

# PROJECT MANAGEMENT

*Achieving Problem Free Project Management*

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# AGENDA

1. Management by projects (MBP)
2. The dynamic project plan (DPP)
3. Defining the project objectives and tasks
4. Scheduling for being on time
5. Budgeting and controlling the cost
6. Enhancements to the dynamic project plan
7. Resources and motivation
8. Reports, Actions, and Solutions
9. Motivation
10. The project manager's special authority
11. Computer assistance – IT and PM
12. Managing time



# EXAM

**Design and present one of the selected project listed below:**



- Project 1: Charts analysis – LOB
- Project 2: Gantt chart analysis
- Project 3: PERT
- Project 4: PERT – MS Visio
- Project 5: PERT – MS Project
- Project 6: BEP analysis
- Project 7: ISO – resources allocation
- Project 8: MS Project – resources allocation and control
- Project 9: EPC / MS VISIO
- Project 10: Cash Flow analysis
- Project 11: Communion techniques and principles
- Project 12: ?



# 1. Management by projects (MBP)



# PROJECT MANAGEMENT - definitions

## Project:



- ✓ a **temporary** and **one-time** endeavor undertaken to create a unique product or service, that brings either beneficial change or added value.
- ✓ a carefully defined set of activities that use **resources** (money, people, materials, energy, space, provisions, communication, quality, risk, etc.) to meet the pre-defined **objectives**.  
<http://en.wikipedia.org/wiki/Project>
- ✓ a temporary endeavor undertaken to create a **unique** product or service.

# PROJECT MANAGEMENT - definitions



## Management:

- ✓ **Coordinating** work activities so that they are completed **efficiently** and **effectively** with and through other people.

**Efficiency** – keeping costs down.

**Effectiveness** – achieving objectives.

**Efficiency** is „doing things right”.

**Effectiveness** is „doing the right things”.

# PROJECT MANAGEMENT - definitions

## Management:



- ✓ **Wealth** creating activity.
- ✓ The **art** of using human and material resources to produce and market (sell) goods and services (customers' needs).

# PROJECT MANAGEMENT - definitions



## Management:

- ✓ All about decisions
- ✓ Risk taking
- ✓ Objectives
- ✓ Problem solving
- ✓ Asking right questions
- ✓ Satisfying people
- ✓ Planning, organizing, directing & controlling

# PROJECT MANAGEMENT - definitions

## Project Management (PM) / Management by Project (MBP):



- ✓ the discipline of organizing and managing resources in such a way that these resources deliver all the work required to complete a project within defined **scope, quality, time and cost** (budget) constraints.
- ✓ management activity that requires much **more detail** in planning and control than general management does.
- ✓ PM covers **key business processes**, strategic customers, markets, products, divisions etc.

# PROJECT MANAGEMENT - definitions



## Project Management (PM) / (MBP):

- ✓ Project management is no small task.
- ✓ Project management has a definite beginning and end. It is not a continuous process.
- ✓ Project management uses various measurement tools to accomplish and track project tasks. These include Gantt and Pert charts.
- ✓ Projects frequently need resources on an add-on basis as opposed to organizations who have full-time positions.

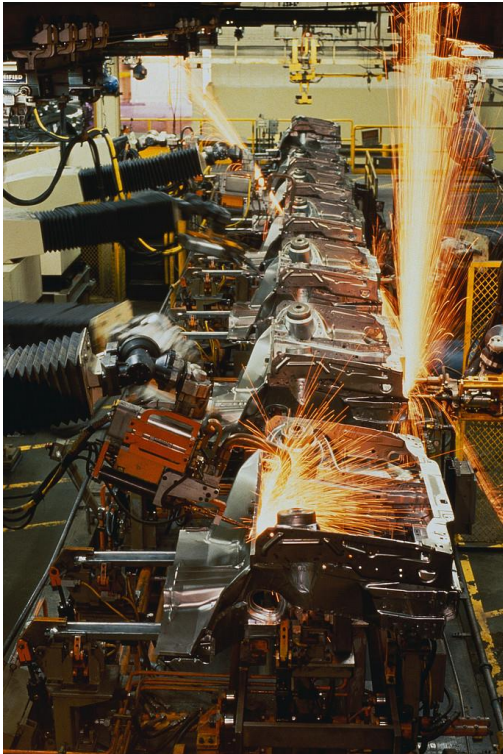


# PROJECT MANAGEMENT - definitions

**General Management**

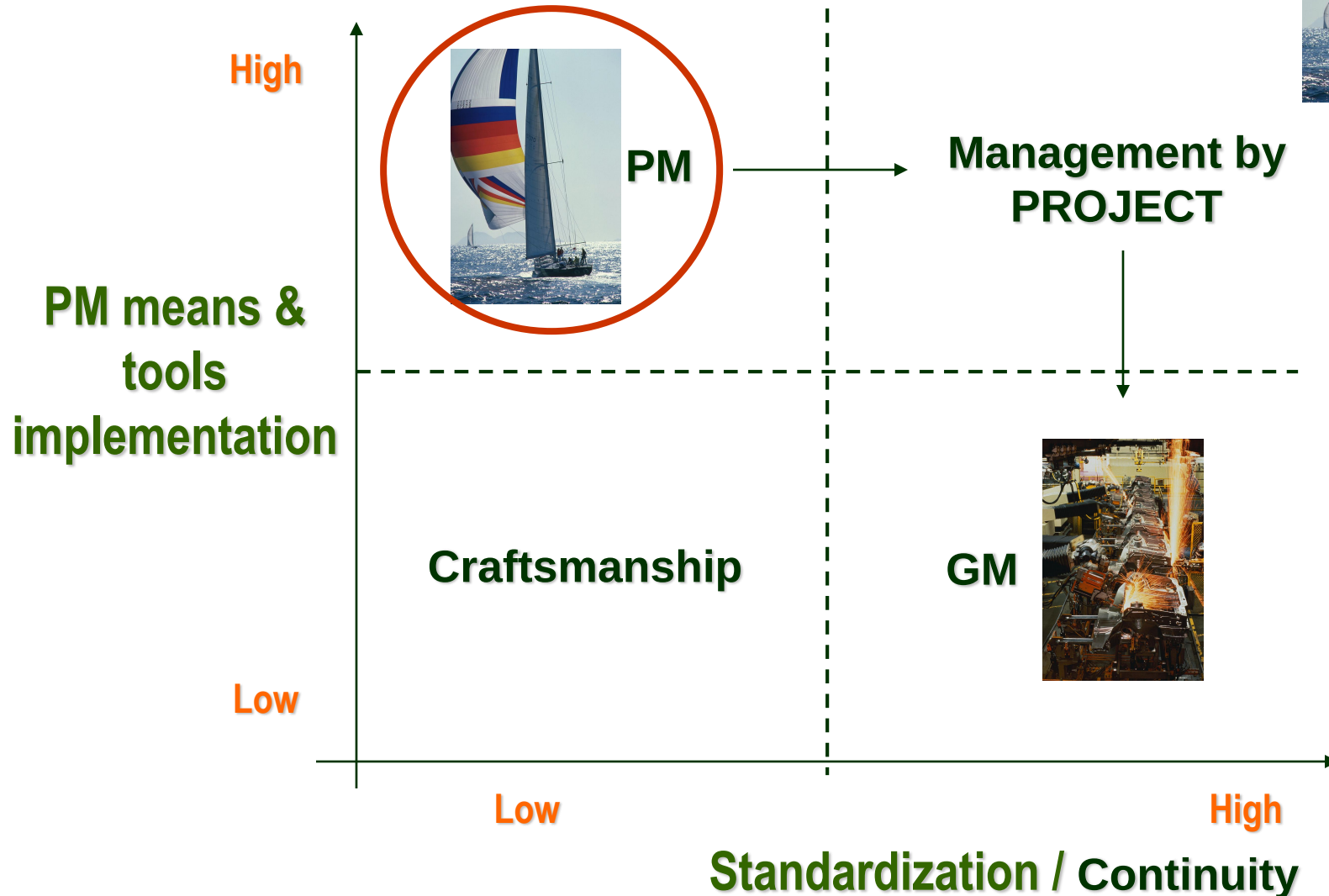


**Project Management /MBP**





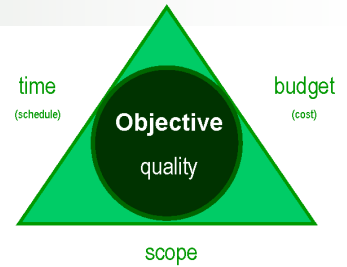
# PROJECT MANAGEMENT - definitions



## 2. Project Management Triangle



# PROJECT MANAGEMENT - definitions



## Project Management Triangle:

- ✓ It is a management processes of planning, implementing and controlling of any one-time human activity within **time**, **budget** and **scope** boundaries, to deliver high **quality** at low absorption level of resources .

**time**



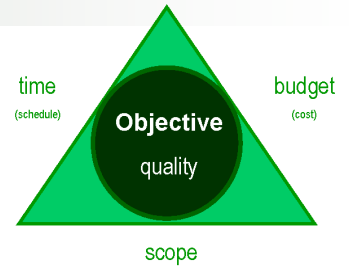
**scope**



**budget**



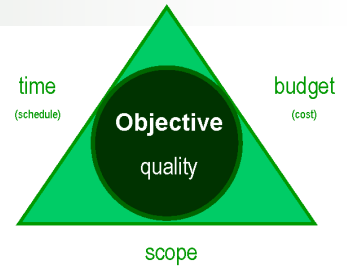
# PROJECT MANAGEMENT - definitions



## Project Management Triangle:



# PROJECT MANAGEMENT - definitions

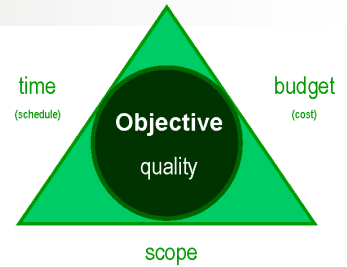


## TIME:



- ✓ the time required for each task is estimated.
- ✓ It is important to divide the work into several smaller pieces so that it is easy to measure progress.
- ✓ A Work Breakdown Structure (WBS) is commonly used to develop the list of tasks each of which is then given a time estimate.
- ✓ **Time is not considered a cost nor a resource** since the project manager cannot control the rate at which it is expended. This makes it different from all other resources and cost categories.

# PROJECT MANAGEMENT - definitions

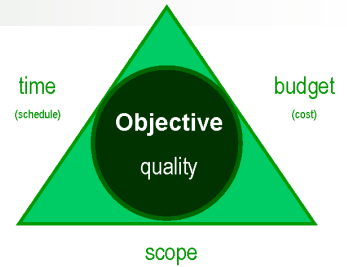


## SCOPE:



- ✓ **Requirements specified for the end result.**
- ✓ The overall definition of what the project is supposed to accomplish, and a specific description of what the end result should be or accomplish.
- ✓ A major component of scope is the quality of the final product.
- ✓ The amount of time put into individual tasks determines the overall quality of the project.
- ✓ Over the course of a large project, quality can have a significant impact on time and cost (or vice versa).

# PROJECT MANAGEMENT - definitions

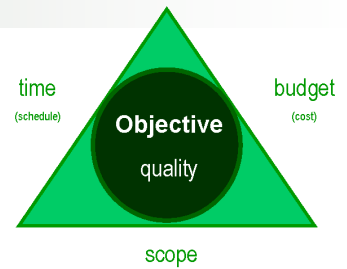


## COST:

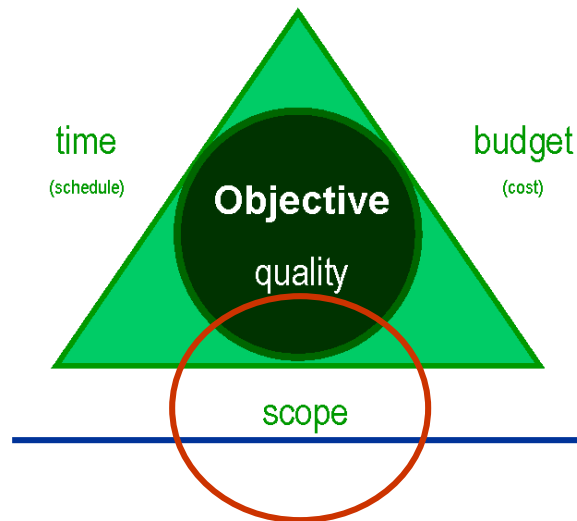


- ✓ Cost to develop a project depends on several variables including (chiefly): labor rates, material rates, risk management, plant (buildings, machines, etc.), equipment, and profit.
- ✓ When hiring an independent consultant for a project, cost will typically be determined by the consultant's or firm's.

# PROJECT MANAGEMENT - definitions



## Project Management Triangle:



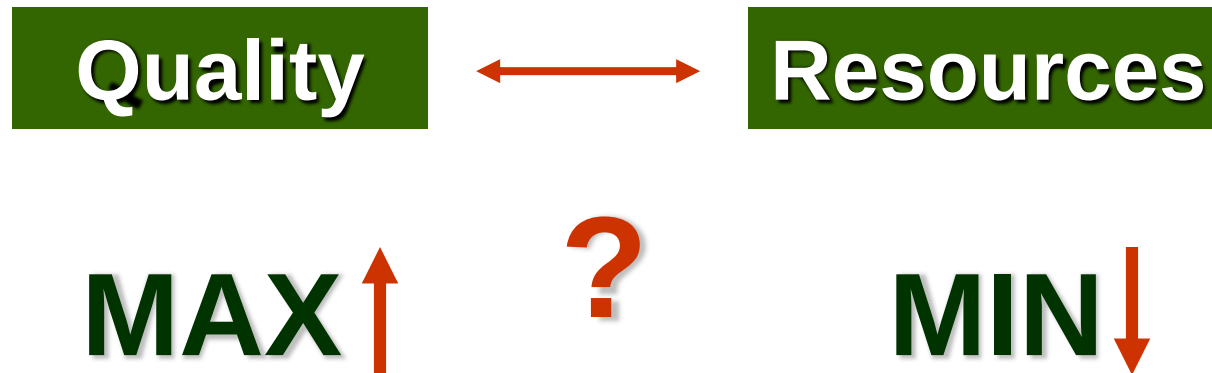
- ✓ To increase the scope of the project it is necessary to increase time and budget.
- ✓ To increase the level of quality it is necessary to absorb more resources.



# PROJECT MANAGEMENT - definitions

## Project Management: Quality vs Resources:

Efficiency of the project:





### 3. Methods and techniques of PM/MBP



## Methods and techniques - definitions



### Method vs Technique:

**METHOD:** a particular way of doing sth: a reliable / effective / scientific method of data analysis.

- A new way of solving the problem
- The best solution for arriving at an accurate prediction of the costs.

## Methods and techniques - definitions



### Method vs Technique:

**TECHNIQUE:** a particular way of doing sth,  
especially one in which you have to learn  
special skills.

# Methods and techniques - definitions



## Method vs Technique:

### PRINCIPLE:

- ✓ a moral rule or a strong belief that influences your actions;
- ✓ a belief that is accepted as a reason for acting or thinking in a particular way;
- ✓ a general or scientific law that explains how sth works or why sth happens.

## Methods and techniques - definitions



### Method vs Technique:

**METHODOLOGY:** a set of **methods** (**techniques**) used to perform a particular activity.

**SCIENTIFIC METHOD:** a codified series of steps taken to complete a certain task or to reach a certain objective, see also algorithm, methodology.

# Methods and techniques - definitions



## Method vs Technique:

| Method | Level of perception      | Technique |
|--------|--------------------------|-----------|
| X      | Model (theory)           |           |
| X      | Concept, principle, rule | X         |
| X      | Means                    | X         |
| X      | Tools                    | X         |
| X      | Procedure                | X         |
| X      | „Best practices”         |           |

- ✓ **Means** – the way that any given problem can be solved – concept implementation – e.g. a table, graph.
- ✓ **Tools** – physical thing that implements the mean – e.g. a paper, pencil, computer, software, calculator.

# Methods and techniques - definitions



Management Methods | Management Models | Management Theories - Mozilla Firefox

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http://www.valuebasedmanagement.net/

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**Strategy - Value Creation**  
Models & Methods A-Z

**Valuation - Decision Making**  
Models & Ratios A-Z

**Organizational Methods**

What is Value Based Management?  
What is Performance Management?  
Why Value Based Management?

3C's model Ohmae  
ZPs Booms Biter  
7-S framework McKinsey  
ADL Mathy Arthur D. Little  
Ansoff product/market grid  
Acquisition Integration Approaches  
Haskelagh Jemison  
BOG Matrix  
Blue Ocean Strategy Kim

400 Methods on CD

BPR Business Process Reengineering  
Bricks and Clicks  
Business Assessment Array  
Capability Maturity Model CMM  
Change Dimensions Pettigrew Whipp  
Clarkson Principles  
Competitive Advantage Nations Porter  
Competitive Advantage framework  
Core Competence Hamel Prahalad  
Core Groups Art Kleiner  
Cost-benefits analysis  
Cultural Dimensions Horvate  
Delta Model Hax  
Deming cycle PDCA  
Dialectical Inquiry  
Diamond Model Porter  
Dimensions of Change Pettigrew Whipp  
Distinctive Capabilities Kay  
ERG Theory Alderfer  
Experience Curve  
Extended Marketing My 7P's

Absorption Costing  
Activity Based Costing ABC ABM  
ARIMA Box and Jenkins  
Balanced Scorecard Kaplan Norton  
Baldridge categories of performance  
Benchmarking  
Brainstorming  
Break-even Point  
Business Intelligence  
Capital Asset Pricing Model CAPM  
CAPM Capital Asset Pricing Model  
Cash Flow from Operations  
Cash Flow Return on Investment  
Cash Ratio  
Cash Value Added CVA Anelda  
CFROI  
Contingency Theory Wroom  
Corporate Reputation Harris-Fornbrun  
Cost-benefits analysis  
Current Ratio measuring liquidity  
Debt to Equity Ratio measuring solvency  
Direct Costing  
Discounted Cash Flow DCF

Suggest a theory

Dividend Payout Ratio  
Dynamic Regression  
Earnings Per Share EPS Enronis  
EBIT  
EBITDA  
Economic Margin EM  
Economic Value Added EVA  
EQM EFQM  
EPS Earnings Per Share  
EVA Economic Value Added  
EVM CPM  
Excess Return ER  
Exponential Smoothing  
Five Value association

Baldridge categ  
Bases of Socie  
BPR Hammer  
Business Proc  
Capability Mat  
Change Appra  
Change Behav  
Change Dime  
Change Mana  
Change Phase  
Change Proce  
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Clarkson Princ  
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Zakończono

McKinsey 7-S framework model - Mozilla Firefox

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http://www.valuebasedmanagement.net/methods\_7S.html

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McKinsey 7-S model

7-S framework of McKinsey

Description of the 7-S framework of McKinsey

The 7-S framework of McKinsey is a Value Based Management (VBM) model that describes how one can holistically and effectively organize a company. Together these factors determine the way in which a corporation operates.

**Shared Value**  
The interconnecting center of McKinsey's model is: Shared Values. What does the organization stands for and what it believes in. Central beliefs and attitudes.

**Strategy**  
Plans for the allocation of a firms scarce resources, over time, to reach identified goals. Environment, competition, customers.

**Structure**  
The way the organization's units relate to each other: centralized, functional divisions (top-down); decentralized (the trend in larger organizations); matrix, network, holding, etc.

**System**  
The procedures, processes and routines that characterize how important work is to be done: financial systems; hiring, promotion and performance appraisal systems; information systems.

**Staff**  
Numbers and types of personnel within the organization.

**Style**  
Cultural style of the organization and how key managers behave in achieving the organization's goals.

**Management Styles**

**Skill**  
Distinctive capabilities of personnel or of the organization as a whole. [Core Competences](#).

Book: Ethan M. Rasied, Paul N. Riggs - The McKinsey Mind: Understanding and Implementing the Problem-Solving Tools and Management Techniques - [Search at Amazon](#)

Also compare with the 7-S Framework: [Strategic Alignment](#)  
[More management models](#) | More on [McKinsey 7-S framework](#)

OrgPlus: Chart Software | Strategy Consulting Tool | McKinsey Consulting | Strategy Software

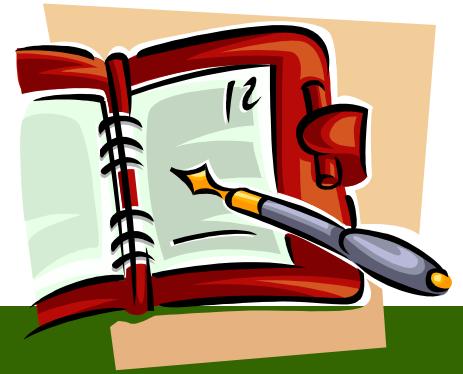
Ads by Google

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Start | Principles of Manage... | Microsoft PowerPoint... | McKinsey 7-S fra... | 10:17

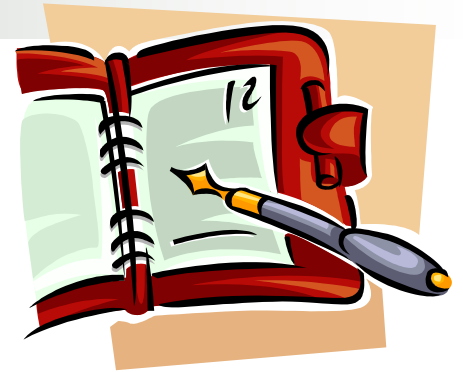


# Project 1: Charts analysis



Project Management  
Triangle

## Project 1: Charts analysis - LOB

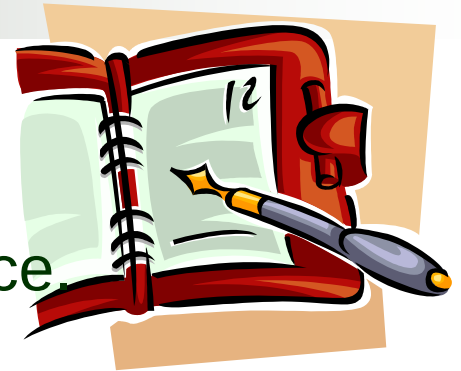


### Tasks:

- ✓ 1. Accordingly to presented data **evaluate** the project performance. What are positives and negatives?
- ✓ 2. **Present** graphically your report by using the mean in any form of chart which is the most appropriate. You are allowed to select any tool.

# Project 1: Charts analysis

**Answer 1: Evaluate** the project performance.  
What are positives and negatives?



## 1. Project performance data:

Table 1. Scope perspective [%]

| Time           | month 1 | month 2 | month 3 | month 4 | month 5 | month 6 | month 7 | month 8 | month 9 | month 10 | month 11 | month 12 |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| Task planned   | 5%      | 10%     | 12%     | 23%     | 28%     | 36%     | 45%     | 68%     | 75%     | 84%      | 96%      | 100%     |
| Task performed | 5%      | 12%     | 13%     | 20%     | 25%     | 30%     | 44%     | 60%     | 72%     | 80%      | 89%      | 95%      |
| +/-            | +       | +       | +       | -       | -       | -       | -       | -       | -       | -        | -        | -        |

Table 2. Budget perspective [EUR]

| Time           | month 1 | month 2 | month 3 | month 4 | month 5 | month 6 | month 7 | month 8 | month 9 | month 10 | month 11 | month 12 |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| Cost planned   | 1500    | 1100    | 1800    | 2500    | 1400    | 1400    | 1400    | 2500    | 2500    | 3400     | 3000     | 5500     |
| Cost performed | 1500    | 1200    | 1900    | 2500    | 1500    | 1500    | 1700    | 2800    | 2500    | 3500     | 3200     | 6800     |
| +/-            | +       | -       | -       | +       | -       | -       | -       | -       | -       | -        | -        | -        |

## POSITIVES

## NEGATIVES

The project was very well managed at the beginning (first 3-4 months)

The project was not completed on time.

In the months 2 and 3 we outperformed the plan.

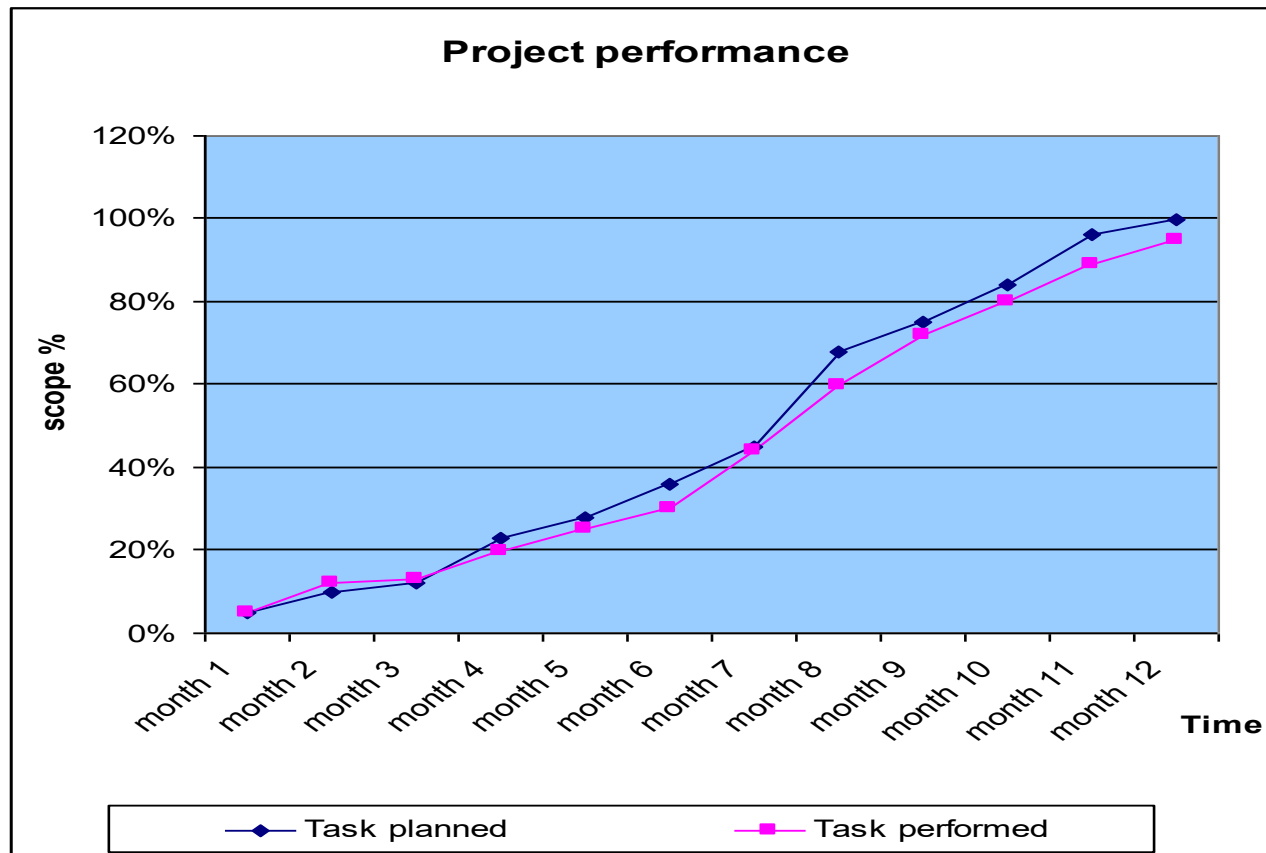
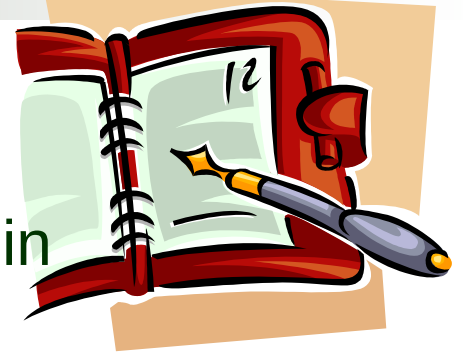
The real cost was higher than planned (by appr. 10%).

No more positives!

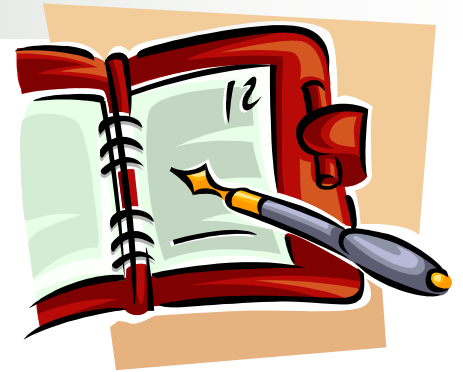
In general we must improve the quality of the project management

## Project 1: Charts analysis

**Answer 2: Present** graphically your report in any form of chart which is the most appropriate. You are allowed to select any tool.



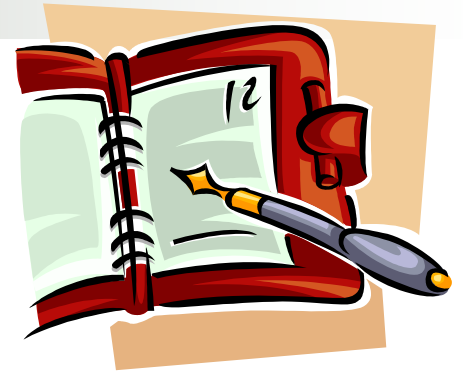
## Project 1: Charts analysis



### Line of Balance (LOB):

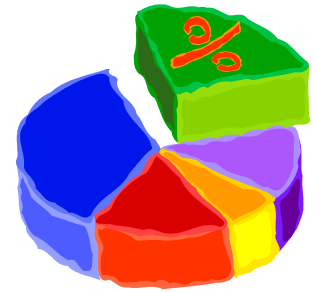
- ✓ Line of balance (LOB) was devised by George E. Fouch during the **1940's** to monitor production at the Goodyear Tire & Rubber Company.
- ✓ The line-of-balance (LOB) technique is a **linear scheduling method** that allows the balancing of the operations such that each activity is continuously and efficiently performed in each consecutive unit.
- ✓ A graphical display of scheduled units versus actual units over a given set of critical schedule control points on a particular day. The line of balance technique is oriented towards the control of production activities.

## Project 1: Charts analysis



### Line of Balance (LOB):

- ✓ It allows project managers to see, in the middle of a project, whether they can meet the schedule if they continue working as they have been.
- ✓ It exposes process **bottlenecks**, allowing the project manager to focus on those points responsible for slippage.



## 4. Charts and Graphs – means of concept implementation



# Methods and techniques - definitions



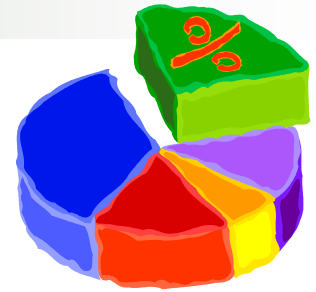
## Method vs Technique:

| Method | Level of perception      | Technique |
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| X      | „Best practices”         |           |

- ✓ **Means** – the way that any given problem can be solved – concept implementation – e.g. a table, graph.
- ✓ **Tools** – physical thing that implements the mean – e.g. a paper, pencil, computer, software, calculator.



