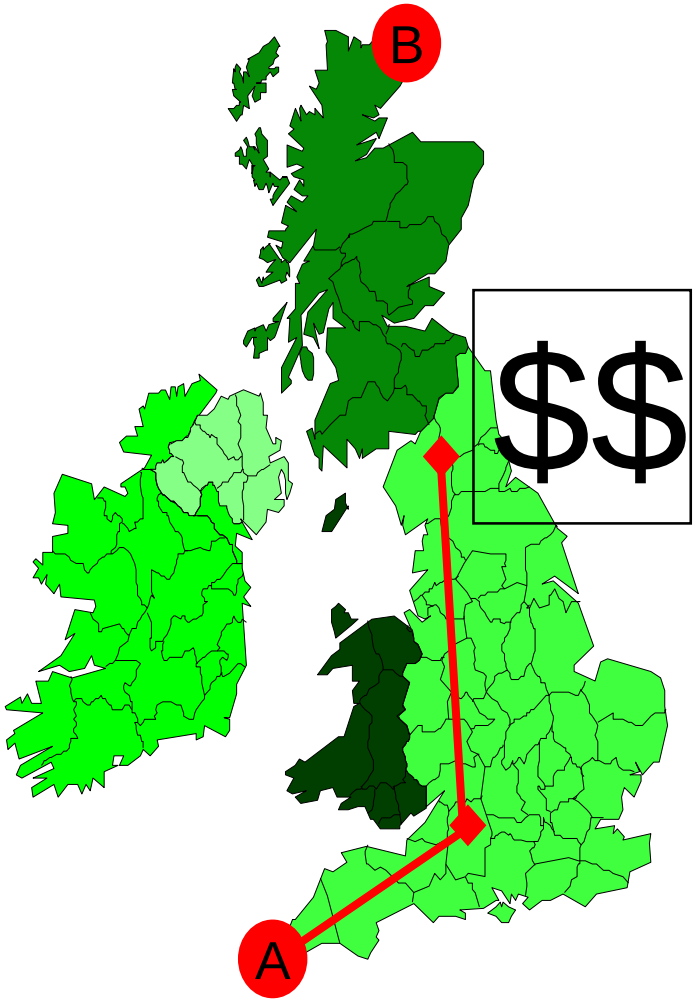
A Trip ... (6)



If the trip was long, would make her at once, or divide it

in stages?

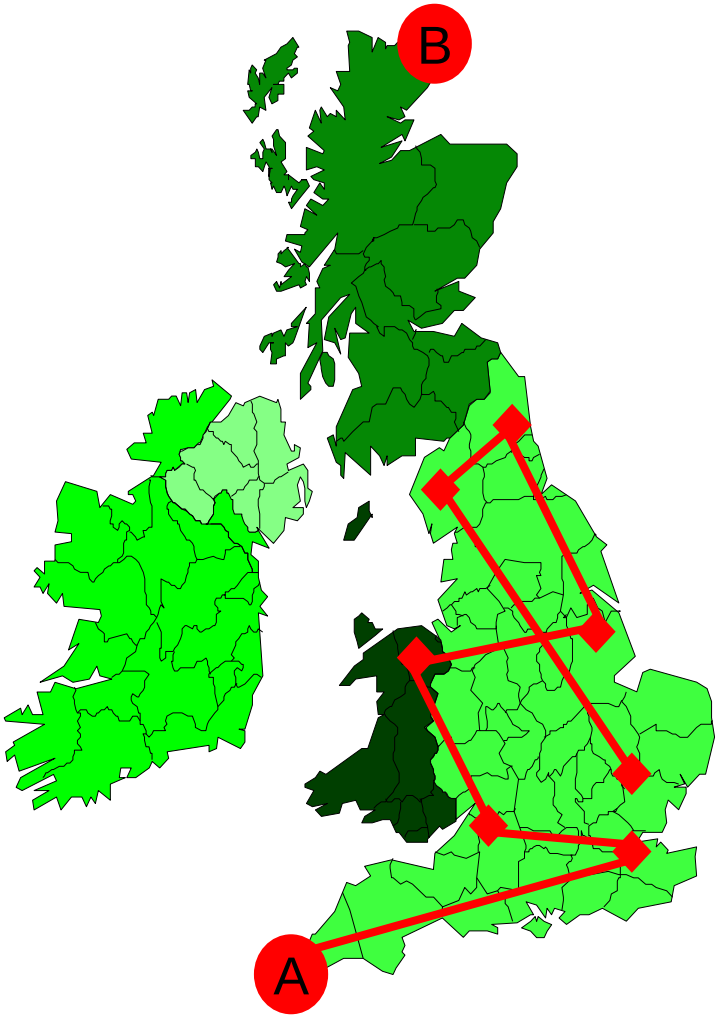
A Trip ...(7)



Wouldn't bother in estimating

its cost?

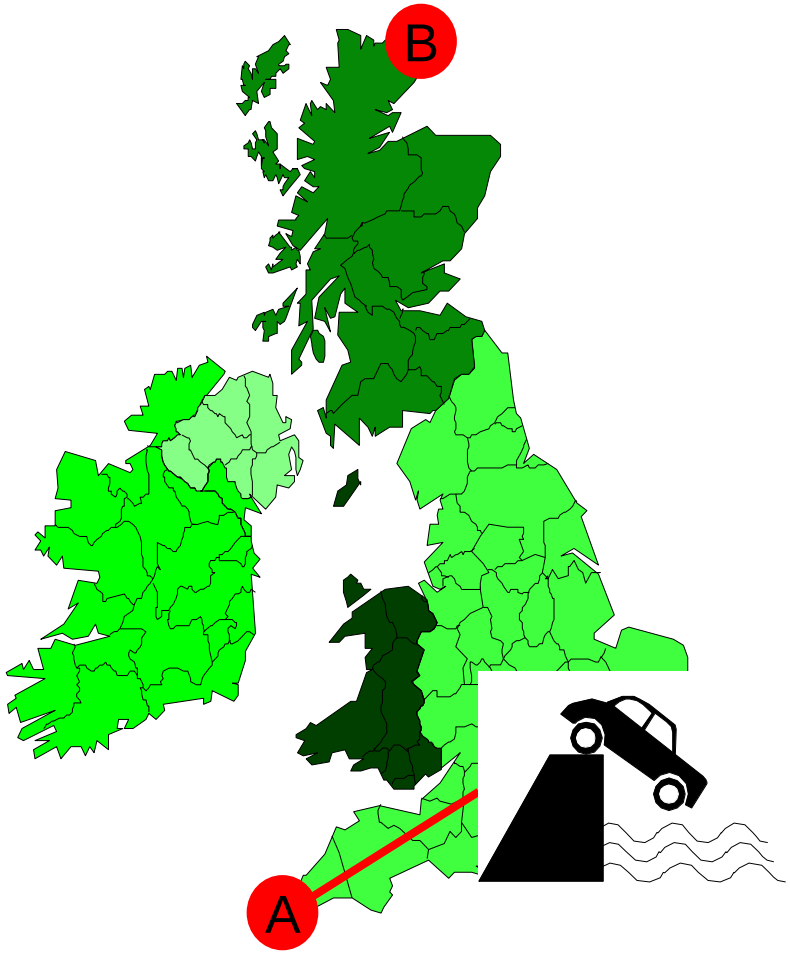
A Trip ... (8)



Would start the journey without

a MAP?

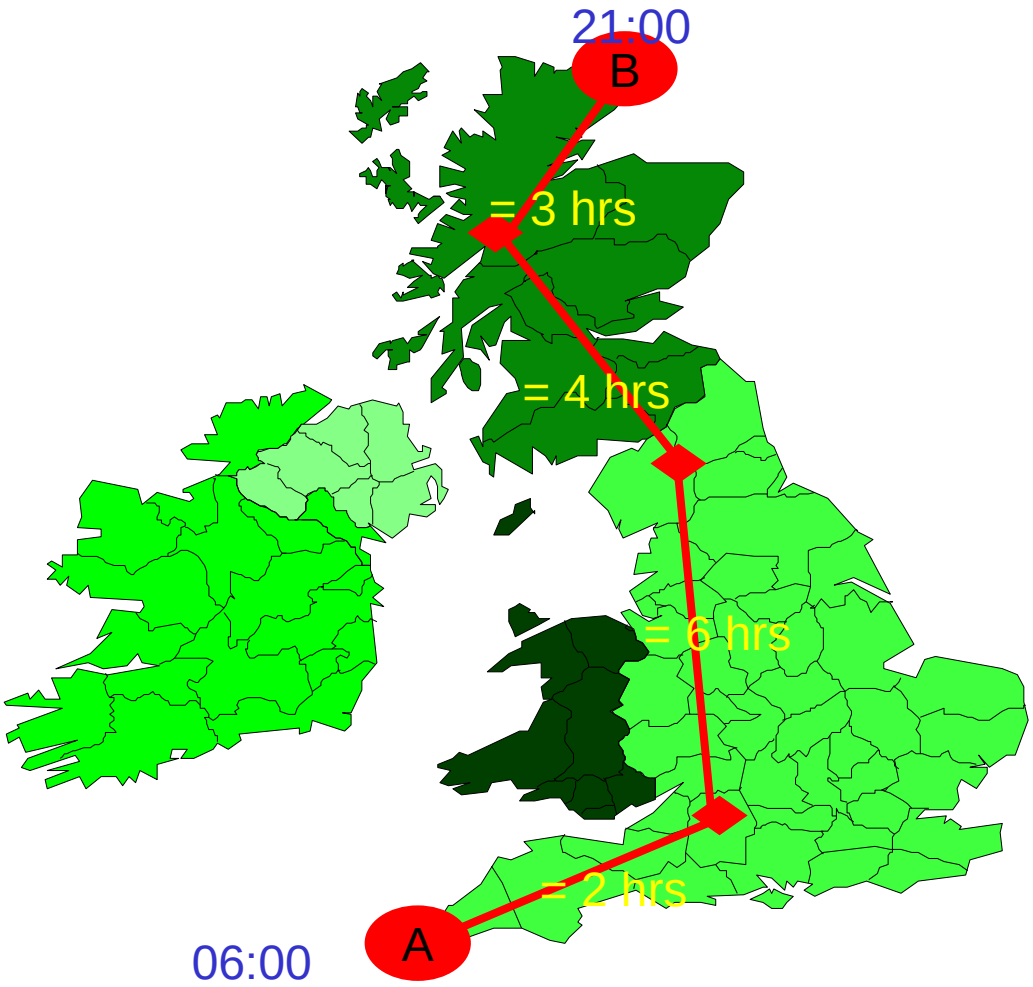
A Trip ... (9)



If the vehicle wasn’t familiar to you, wouldn't you get

any training?

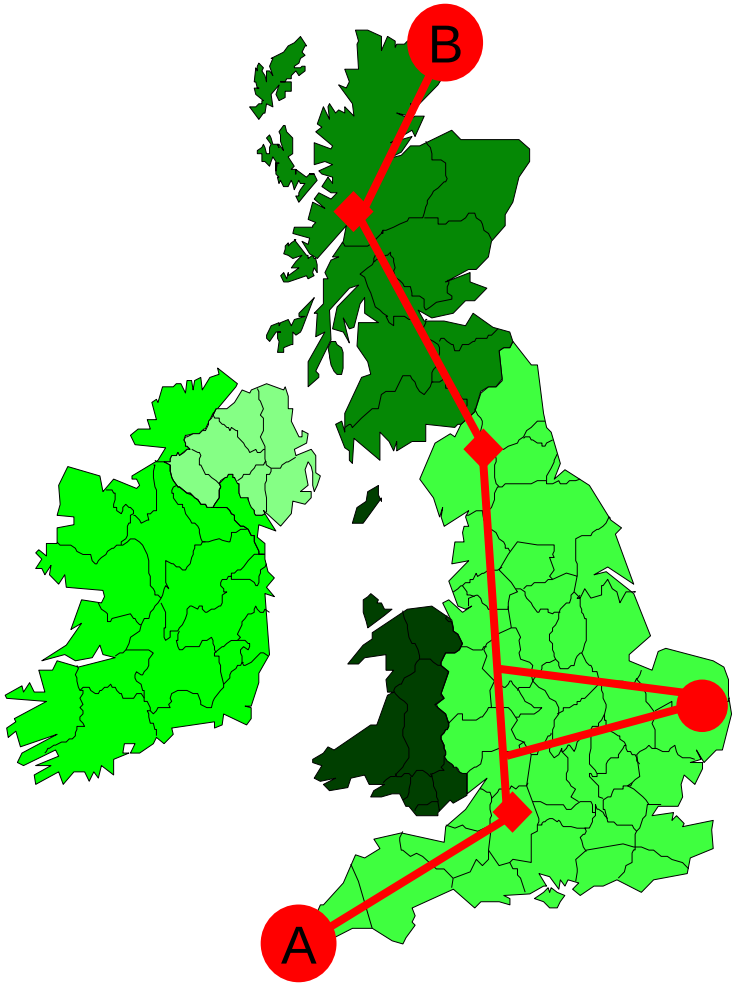
A Trip ... (10)



During the trip, would you know how long it was taking and where were you?

CONTROL

A Trip ... (11)



Probably would do some

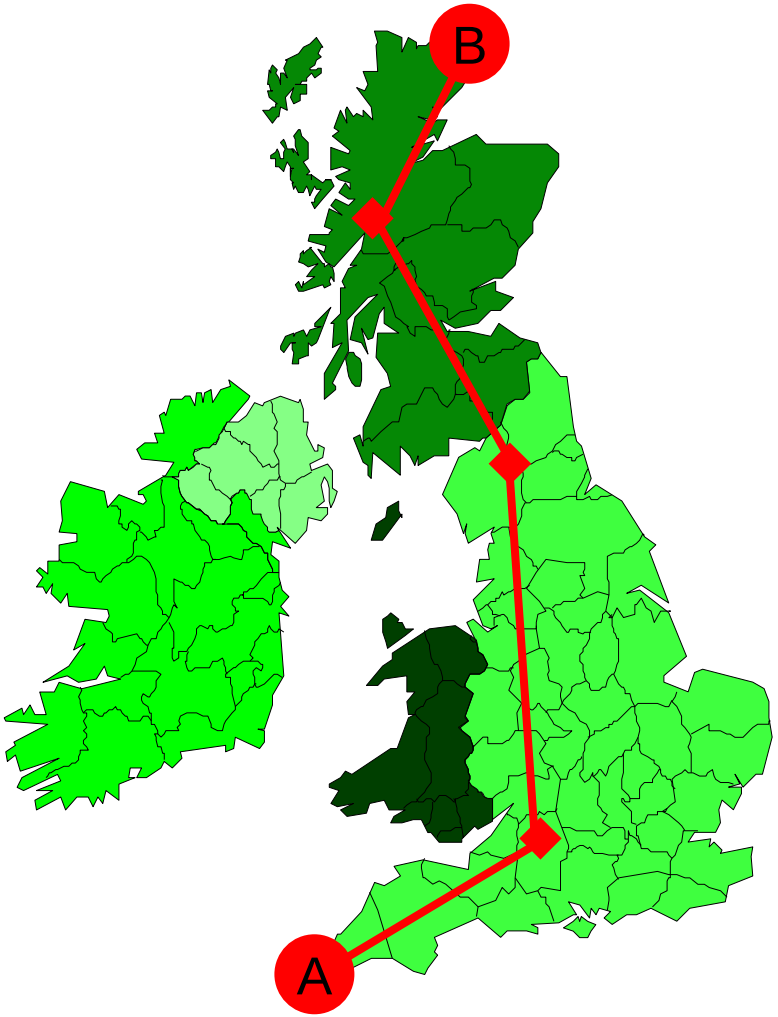
DEVIATIONS.

A Trip ... (12)

Would be required to resolve any

problems.

A Trip ... (13)



Who would you speak to about your trip?

COMMUNICATION

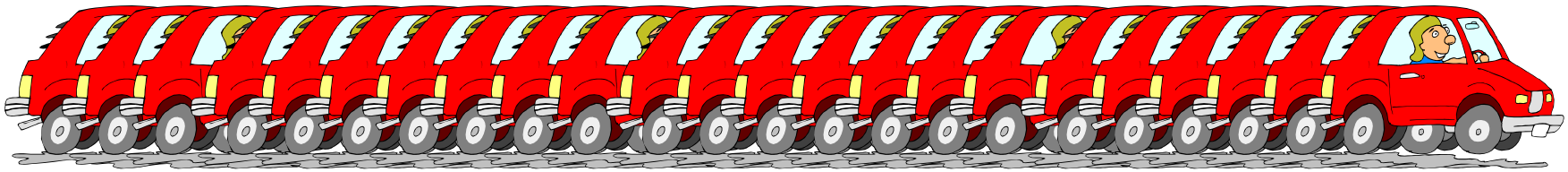
A Trip ... (14)

- General planning
  - A reason, WHERE, HOW, WHO
- Detailed planning and evaluation
  - THE RISK, in stages?, its cost, a MAP
- Preparing for the project
  - Training, COMMUNICATION
- Execution
  - CONTROL, DEVIATIONS, problems

So with…

- Well-defined objectives
- the suitable vehicle
- adequate planning people
- adequate training
- the proper communication

Should, indeed, have
a safe trip, to the right place, in the allotted time and spending just enough ...



Project

- Definition
  - is a temporary venture which aims to produce a particular product or service (PMBOK 2013) is any process that allows you to achieve a well-defined objective given in the presence of restrictions on use of resources.

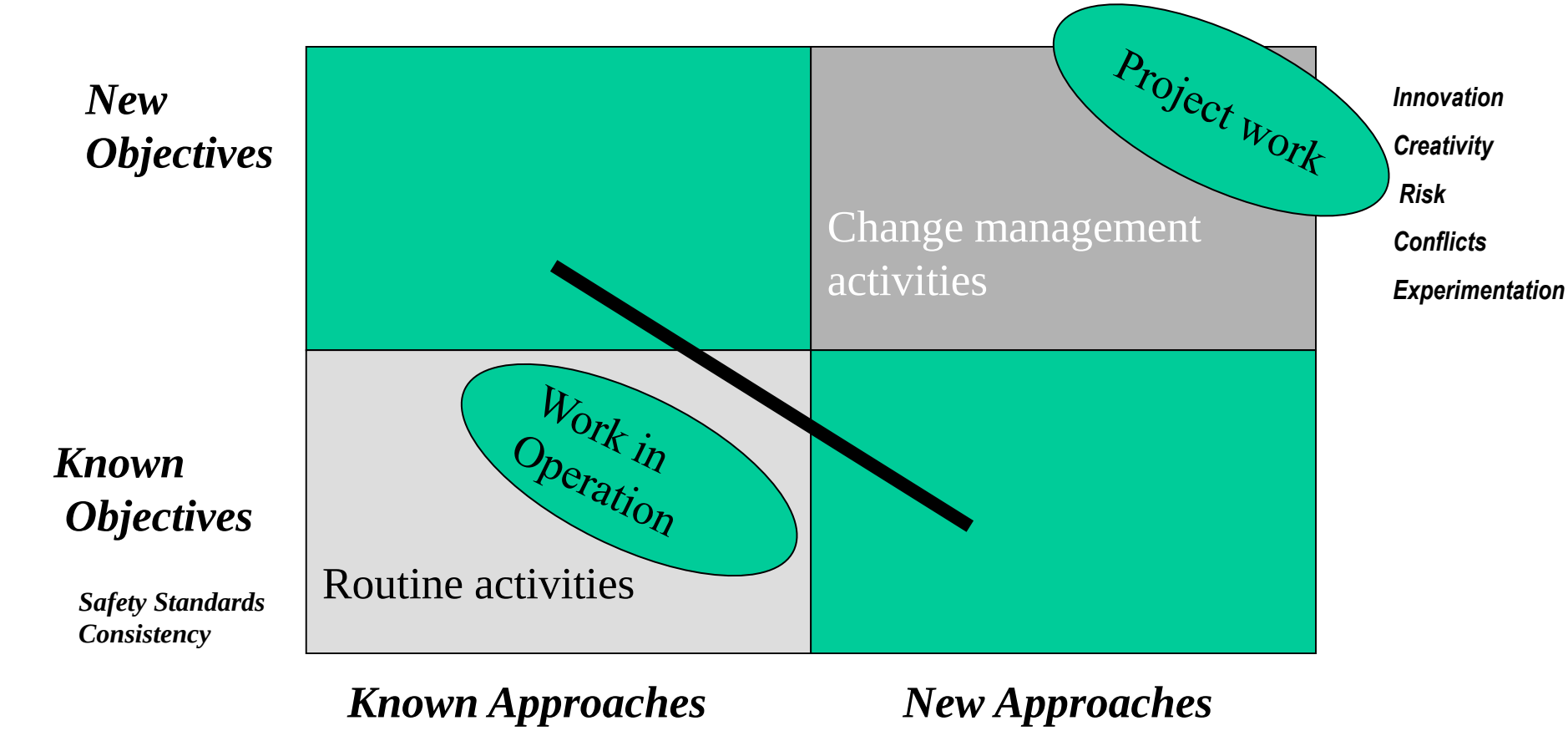
Main characteristics of a project

- Is unique:
  - as the product entities involved or environment in which it is carried out.
- Is complex:
  - there is no secure knowledge of how can be carried out successfully. The implementation will always be an attempt.
- Is finite:
  - it has a beginning and an end.
- Have competing and often conflicting goals:
  - Scope, cost, time and quality.
- Unleashes several changes:
  - one of the main concerns of it projects management is the management of CHANGE brought about by the final product.

What is meant by project management

- Application of knowledge, experience, tools and techniques to project activities in order to meet the requirements of the project;
- Art of directing and coordinating human and material resources throughout the life of a project;
  - through modern management techniques, reaching predetermined objectives;
  - fulfilling requirements of scope, quality, time and cost, as well as customer satisfaction and participants.
  - Good, Fast, Cheap

Project vs. operations



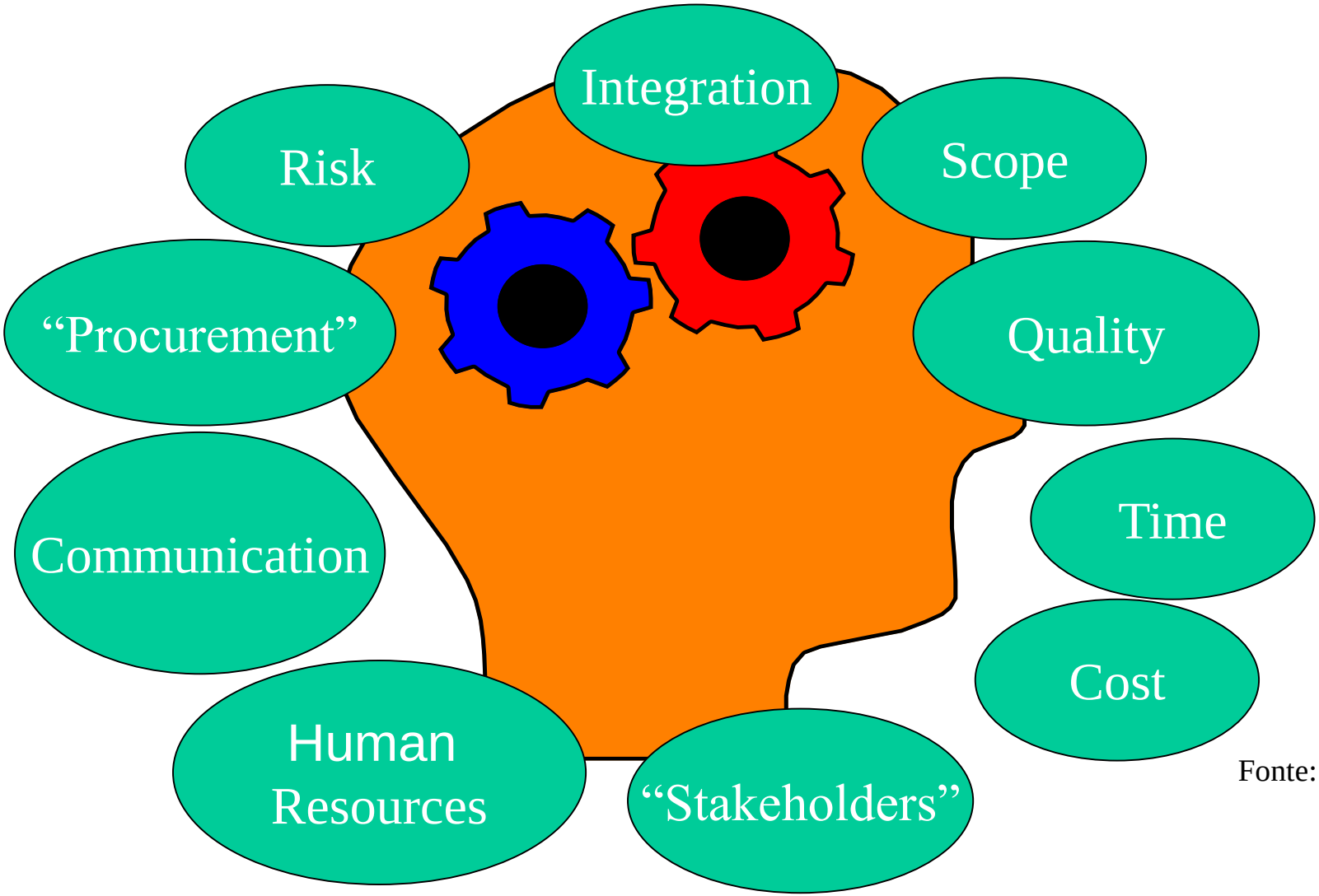
Standardization of project management

- PMI-Project Management Institute (PMI)
  - International Organization responsible for Standardization of theory, practice and professions in the field of project management established in 1969
  - more than 400,000 certified members in 165 countries
- 2017 PMBOK (Project Management Book Of Knowledge)
  - Set of standards and "best practices" in the area of project management
- Certifications PMI
  - Certified Associate in Project Management (CAPM)
  - Project Management Professional (PMP)
  - Program Management Professional (PgMP)
  - Agile Practitioner Certified PMI (PMI-ACP)
  - PMI Risk Management Professional (PMI-RMP),
  - PMI Scheduling Professional (PMI-SP)