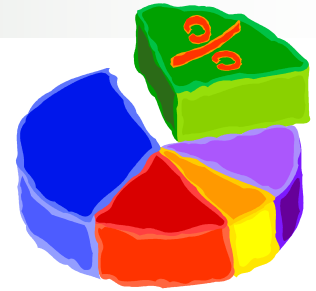
# Charts and Graphs



## Definitions - means:

- ✓ Data organizer.
- ✓ A way to structure data.
- ✓ A medium of communication (MK).
- ✓ Examples: tables, graphs.

# Charts and Graphs



## Definitions:

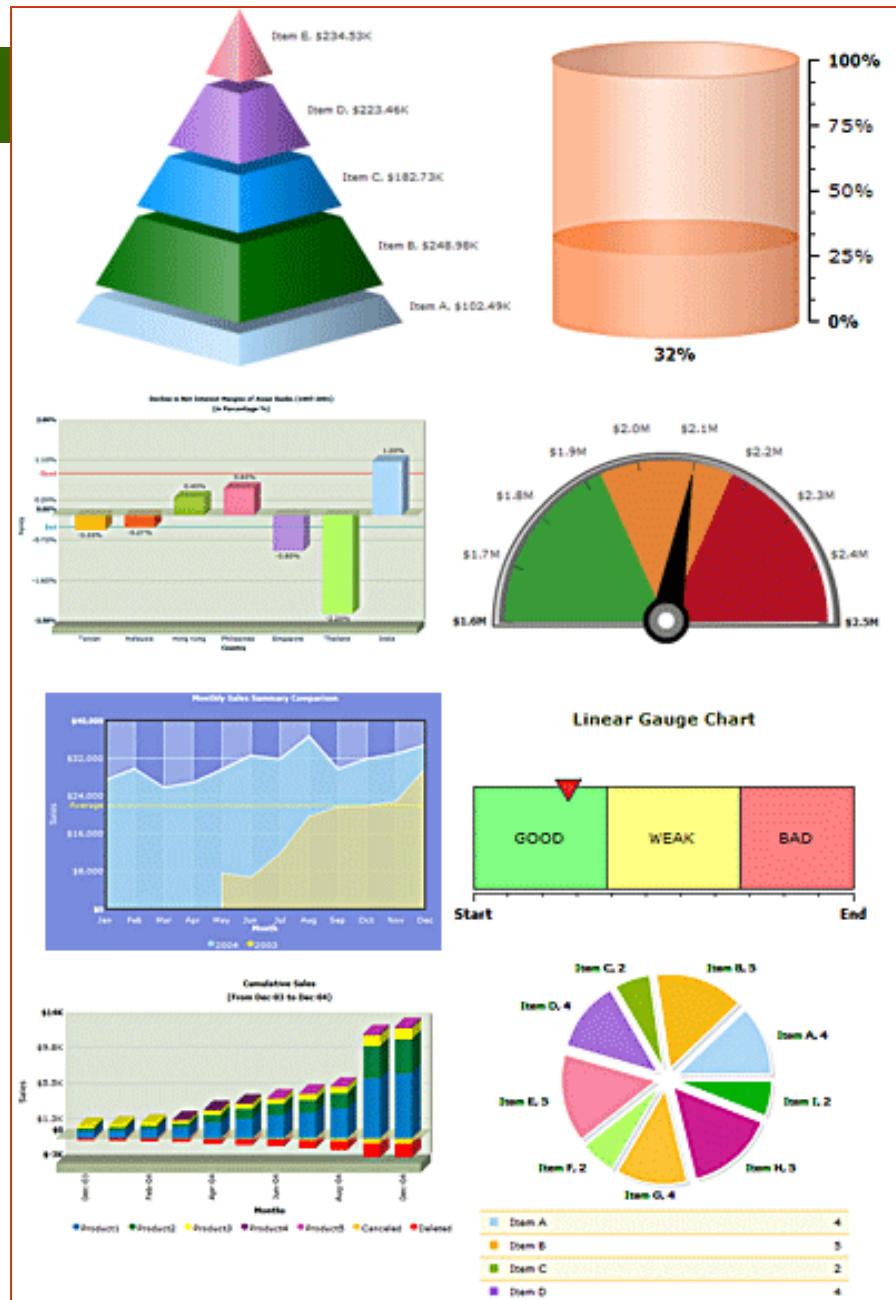
- ✓ A chart (graph) is a type of information graphic - **medium of communication** (MK).
- ✓ A **graphic organizer** that represents tabular numeric data and/or functions.
- ✓ Charts are used to **make it easier** to understand large quantities of data and the relationship between different parts of the data.
- ✓ Charts can usually be **read more quickly** than the raw data.
- ✓ They are used in a wide variety of fields, and can be created by hand (often on graph paper) or **by computer** using a charting application.

# Charts and Graphs

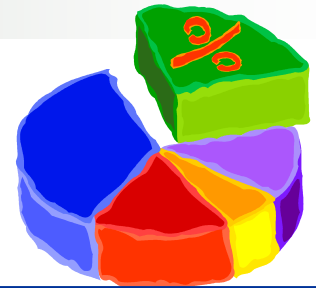
Example:

SmartCharts™

*By using progressive charts and key performance indicators PM manager visually improve the communication of your enterprise data*

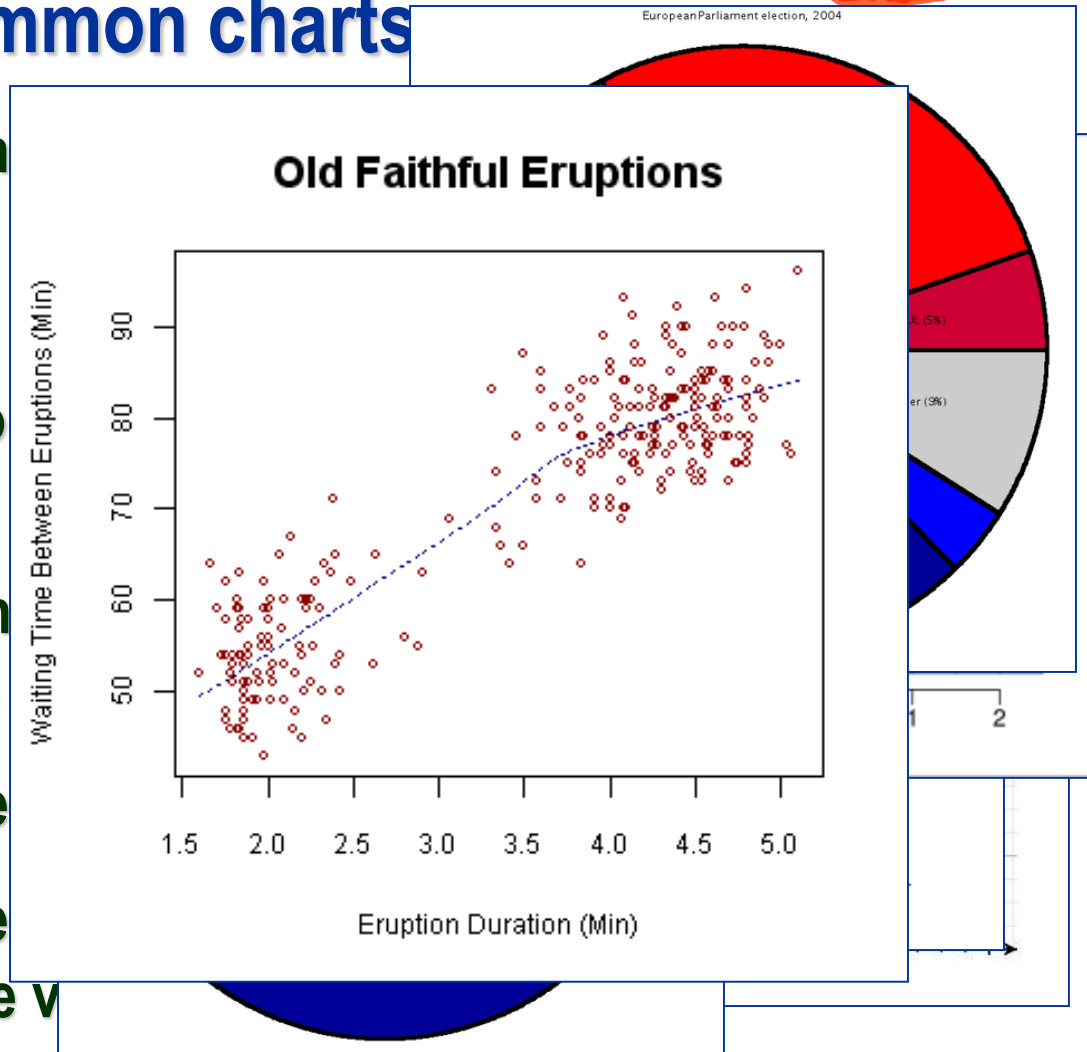


# Charts and Graphs

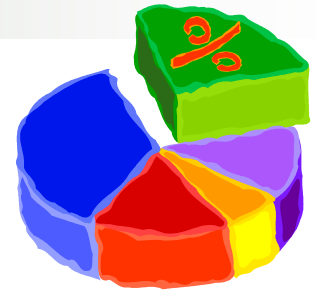


## Types of charts - Common charts

- ✓ **A line chart** is a two-dimensional observation where the order matters.
- ✓ **A bar chart** uses bars to represent categories.
- ✓ **A histogram** typically shows various numeric ranges.
- ✓ **A pie chart** shows percentages.
- ✓ **A scatterplot** uses Cartesian coordinates to show two or more quantitative variables.

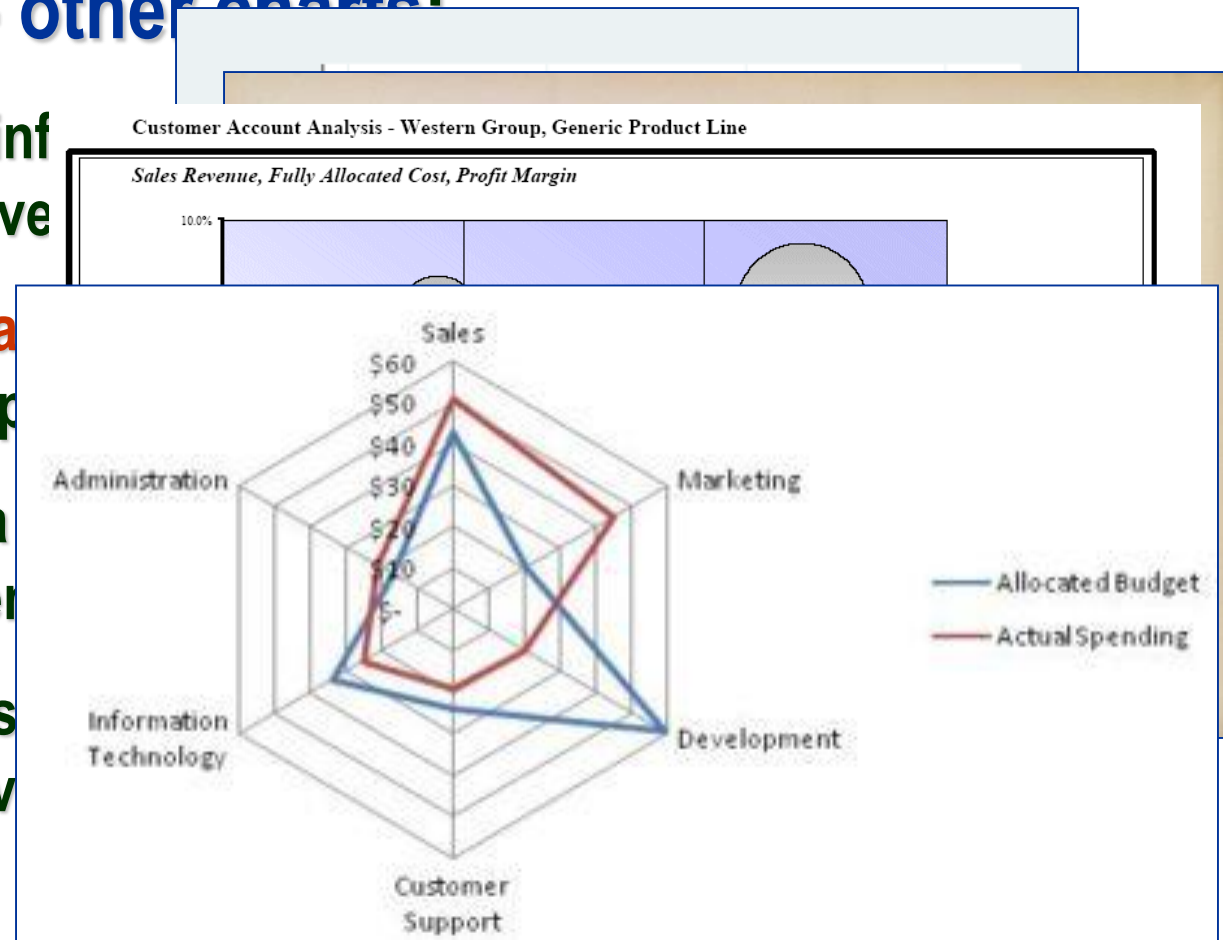


# Charts and Graphs

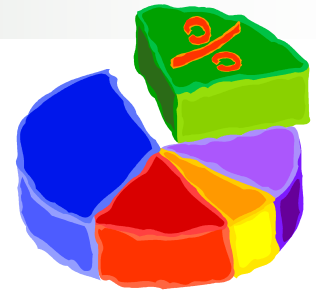


## Types of charts - other charts:

- ✓ A **box plot** shows inf maximum, mean ave
- ✓ A **Polar area diagram** enhanced form of p
- ✓ A **bubble chart** is a variable is represen
- ✓ A **radar chart** (or "s or more quantitativ the same point.

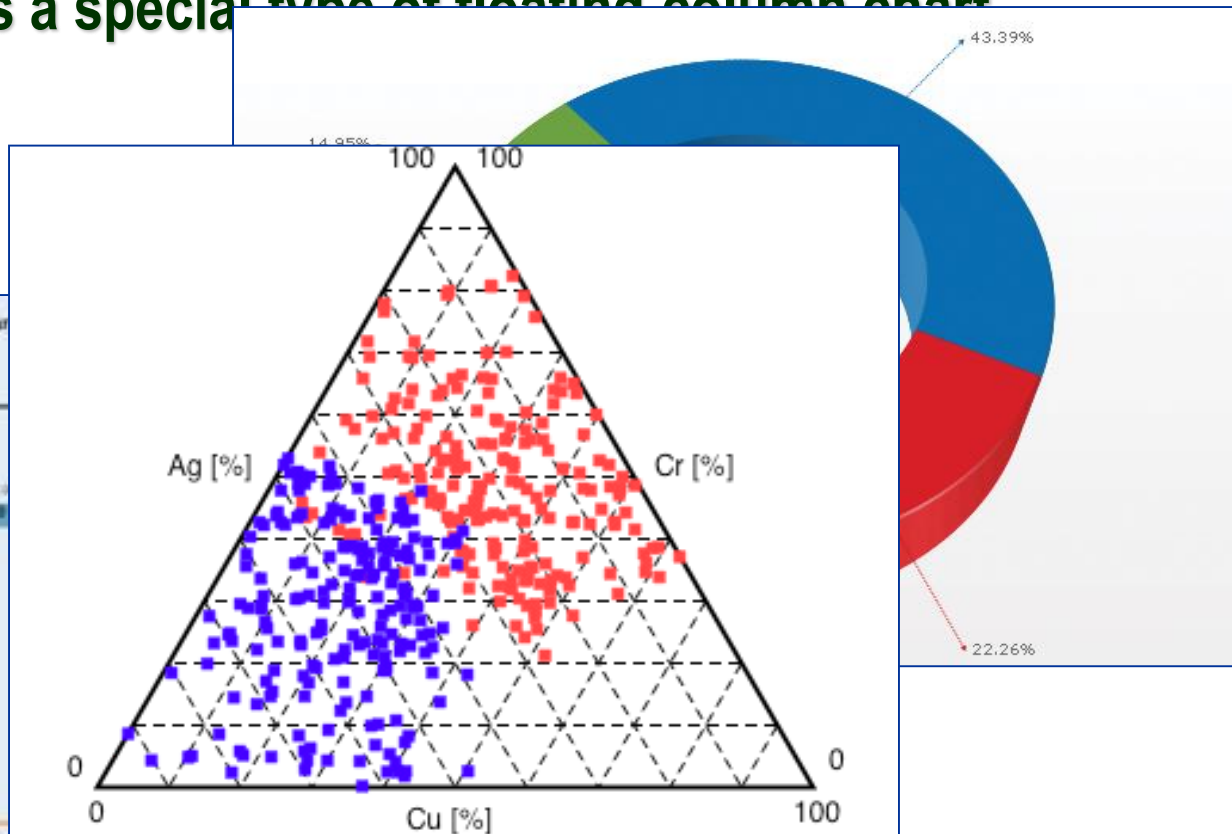
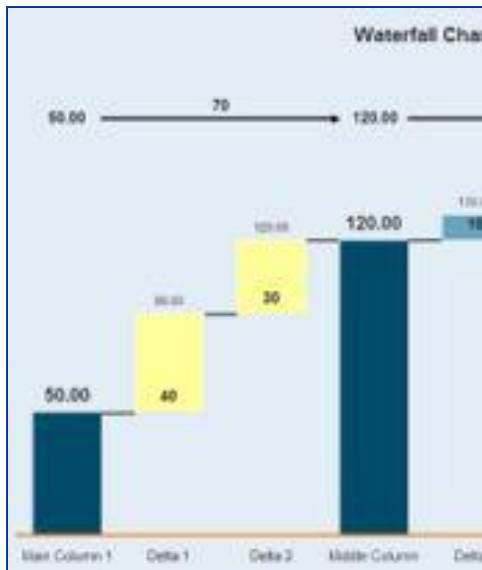


# Charts and Graphs



## Types of charts - other charts:

- ✓ A waterfall chart is a special type of floating column chart
- ✓ A Doughnut chart
- ✓ A ternary plot.



This graph has been created with the program "Ternary Plotter"

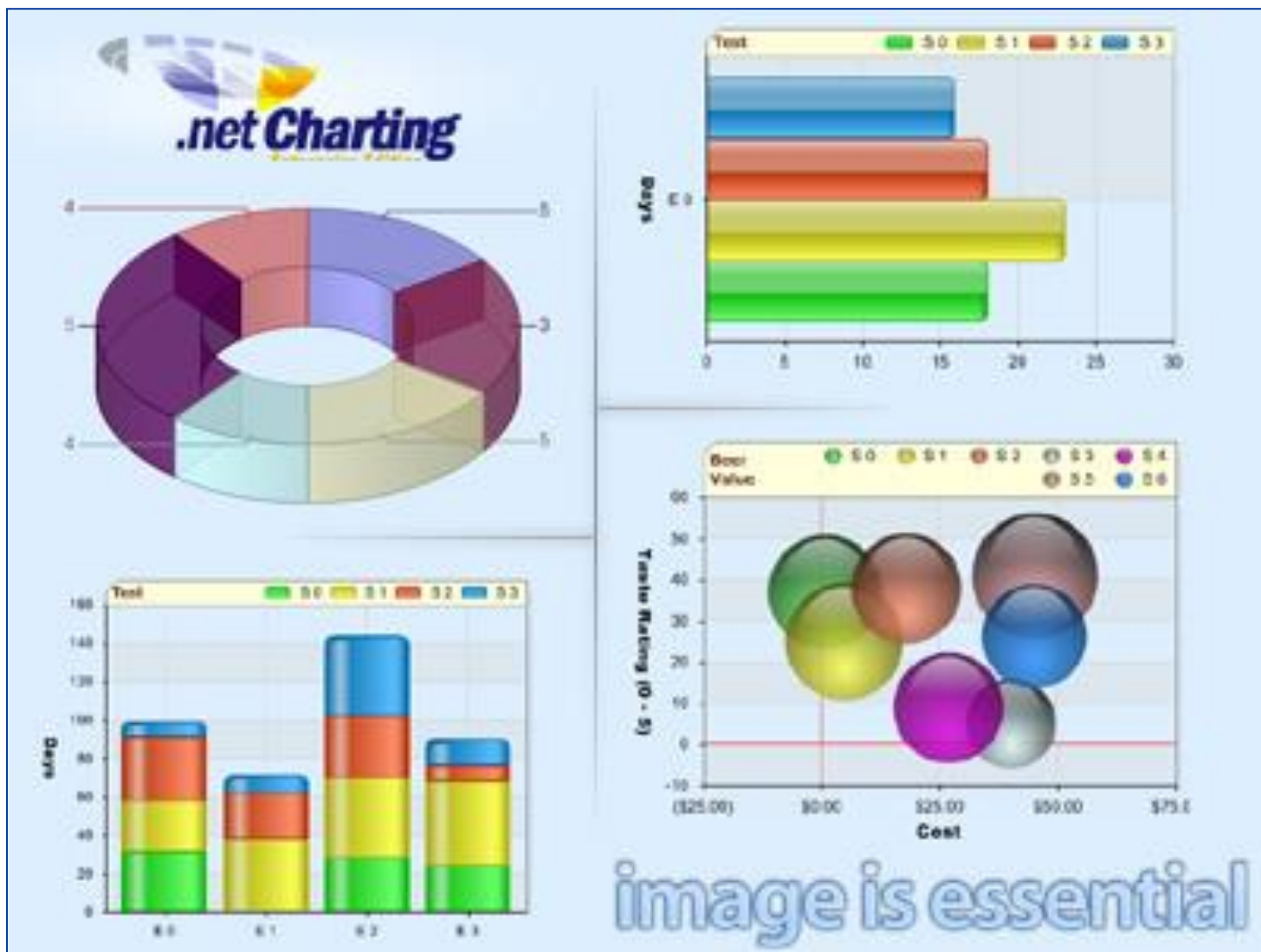


# Charts and Graphs



Example:

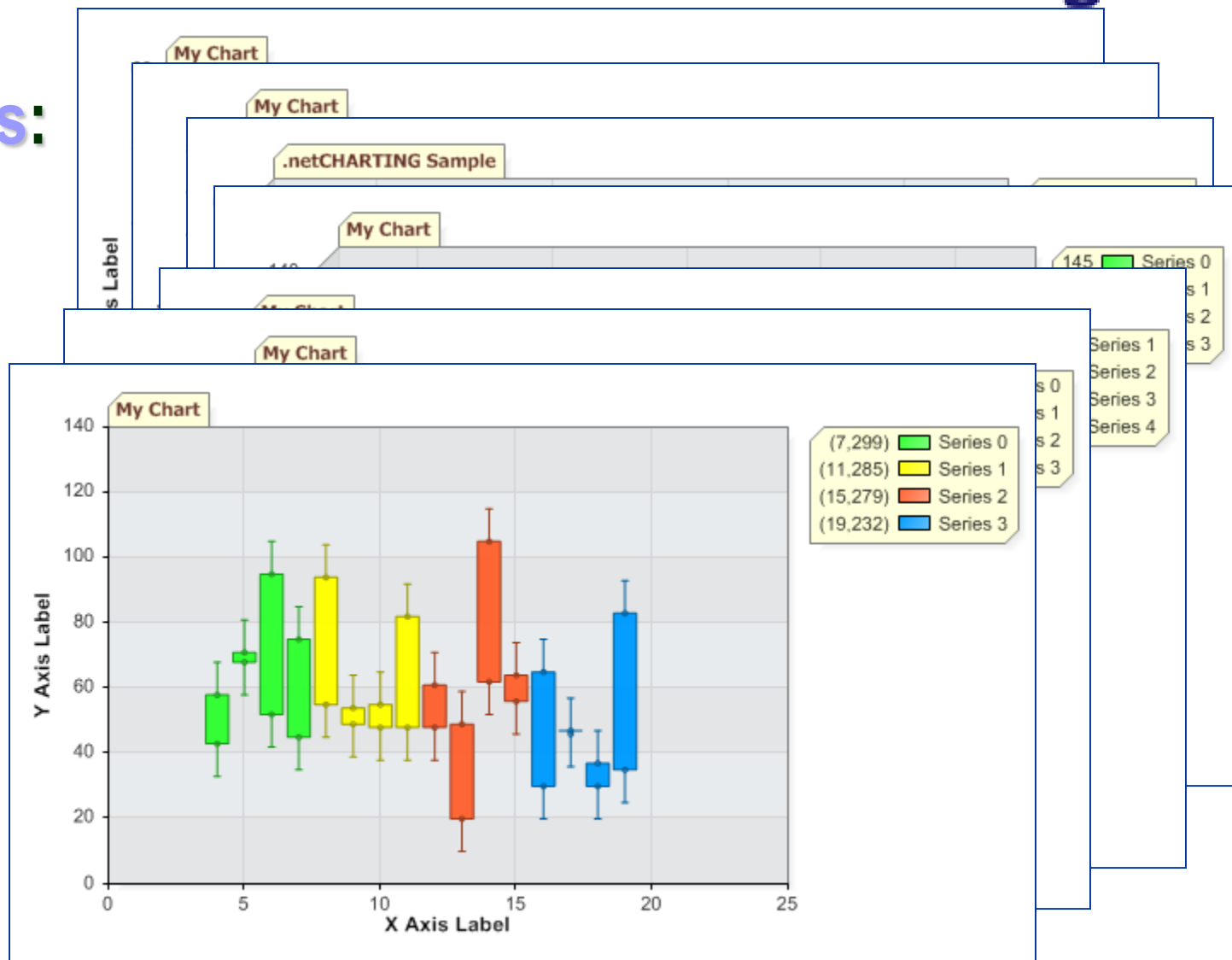
*Image is essential*



# Charts and Graphs



Chart types:  
***Combo***



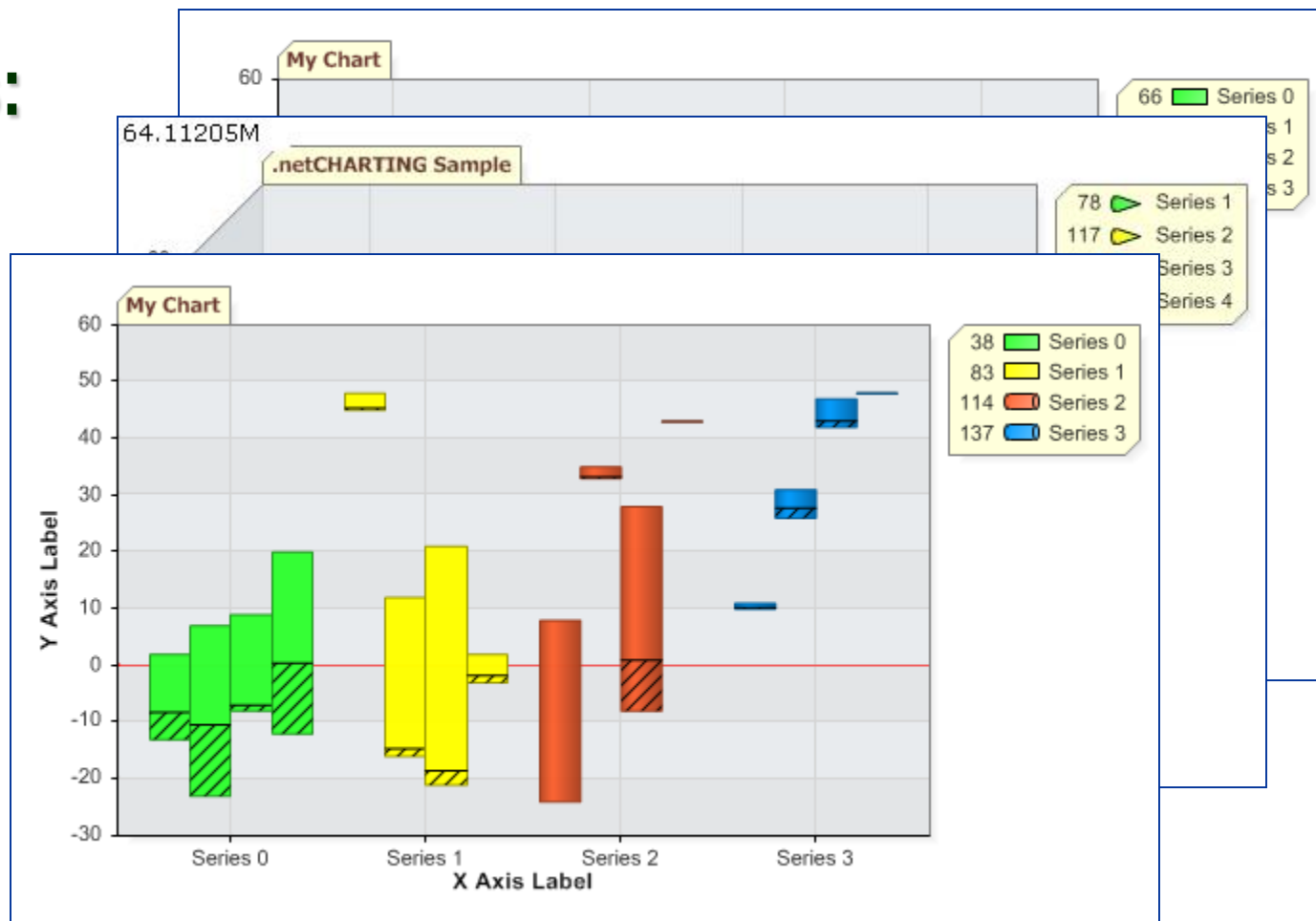


# Charts and Graphs



Chart types:

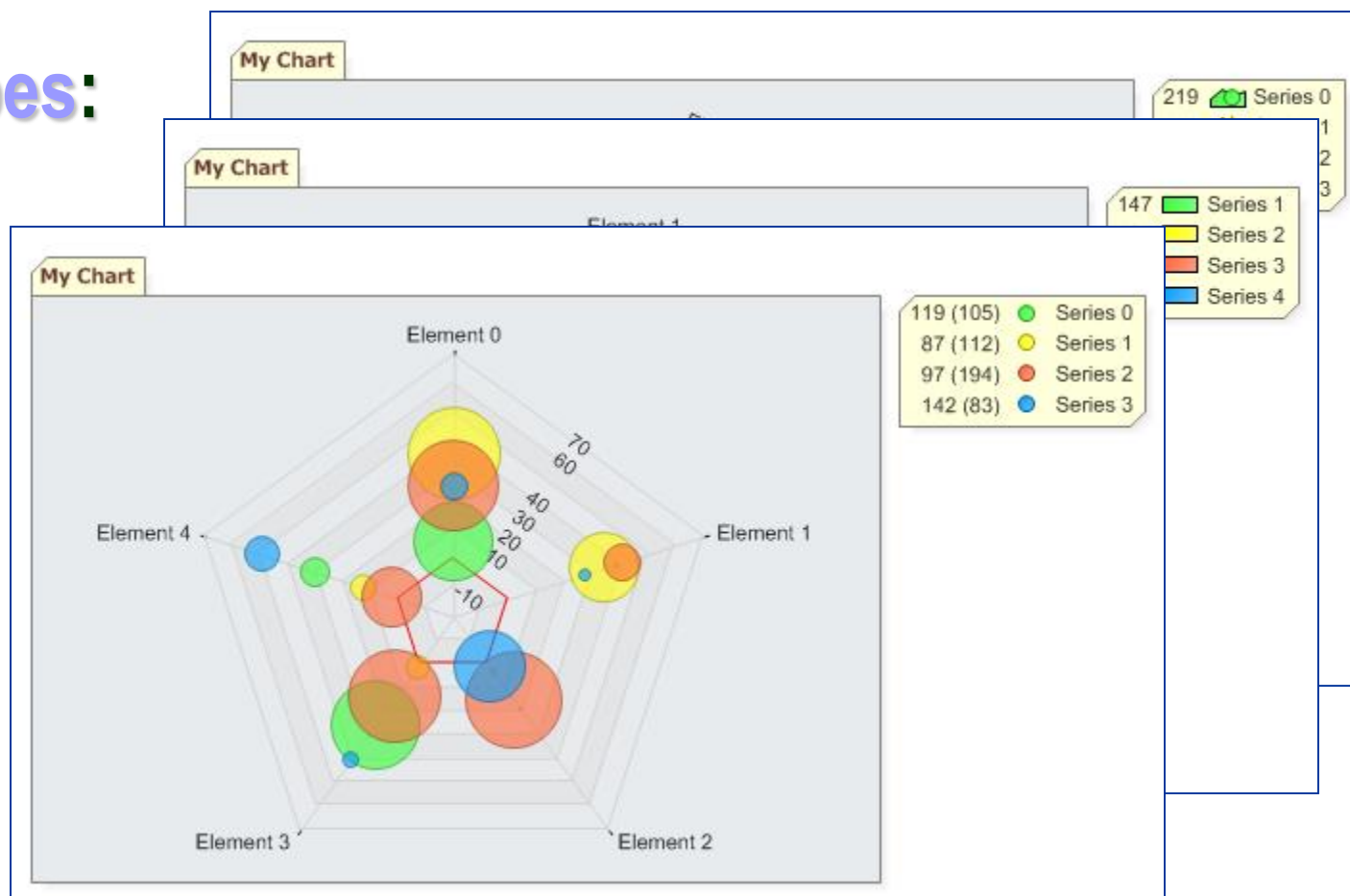
**Combo**  
**SideBy**  
**Side**



# Charts and Graphs



## Chart types: *Radar*

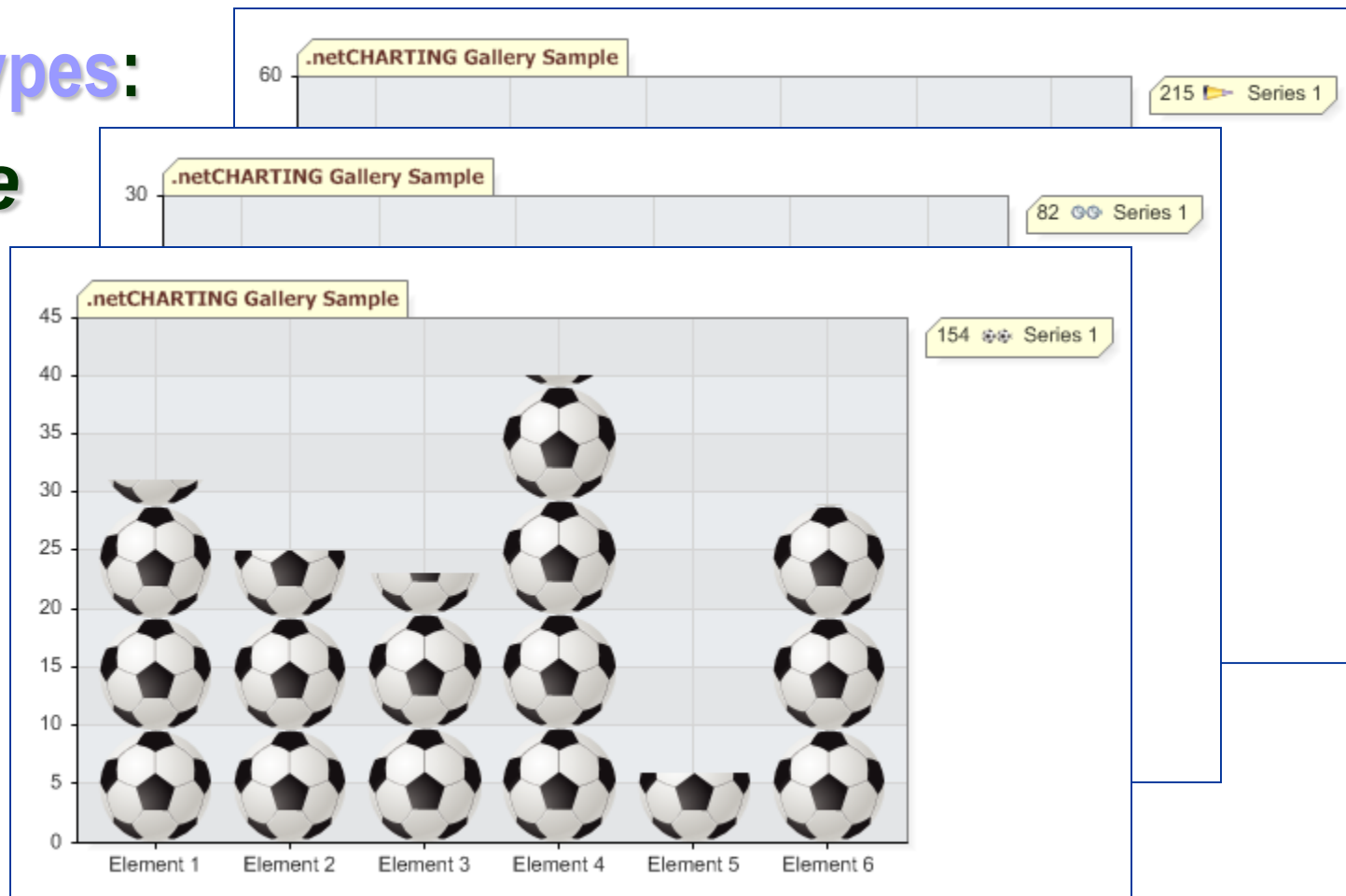


# Charts and Graphs



Chart types:

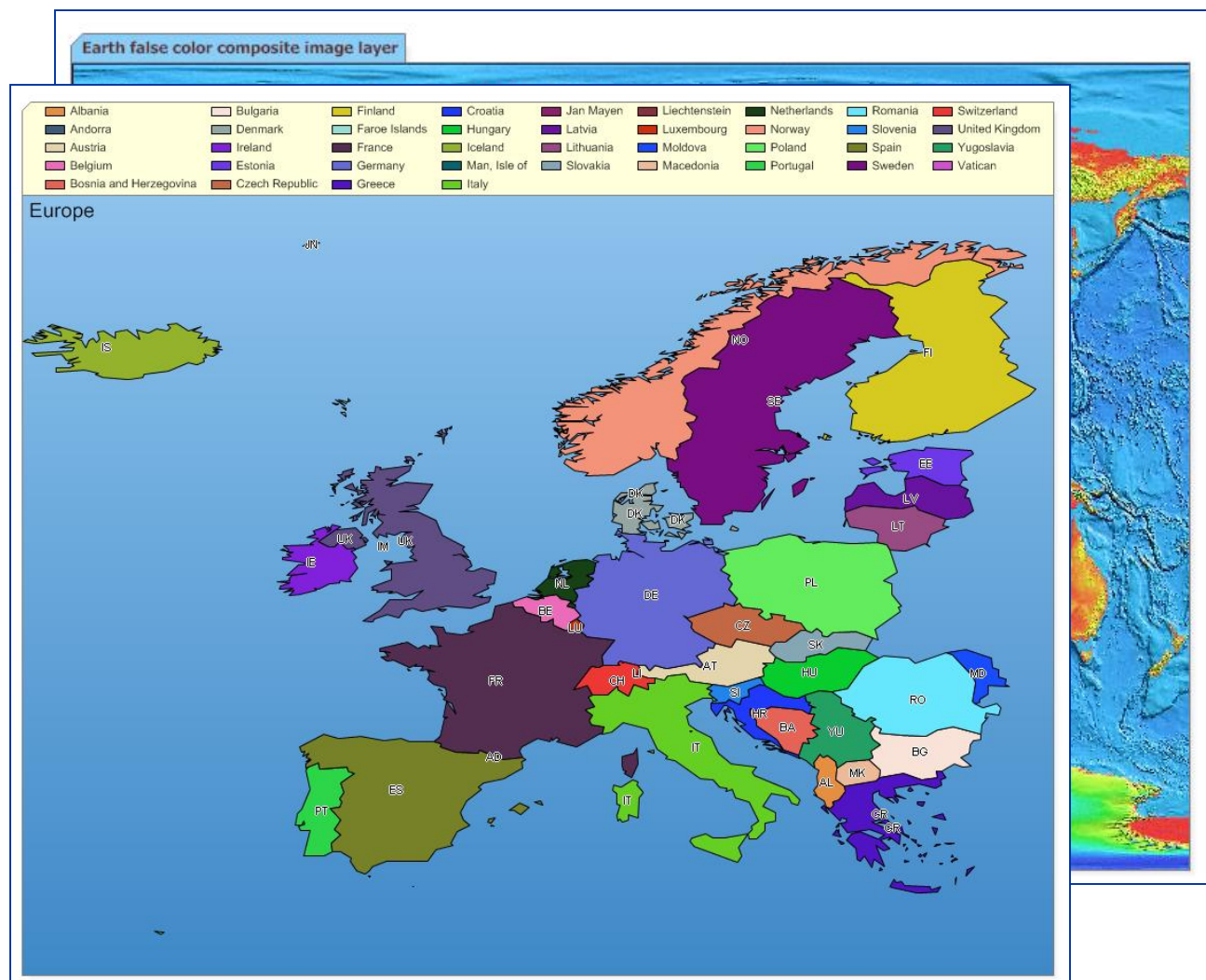
*Image  
Bars*

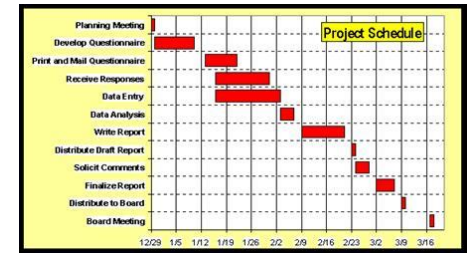


# Charts and Graphs



## Chart types: *Maps*





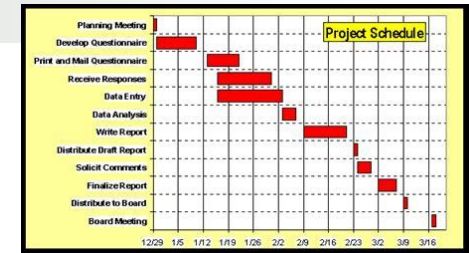
# 5. GANTT Charts

*Methods and techniques of MBP*



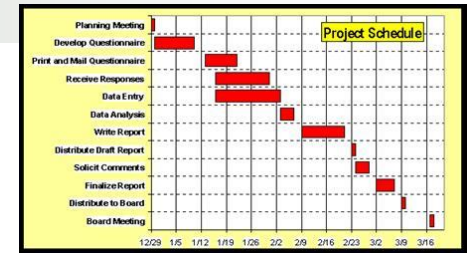
# GANTT Charts

## Background:



- ✓ The first Gantt Chart was actually developed by **Karol Adamiecki**, under the name „harmonogram”.
- ✓ As Adamiecki did not publish his chart until 1931, this famous chart bears Gantt's name.
- ✓ Henry Gantt (1861-1919) designed his chart in 1910 (see "Work, Wages and Profit" by H. L. Gantt, published by The Engineering Magazine, NY, 1910).

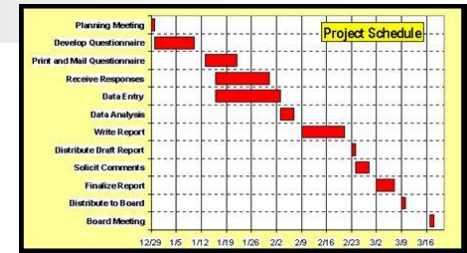
# GANTT Charts



## Definition:

- ✓ A **Gantt chart** is a popular type of a bar chart that illustrates a **project schedule**.
- ✓ Gantt charts illustrate the **start and finish dates** of the terminal elements and summary elements of a project.
- ✓ Terminal elements and summary elements comprise the **work breakdown structure (WBS)** of the project.
- ✓ The **100% Rule** states that the WBS includes 100% of the work defined by the project scope and captures ALL deliverables (objectives).

# Break Down Structure (WBS)

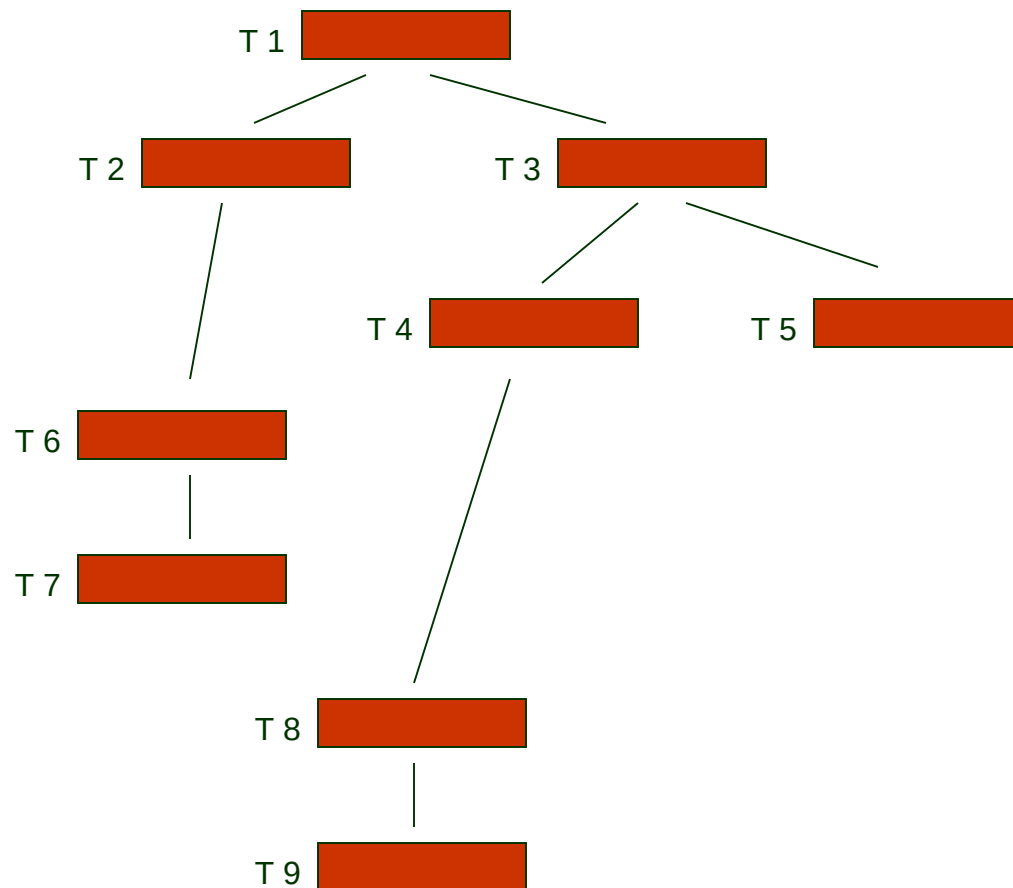


## Introduction:

### Tasks of the project X

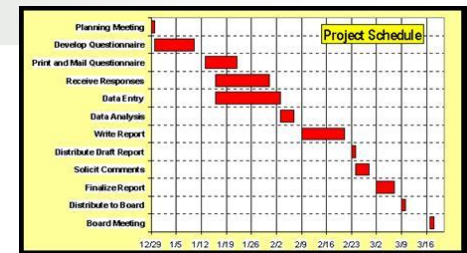
- T 1
- T 2
- T 3
- T 4
- T 5
- T 6
- T 7
- T 8
- T 9

### WBS of the project X

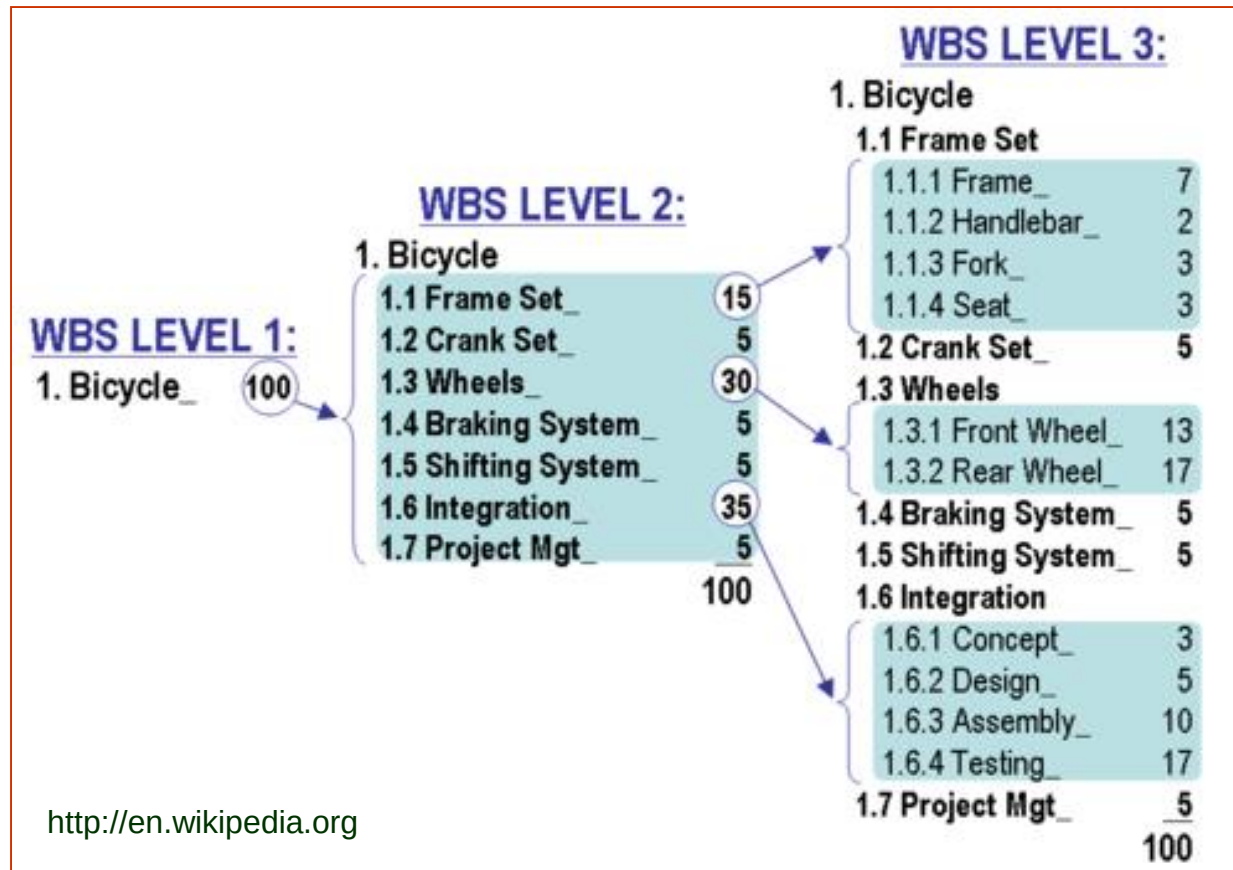




# Break Down Structure (WBS)

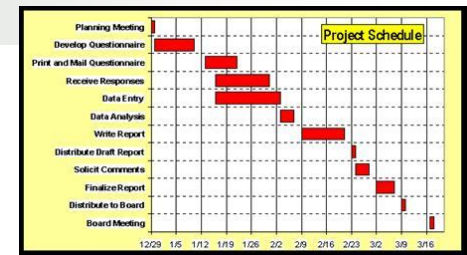


## Introduction:

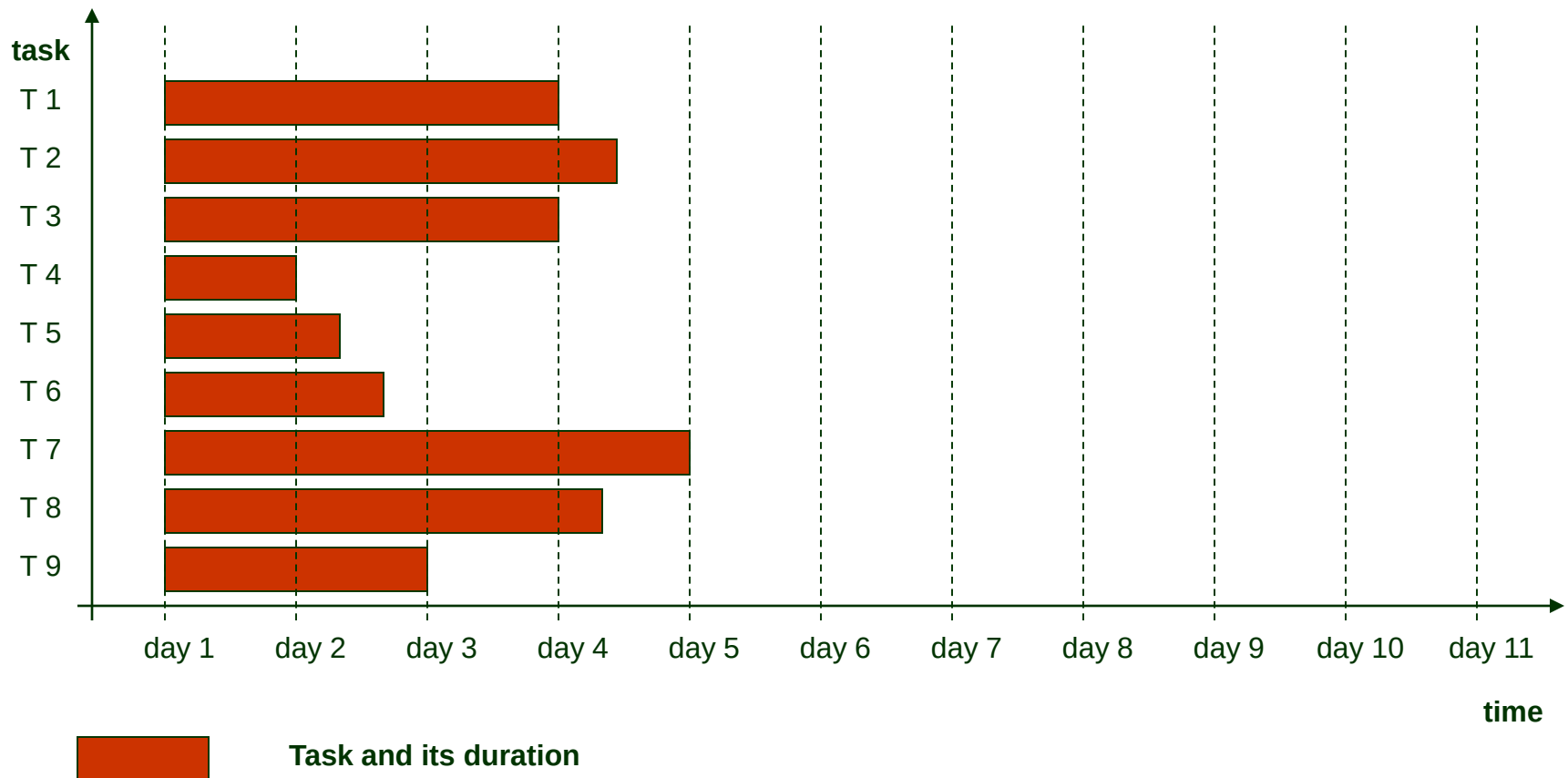


**Figure: WBS Construction Technique.** This exemplary WBS is from PMI's *Practice Standard for Work Breakdown Structures (2nd Edition)*. This image illustrates an objective method of employing the 100% Rule during WBS construction.

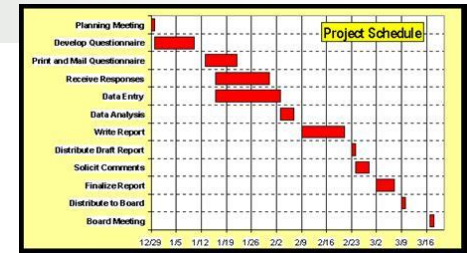
# GANTT Charts



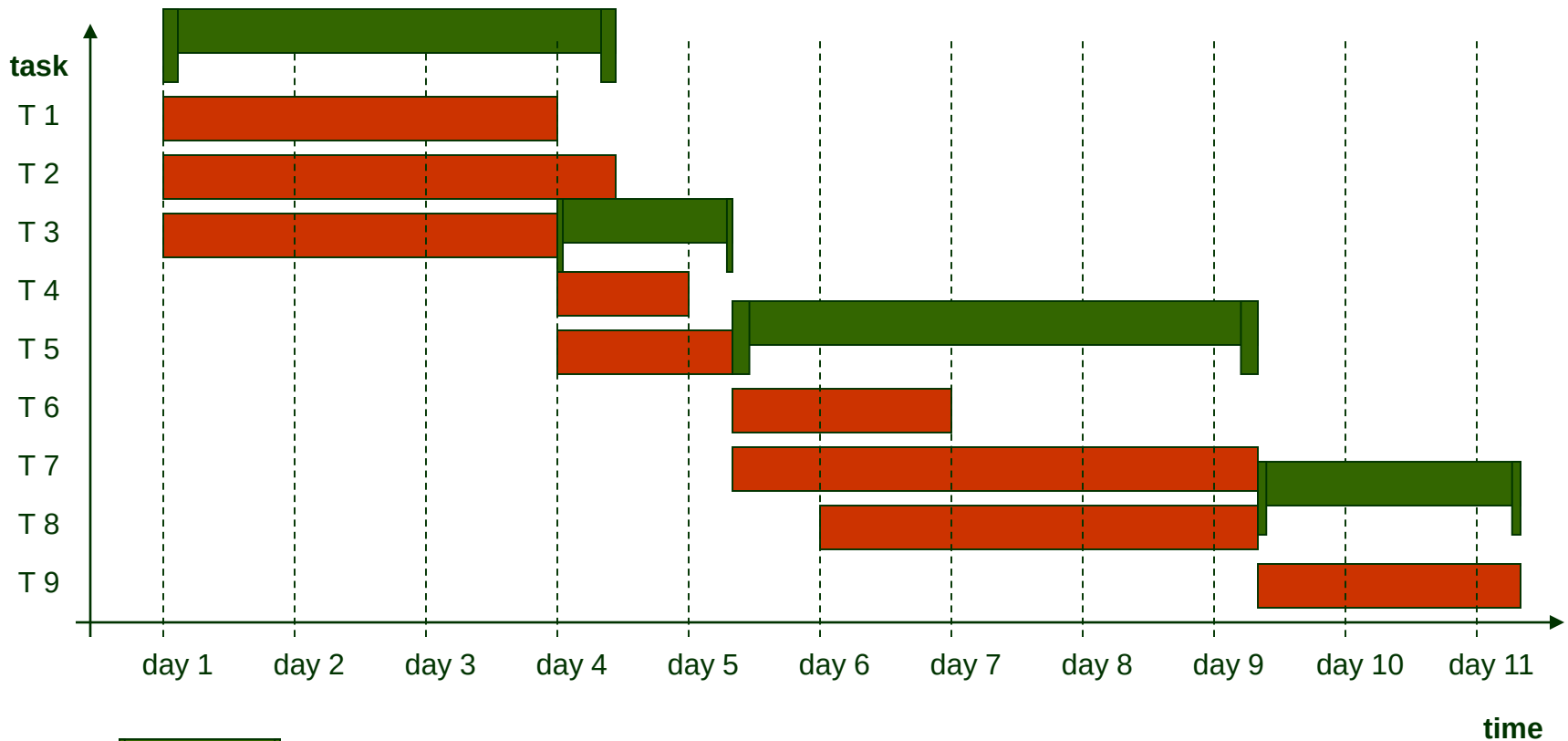
## Introduction – Gantt chart structure:



# GANTT Charts

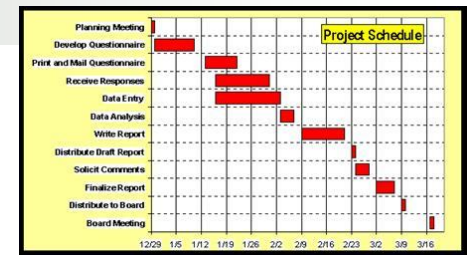


## Introduction – Gantt chart structure:

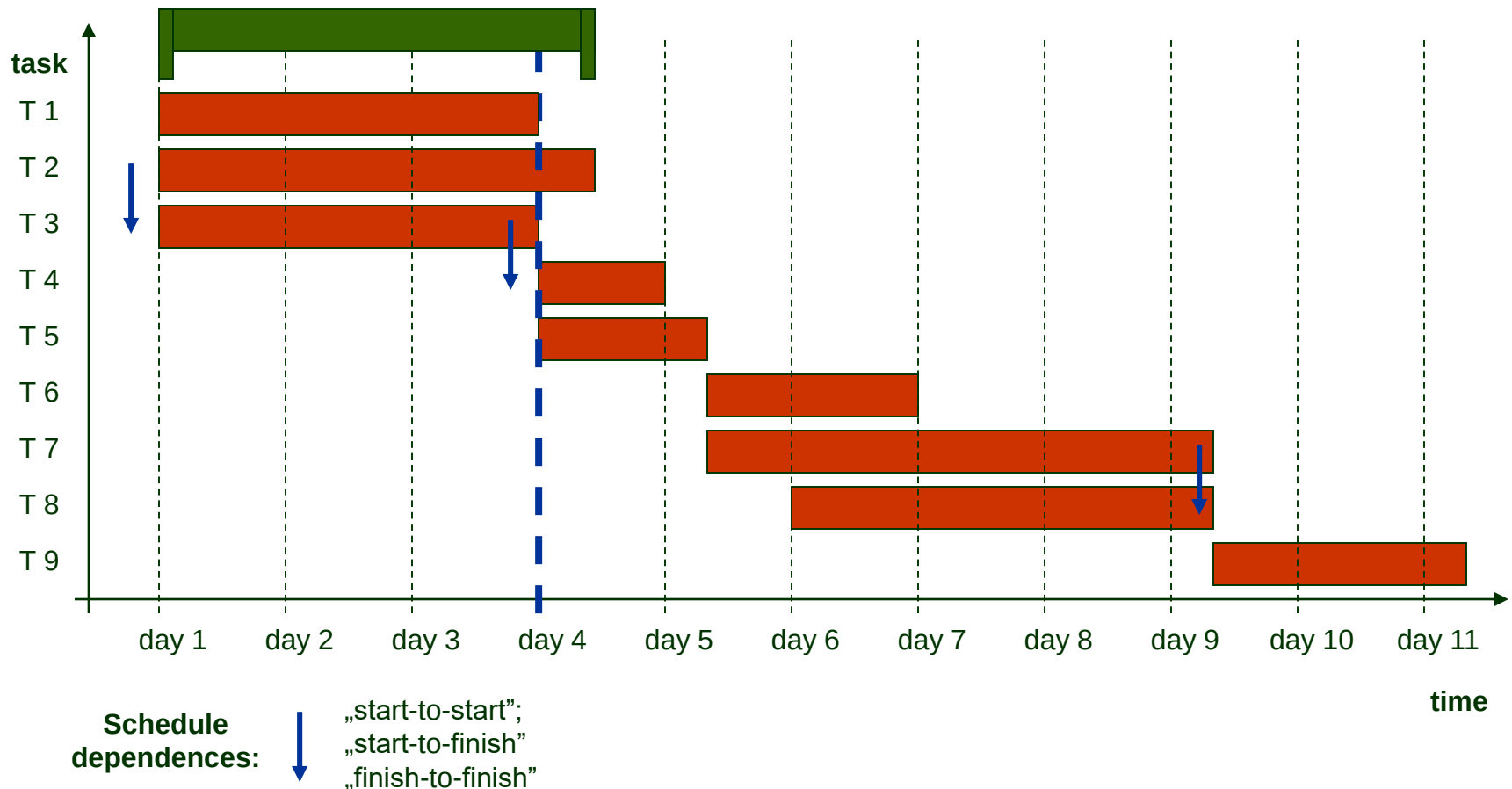


Phases, tasks groups:

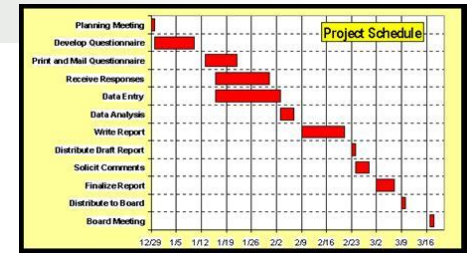
# GANTT Charts



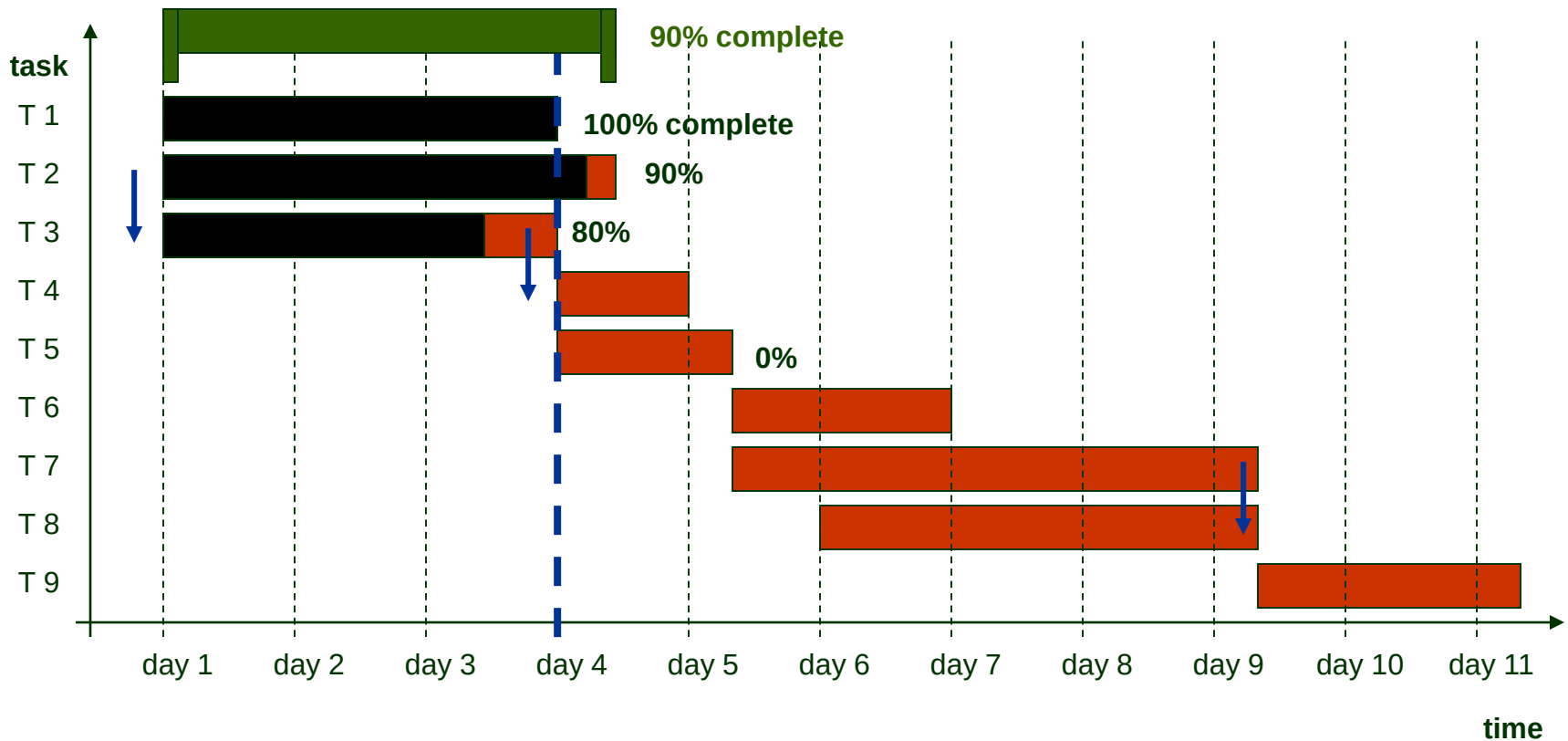
## Introduction – Gantt chart structure:



# GANTT Charts

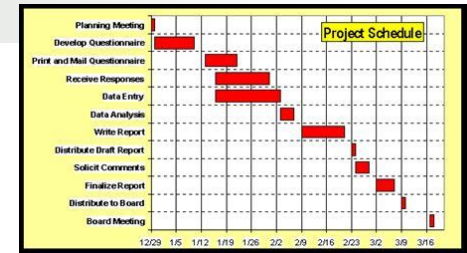


## Introduction – Gantt chart structure:



Project performance analysis

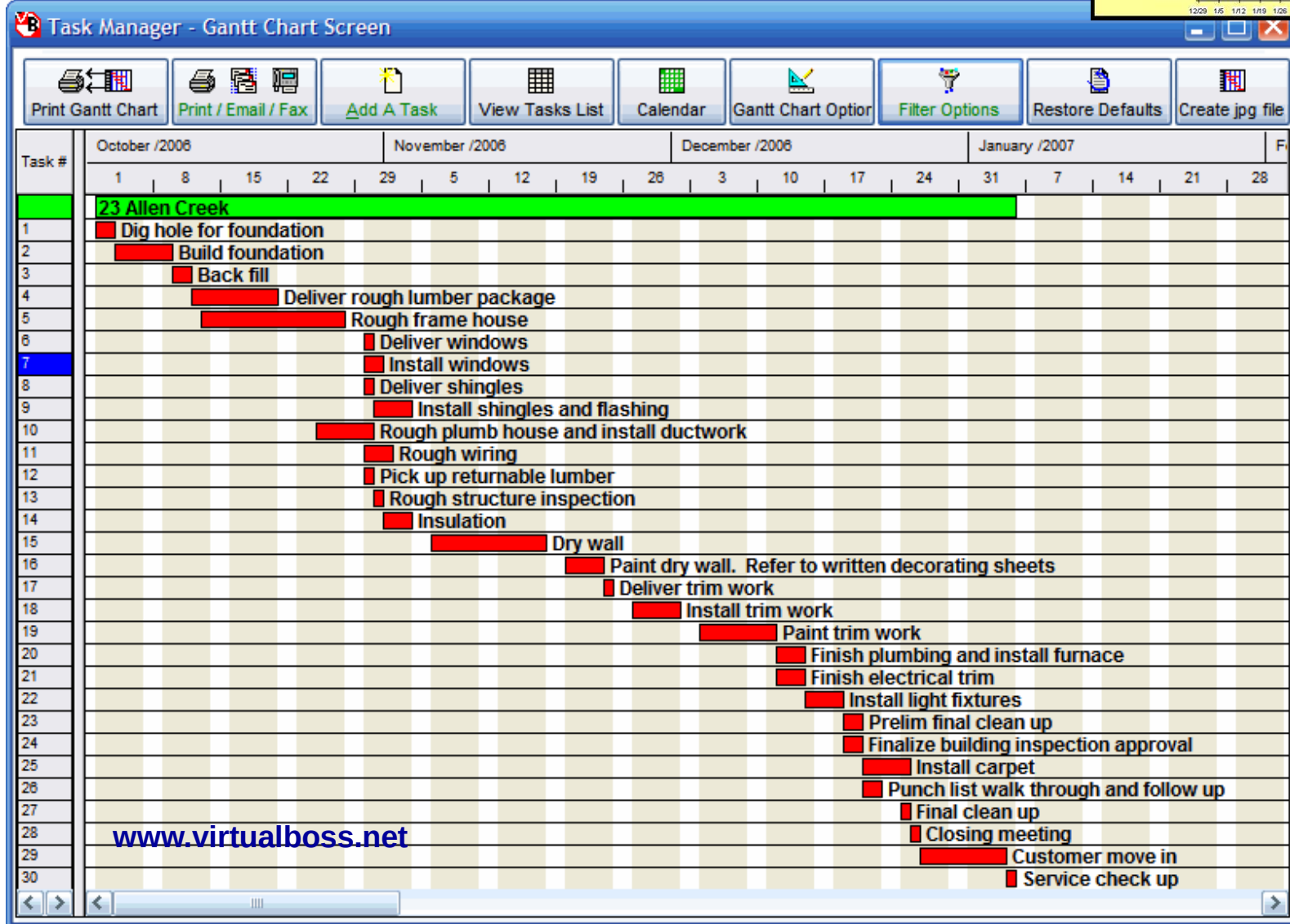
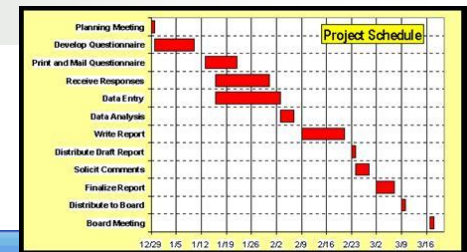
# GANTT Charts



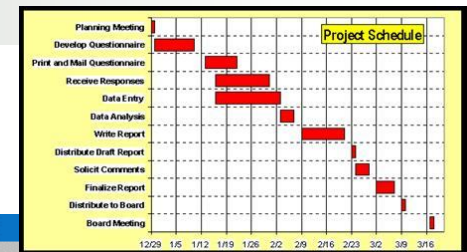
## Advantages and limitations:

- ✓ a common technique for representing the phases and activities of a project;
- ✓ it is useful for projects with no more than about 30 activities;
- ✓ Gantt charts only represent part of the triple constraints of projects, because they focus primarily on schedule (time) management;
- ✓ do not represent the size of a project or the relative size (complexity) of work elements – it represents their time duration;
- ✓ displaying a large number of dependencies may result in a cluttered or unreadable chart.

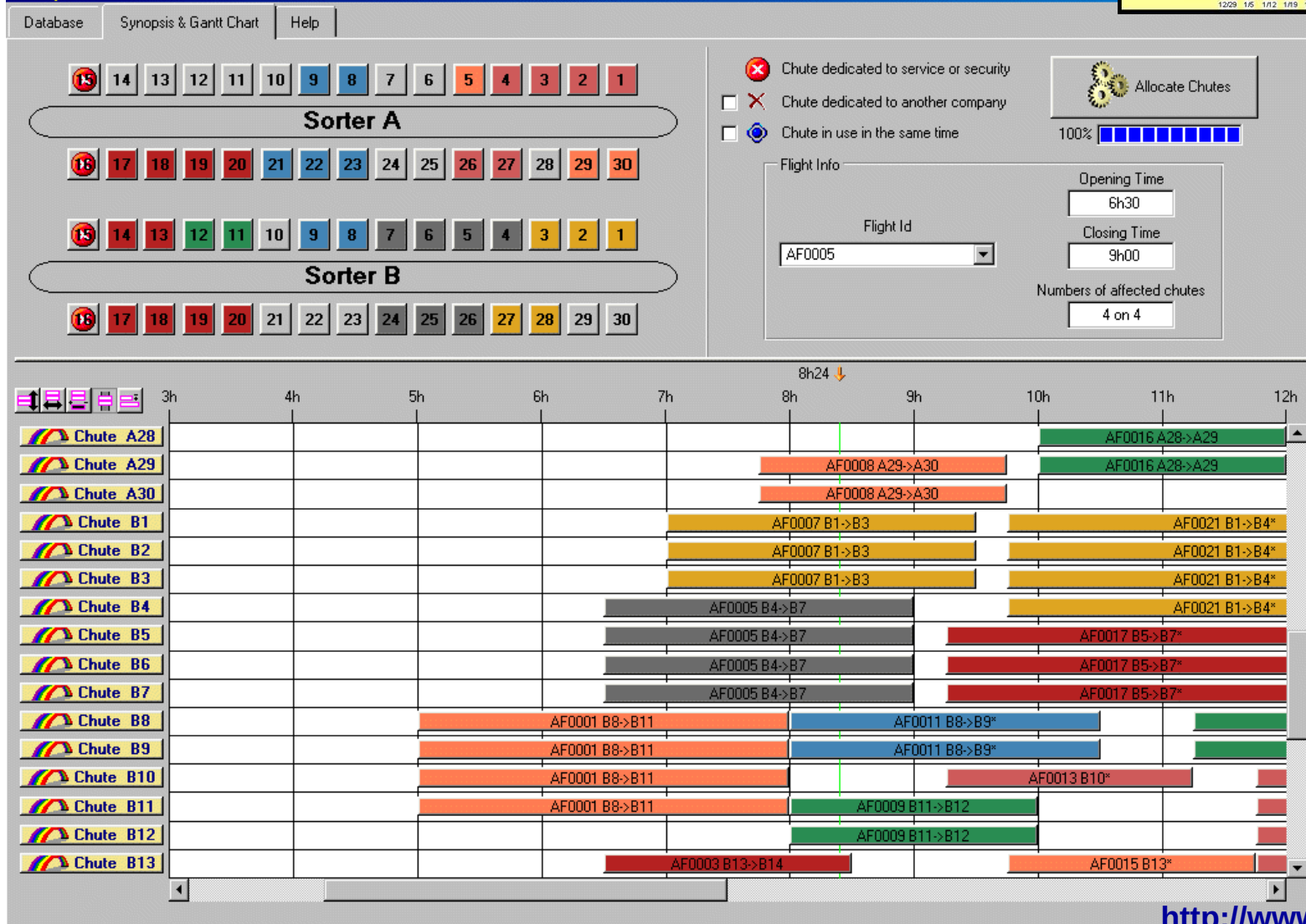
# GANTT Charts - examples



# GANTT Charts - examples

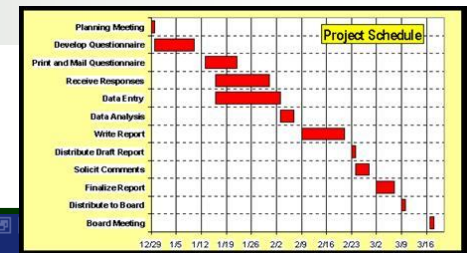


## Airport Container Allocation





# GANTT Charts and SAP R/3



**BC SAP Graphics: User's Guide**

Plik Edycja Zakładka Opcje Pomoc

Zawartość Wyszukaj Wstecz Drukuj <> R/3 Library Close

## Overview

The SAP Gantt Chart system displays a table of events over a given time period and allows you to reschedule them.

The following figure shows the SAP Gantt Chart Planning Board. The *Time units* value is *Months*.

**Weston Adult Education: Summer/Fall 1990**

Graphic Edit Goto Options Time unit Help

Standard values Legend

| INSTRUCTOR NAME | 1991 |     |     |     |     |     |     |     |     |     |     |     | 1992 |     |
|-----------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|
|                 | Jul  | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul  | Aug |
| Antonio         |      |     |     |     |     |     |     |     |     |     |     |     |      |     |
| Baker           |      |     |     |     |     |     |     |     |     |     |     |     |      |     |
| Bernardino      |      |     |     |     |     |     |     |     |     |     |     |     |      |     |
| Ellington       |      |     |     |     |     |     |     |     |     |     |     |     |      |     |
| Ferencz         |      |     |     |     |     |     |     |     |     |     |     |     |      |     |
| Hauptmann       |      |     |     |     |     |     |     |     |     |     |     |     |      |     |
| Illyria         |      |     |     |     |     |     |     |     |     |     |     |     |      |     |
| Johnstone       |      |     |     |     |     |     |     |     |     |     |     |     |      |     |

Mo 24.09.90 15:57:41

## Overview

|    | Mo 07 May   | Tu 08 May   | We 09 May   | Th 10 |
|----|-------------|-------------|-------------|-------|
| 18 | 00 06 12 18 | 00 06 12 18 | 00 06 12 18 | 00    |

**Legend**

- Latest queue time
- Latest setup time
- Latest processing time
- Latest teardown time
- Latest wait time
- Earliest setup time
- Earliest processing time

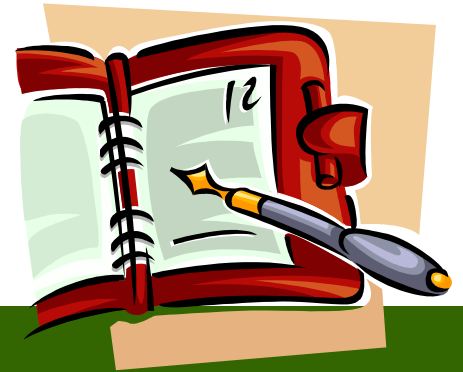
**Project Schedule**

| Task                         | Start Date | End Date |
|------------------------------|------------|----------|
| Planning Meeting             | 12/29      | 1/5      |
| Develop Questionnaire        | 1/5        | 1/12     |
| Print and Mail Questionnaire | 1/12       | 1/19     |
| Receive Responses            | 1/19       | 2/5      |
| Data Entry                   | 2/5        | 2/12     |
| Data Analysis                | 2/12       | 2/19     |
| Write Report                 | 2/19       | 3/5      |
| Distribute Draft Report      | 3/5        | 3/12     |
| Solicit Comments             | 3/12       | 3/19     |
| Finalize Report              | 3/19       | 3/26     |
| Distribute to Board          | 3/26       | 3/31     |
| Board Meeting                | 3/31       | 4/7      |

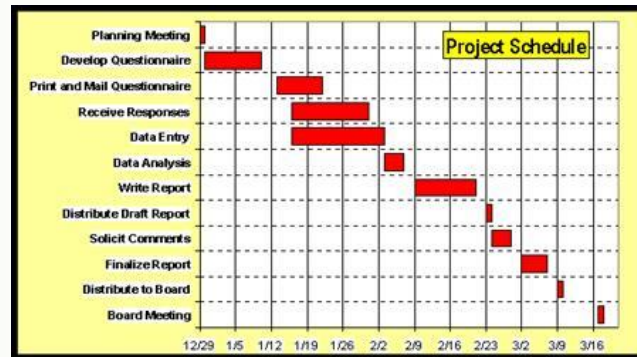


The screenshot displays the SAP Planning Table interface for SAPSFCG001. The main window is titled "Planning Table: SAPSFCG001 Finite scheduling forw./all functs.activ". The interface includes a menu bar (Plan, Edit, Goto, Functions, Extras, Settings, System, Help) and a toolbar. The left sidebar shows the "Stock/Requirement" section with a list of materials and their MRP areas. The main area is divided into two main sections: "Work centers" and "Orders (pool)". The "Work centers" section shows a table with columns for Work ctr, Work center desc., Ca, and Cap. description. The "Orders (pool)" section shows a table with columns for Material, Order, Oper., and Work cent. The bottom status bar displays the date 11.11.2004, time 15:47:00, and user Cha.

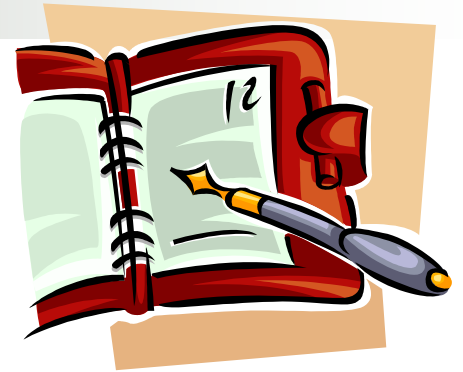
# Project 2: Gantt Chart



## The International Conference Project

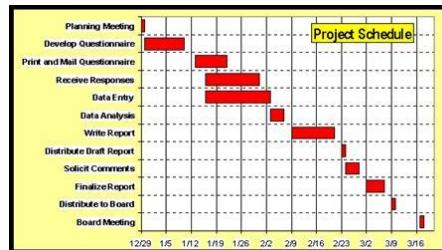


## Project 2: Gantt chart analysis

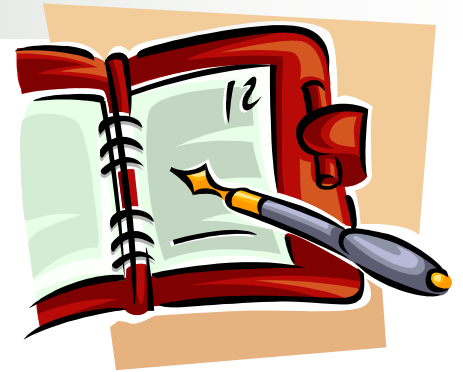


### Tasks:

1. Create a project plan for the **International Conference** – name, objective, activities, resources etc.
2. **Present** graphically your plan by using the Gantt chart.



## Project 2: Gantt Chart

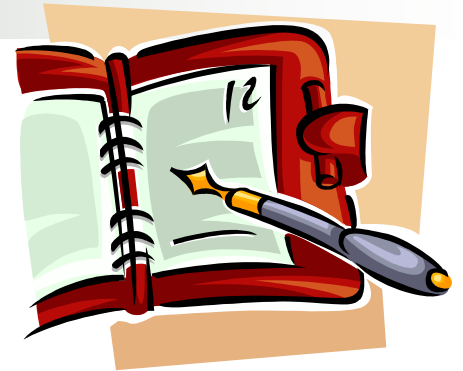


### Methodology:

1. Describe the name and the main objective of the project.
2. By using the 100% Rule define all activities that are necessary to perform the planned project (to achieve the stated goal/objective – step 1).
3. Put in an order (WBS) all defined activities/ tasks (step 2) – create phases of the project, function's groups etc.
4. Define the start and finish date (time) of every given task.
5. By using the Gantt Chart present the plan of the project graphically.
6. Make all necessary descriptions.

## Project 2: Gantt Chart

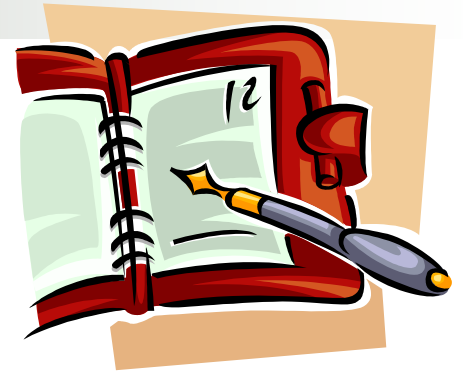
A task list:



| TASK CODE | TASK NAME | DURATION<br>[days/weeks] | COMMENTS |
|-----------|-----------|--------------------------|----------|
| T1        |           |                          |          |
|           |           |                          |          |
|           |           |                          |          |
|           |           |                          |          |
|           |           |                          |          |

## Project 2: Gantt Chart

### WBS of the project:

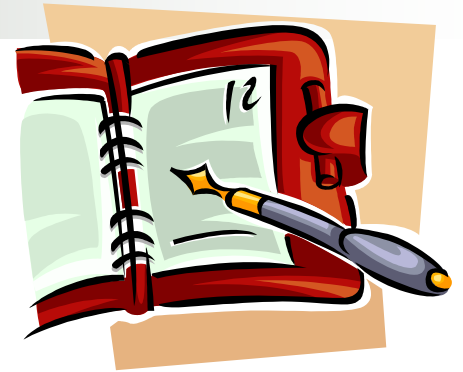


T1



## Project 2: Gantt Chart

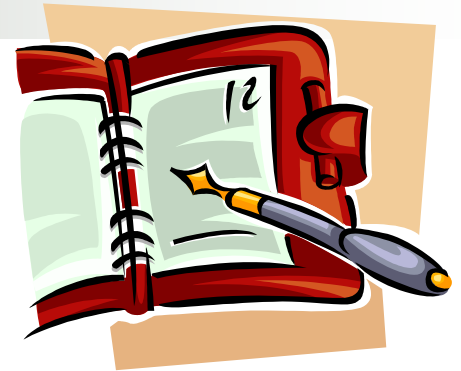
A task table with time parameter:



| TASK | START | FINISH | DURATION |
|------|-------|--------|----------|
|      |       |        |          |
|      |       |        |          |
|      |       |        |          |
|      |       |        |          |
|      |       |        |          |



# Project 2: Gantt Chart



## Answer 1: MS Excel

*The name of the project:*

**The International Conference on "Investment in Iran and India"**

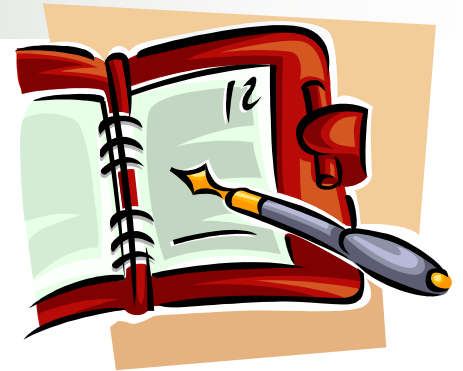
*The main objective of the project:*

**To have a profit of 10 000 EUR**

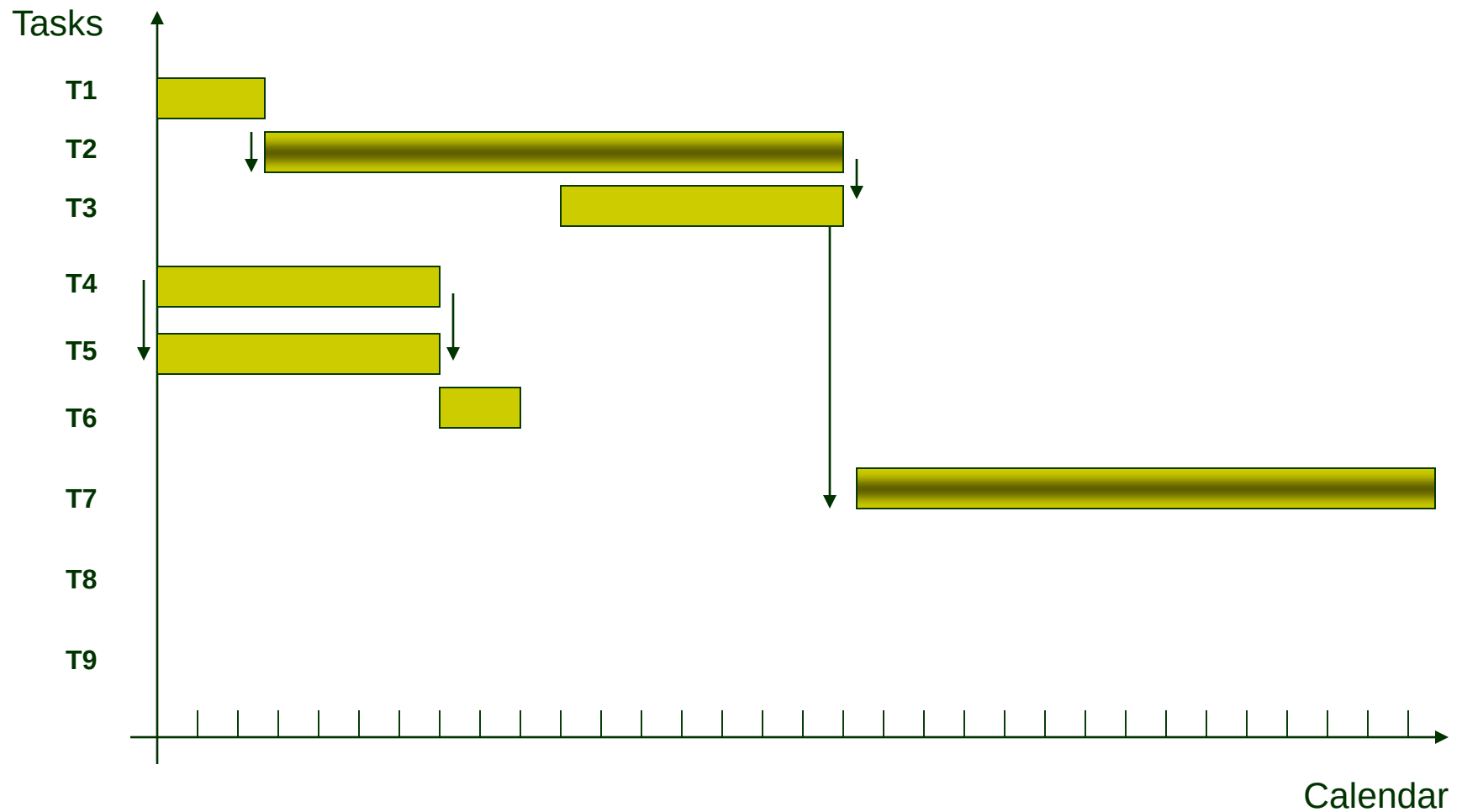
| #  | TASK                                                                   | DURATION | START      | FINISH     | Phase   | 65 days |
|----|------------------------------------------------------------------------|----------|------------|------------|---------|---------|
| T1 | LOGO creation                                                          | 3        | 01/06/2007 | 03/06/2007 | Phase 1 |         |
| T2 | The Conference Committee                                               | 14       | 04/06/2007 | 28/06/2007 |         |         |
| T3 | The Programm of the Conference                                         | 7        | 21/06/2007 | 28/06/2007 |         |         |
| T4 | Logistics costs (accomodation, transport)                              | 7        | 01/06/2007 | 07/06/2007 |         |         |
| T5 | Human recourses - the Conference team                                  | 7        | 01/06/2007 | 07/06/2007 |         |         |
| T6 | Calculation, Break-even, Initial budget                                | 2        | 08/06/2007 | 10/06/2007 |         |         |
| T7 | Advertisment and promotion of the Conference                           | 28       | 29/06/2007 | 26/07/2007 |         |         |
| T8 | Gathering and initial analyses of info about participants and sponsors | 12       | 19/07/2007 | 28/07/2007 |         |         |
| T9 | Final DECISION!!!                                                      | 7        | 29/07/2007 | 04/08/2007 |         |         |