PMBOK

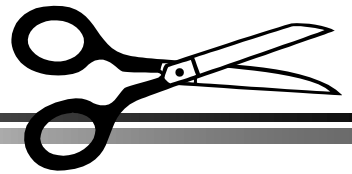
- Identifies a set of project management knowledge widely recognized as good practice;
- A good practice does not mean that knowledge and practices should be applied uniformly to all projects regardless of whether or not they are appropriate.
- The Guide has a systemic approach, based on processes, in order to describe in an organized manner the work to be performed during the project. This approach resembles – if the employed by other standards such as ISO 9000.
- The processes described are related and interact while driving to work.
- The description of each one of them is made in terms of:
  - inputs (documents, plans, drawings, etc.);
  - Tools & techniques (which apply to entries);
  - Outputs (documents, products etc.).
- The last edition (6th) came out in September 2017

Knowledge Areas of project management (PMBOK)

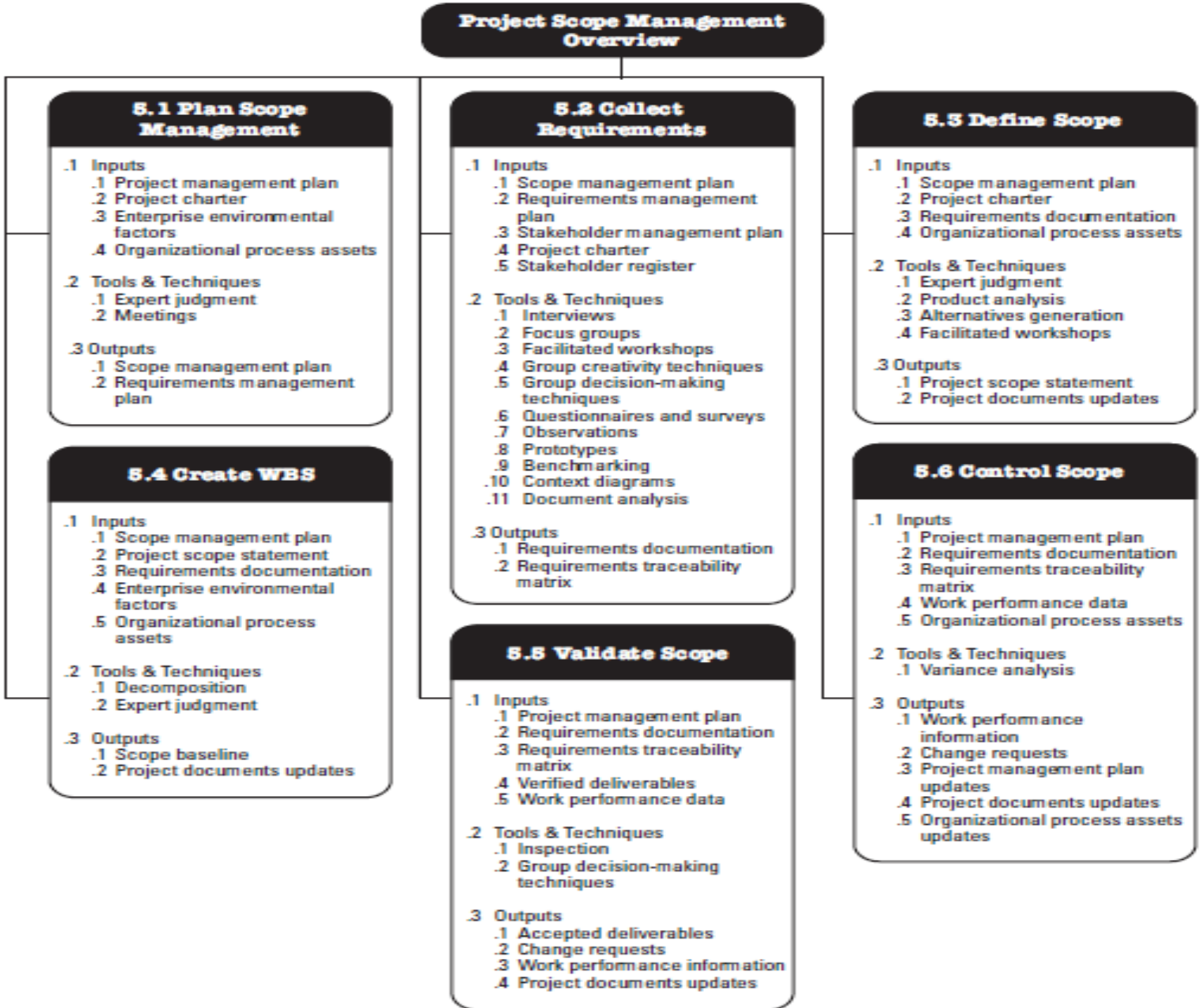


Fonte: PMBOK

Scope Management



- Processes necessary to ensure that only those activities necessary to achieve the objectives of the project will be executed.
  - Planning the management of the project;
  - Collection of requirements;
  - Define the scope of the project;
  - Create the WBS (Work Breakdown Structure);
  - Validate the scope;
  - Track changes to the scope


Project Scope Management Overview
5.1 Plan Scope Management
.1 Inputs
.1 Project management plan
.2 Project charter
.3 Enterprise environmental factors
.4 Organizational process assets
.2 Tools & Techniques
.1 Expert judgment
.2 Meetings
.3 Outputs
.1 Scope management plan
.2 Requirements management plan
5.2 Collect Requirements
.1 Inputs
.1 Scope management plan
.2 Requirements management plan
.3 Stakeholder management plan
.4 Project charter
.5 Stakeholder register
.2 Tools & Techniques
.1 Interviews
.2 Focus groups
.3 Facilitated workshops
.4 Group creativity techniques
.5 Group decision-making techniques
.6 Questionnaires and surveys
.7 Observations
.8 Prototypes
.9 Benchmarking
.10 Context diagrams
.11 Document analysis
.3 Outputs
.1 Requirements documentation
.2 Requirements traceability matrix
5.3 Define Scope
.1 Inputs
.1 Scope management plan
.2 Project charter
.3 Requirements documentation
.4 Organizational process assets
.2 Tools & Techniques
.1 Expert judgment
.2 Product analysis
.3 Alternatives generation
.4 Facilitated workshops
.3 Outputs
.1 Project scope statement
.2 Project documents updates
5.4 Create WBS
.1 Inputs
.1 Scope management plan
.2 Project scope statement
.3 Requirements documentation
.4 Enterprise environmental factors
.5 Organizational process assets
.2 Tools & Techniques
.1 Decomposition
.2 Expert judgment
.3 Outputs
.1 Scope baseline
.2 Project documents updates
5.5 Validate Scope
.1 Inputs
.1 Project management plan
.2 Requirements documentation
.3 Requirements traceability matrix
.4 Verified deliverables
.5 Work performance data
.2 Tools & Techniques
.1 Inspection
.2 Group decision-making techniques
.3 Outputs
.1 Accepted deliverables
.2 Change requests
.3 Work performance information
.4 Project documents updates
5.6 Control Scope
.1 Inputs
.1 Project management plan
.2 Requirements documentation
.3 Requirements traceability matrix
.4 Work performance data
.5 Organizational process assets
.2 Tools & Techniques
.1 Variance analysis
.3 Outputs
.1 Work performance information
.2 Change requests
.3 Project management plan updates
.4 Project documents updates
.5 Organizational process assets updates

Time management

- Includes a set of processes that aim to ensure that the project is completed in a timely manner.
  - Planning time management
  - Define the activities
  - Sequence activities
  - Estimate the resources needed
  - Estimate the duration of activities
  - Development of schedule
  - Control schedule

Project Time Management Overview

6.1 Plan Schedule Management

.1 Inputs
- .1 Project management plan
- .2 Project charter
- .3 Enterprise environmental factors
- .4 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Analytical techniques
- .3 Meetings

.3 Outputs
- .1 Schedule management plan

6.2 Define Activities

.1 Inputs
- .1 Schedule management plan
- .2 Scope baseline
- .3 Enterprise environmental factors
- .4 Organizational process assets

.2 Tools & Techniques
- .1 Decomposition
- .2 Rolling wave planning
- .3 Expert judgment

.3 Outputs
- .1 Activity list
- .2 Activity attributes
- .3 Milestone list

6.3 Sequence Activities

.1 Inputs
- .1 Schedule management plan
- .2 Activity list
- .3 Activity attributes
- .4 Milestone list
- .5 Project scope statement
- .6 Enterprise environmental factors
- .7 Organizational process assets

.2 Tools & Techniques
- .1 Precedence diagramming method (PDM)
- .2 Dependency determination
- .3 Leads and lags

.3 Outputs
- .1 Project schedule network diagrams
- .2 Project documents updates

6.4 Estimate Activity Resources

.1 Inputs
- .1 Schedule management plan
- .2 Activity list
- .3 Activity attributes
- .4 Resource calendars
- .5 Risk register
- .6 Activity cost estimates
- .7 Enterprise environmental factors
- .8 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Alternative analysis
- .3 Published estimating data
- .4 Bottom-up estimating
- .5 Project management software

.3 Outputs
- .1 Activity resource requirements
- .2 Resource breakdown structure
- .3 Project documents updates

6.5 Estimate Activity Durations

.1 Inputs
- .1 Schedule management plan
- .2 Activity list
- .3 Activity attributes
- .4 Activity resource requirements
- .5 Resource calendars
- .6 Project scope statement
- .7 Risk register
- .8 Resource breakdown structure
- .9 Enterprise environmental factors
- .10 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Analogous estimating
- .3 Parametric estimating
- .4 Three-point estimating
- .5 Group decision-making techniques
- .6 Reserve analysis

.3 Outputs
- .1 Activity duration estimates
- .2 Project documents updates

6.6 Develop Schedule

.1 Inputs
- .1 Schedule management plan
- .2 Activity list
- .3 Activity attributes
- .4 Project schedule network diagrams
- .5 Activity resource requirements
- .6 Resource calendars
- .7 Activity duration estimates
- .8 Project scope statement
- .9 Risk register
- .10 Project staff assignments
- .11 Resource breakdown structure
- .12 Enterprise environmental factors
- .13 Organizational process assets

.2 Tools & Techniques
- .1 Schedule network analysis
- .2 Critical path method
- .3 Critical chain method
- .4 Resource optimization techniques
- .5 Modeling techniques
- .6 Leads and lags
- .7 Schedule compression
- .8 Scheduling tool

.3 Outputs
- .1 Schedule baseline
- .2 Project schedule
- .3 Schedule data
- .4 Project calendars
- .5 Project management plan updates
- .6 Project documents updates

6.7 Control Schedule

.1 Inputs
- .1 Project management plan
- .2 Project schedule
- .3 Work performance data
- .4 Project calendars
- .5 Schedule data
- .6 Organizational process assets

.2 Tools & Techniques
- .1 Performance reviews
- .2 Project management software
- .3 Resource optimization techniques
- .4 Modeling techniques
- .5 Leads and lags
- .6 Schedule compression
- .7 Scheduling tool

.3 Outputs
- .1 Work performance information
- .2 Schedule forecasts
- .3 Change requests
- .4 Project management plan updates
- .5 Project documents updates
- .6 Organizational process assets updates

Management of Costs

- Set of processes needed to ensure that the project is completed within the approved budget
  - Plan the management costs
  - Estimate the costs
  - Produce the budget
  - Control of the budgetary implementation and deviations

Project Cost Management Overview

7.1 Plan Cost Management

.1 Inputs
- .1 Project management plan
- .2 Project charter
- .3 Enterprise environmental factors
- .4 Organizational process assets