The „mile stone” for phase 1 is: **the decision about the conference is made.**

## Project 2: Gantt Chart



### Answer 2a: Power Point

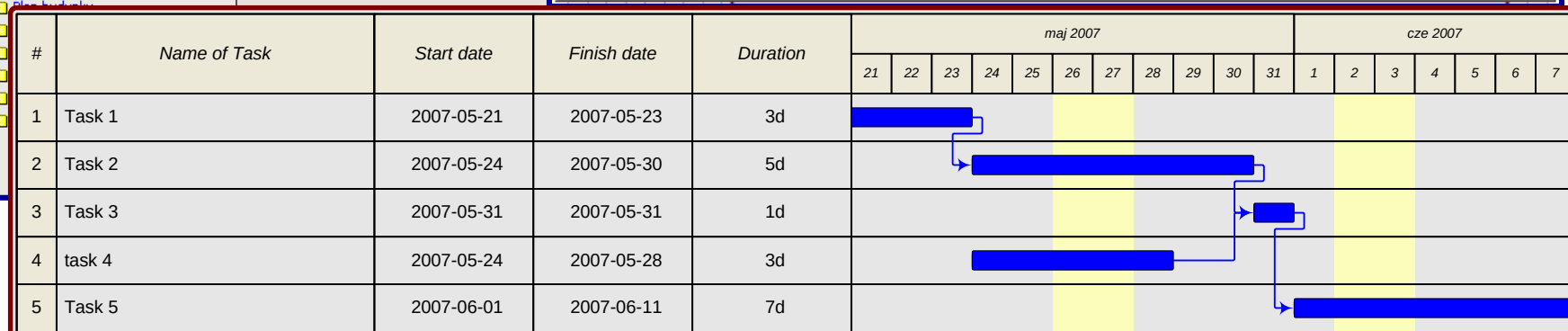
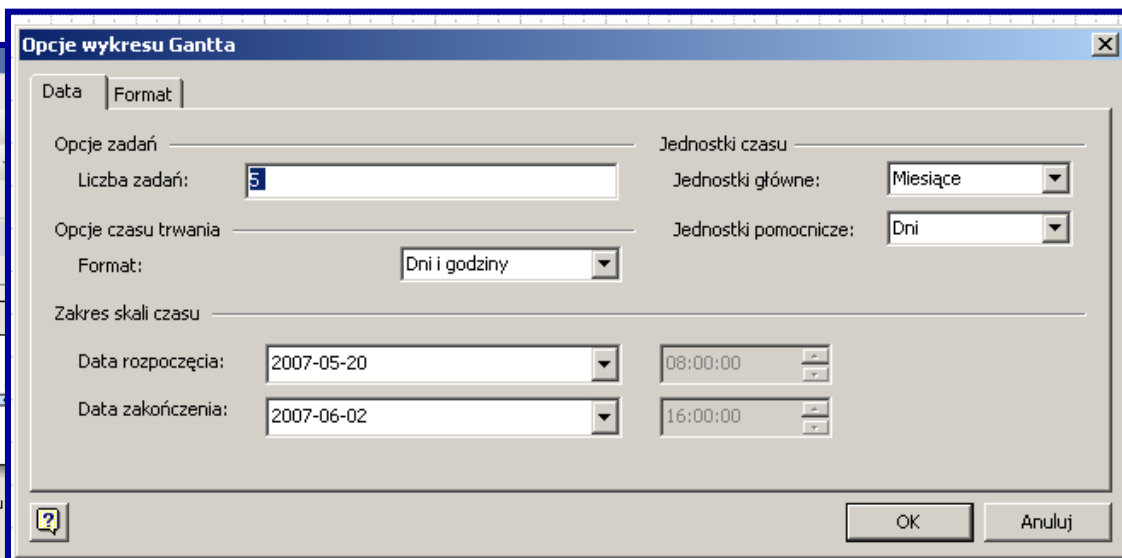
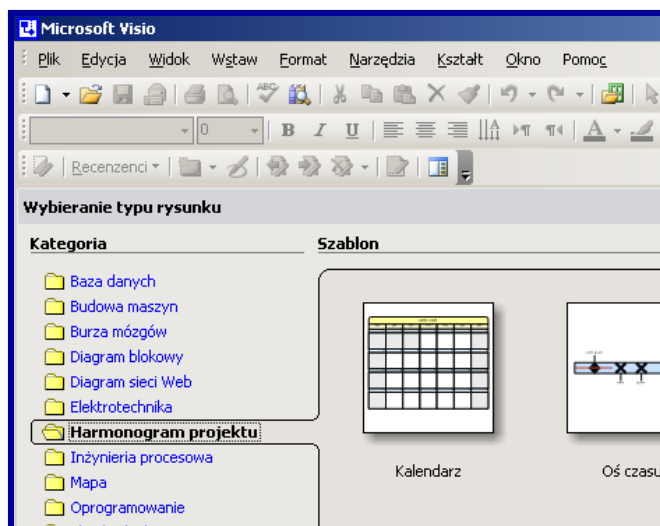
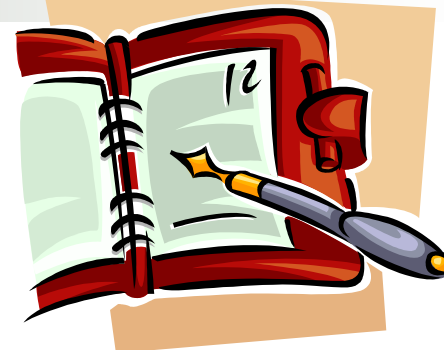


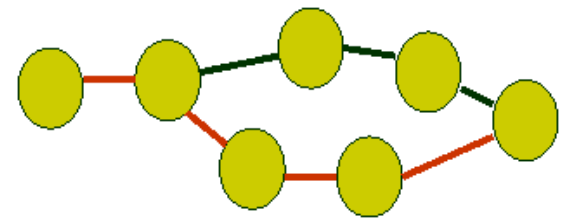
# GANTT Charts - examples

## Answer 2b: VISIO



Microsoft Office Visio 2003.Ink



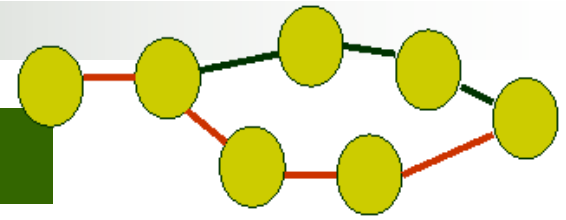


## 6. PERT - The Program Evaluation and Review Technique

*Methods and techniques of MBP*



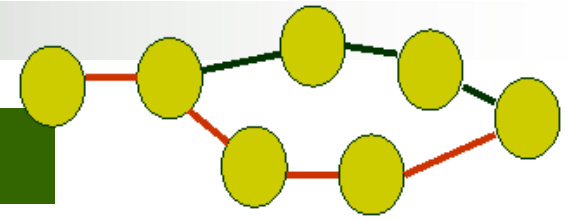
# PERT



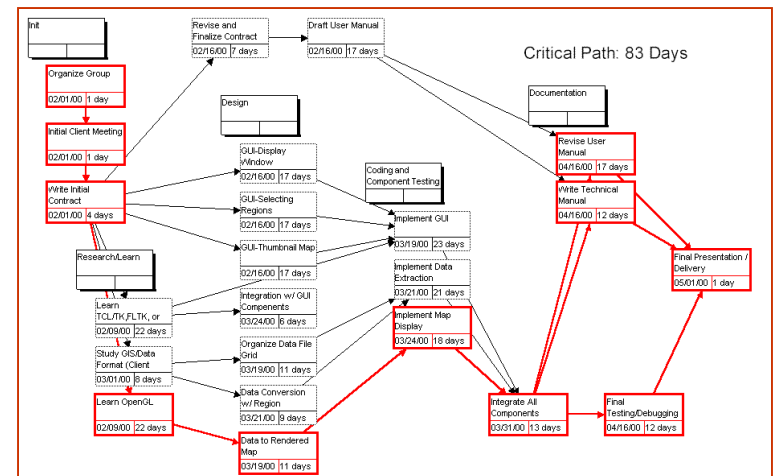
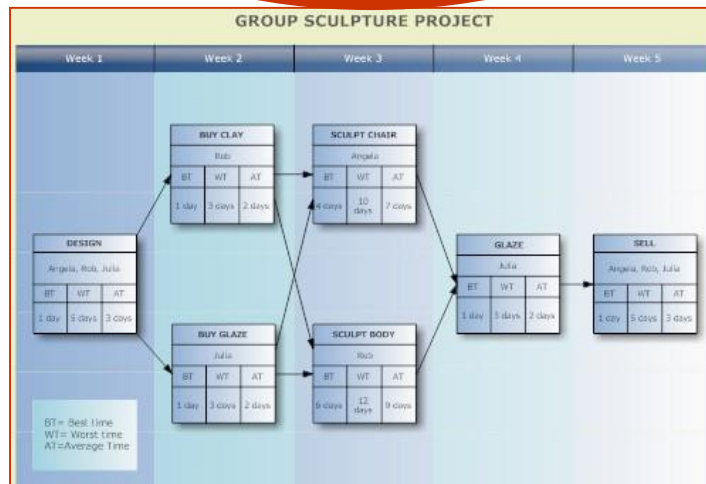
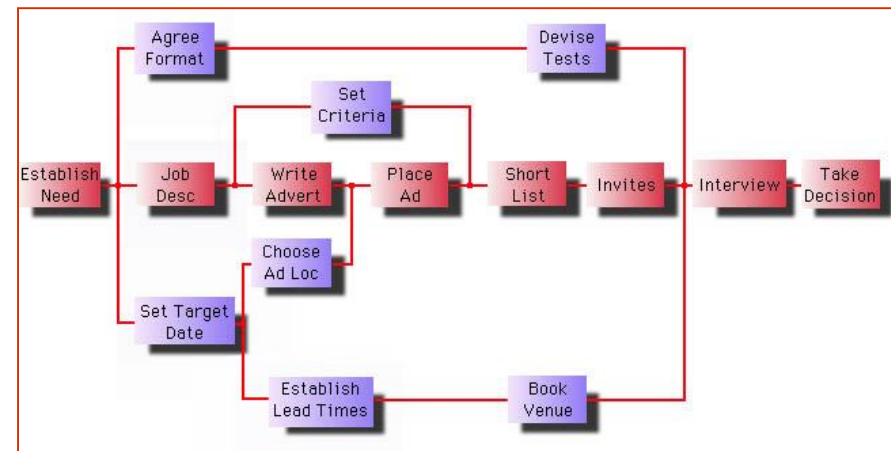
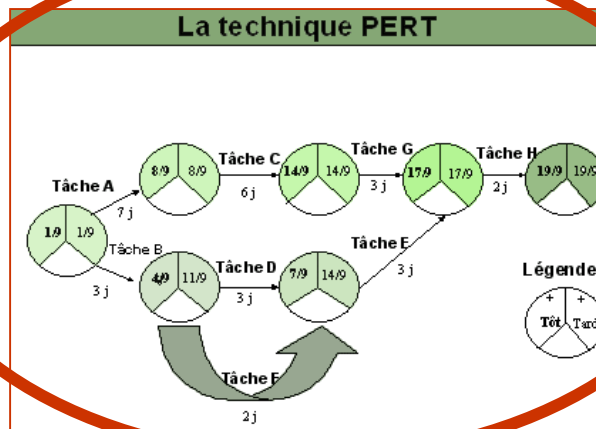
## Definition:

- ✓ The **Program Evaluation and Review Technique** (PERT)
- ✓ a technique (**mean**) that analyzes all tasks involved in completing a given project,
- ✓ especially to analyze the **time needed** to complete each task, and **identifying the minimum time needed** to complete the total project (**the critical path**).
- ✓ PERT was developed in the 1950's, primarily to simplify the planning and scheduling of **large and complex projects**.

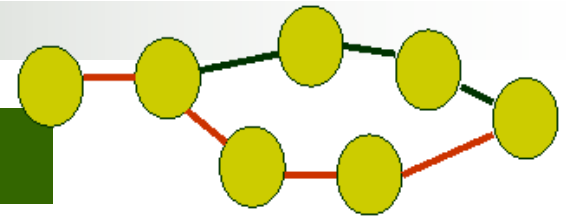
# PERT



## Examples:



# PERT

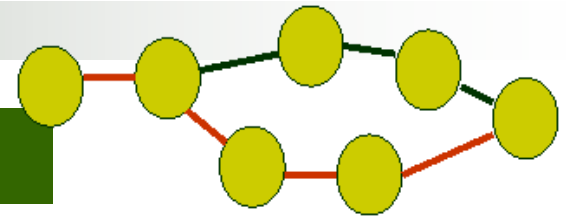


## Definition:

✓ An **arrow-node diagram** – a task network for a project made with arrows and small circles.

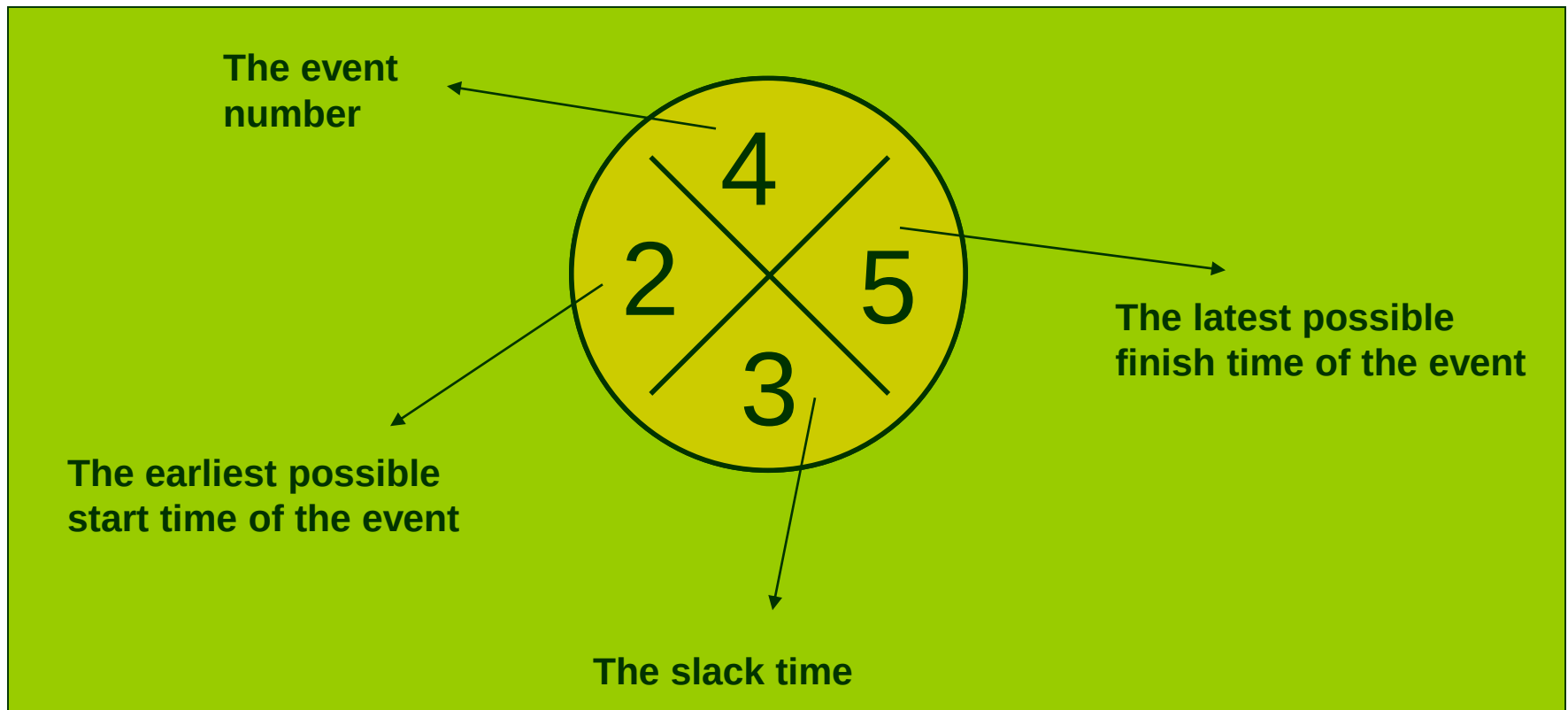
✓ A **precedence diagram** – a task network for a project made with boxes and relationship lines.

# PERT



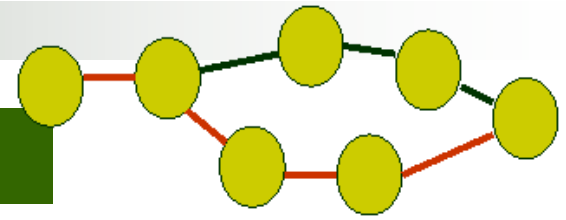
## Nomenclature (key terms):

**event** - end point that represents the completion of major activity





# PERT



## Nomenclature (key terms):



**Activity** – time required to progress from one event to another

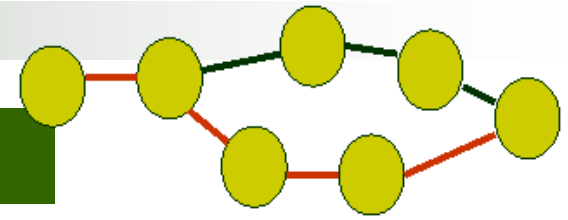


**Critical Activity** – activity with zero slack time

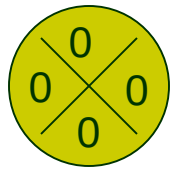


**Links** – neither time nor activity relationship

# PERT



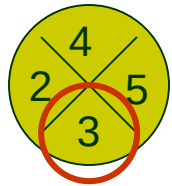
## Nomenclature (key terms):



✓ **events** - end points that represent the completion of major activities



✓ **activities** - time or resources required to progress from one event to another



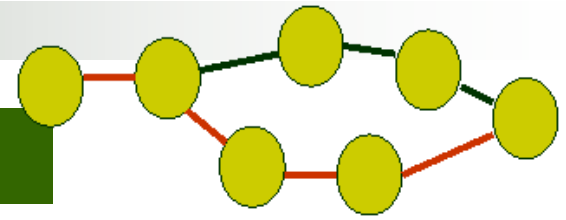
✓ **slack time** - amount of time an activity can be delayed without delaying the entire project



✓ **critical path** - the most time-consuming sequence of events and activities in a PERT network

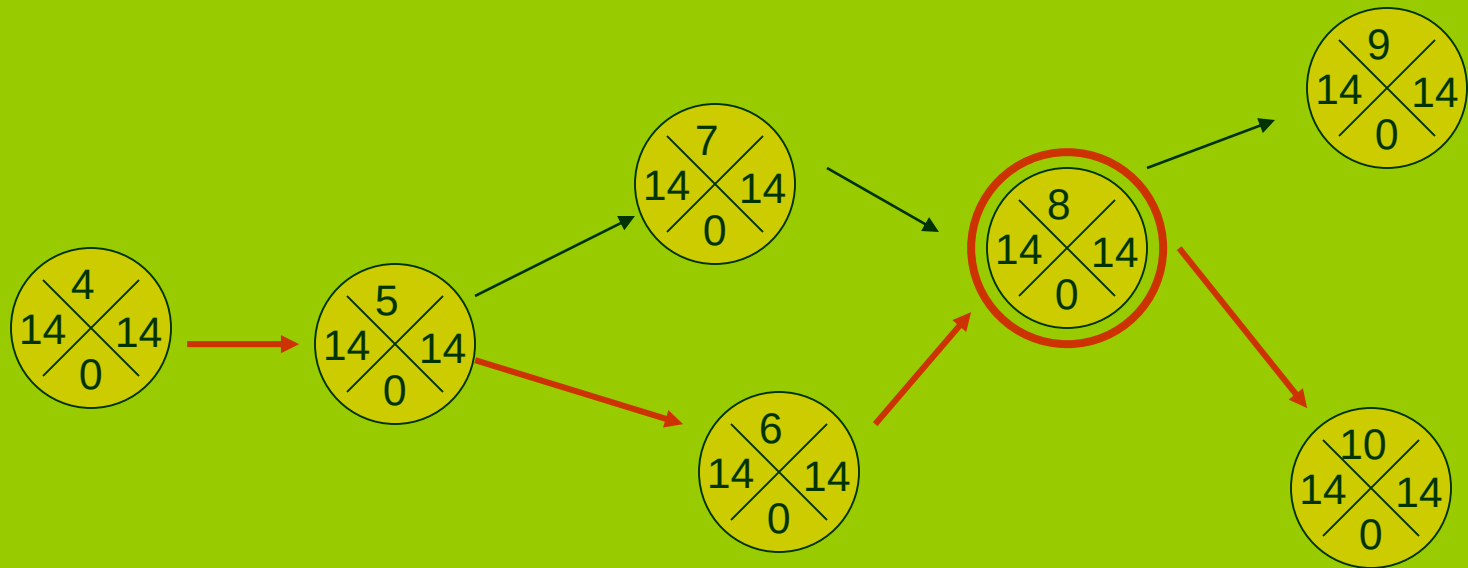
✓ **delays** on critical path will delay completion of the entire project (zero slack time)

# PERT

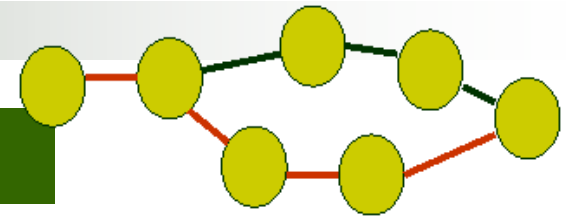


## Nomenclature (key terms):

**milestone** – a strategic event that end certain group of activities



# PERT - methodology



## Procedure „step-by-step”:

**Step 1: Create a table – activity / duration**

**Step 2: Name events accordingly to the table**

**Step 3: Link all the events with planned activities**

**Step 4: Add duration time for each activity**

**Step 5: Enter The earliest possible start time for every event**

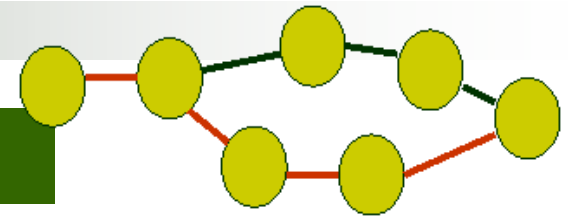
**Step 6: Enter the latest possible finish time for every event**

**Step 7: Evaluate the slack time for every event**

**Step 8: Underline (in red) the critical path of the entire project**

**Step 9: Select milestones for the project**

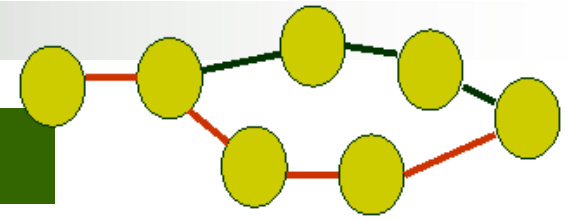
# PERT - methodology



## Step 1: Create a table – activity / duration

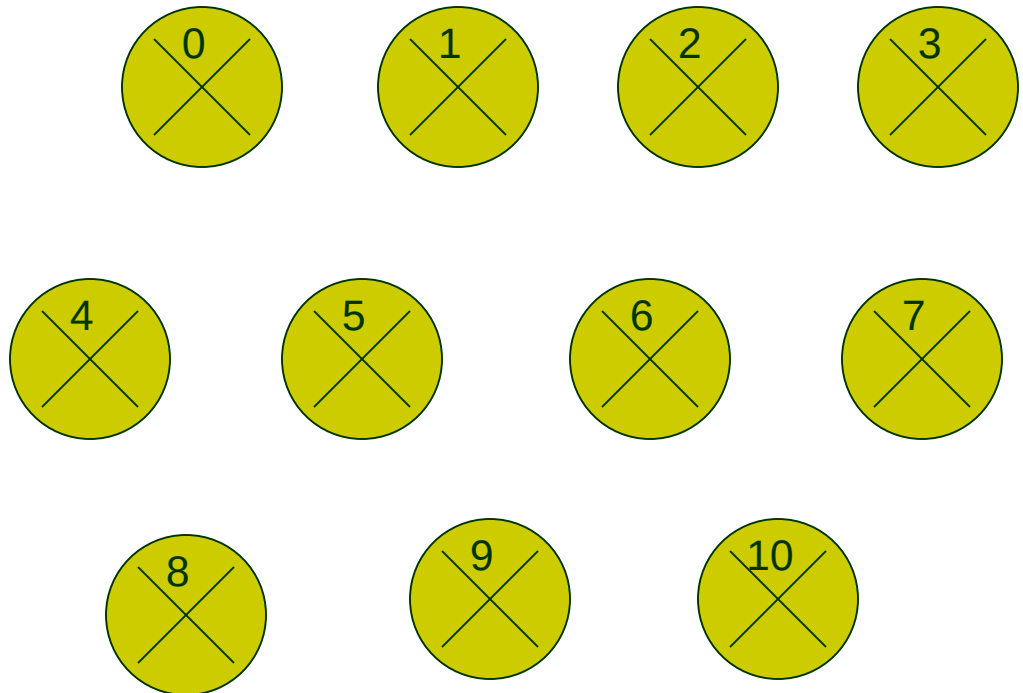
|    | Activity:  | Duration: |
|----|------------|-----------|
| A. | Activity a | 2         |
| B. | Activity b | 4         |
| C. | Activity c | 4         |
| D. | Activity d | 3         |
| E. | Activity e | 5         |
| F. | Activity f | 3         |
| G. | Activity g | 2         |
| H. | Activity h | 4         |
| I. | Activity i | 2         |
| J. | Activity j | 3         |

# PERT - methodology

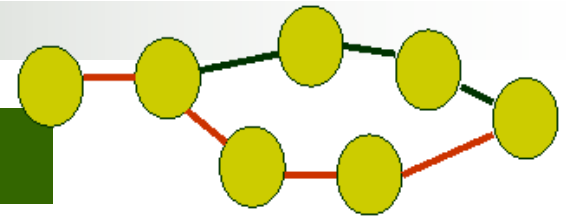


## Step 2: name events accordingly to the table

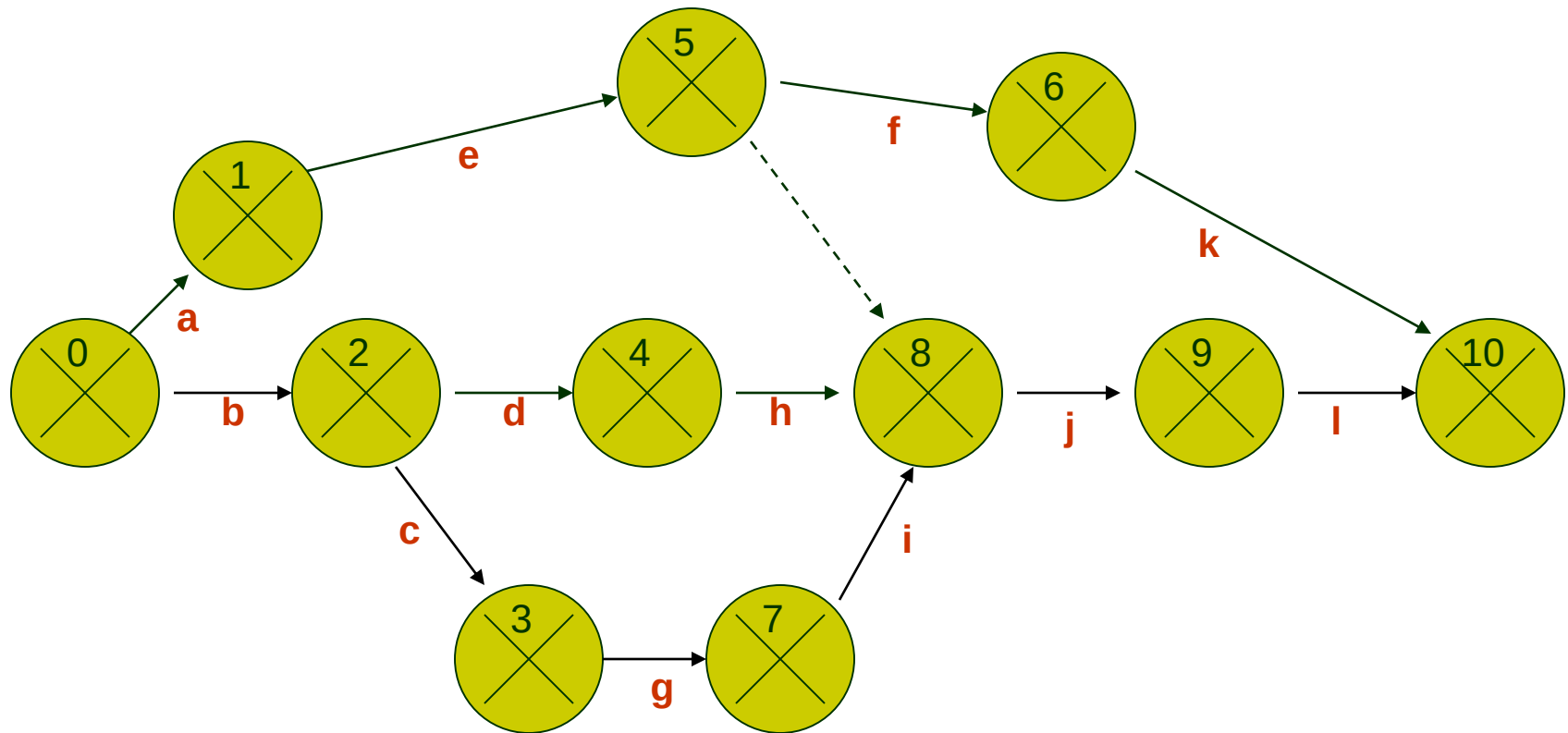
| Activity:     | Duration: |
|---------------|-----------|
| A. Activity a | 2         |
| B. Activity b | 4         |
| C. Activity c | 4         |
| D. Activity d | 3         |
| E. Activity e | 5         |
| F. Activity f | 3         |
| G. Activity g | 2         |
| H. Activity h | 4         |
| I. Activity i | 2         |
| J. Activity j | 3         |



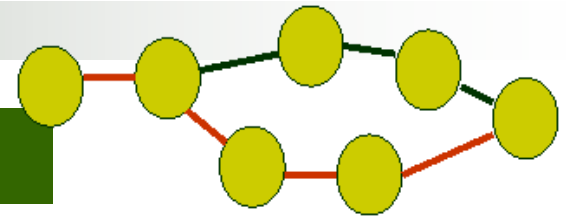
# PERT - methodology



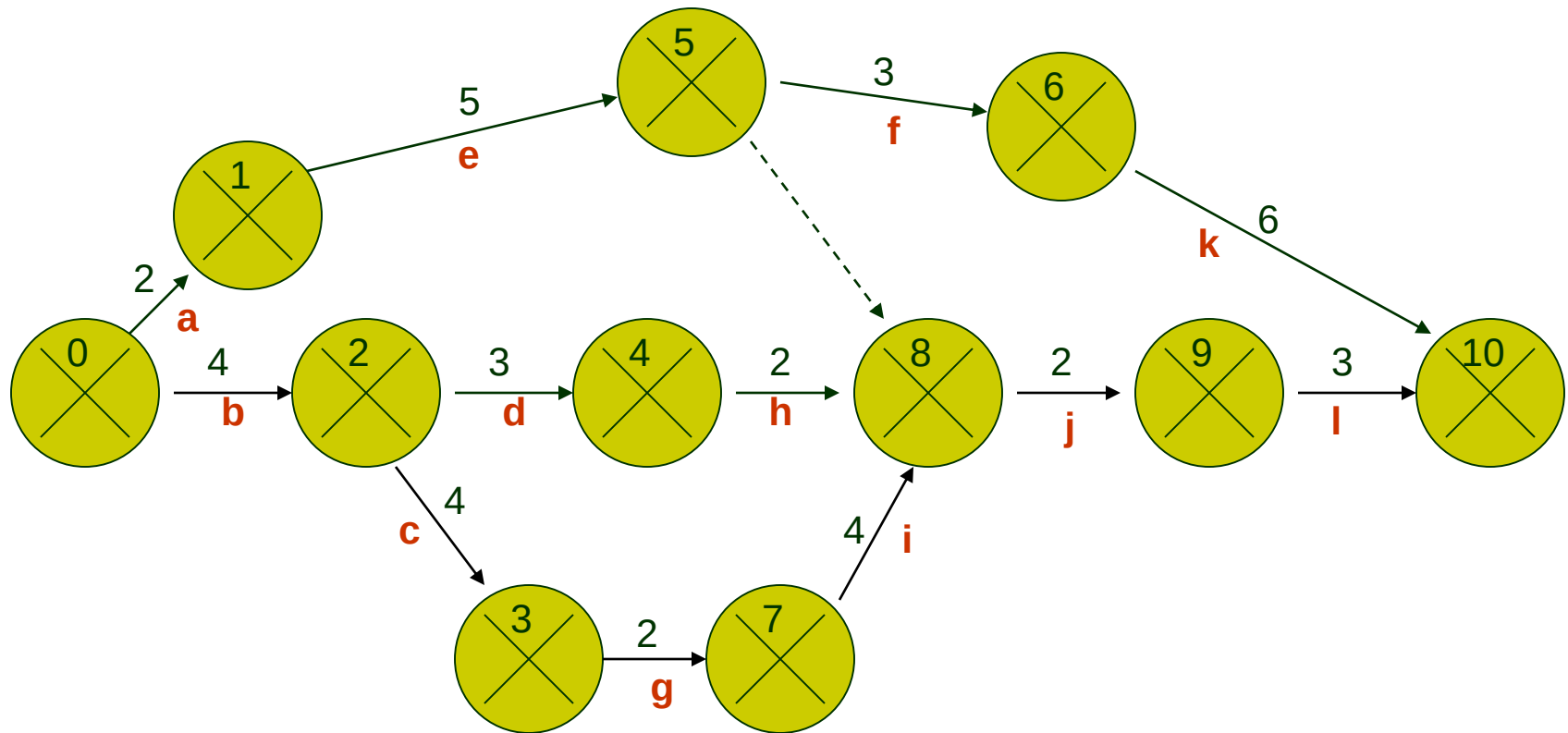
## Step 3: Link all the events with planned activities



# PERT - methodology

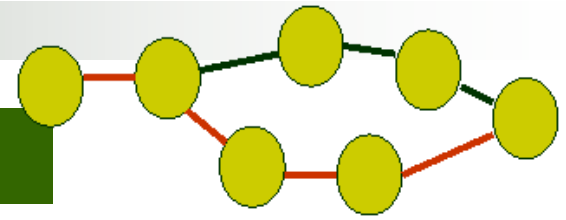


## Step 4: Add duration time for each activity

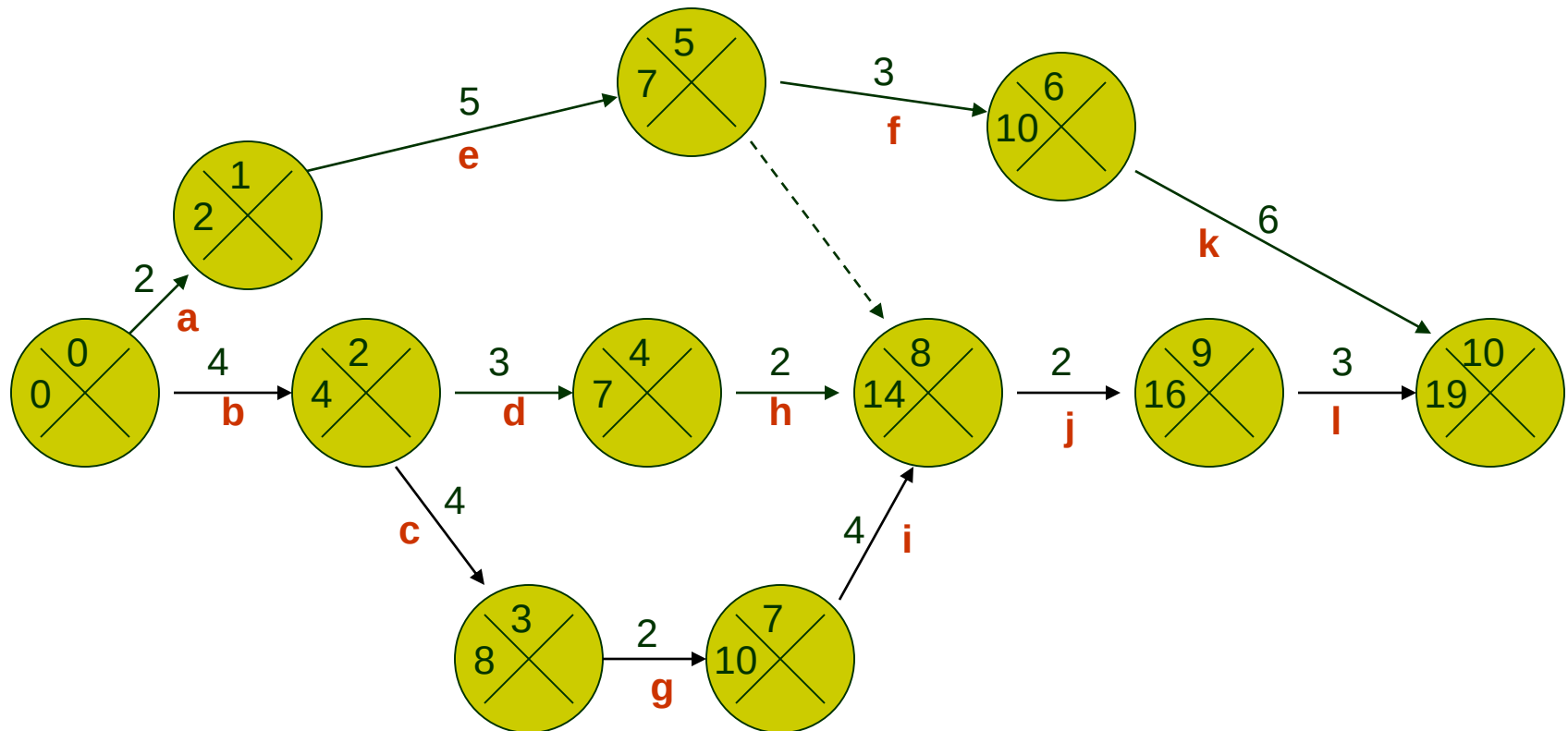




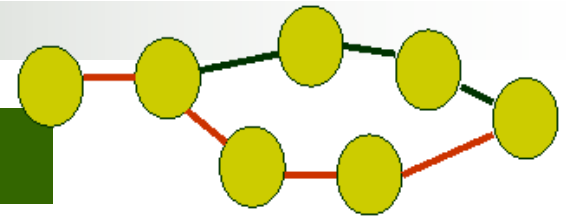
# PERT - methodology



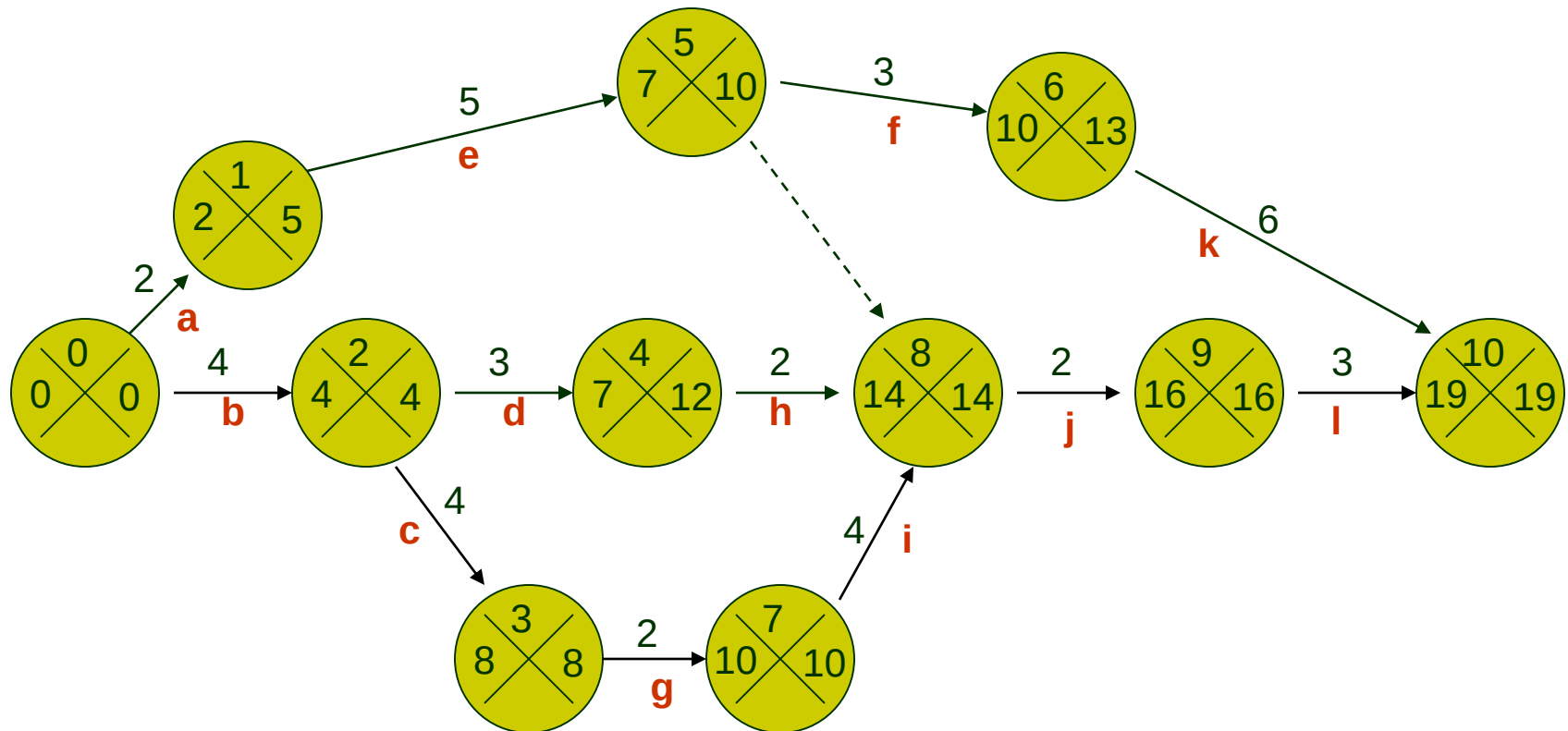
**Step 5: Enter The earliest possible start time for every event**



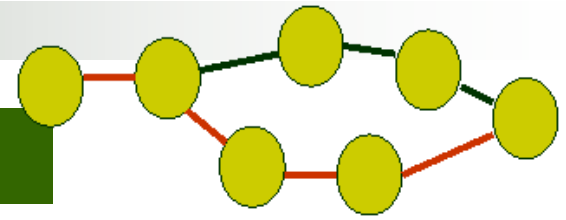
# PERT - methodology



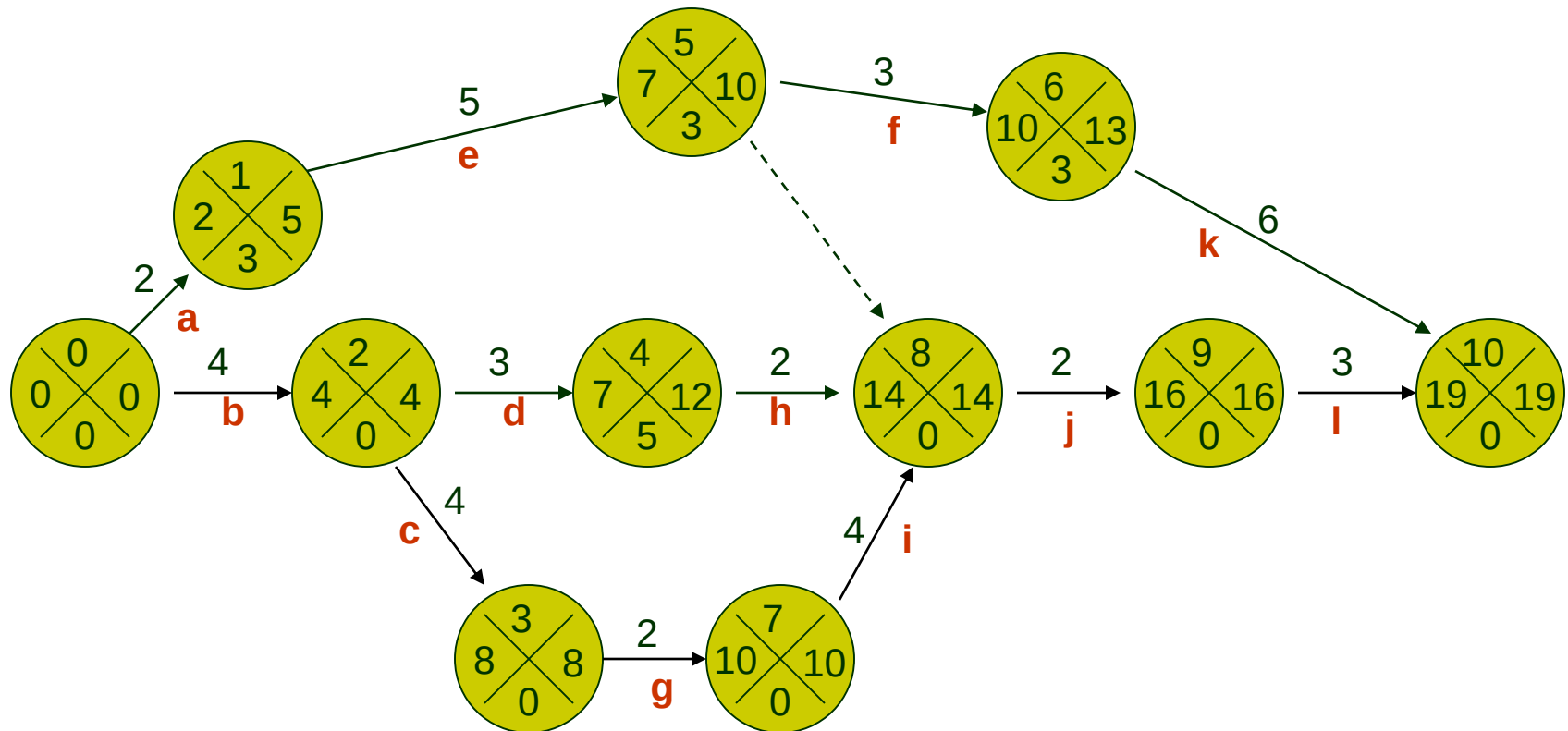
**Step 6: Enter the latest possible finish time for every event**



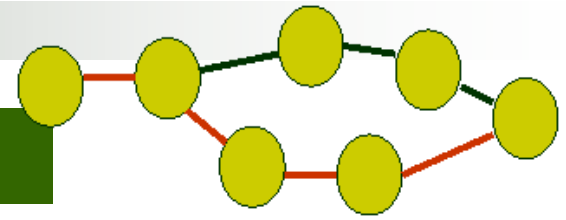
# PERT - methodology



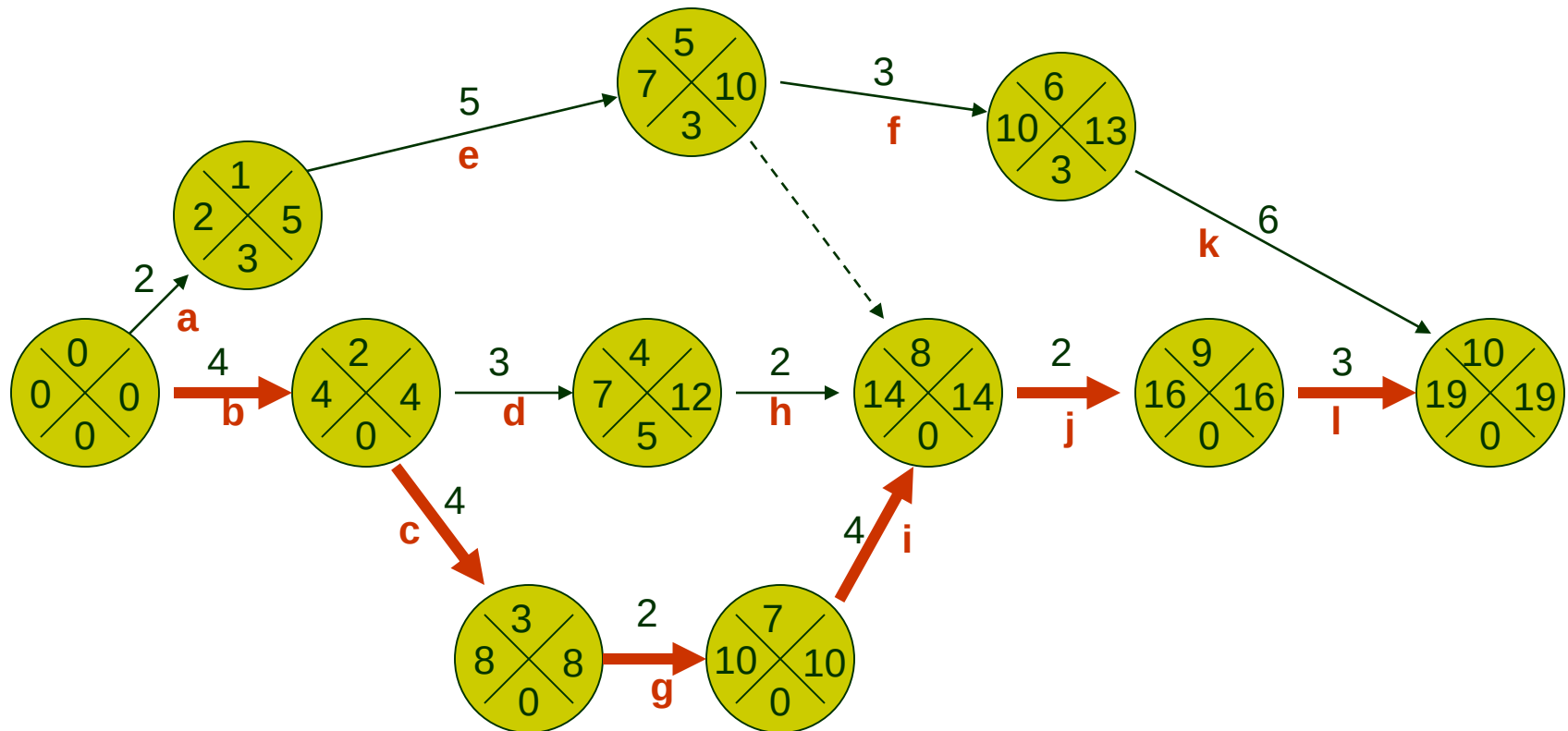
## Step 7: Evaluate the slack time for every event



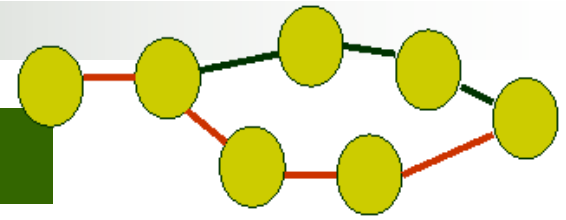
# PERT - methodology



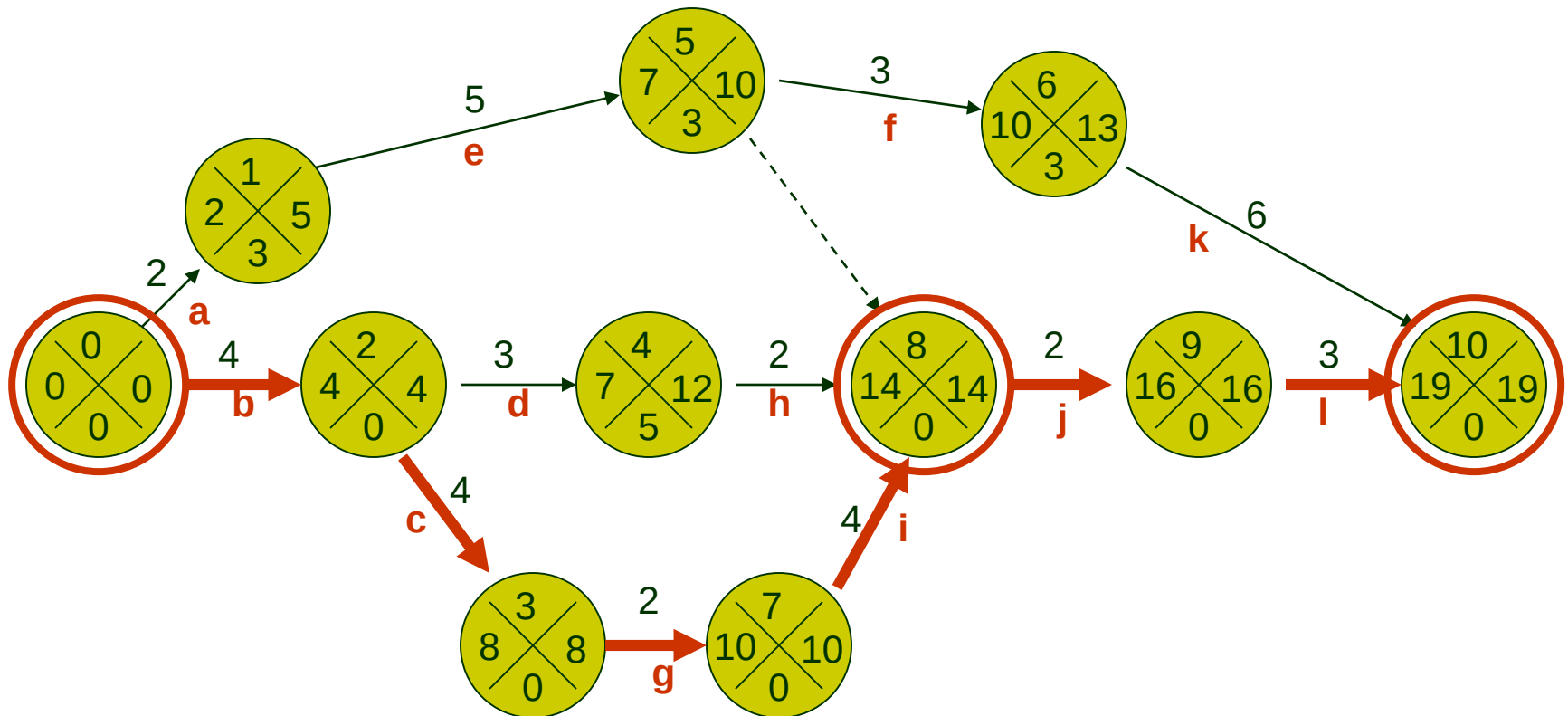
**Step 8: Underline (in red) the critical path of the entire project**



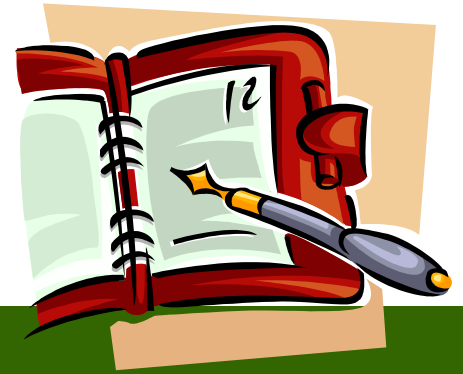
# PERT - methodology



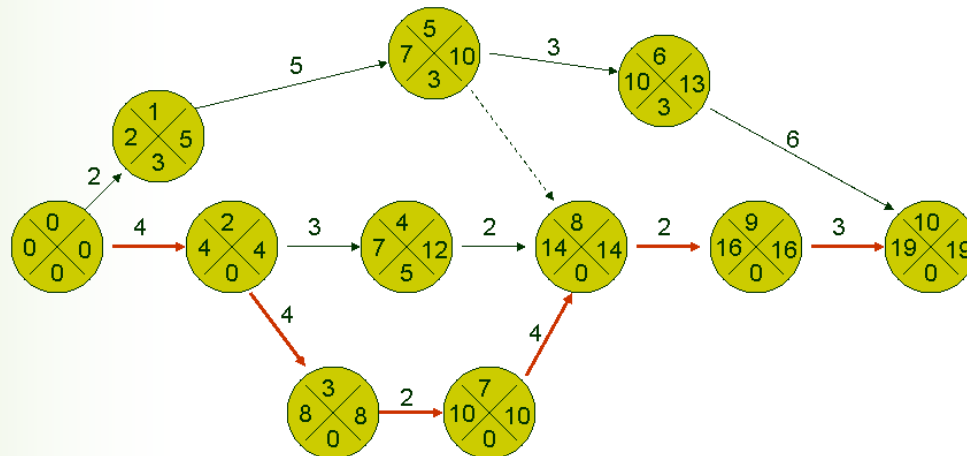
## Step 9: Select milestones for the project



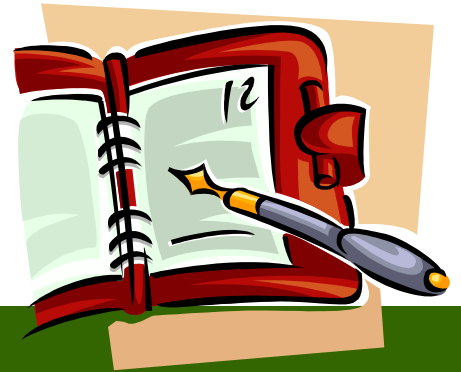
# Project 3: PERT



## The International Conference Project

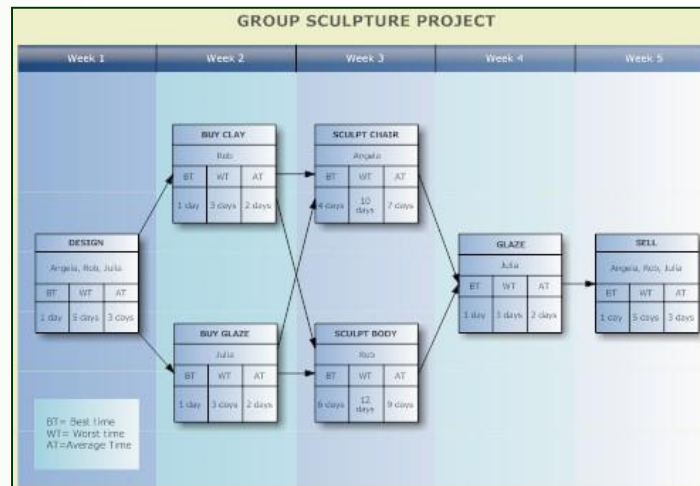


# Project 4: PERT – VISIO (optional)

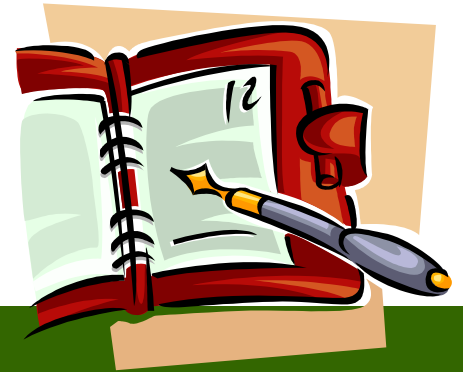


## The International Conference Project

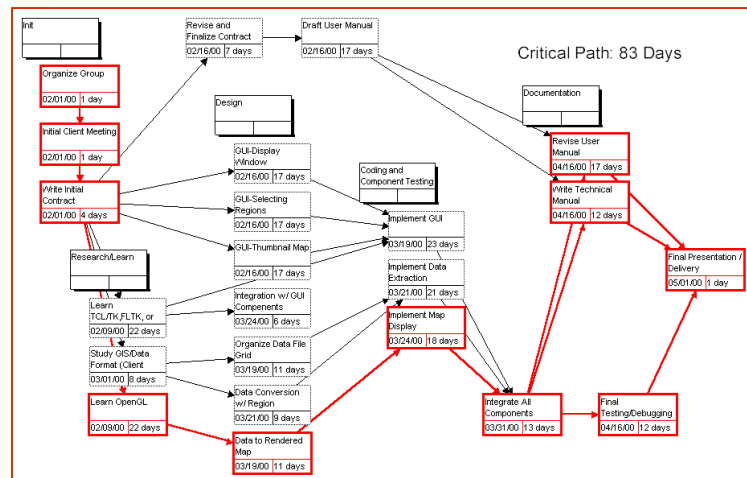
| Name of task    |                  |
|-----------------|------------------|
| The start time  | The finish time  |
| Real start time | Real finish time |



# Project 5: PERT – MS Project



## The International Conference Project







# 7. BEP — Break-even Point analysis

*Methods and techniques of MBP*



## BEP – cost management



### Definition:

- ✓ The **break-even point** is the point at which the income from sales will cover all costs with no profits.
- ✓ The **break-even point** informs the business owner of the level of sales at which the business will realize neither a profit nor a loss.
- ✓ The **BEP technique** evaluates profit based on total cost and revenues for every given sales level.
- ✓ The break-even point in economics is the point at which cost or expenses and income are equal.

## BEP – cost management



### Types of costs:

- ✓ The total **fixed cost** is the sum of all costs that do not change regardless of the level of sales. Rent and executive salaries are two examples.
- ✓ The total **variable cost**, on the other hand, is the sum of all the expenses that fluctuate directly with the level of activity or sales. Cost of materials to produce a product or purchases of items for resale are two variable costs.