2. Tools & Techniques
- .1 Expert judgment
- .2 Analytical techniques
- .3 Meetings

.3 Outputs
- .1 Cost management plan

7.2 Estimate Costs

.1 Inputs
- .1 Cost management plan
- .2 Human resource management plan
- .3 Scope baseline
- .4 Project schedule
- .5 Risk register
- .6 Enterprise environmental factors
- .7 Organizational process assets

2. Tools & Techniques
- .1 Expert judgment
- .2 Analogous estimating
- .3 Parametric estimating
- .4 Bottom-up estimating
- .5 Three-point estimating
- .6 Reserve analysis
- .7 Cost of quality
- .8 Project management software
- .9 Vendor bid analysis
- .10 Group decision-making techniques

.3 Outputs
- .1 Activity cost estimates
- .2 Basis of estimates
- .3 Project documents updates

7.3 Determine Budget

.1 Inputs
- .1 Cost management plan
- .2 Scope baseline
- .3 Activity cost estimates
- .4 Basis of estimates
- .5 Project schedule
- .6 Resource calendars
- .7 Risk register
- .8 Agreements
- .9 Organizational process assets

.2 Tools & Techniques
- .1 Cost aggregation
- .2 Reserve analysis
- .3 Expert judgment
- .4 Historical relationships
- .5 Funding limit reconciliation

.3 Outputs
- .1 Cost baseline
- .2 Project funding requirements
- .3 Project documents updates

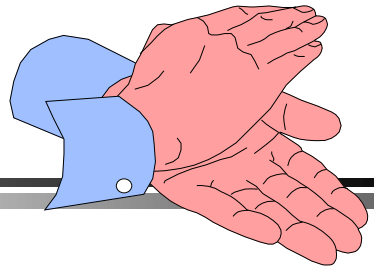
7.4 Control Costs

.1 Inputs
- .1 Project management plan
- .2 Project funding requirements
- .3 Work performance data
- .4 Organizational process assets

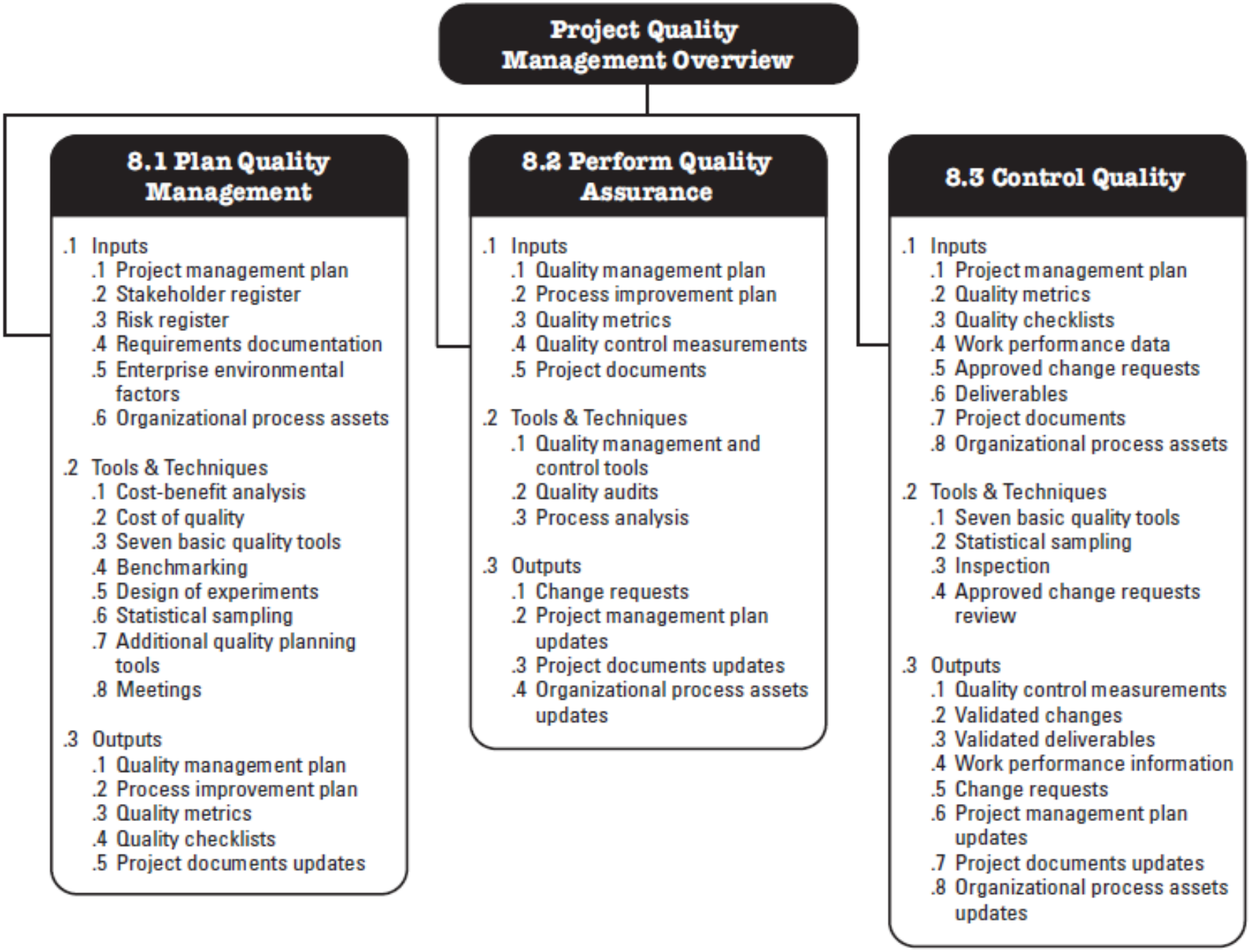
.2 Tools & Techniques
- .1 Earned value management
- .2 Forecasting
- .3 To-complete performance index (TCPI)
- .4 Performance reviews
- .5 Project management software
- .6 Reserve analysis

.3 Outputs
- .1 Work performance information
- .2 Cost forecasts
- .3 Change requests
- .4 Project management plan updates
- .5 Project documents updates
- .6 Organizational process assets updates

Quality management



- Managing quality is "conform to customer requirements";
- 5 key elements:
  - Quality product – answer to the need of the customer
  - Management process quality-appropriate procedures of quality assurance
  - Project management for prevention – clear specification, use of standards, experience, skilled resources, unbiased reviews
  - Quality control and corrections – planned global control interventions
  - Attitude for the demand for zero defects
- Three processes:
  - Quality planning-Identify which quality standards are important to the project;
  - Ensure quality
  - Control quality


Project Quality Management Overview
8.1 Plan Quality Management
.1 Inputs
.1 Project management plan
.2 Stakeholder register
.3 Risk register
.4 Requirements documentation
.5 Enterprise environmental factors
.6 Organizational process assets
.2 Tools & Techniques
.1 Cost-benefit analysis
.2 Cost of quality
.3 Seven basic quality tools
.4 Benchmarking
.5 Design of experiments
.6 Statistical sampling
.7 Additional quality planning tools
.8 Meetings
.3 Outputs
.1 Quality management plan
.2 Process improvement plan
.3 Quality metrics
.4 Quality checklists
.5 Project documents updates
8.2 Perform Quality Assurance
.1 Inputs
.1 Quality management plan
.2 Process improvement plan
.3 Quality metrics
.4 Quality control measurements
.5 Project documents
.2 Tools & Techniques
.1 Quality management and control tools
.2 Quality audits
.3 Process analysis
.3 Outputs
.1 Change requests
.2 Project management plan updates
.3 Project documents updates
.4 Organizational process assets updates
8.3 Control Quality
.1 Inputs
.1 Project management plan
.2 Quality metrics
.3 Quality checklists
.4 Work performance data
.5 Approved change requests
.6 Deliverables
.7 Project documents
.8 Organizational process assets
.2 Tools & Techniques
.1 Seven basic quality tools
.2 Statistical sampling
.3 Inspection
.4 Approved change requests review
.3 Outputs
.1 Quality control measurements
.2 Validated changes
.3 Validated deliverables
.4 Work performance information
.5 Change requests
.6 Project management plan updates
.7 Project documents updates
.8 Organizational process assets updates

Human resource management

- Define which resources to be allocated and how they should be managed and organized in order to achieve the objective-type of structure, leadership, motivation, ...
  - Define the organizational structure of the project, adjusted to your needs, including the functions in the project and the definition of authority and responsibility.
  - Select and affect people with the appropriate skills.
  - Develop expertise and individual and group capacities to allow the performance of the project.
  - Manage the project team

Project Human Resource Management Overview

9.1 Plan Human Resource Management

.1 Inputs
- .1 Project management plan
- .2 Activity resource requirements
- .3 Enterprise environmental factors
- .4 Organizational process assets

.2 Tools & Techniques
- .1 Organization charts and position descriptions
- .2 Networking
- .3 Organizational theory
- .4 Expert judgment
- .5 Meetings

.3 Outputs
- .1 Human resource management plan

9.2 Acquire Project Team

.1 Inputs
- .1 Human resource management plan
- .2 Enterprise environmental factors
- .3 Organizational process assets

.2 Tools & Techniques
- .1 Pre-assignment
- .2 Negotiation
- .3 Acquisition
- .4 Virtual teams
- .5 Multi-criteria decision analysis

.3 Outputs
- .1 Project staff assignments
- .2 Resource calendars
- .3 Project management plan updates

9.3 Develop Project Team

.1 Inputs
- .1 Human resource management plan
- .2 Project staff assignments
- .3 Resource calendars

.2 Tools & Techniques
- .1 Interpersonal skills
- .2 Training
- .3 Team-building activities
- .4 Ground rules
- .5 Colocation
- .6 Recognition and rewards
- .7 Personnel assessment tools

.3 Outputs
- .1 Team performance assessments
- .2 Enterprise environmental factors updates

9.4 Manage Project Team

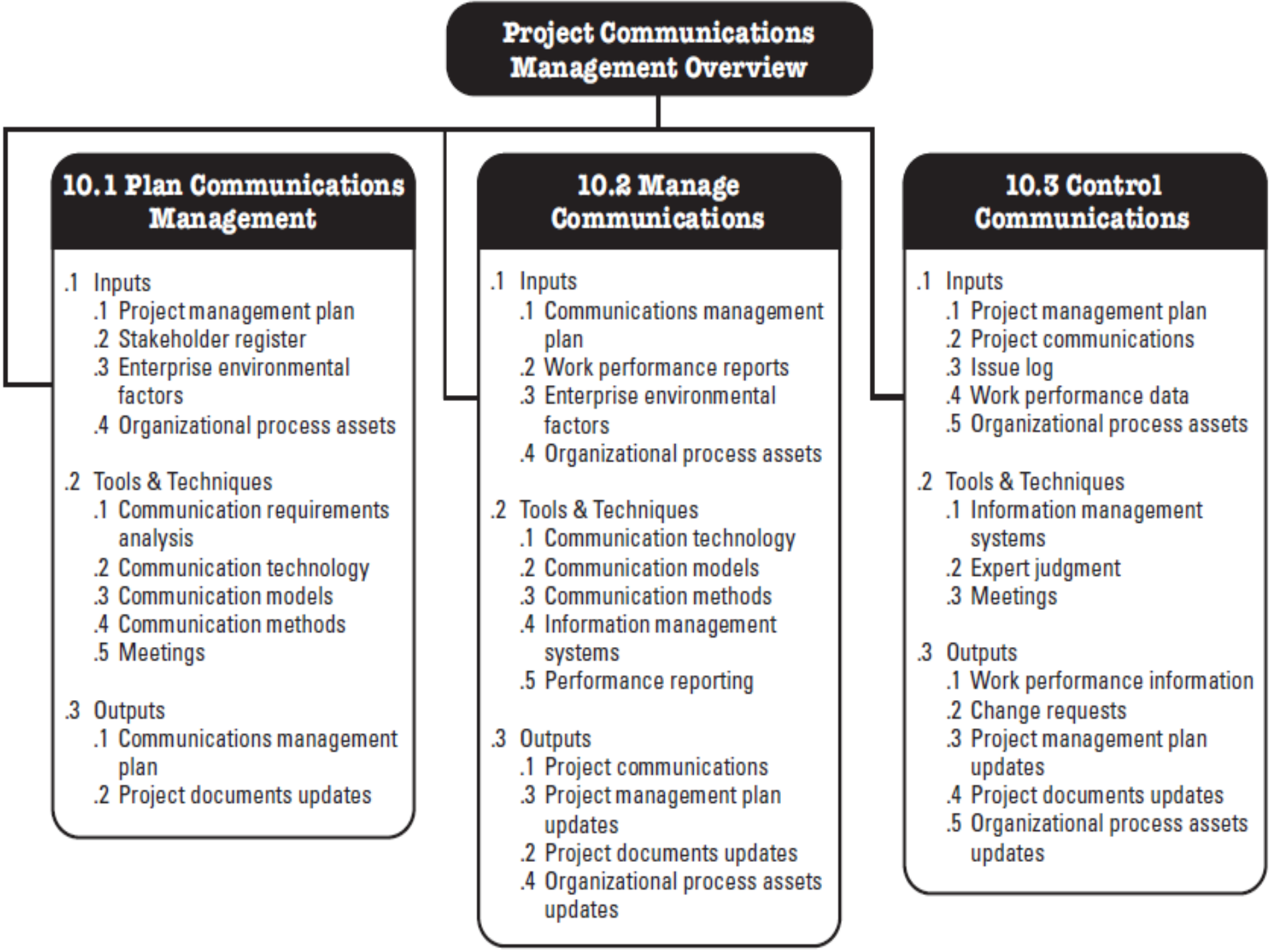
.1 Inputs
- .1 Human resource management plan
- .2 Project staff assignments
- .3 Team performance assessments
- .4 Issue log
- .5 Work performance reports
- .6 Organizational process assets

.2 Tools & Techniques
- .1 Observation and conversation
- .2 Project performance appraisals
- .3 Conflict management
- .4 Interpersonal skills

.3 Outputs
- .1 Change requests
- .2 Project management plan updates
- .3 Project documents updates
- .4 Enterprise environmental factors updates
- .5 Organizational process assets updates

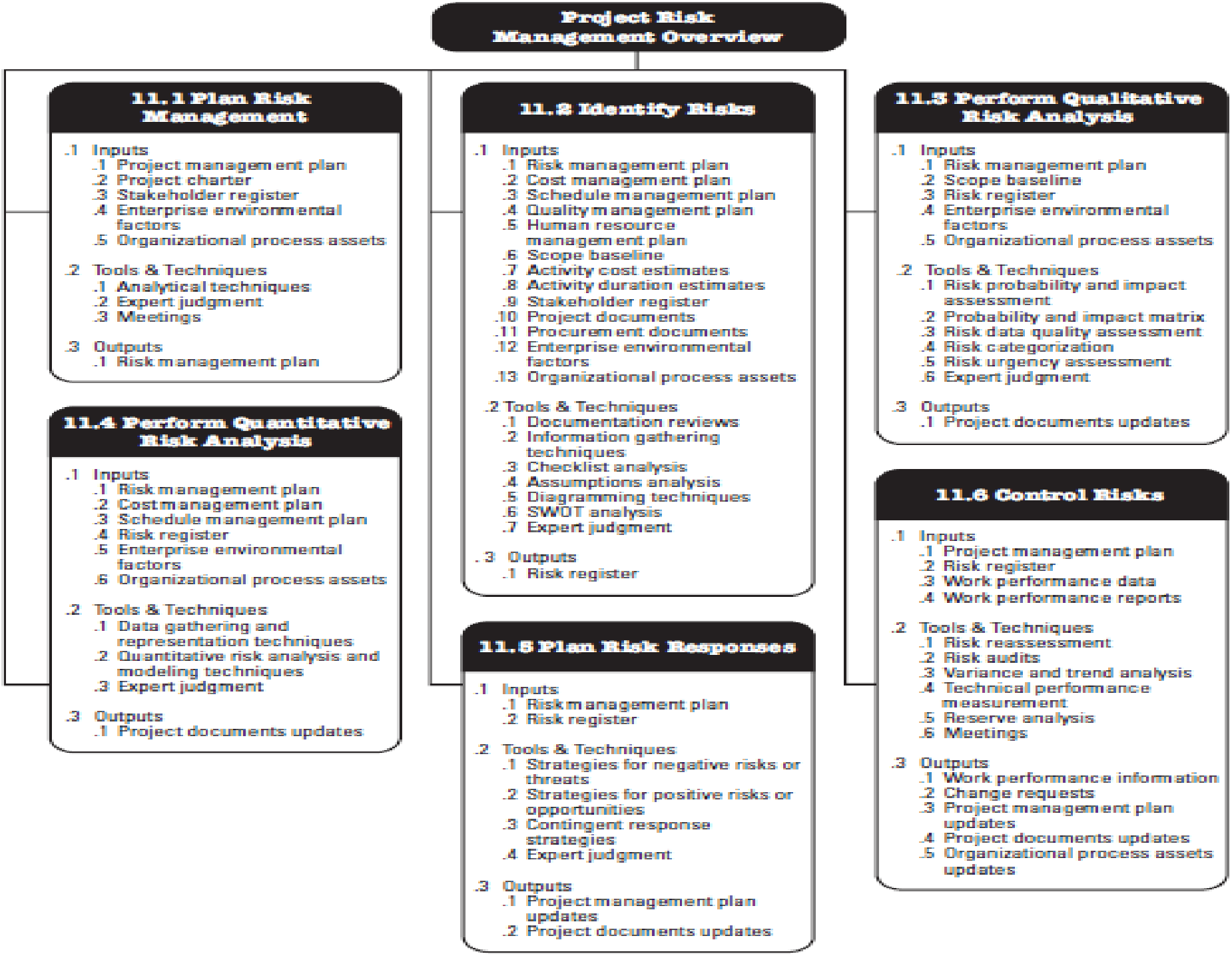
Communication management

- Includes the processes required to ensure easy and efficient communication, and that the information of the project, is not only appropriate, but also stored and distributed according to the specificity of each phase and each element.
  - Communication planning.
  - Communication management.
  - Reporting system to measure the status and progress of the project.

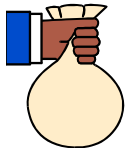

Project Communications Management Overview
10.1 Plan Communications Management
.1 Inputs
.1 Project management plan
.2 Stakeholder register
.3 Enterprise environmental factors
.4 Organizational process assets
.2 Tools & Techniques
.1 Communication requirements analysis
.2 Communication technology
.3 Communication models
.4 Communication methods
.5 Meetings
.3 Outputs
.1 Communications management plan
.2 Project documents updates
10.2 Manage Communications
.1 Inputs
.1 Communications management plan
.2 Work performance reports
.3 Enterprise environmental factors
.4 Organizational process assets
.2 Tools & Techniques
.1 Communication technology
.2 Communication models
.3 Communication methods
.4 Information management systems
.5 Performance reporting
.3 Outputs
.1 Project communications
.3 Project management plan updates
.2 Project documents updates
.4 Organizational process assets updates
10.3 Control Communications
.1 Inputs
.1 Project management plan
.2 Project communications
.3 Issue log
.4 Work performance data
.5 Organizational process assets
.2 Tools & Techniques
.1 Information management systems
.2 Expert judgment
.3 Meetings
.3 Outputs
.1 Work performance information
.2 Change requests
.3 Project management plan updates
.4 Project documents updates
.5 Organizational process assets updates

Risk management

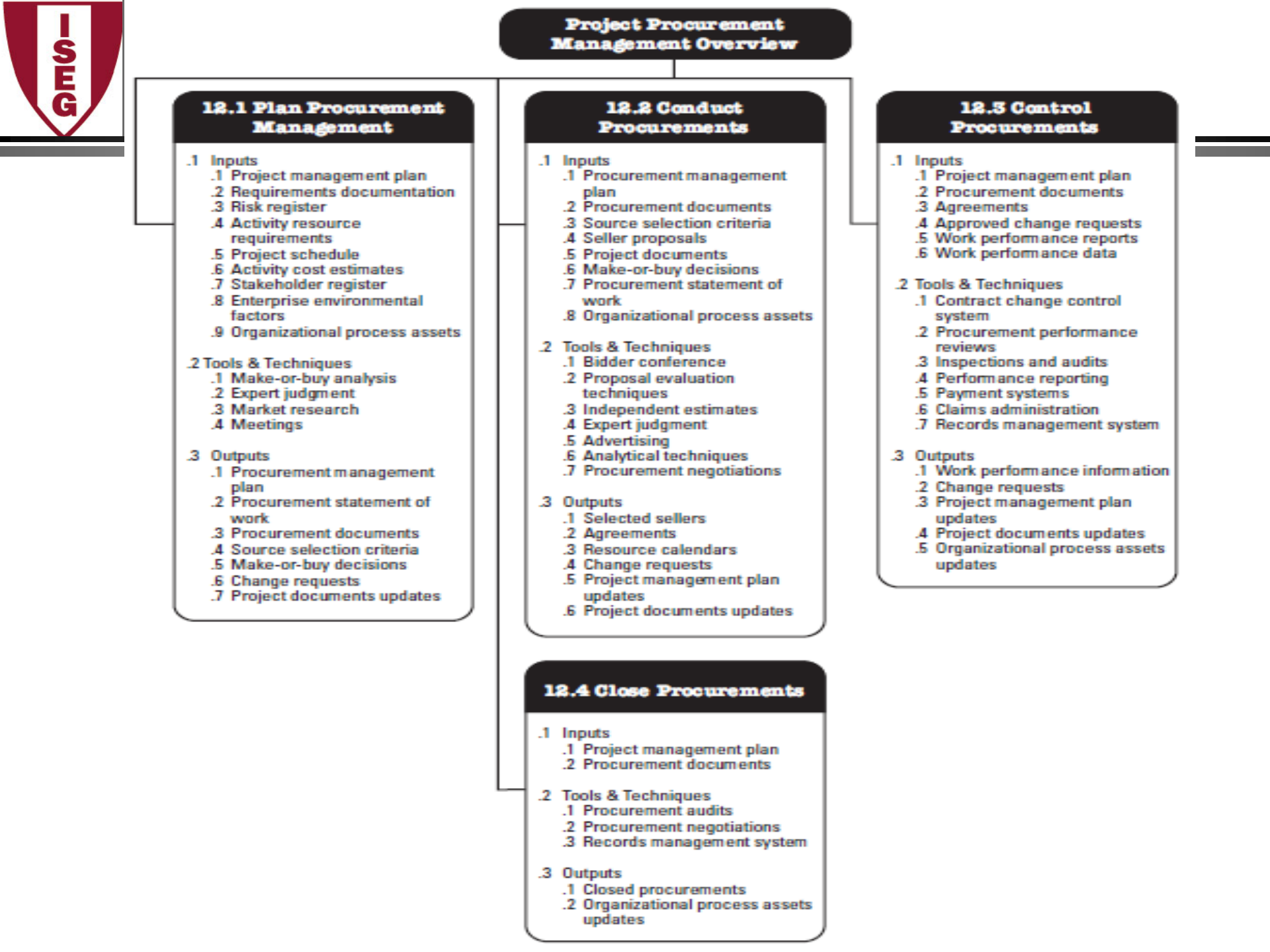
- Consists in the identification and prevention of circumstances that could call into question the objectives and results of the Project
  - Planning risk management
  - Identifying the risks
  - Assessment of the probability of occurrence of the risk and the impact in the project
    - qualitative and quantitative analysis of the project risk
  - Planning risk response-develop contingency plans
  - Risk monitoring and control


Project Risk Management Overview
11.1 Plan Risk Management
.1 Inputs
.1 Project management plan
.2 Project charter
.3 Stakeholder register
.4 Enterprise environmental factors
.5 Organizational process assets
.2 Tools & Techniques
.1 Analytical techniques
.2 Expert judgment
.3 Meetings
.3 Outputs
.1 Risk management plan
11.2 Identify Risks
.1 Inputs
.1 Risk management plan
.2 Cost management plan
.3 Schedule management plan
.4 Quality management plan
.5 Human resource management plan
.6 Scope baseline
.7 Activity cost estimates
.8 Activity duration estimates
.9 Stakeholder register
.10 Project documents
.11 Procurement documents
.12 Enterprise environmental factors
.13 Organizational process assets
.2 Tools & Techniques
.1 Documentation reviews
.2 Information gathering techniques
.3 Checklist analysis
.4 Assumptions analysis
.5 Diagramming techniques
.6 SWOT analysis
.7 Expert judgment
. 3 Outputs
.1 Risk register
11.3 Perform Qualitative Risk Analysis
.1 Inputs
.1 Risk management plan
.2 Scope baseline
.3 Risk register
.4 Enterprise environmental factors
.5 Organizational process assets
.2 Tools & Techniques
.1 Risk probability and impact assessment
.2 Probability and impact matrix
.3 Risk data quality assessment
.4 Risk categorization
.5 Risk urgency assessment
.6 Expert judgment
.3 Outputs
.1 Project documents updates
11.4 Perform Quantitative Risk Analysis
.1 Inputs
.1 Risk management plan
.2 Cost management plan
.3 Schedule management plan
.4 Risk register
.5 Enterprise environmental factors
.6 Organizational process assets
.2 Tools & Techniques
.1 Data gathering and representation techniques
.2 Quantitative risk analysis and modeling techniques
.3 Expert judgment
.3 Outputs
.1 Project documents updates
11.5 Plan Risk Responses
.1 Inputs
.1 Risk management plan
.2 Risk register
.2 Tools & Techniques
.1 Strategies for negative risks or threats
.2 Strategies for positive risks or opportunities
.3 Contingent response strategies
.4 Expert judgment
.3 Outputs
.1 Project management plan updates
.2 Project documents updates
11.6 Control Risks
.1 Inputs
.1 Project management plan
.2 Risk register
.3 Work performance data
.4 Work performance reports
.2 Tools & Techniques
.1 Risk reassessment
.2 Risk audits
.3 Variance and trend analysis
.4 Technical performance measurement
.5 Reserve analysis
.6 Meetings
.3 Outputs
.1 Work performance information
.2 Change requests
.3 Project management plan updates
.4 Project documents updates
.5 Organizational process assets updates