# BEP – cost management



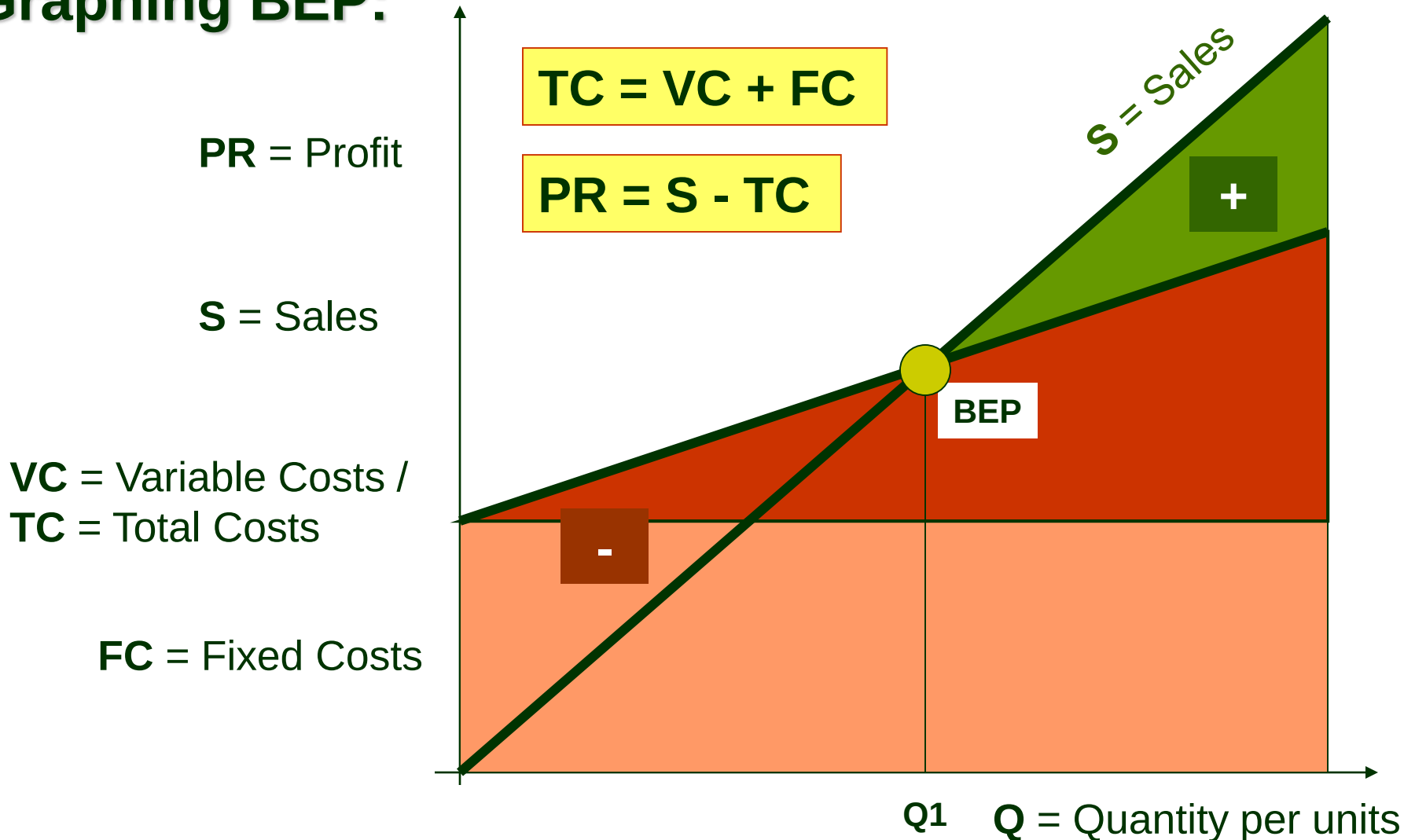
## Definitions:

- ✓ **Expected unit sales:** The number of units that are expected to be sold.
- ✓ **Price:** Price you will be able to receive per unit.
- ✓ **Total costs:** Sum of fixed costs and variable costs.
- ✓ **Total revenue:** Product of price and expected sale unit sales (example 10 units at \$10 equals \$100 total revenue).
- ✓ **Profit:** Total revenue minus total costs.
- ✓ **Break-even:** Number of units required to sell to make a profit of zero.

# BEP – cost management



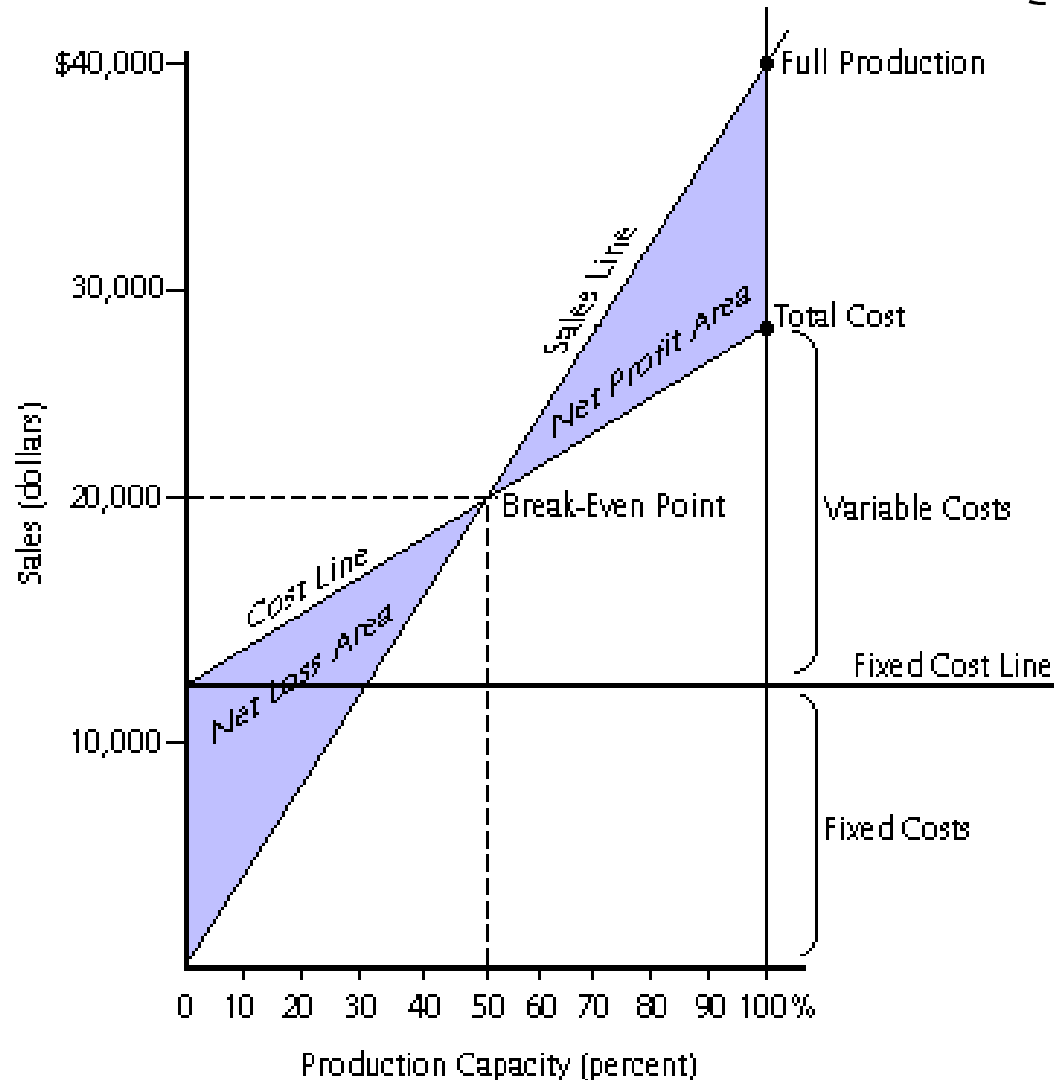
## Graphing BEP:



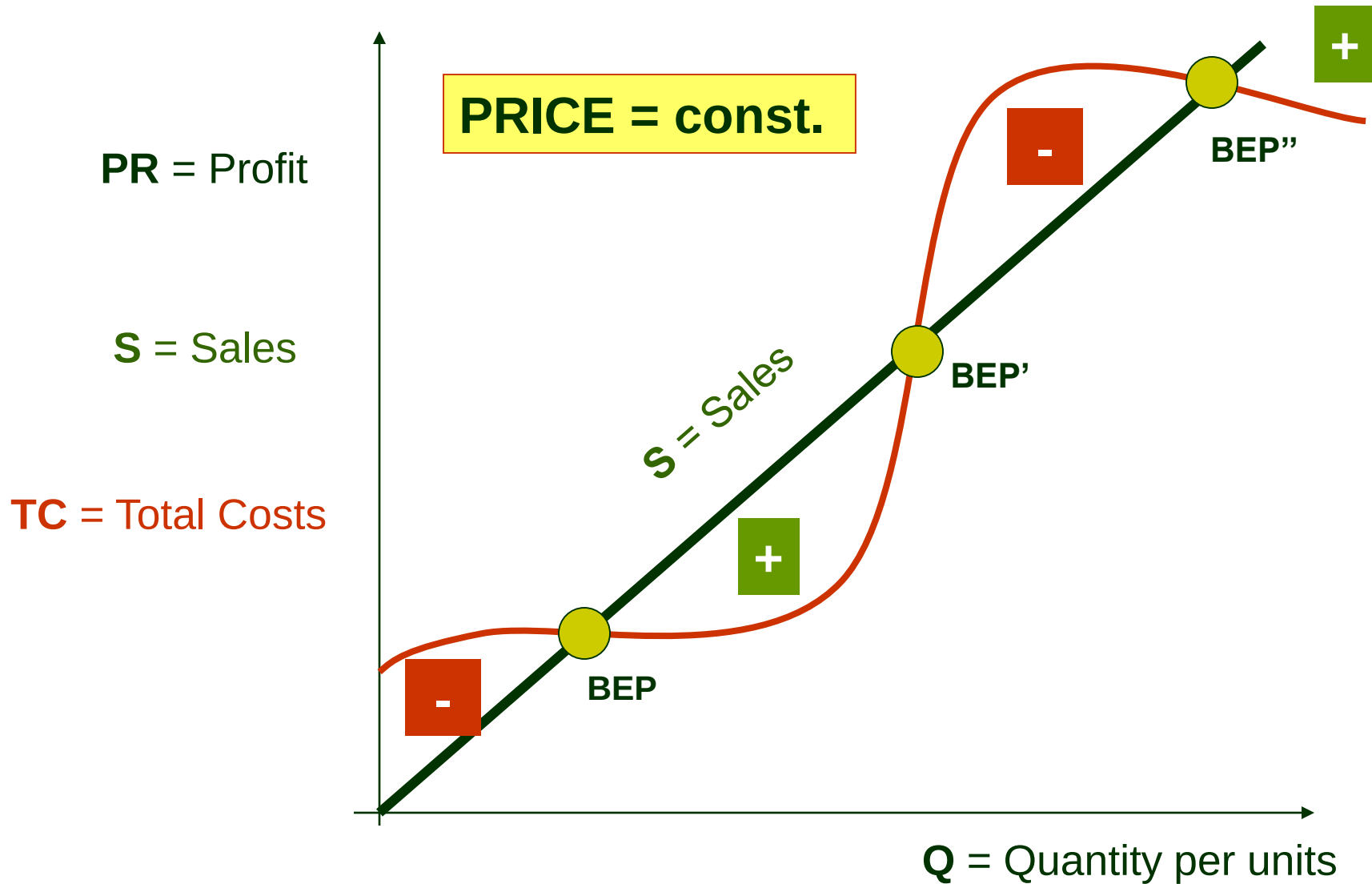
# BEP – cost management



## Graphing the Break-Even Point:



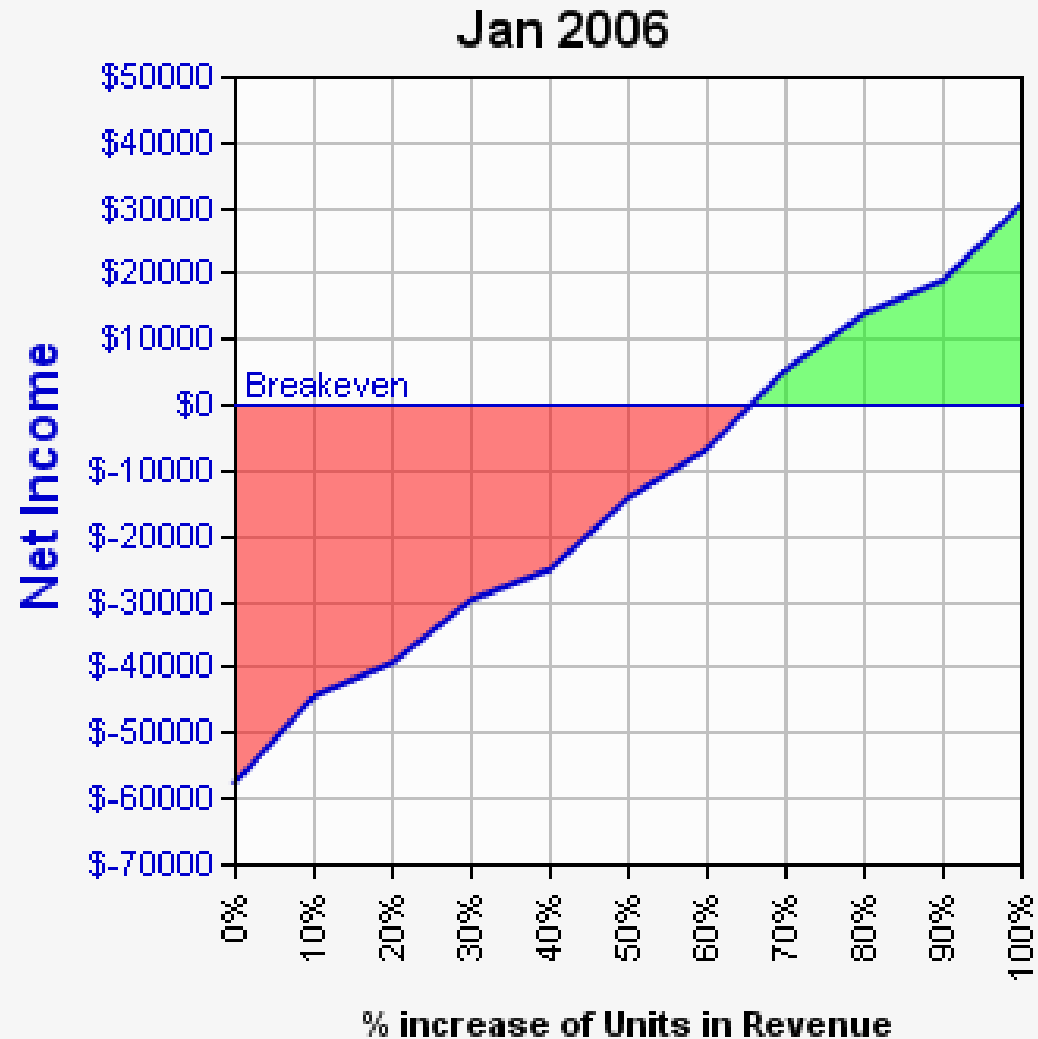
# BEP – cost management



## BEP – cost management



### Graphing the Break-Even Point:





## BEP – cost management



**BEP general formula:**

$$Q = FC / (UP - VC)$$

**Q** = Break-even Point, i.e., Units of sale (Q),

**FC** = Fixed Costs,

**VC** = Variable Costs per Unit

**UP** = Unit Price ( $UP > VC$ )

## BEP – cost management



**BEP formula at PROFIT:**

$$Q = (FC + PR) / (UP - VC)$$

**Q** = Break-even Point, i.e., Units of sale (Q),

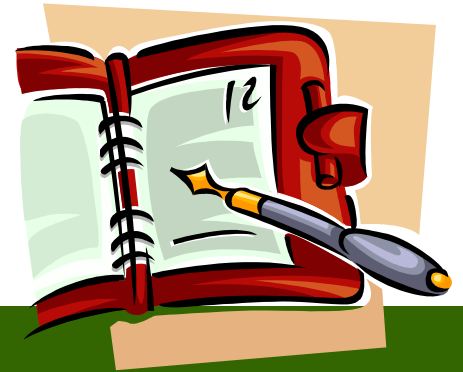
**FC** = Fixed Costs,

**VC** = Variable Costs per Unit

**UP** = Unit Price ( $UP > VC$ )

**PR** = PROFIT

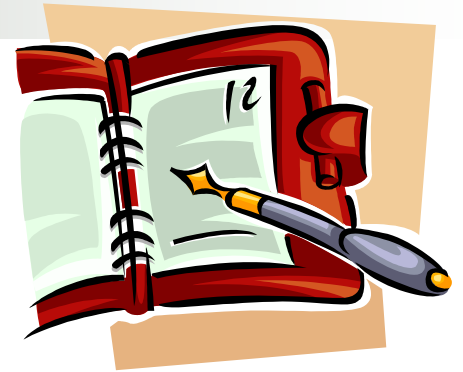
# Project 6: BEP analysis



## The International Conference Project



## Project 6: BEP analysis

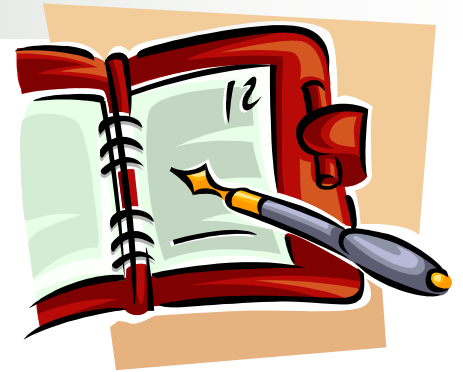


### Tasks:

- ✓ 1. By implementing BEP technique evaluate the best strategy for the International Conference Project
- ✓ 2. **Present** graphically your report by using the most appropriate graph model.



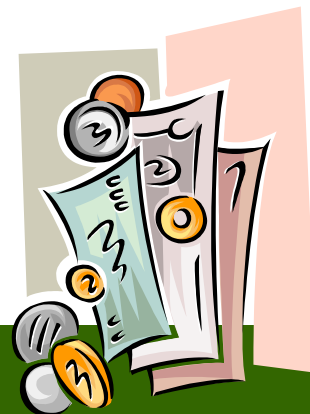
## Project 6: BEP analysis



### Methodology:

1. Create a name list of all the Conference costs.
2. Estimate the cost level for every cost element.
3. Select fixed and variable cost.
4. Copy the cost data into the BEP formula and present different cost strategy for the project.
5. Present graphically your results.



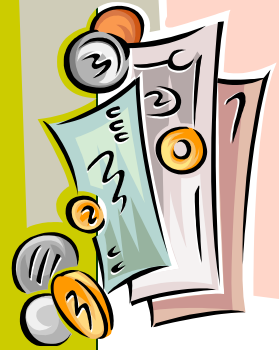


# 8. Cash Flow analysis

*Methods and techniques of MBP*



# Cash Flow analysis: cash streams



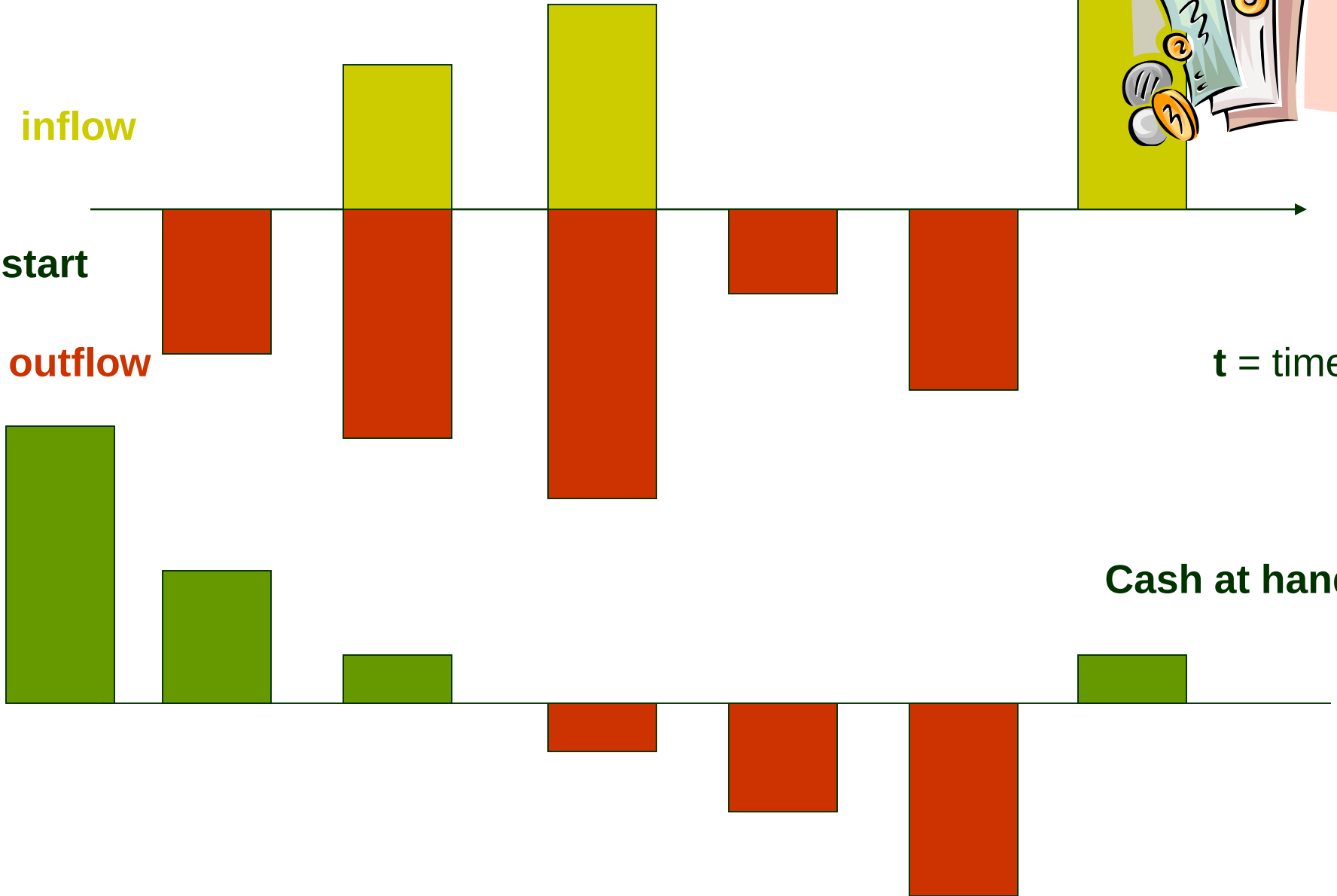
inflow

start

outflow

t = time

Cash at hand





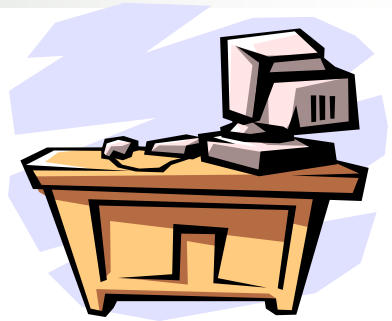
# 9. Project resources management

*Methods and techniques of MBP*





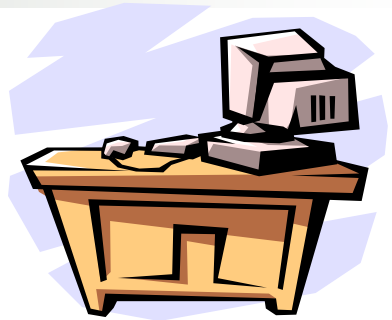
## Resource allocation and coordination



### What is PM ? Overview:

- ✓ **Time management:** Gantt charts, PERT
- ✓ **Cost management:** BEP, budgeting and cost calculation
- ✓ **Task & event planning:** 100% rule, WBS, MS Project
- ✓ **Monitoring and control:** LOB, Gantt, Pert (MS Project)
- ✓ **Means and tools:** software applications (MS Project, Excel)
- ✓ **Resources allocation and coordination**

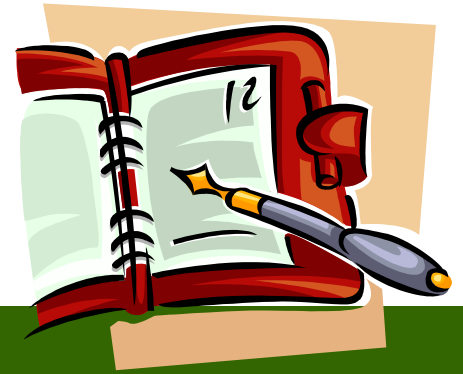
## Resource allocation and coordination



### Types of project resources:

- ✓ **Human resources:** by whom?
- ✓ **Office infrastructure:** where?
- ✓ **Office equipment:** what tools?
- ✓ **Financial resources:** how much and when?
- ✓ **Information resources:** how? why? what for?
- ✓ **Time resources:** how much time?
- ✓ **Cultural resources:** what ethical profile?

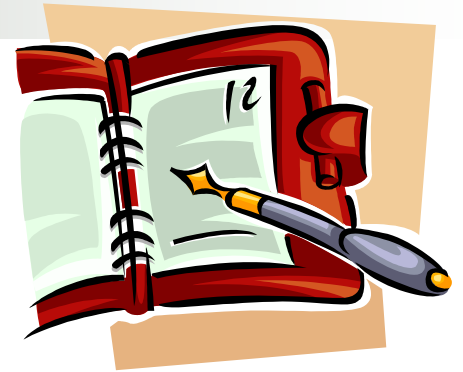
# Project 7: ISO - Resources allocation



## The International Conference Project



# Project 7: ISO – resources allocation

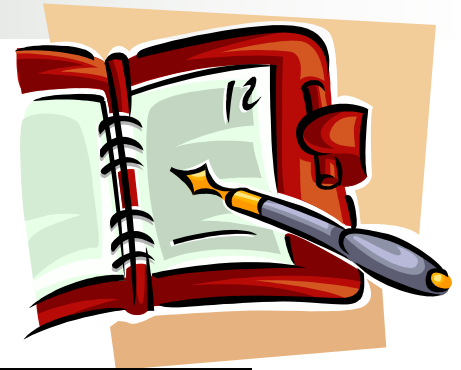


## Introduction:

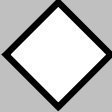
- ✓ Business Process Management by the ISO 9001:2000 Standards.
- ✓ Main objective (mile stone)
- ✓ Input/ Output – resources / effects
- ✓ Task (functions) sequence list
- ✓ **Participants**
- ✓ Diagram
- ✓ Improvements !



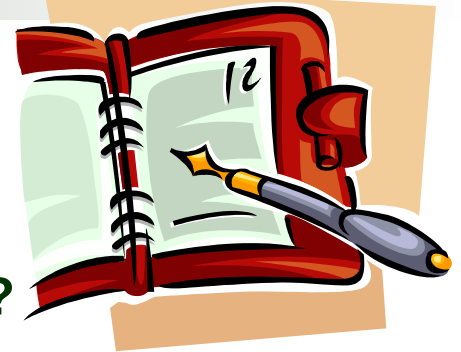
# Project 7: ISO – resources allocation



## Diagram:

| Graph elements                                                                      | Description                                                                                                                                         |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Task / activity<br>What do you do?                                                                                                                  |
|    | <b>r</b> – responsible; <b>p</b> – partner; <b>c</b> – consulting; <b>a</b> – approve; <b>si</b> – send information; <b>oi</b> – obtain information |
|    | Decision – alternatives – <b>YES</b> or <b>NO</b>                                                                                                   |
|    | Archive – data collection                                                                                                                           |
|   | Record – track data recording                                                                                                                       |
|  | Another procedure / process integration                                                                                                             |
|  | Links                                                                                                                                               |

# Project 7: ISO – resources allocation



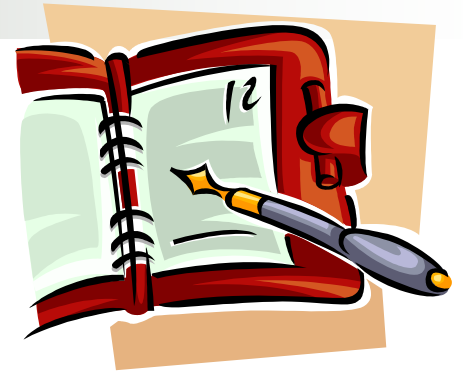
## Example: How to apply for Polish visa in India?

| # | Task                                                         | Participant |            |         |       |         | Comments |
|---|--------------------------------------------------------------|-------------|------------|---------|-------|---------|----------|
|   |                                                              | Applicant   | University | SPONSOR | Clerk | OFFICER |          |
| 1 | To fill in the visa form by the applicant                    | R           |            |         |       |         |          |
| 2 | To sort out all visa documents                               | R           | Si         | Si      |       |         |          |
| 3 | To deliver the visa form and all documents to Polish Embassy | R           |            |         | Oi    |         |          |
| 4 | To process the visa form by Polish Embassy                   | Si          | Si         | Si      | R     |         |          |
| 5 | To perform the interview                                     | Si          |            |         | P     | R       |          |
| 6 | To make a decision                                           |             |            |         | C Oi  |         | NO       |
| 7 | To inform the applicant about the date of the visa delivery  | Oi          | Oi         | Oi      | R     | YES     |          |
| 8 | To collect the passport with a printed Polish visa           | R           |            |         | A     |         |          |



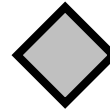
To start the study at the university in Poland

## Project 7: ISO – resources allocation



### Methodology:

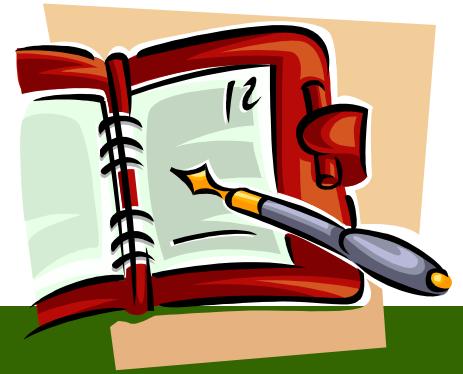
1. Create a name of the project (procedure).
2. Define the main purpose of the project (phase).
3. **Define INPUT parameters.**
4. Define OUTPUT parameters.
5. Present in a sequence all tasks necessary to perform the project
6. **Name all participants involved in the project.**
7. Create a diagram.
8. Present any suggestions to improve the structure of the project.