Procurement management

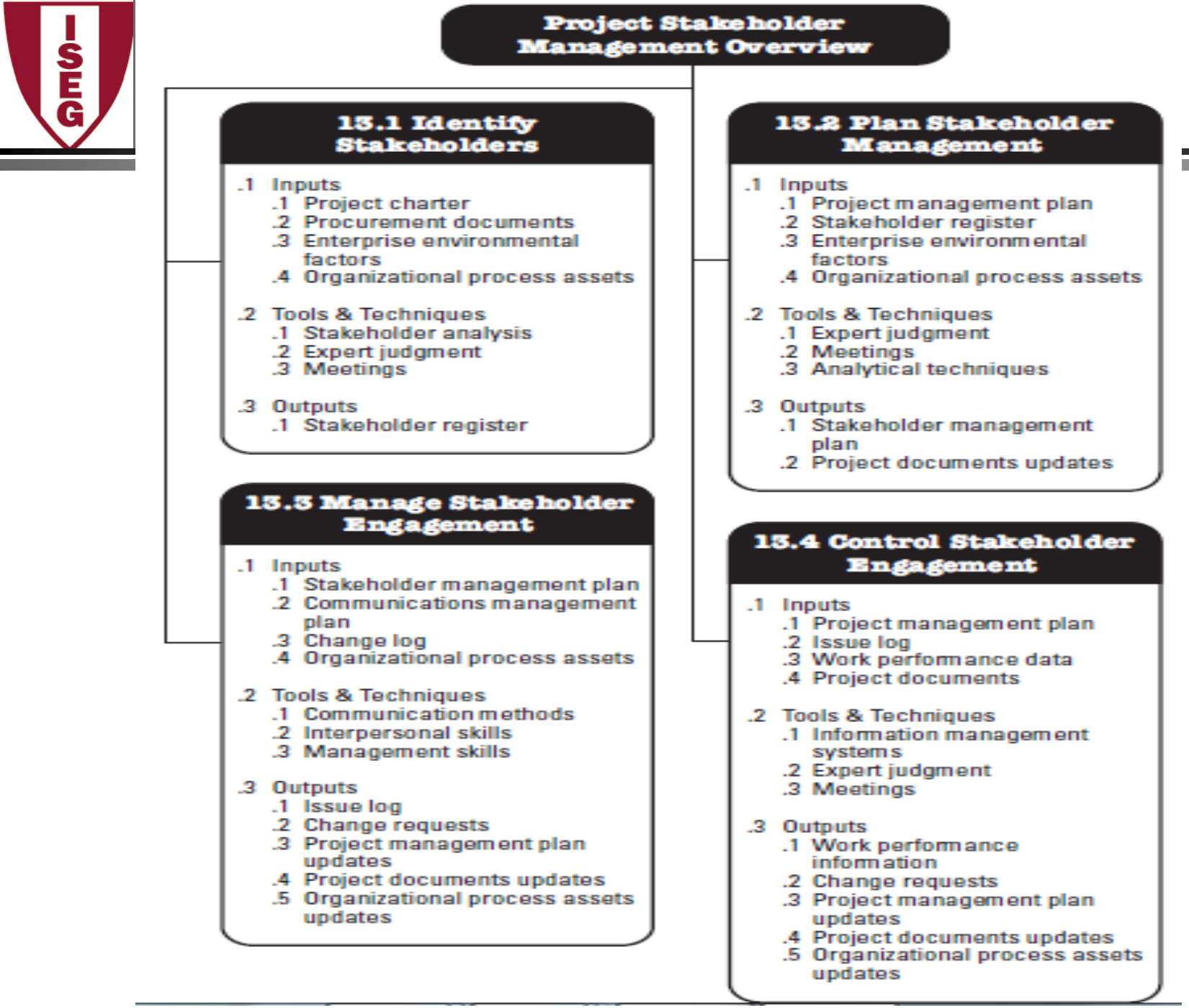


- Set of processes required for the acquisition of goods and services
  - Procurement Plan
    - Identify what must be purchased and when
    - Compiling the commercial conditions and the technical requirements
  - Run the acquisitions:
    - Request for proposals
    - Selection of proposals
    - Contracting
  - Control the evolution of procurement
  - Contracts Closure

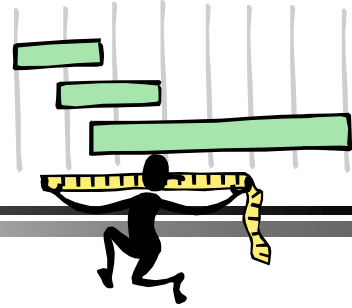

Project Procurement Management Overview
12.1 Plan Procurement Management
.1 Inputs
.1 Project management plan
.2 Requirements documentation
.3 Risk register
.4 Activity resource requirements
.5 Project schedule
.6 Activity cost estimates
.7 Stakeholder register
.8 Enterprise environmental factors
.9 Organizational process assets
.2 Tools & Techniques
.1 Make-or-buy analysis
.2 Expert judgment
.3 Market research
.4 Meetings
.3 Outputs
.1 Procurement management plan
.2 Procurement statement of work
.3 Procurement documents
.4 Source selection criteria
.5 Make-or-buy decisions
.6 Change requests
.7 Project documents updates
12.2 Conduct Procurements
.1 Inputs
.1 Procurement management plan
.2 Procurement documents
.3 Source selection criteria
.4 Seller proposals
.5 Project documents
.6 Make-or-buy decisions
.7 Procurement statement of work
.8 Organizational process assets
.2 Tools & Techniques
.1 Bidder conference
.2 Proposal evaluation techniques
.3 Independent estimates
.4 Expert judgment
.5 Advertising
.6 Analytical techniques
.7 Procurement negotiations
.3 Outputs
.1 Selected sellers
.2 Agreements
.3 Resource calendars
.4 Change requests
.5 Project management plan updates
.6 Project documents updates
12.3 Control Procurements
.1 Inputs
.1 Project management plan
.2 Procurement documents
.3 Agreements
.4 Approved change requests
.5 Work performance reports
.6 Work performance data
.2 Tools & Techniques
.1 Contract change control system
.2 Procurement performance reviews
.3 Inspections and audits
.4 Performance reporting
.5 Payment systems
.6 Claims administration
.7 Records management system
.3 Outputs
.1 Work performance information
.2 Change requests
.3 Project management plan updates
.4 Project documents updates
.5 Organizational process assets updates
12.4 Close Procurements
.1 Inputs
.1 Project management plan
.2 Procurement documents
.2 Tools & Techniques
.1 Procurement audits
.2 Procurement negotiations
.3 Records management system
.3 Outputs
.1 Closed procurements
.2 Organizational process assets updates

Stakeholders Management

- Includes processes for identifying persons, groups or organizations that may have an impact on the project, or be affected by this, analyze your expectations and degree of immersion in the project and develop and implement strategies for their effective management.
  - Identify stakeholders;
  - Planning stakeholder management
  - Manage stakeholder involvement
  - Controlling stakeholders


Project Stakeholder Management Overview
13.1 Identify Stakeholders
.1 Inputs
.1 Project charter
.2 Procurement documents
.3 Enterprise environmental factors
.4 Organizational process assets
.2 Tools & Techniques
.1 Stakeholder analysis
.2 Expert judgment
.3 Meetings
.3 Outputs
.1 Stakeholder register
13.2 Plan Stakeholder Management
.1 Inputs
.1 Project management plan
.2 Stakeholder register
.3 Enterprise environmental factors
.4 Organizational process assets
.2 Tools & Techniques
.1 Expert judgment
.2 Meetings
.3 Analytical techniques
.3 Outputs
.1 Stakeholder management plan
.2 Project documents updates
13.3 Manage Stakeholder Engagement
.1 Inputs
.1 Stakeholder management plan
.2 Communications management plan
.3 Change log
.4 Organizational process assets
.2 Tools & Techniques
.1 Communication methods
.2 Interpersonal skills
.3 Management skills
.3 Outputs
.1 Issue log
.2 Change requests
.3 Project management plan updates
.4 Project documents updates
.5 Organizational process assets updates
13.4 Control Stakeholder Engagement
.1 Inputs
.1 Project management plan
.2 Issue log
.3 Work performance data
.4 Project documents
.2 Tools & Techniques
.1 Information management systems
.2 Expert judgment
.3 Meetings
.3 Outputs
.1 Work performance information
.2 Change requests
.3 Project management plan updates
.4 Project documents updates
.5 Organizational process assets updates

Integration management



- Processes and activities needed to identify, define, combine, unify and coordinate the processes and activities included in the other areas of knowledge.
  - Define the scope of the project, a preliminary form and "high level" and develop the document formally authorizing the project;
  - Prepare the project plan;
  - Direct and manage project execution
  - Monitor and control their implementation;
  - Control changes in an integrated manner;
  - Close the project

Project Integration Management Overview

4.1 Develop Project Charter

.1 Inputs
- .1 Project statement of work
- .2 Business case
- .3 Agreements
- .4 Enterprise environmental factors
- .5 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Facilitation techniques

.3 Outputs
- .1 Project charter

4.2 Develop Project Management Plan

.1 Inputs
- .1 Project charter
- .2 Outputs from other processes
- .3 Enterprise environmental factors
- .4 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Facilitation techniques

.3 Outputs
- .1 Project management plan

4.3 Direct and Manage Project Work

.1 Inputs
- .1 Project management plan
- .2 Approved change requests
- .3 Enterprise environmental factors
- .4 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Project management information system
- .3 Meetings

.3 Outputs
- .1 Deliverables
- .2 Work performance data
- .3 Change requests
- .4 Project management plan updates
- .5 Project documents updates

4.4 Monitor and Control Project Work

.1 Inputs
- .1 Project management plan
- .2 Schedule forecasts
- .3 Cost forecasts
- .4 Validated changes
- .5 Work performance information
- .6 Enterprise environmental factors
- .7 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Analytical techniques
- .3 Project management information system
- .4 Meetings

.3 Outputs
- .1 Change requests
- .2 Work performance reports
- .3 Project management plan updates
- .4 Project documents updates

4.5 Perform Integrated Change Control

.1 Inputs
- .1 Project management plan
- .2 Work performance reports
- .3 Change requests
- .4 Enterprise environmental factors
- .5 Organizational process assets

.2 Tools & Techniques
- .1 Expert judgment
- .2 Meetings
- .3 Change control tools

.3 Outputs
- .1 Approved change requests
- .2 Change log
- .3 Project management plan updates
- .4 Project documents updates

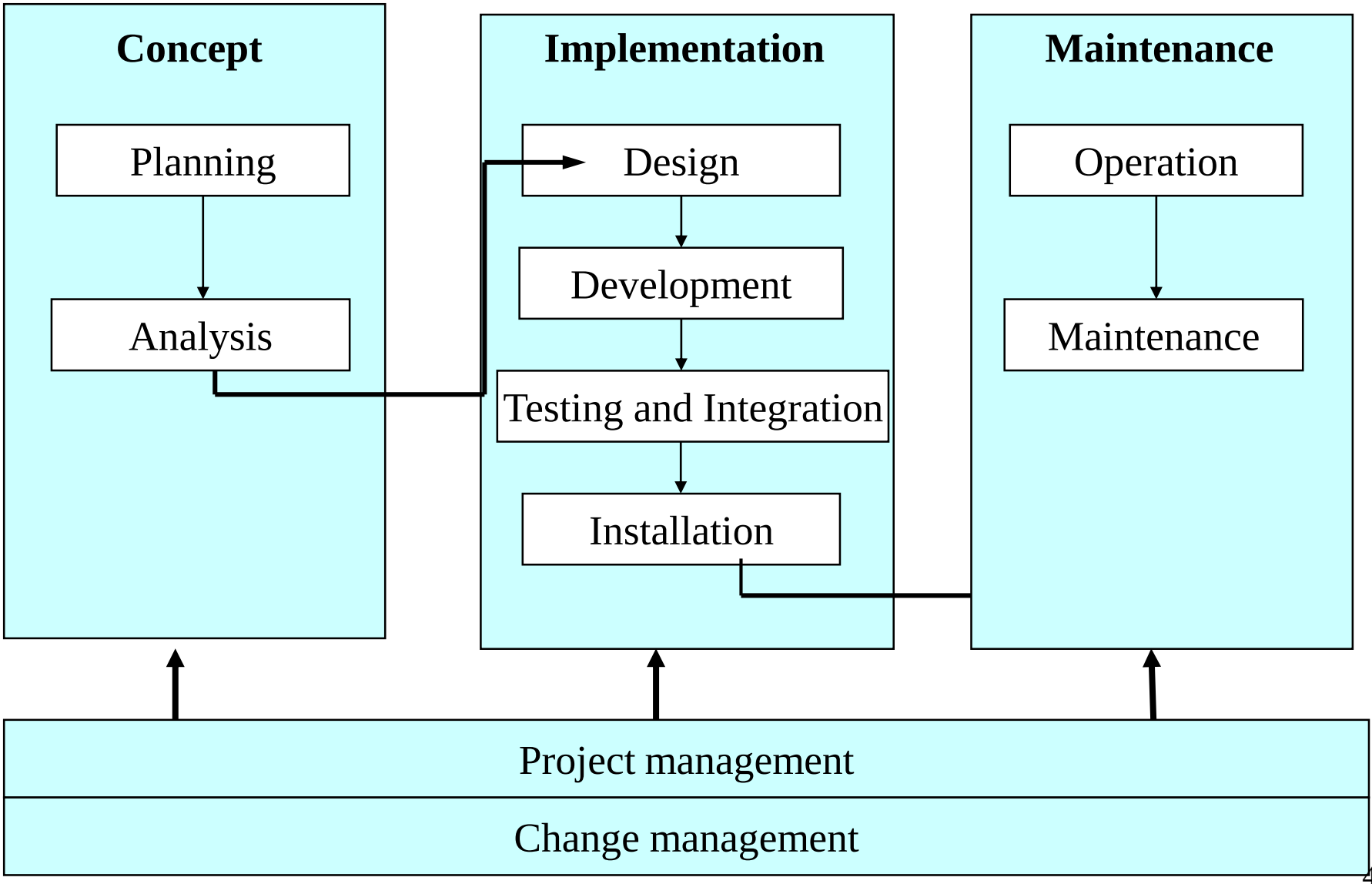
4.6 Close Project or Phase

.1 Inputs
- .1 Project management plan
- .2 Accepted deliverables
- .3 Organizational process assets

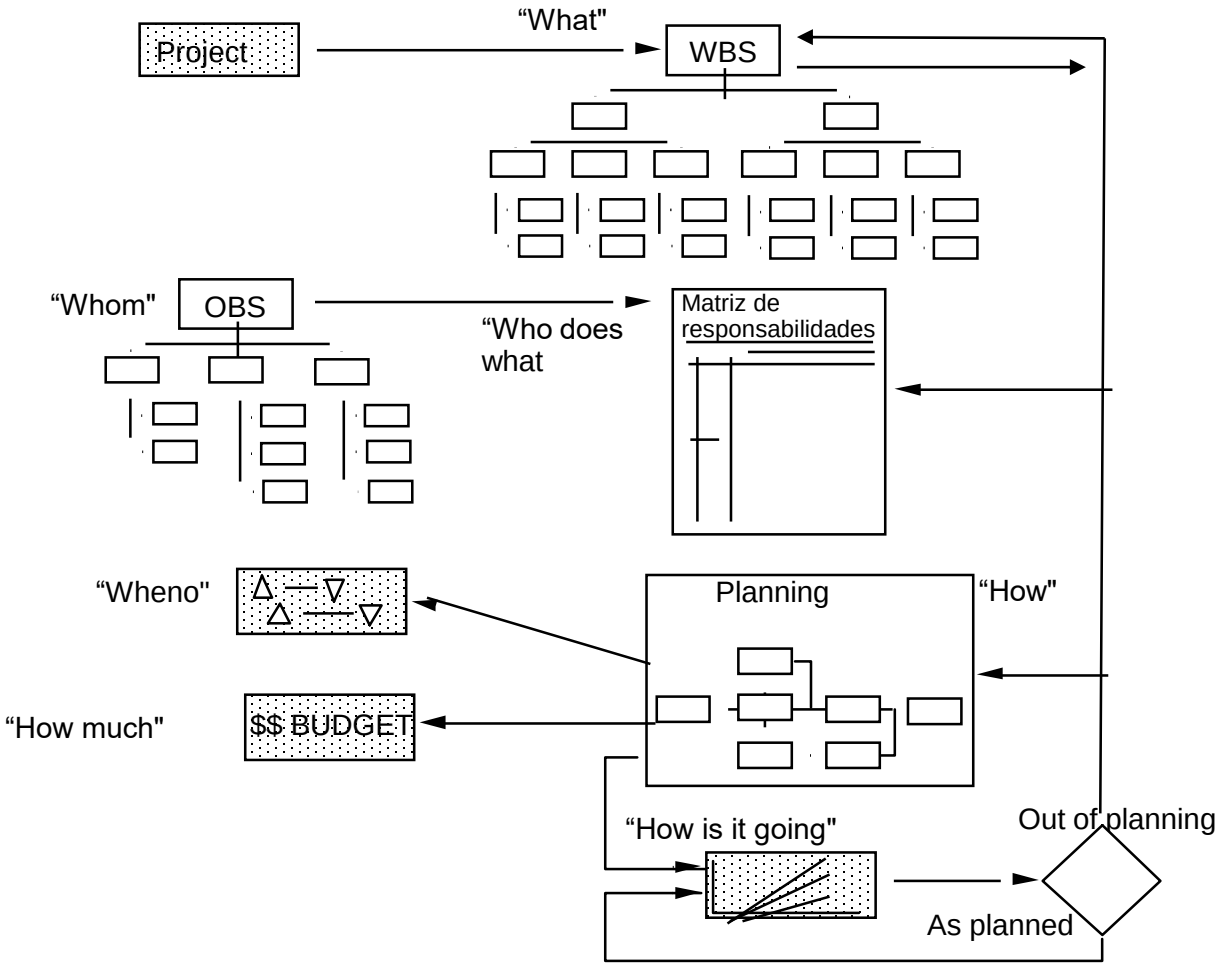
.2 Tools & Techniques
- .1 Expert judgment
- .2 Analytical techniques
- .3 Meetings

.3 Outputs
- .1 Final product, service, or result transition
- .2 Organizational process assets updates

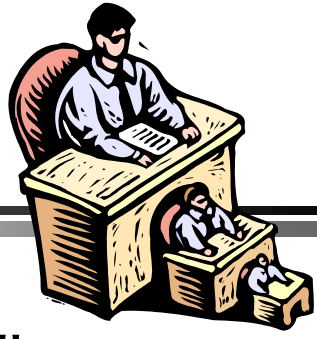
Software Lifecycle



The planning process



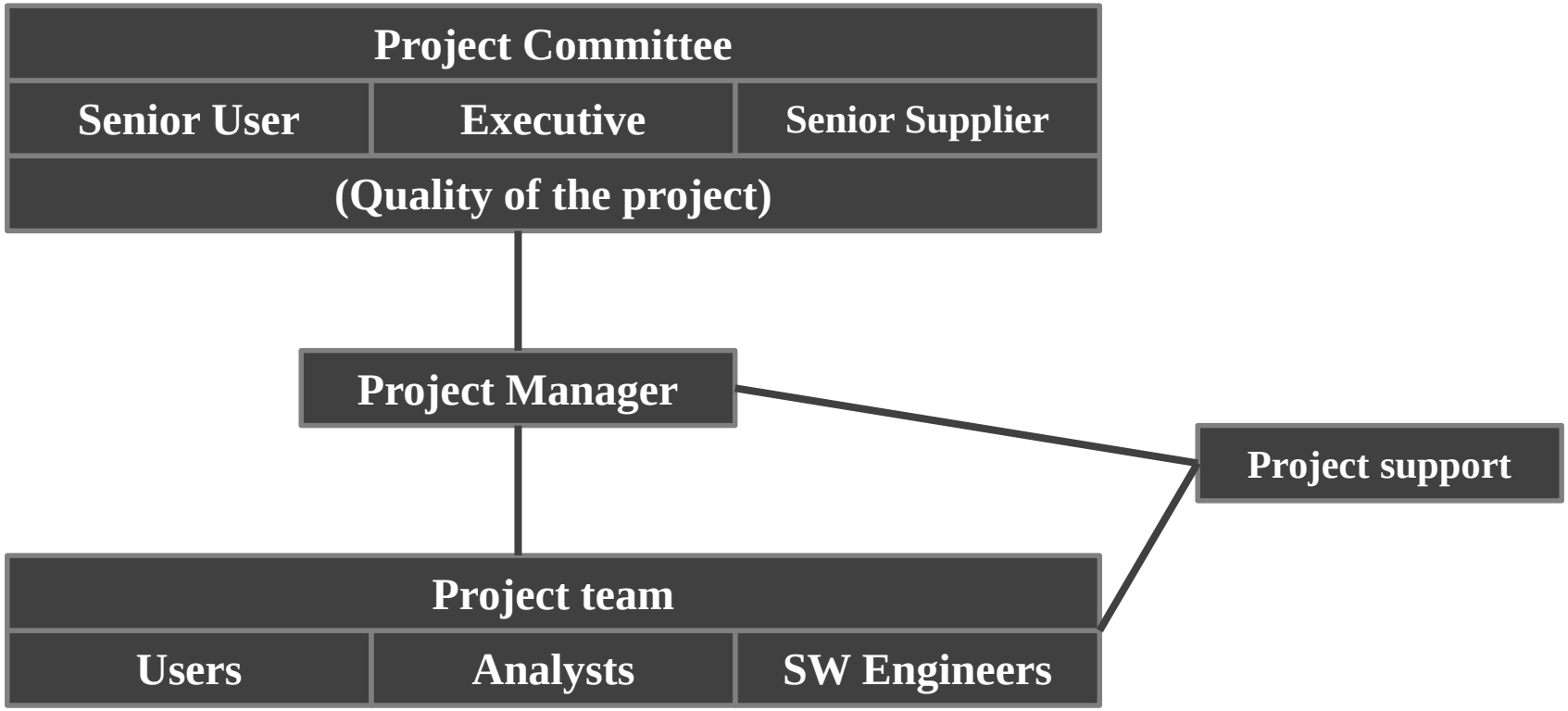
Who? Specification of Organization



Objectives of the "Organization Breakdown Structure":

- Specify the organization that implements the project, in order to systematize the process of communication within the team and the basis for identification of responsibilities, noting who has the obligation to report progress to who has responsibility over who, ...
- Should be done hierarchically. The most typical form of an organizational structure is the decomposition into subsets of persons performing different functions.
- This functional decomposition can take, for example, the following form:

Organization Breakdown Structure – OBS



What? Specification of Work (WBS)

- The "Work Breakdown Structure" is the decomposition of the work to execute the project in its components.
- Can be presented graphically in tree or indented text format-"outline".
- Can be performed according to various criteria.
  - Product decomposition
  - Process or job type
  - Functional
  - Geographical
  - Temporal
- Generally, none of these criteria is used alone in the development of the WBS. One of the criteria starts by dominating the upper levels of the WBS giving rise to others at the lower levels.
- The use of the criteria of decomposition must respond to real needs for project management.

WBS – MIS Project

1. Writting the draft
   1.1. Select the topic
1.2. Write the wording
   1.3. define requirements
      1.3.1 Defining functional requirements
      1.3.2 Set nonfunctional requirements
   1.4. Review statement and requirements
2. System analysis
   2.1. Use case Diagram
   2.2. Activity Diagrams (one per use case)
      2.2.1. Activity Diagram 1
      2.2.2. ...
   2.3. Class diagram
   2.4. Relational model
   2.5. State diagrams
      2.5.1 State diagram 1…
   2.6. review of diagrams
3. Design and implementation of system
   3.1. Creation of tables and relationships
   3.2. Inserting base data
   3.3. Test base tables
   3.4. Design of forms
   3.5. Insertion of the remaining data
   3.6. Creating queries
   3.7. Creating reports
   3.8. Main Menu Design
4. Tests
   4.1. Execution of the tests
   4.2. Corrections and adjustments
5. Final Report
   5.1. Alteration and adjustment of the diagrams
   5.2. Writing Report
   5.3. Print the report

Who does what? Responsibility Assignment Matrix (OBS x WBS)

	Project Committee	Project Manager	Users	Analysts	SW Engineers
WBS Task #1	**A, R**	**R**	**C**	**I**	**C**
WBS Task #2	**A**	**R**	**C**	**C**	**C**
WBS Task #3	**I**	**A**	**R**	**I**	**C**
WBS Task #4	**I**	**A**	**R**	**I**	**-**
WBS Task #5	**I**	**R**	**A**	**C**	**I**

OBS - *Organization Breakdown Structure*

WBS - *Project Work Breakdown Structure*

R = responsible; A = Accountable (maximum responsible); C = consulted; I = informed

Project planning

- Planning the project undergoes create a timeline using a project management application (Project, Spring, ...) in which are defined:
  - the start date of the project (or, Alternatively, the end date)
  - The tasks to perform (WBS)
  - Existing resources (OBS)
  - The assignment of resources to tasks (MR)
  - Costs associated with the tasks and resources

Project planning

- The calendaring of tasks complies with various types of constraints:
  - technological dependencies
  - human and material resource availability
  - availability of outside deliveries – e.g. shopping, subcontracted components
  - availability of funding
  - approvals by the Client – e.g. approval of the design of the system.
- The project plan must be marked with milestones or "targets", which specify when a particular important stage of the project is reached.
  - ex:-revision and approval of the design of the system with the client.

Project planning

- The set of basic tasks for the development of the plan shall have the following characteristics:
  - every task should have a duration, a budget and a resource profile well defined
  - certain technological dependencies between tasks must be specified-through an array/table of dependencies

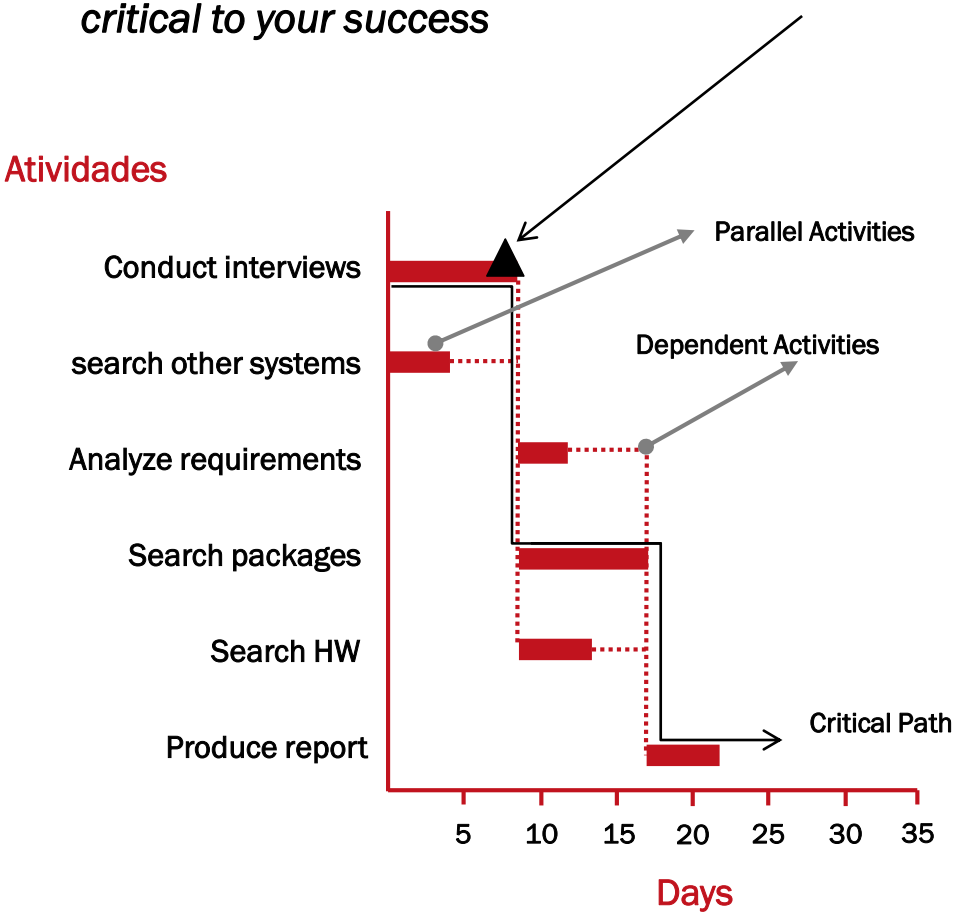
Project planning - example

Array of activities:

Nº	Activity	Duration	Predecessor
1	**Conduct interviews**	**8 days**	
2	**Search other systems**	**4 days**	
3	**Analyze requirements**	**3 days**	1,2
4	**Search packages**	**8 days**	1,2
5	**Search HW**	**5 days**	1,2
6	**Produce report**	**5 days**	3,4,5

Gantt chart

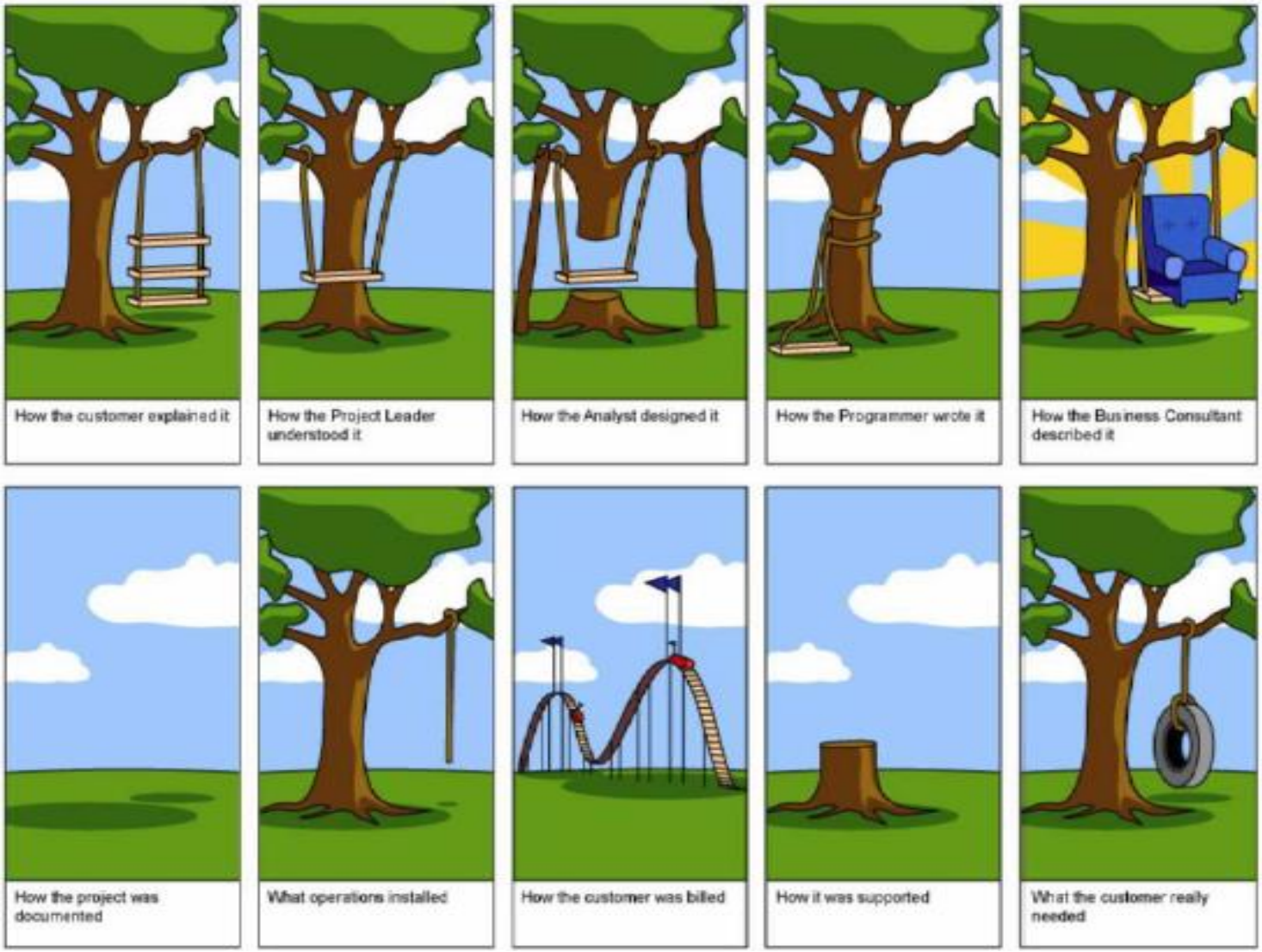
MILESTONE: Event considered by the client as a crucial indicator of the project's progress, critical to your success



Example

- Use Ms Project to plan the SIG project.

Requirements for ISs


How the customer explained it
How the Project Leader understood it
How the Analyst designed it
How the Programmer wrote it
How the Business Consultant described it
How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed

Requirement concept

- A requirement is a *a property that must be exhibited in order to solve a real-world* ***problem***
- Requirements define what the system is required to do and the constraints under which it is required to operate
- Requirements can be described in a more or less abstract form, in its most abstract form can even be a simple math expression
- Examples:
  - the software must provide the means to represent and to access to external files created by other tools
  - the user must be able to define the file types to be used
  - every file must be represented by a specific icon

Requirement Properties

- **Identifier:** it must be unique to allow software configuration control and management over the entire software life-cycle
- **Type:** helps grouping requirements (an accepted taxonomy should exist)
- **Stakeholder:** who is (are) the main actor concerned with the requirement
- **Description:** describes what the requirement is about
- **Priority:** to enable trade-offs in the face of finite resources
- **Status:** to enable project progress to be monitored
- **Scope:** the extent to which a requirement affects the software architecture
- **Volatility:** the expected change rate during the life-cycle

Requirement Properties

Identifier	Type	*Stakeholder*	Description	Priority	Status	Scope	Volatility
…	…	…	…	…	…	…	…

Types of Requirements (1)

- For definitions of the requirements may be considered appropriate, these must meet a set of criteria, such as being:
  - Full
  - Clear
  - Measurable
  - Achievable
  - Required
  - Correct
  - Testable
- Requirements can be categorized into:
  - non-functional
  - Functional

Functional Requirements

- Describe the functions the software is to accomplish (capabilities)

- Examples:
  - the software shall verify that a student meets all prerequisites before enrolling in a course
  - The system must allow users to search for books by title and author

Non-functional Requirements

- Nonfunctional requirements are those that constrain the solution (constraints or quality requirements) as:
  - Performance requirements
  - Maintainability requirements
  - Safety requirements
  - Reliability requirements
- Examples
  - "The user interface of the system should be implemented using a WWW browser"
  - "the system must support at least 20 transactions per second"

Requirements: exercise (1)

Classify the following requirements:

The system must…

1. Be accessible to Web users
2. Include the Company Logo and Company Colour Schema
3. Restrict access to Company Profits
4. Include real and budget costs
5. Generate Management reports
6. Update Sales Information
7. Do (6) at least once a day
8. Process information on all subsidiary companies

Requirements: exercise (2)

The system must... (cont.)

- Allow up to N users simultaneously
- Apply a discount to all clients who, in the last X months, have paid more than Y Euros
- Keep online the last X years orders
- Be periodically shutdown for backup purposes

Requirements Document

What is a requirements document?

Is the formal statement of the requirements of the system, in the form of a document, which should be used to communicate the requirements to customers, managers and technicians

- Must include:
- Description of the services, functions, restrictions and properties that the system must provide and under which it must operate
- The external behavior specification of the system
- Should serve as a reference for the remaining phases of the development process and provide for amendments
- Should say "what" that the system should do, not "HOW" is what will be done

Write Requirements – good practices

- Normally, the requirements are written in paragraphs of text in natural language (LN) attaching the language equations and diagrams
  - should be used consistently, clearly and the less ambiguous as possible, and should be avoided too technical terms
- The most important parts of the text should be highlighted
- Should be set a standard format to describe all the requirements
- Should be provided time for review and redrafting of the document

RE Techniques

- Interviews
- Meetings
- Observation
- Scenarios
- Prototyping

Activity

- Select a system that you know and work with.
- Identify 3 functional requirements and 3 nonfunctional requirements that were at the origin of the development of this system.
- Identify a problem or situation that could be improved in the system, justifying the option. Specify how you can improve the problem / situation identified. Define the key requirements for the suggested improvement or correction change.
- Identify a new functionality in the system that can improve the current functionality of the system and explain the idea. Define the main requirements for the new functionality.

References

- CADLE, James e YATES, Donald, “Project Management for Information Systems”, 4th Edition, Prentice Hall, 2004

- PMI, “ A Guide to the Project Management Body of knowledge”, Project Management Institute, 2013