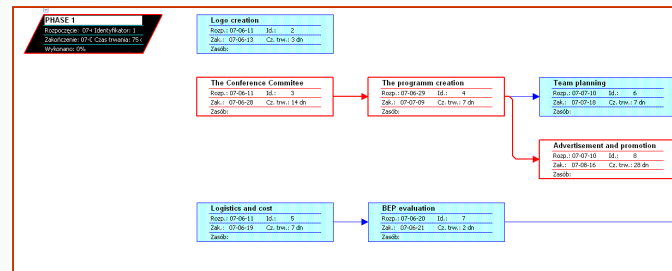
| #  | Task | Participant |  |  |  |  | Comments |
|----|------|-------------|--|--|--|--|----------|
|    |      | 1           |  |  |  |  |          |
| 1  |      |             |  |  |  |  |          |
| 2  |      |             |  |  |  |  |          |
| 3  |      |             |  |  |  |  |          |
| 4  |      |             |  |  |  |  |          |
| 5  |      |             |  |  |  |  |          |
| 6  |      |             |  |  |  |  |          |
| 7  |      |             |  |  |  |  |          |
| 8  |      |             |  |  |  |  |          |
| 9  |      |             |  |  |  |  |          |
| 10 |      |             |  |  |  |  |          |



# Project 8: MS PROJECT - resources allocation

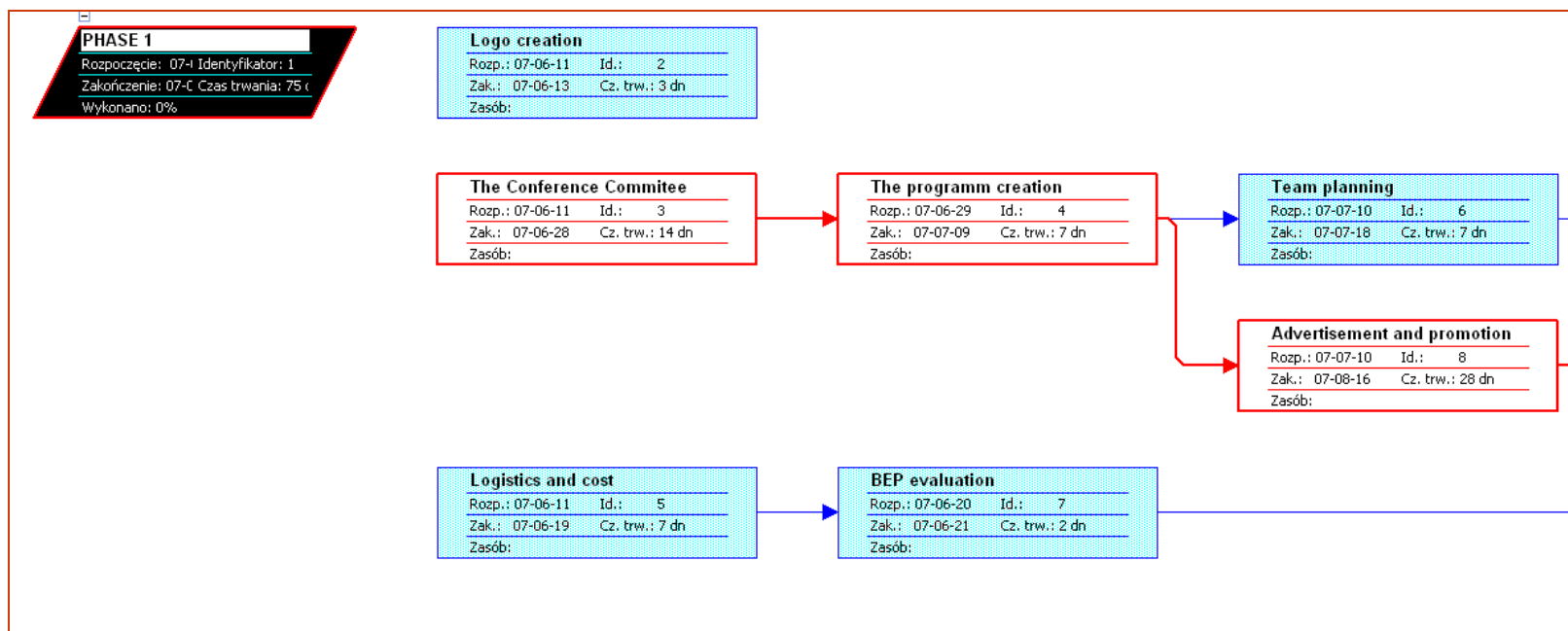
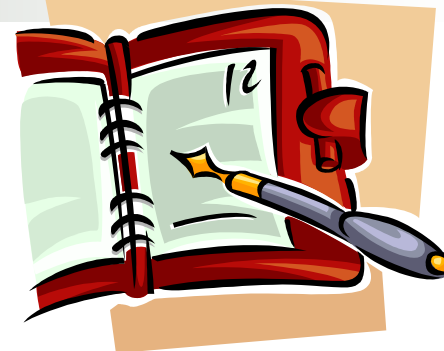


## The International Conference Project

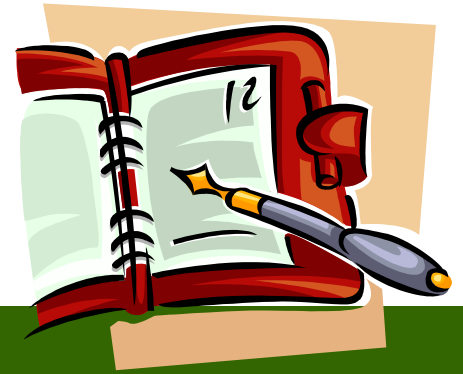


# Project 8: MS Project

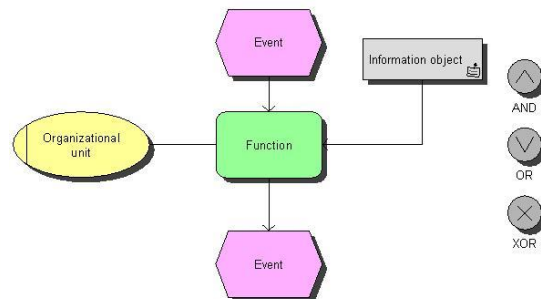
## Example:



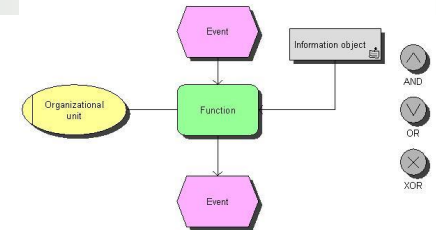
# Project 9: ECP / MS VISIO - resources allocation



## The International Conference Project

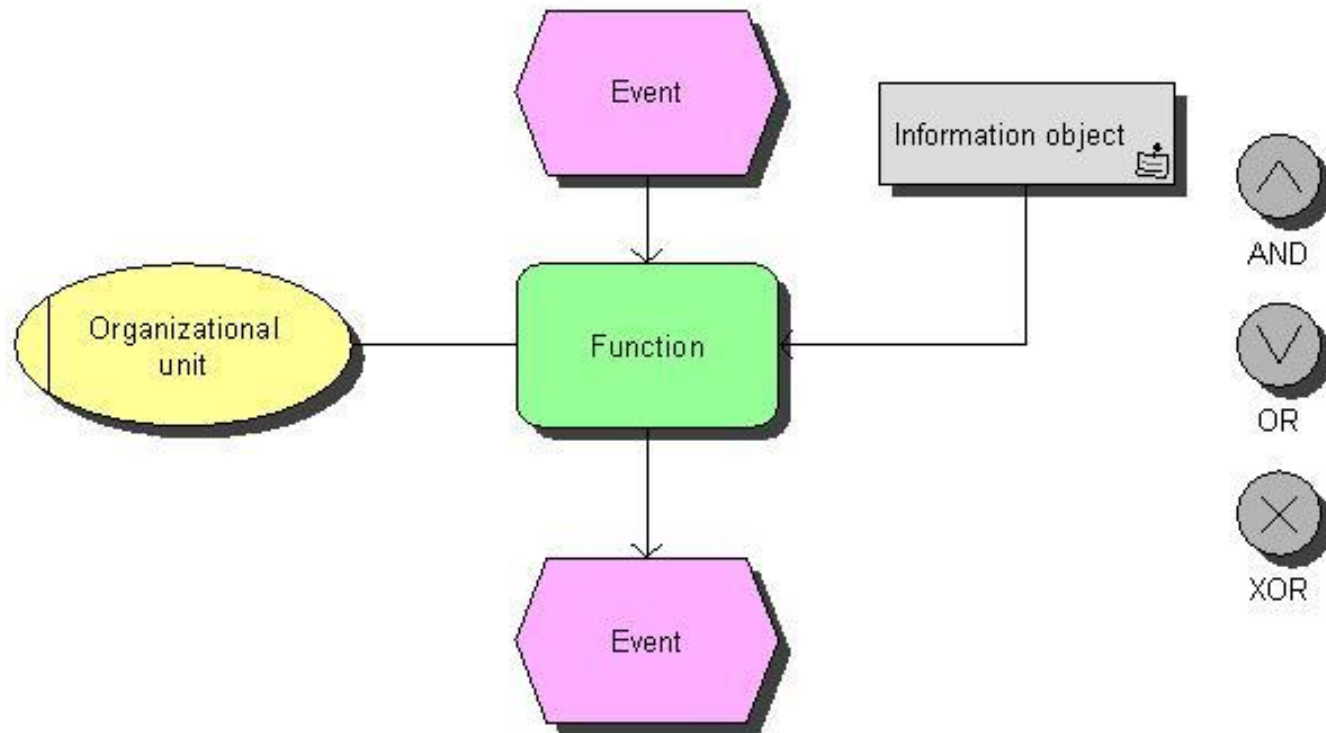


# Project 9: ECP / MS VISIO

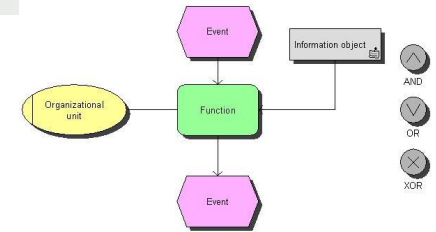


## Introduction:

### EPC - Event-driven Process Chain



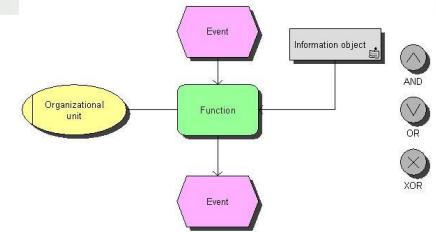
# Project 9: ECP / MS VISIO



## Introduction:

- ✓ Businesses use EPC diagrams to lay out business process work flows, originally in conjunction with SAP R/3 modeling, but now more widely.
- ✓ There are a number of tools for creating EPC diagrams, including ARIS Toolset of IDS Scheer AG.
- ✓ The EPC method was developed within the framework of ARIS by Prof. Wilhelm-August Scheer at the Institut für Wirtschaftsinformatik at the Universität des Saarlandes in the early 1990s.

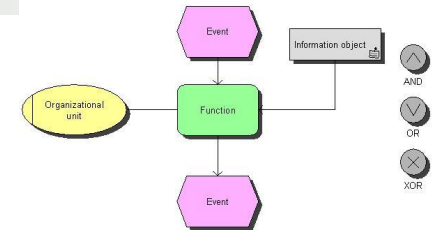
# Project 9: ECP / MS VISIO



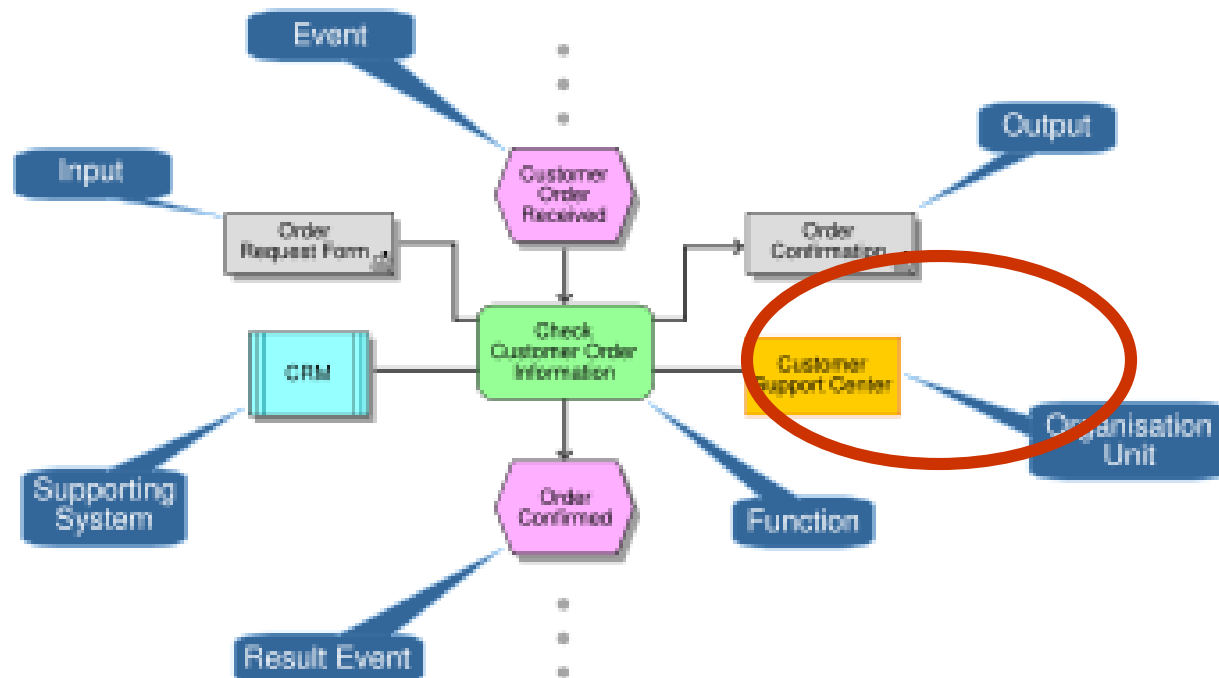
## Introduction:

- ✓ An EPC is an ordered graph of events and functions.
- ✓ It provides various connectors that allow alternative and parallel execution of processes.
- ✓ It is specified by the usages of logical operators, such as OR, AND, and XOR.
- ✓ A major strength of EPC is claimed to be its simplicity and easy-to-understand notation. This makes EPC a widely acceptable technique to denote business processes.

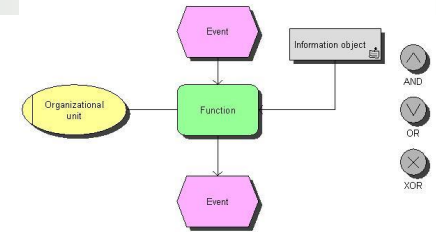
# Project 9: ECP / MS VISIO



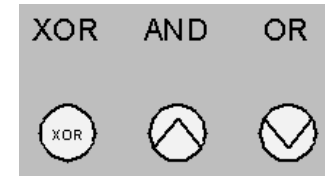
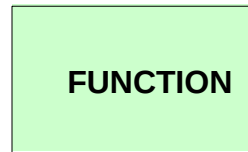
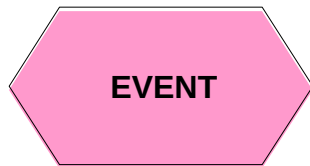
## Example:



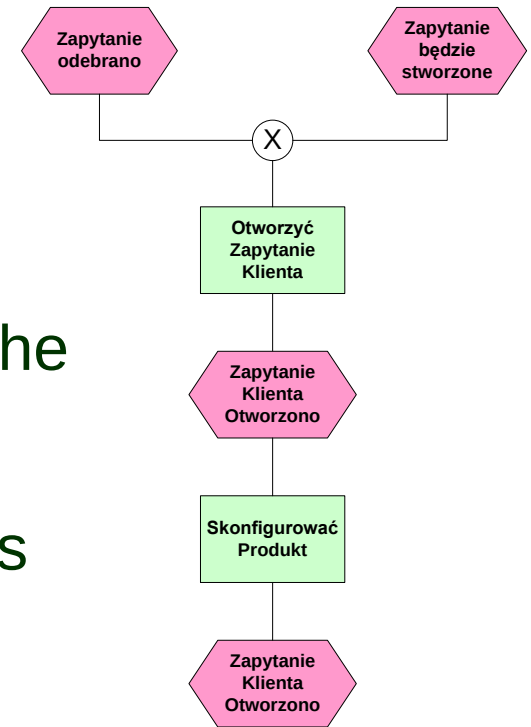
# Project 9: ECP / MS VISIO



## Introduction:

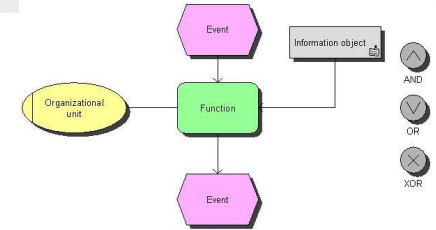


- ✓ **EPC** - Event-driven Process Chain
- ✓ **EVENT** – describes a change
- ✓ **FUNCTION** – describes an activity
- ✓ **PARTICIPANT** – defines who performs the function
- ✓ **LOGIC operator** – describes alternatives

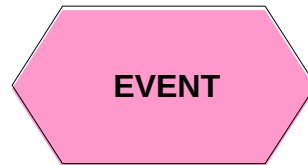




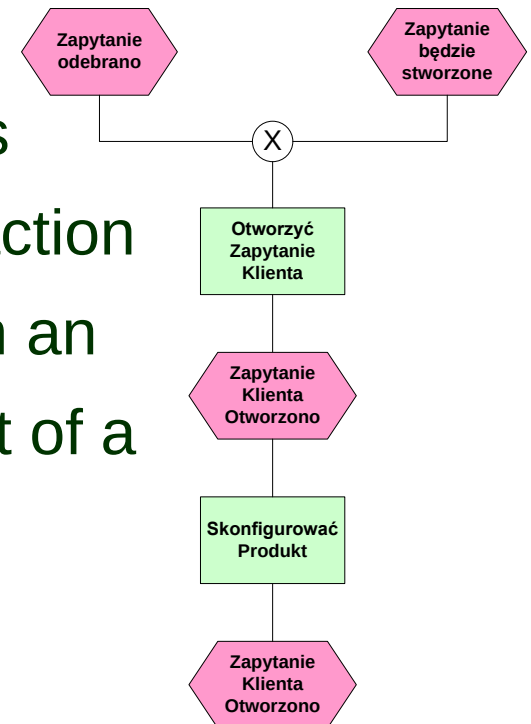
# Project 9: ECP / MS VISIO



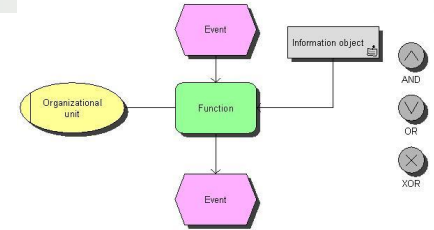
## Introduction:



✓ **EVENT** – it is used to illustrate business relevant causes and effects of any given action (function). Every EPC starts and ends with an event. An event can trigger or be the result of a function.



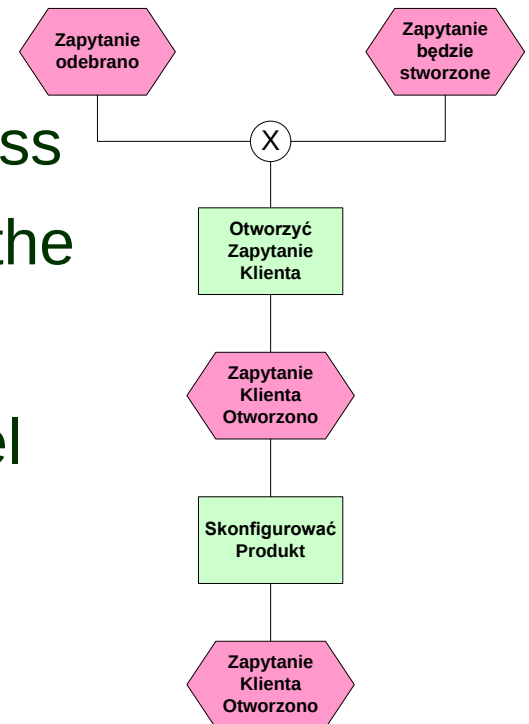
# Project 9: ECP / MS VISIO



## Introduction:

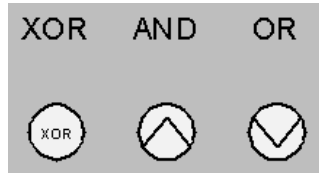
FUNCTION

- ✓ **FUNCTION** – illustrates actions, operations or procedures which are business relevant. They are the connector between the Events and consume resources and time.
- ✓ Functions can be modeled linear, parallel or as alternative branches.

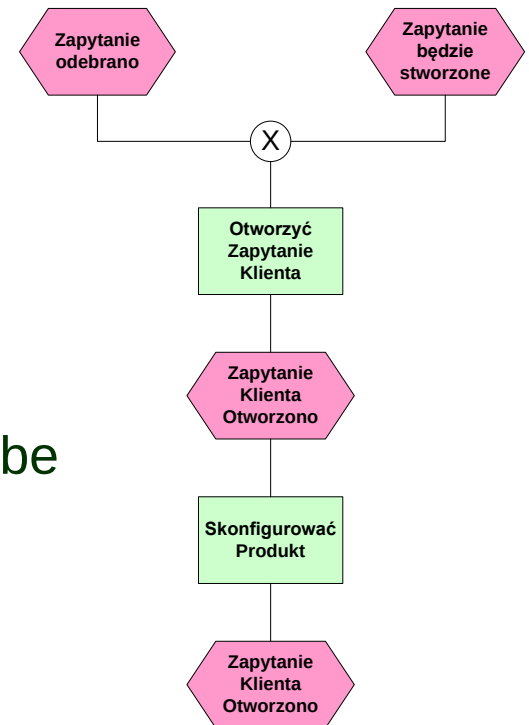
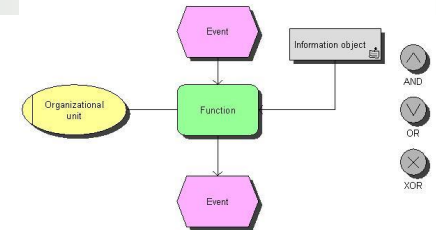


# Project 9: ECP / MS VISIO

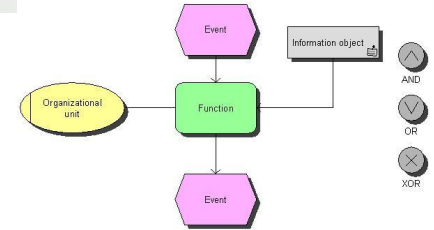
## Introduction:



- ✓ **Branch** – gives you the possibility to model alternative tracks of a process. There are three options:
- ✓ **AND** (conjunction) – every function must be executed / all events must occur.
- ✓ **OR** (disjunction) – at least one function must be executed / one event must occur. But it is also possible that all will be executed respectively occur.
- ✓ **XOR** (exclusive OR) – exactly one function must be executed / one event must occur.



# Project 9: ECP / MS VISIO



## Introduction:

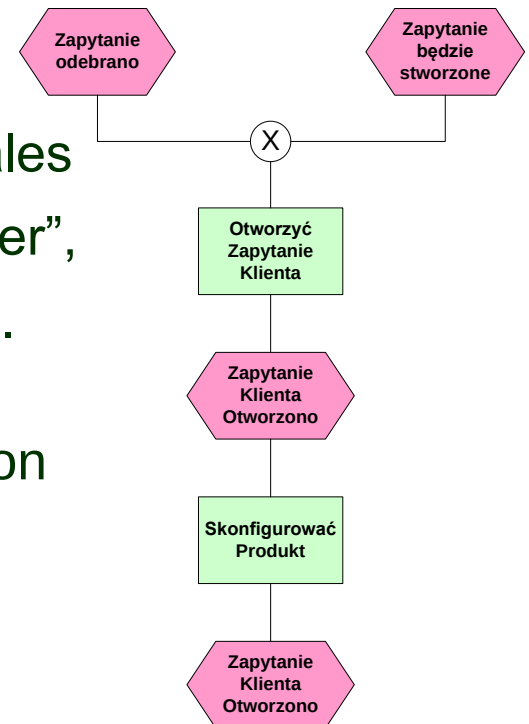


### ✓ Organizational unit (Participant) -

Organization units determine which person or organization within the structure of an enterprise is responsible for a specific function. Examples are “sales department”, “sales manager”, “procurement manager”, etc. It is represented as an ellipse with a vertical line.

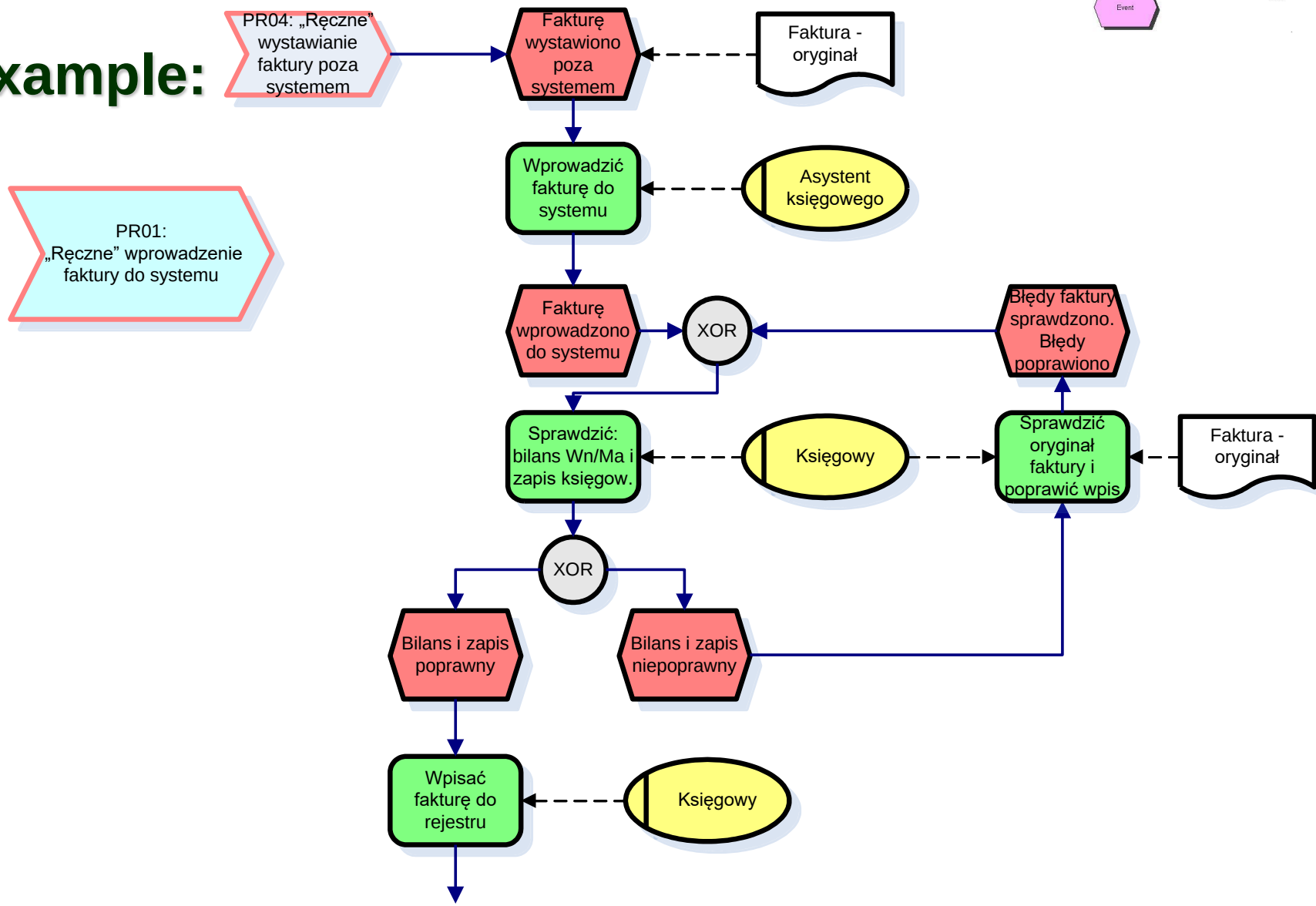
✓ Organization unit assignments show the connection between an organization unit and the function it is responsible for.

<http://en.wikipedia.org>



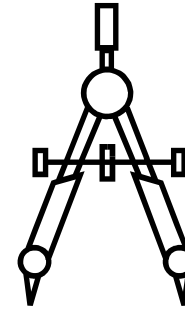
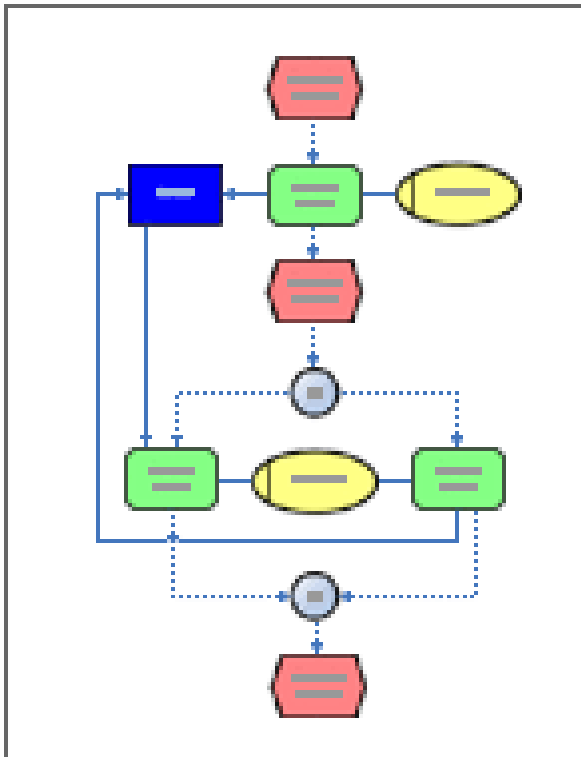
# Project 9: ECP / MS VISIO

## Example:

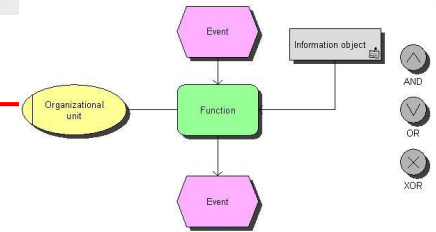


# Project 9: ECP / MS VISIO

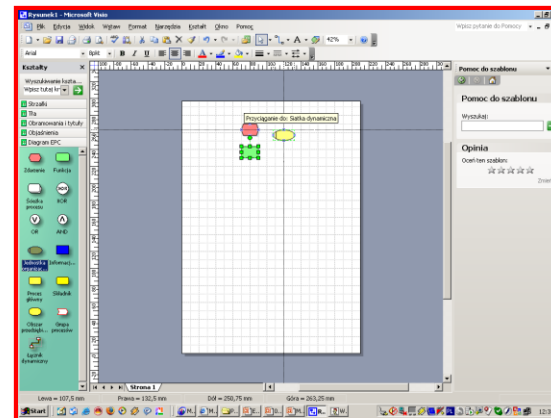
## Diagram:



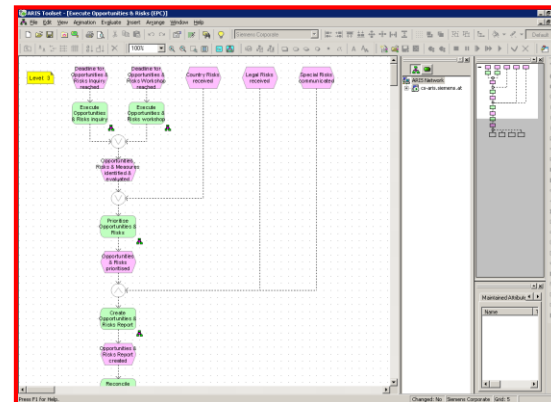
„manual”

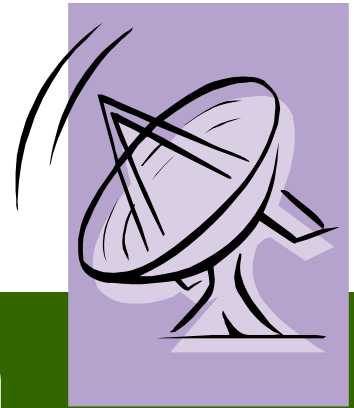


VISIO



ARIS





# 10. Communication techniques - information resources





How the customer explained it



How the Project Leader understood it



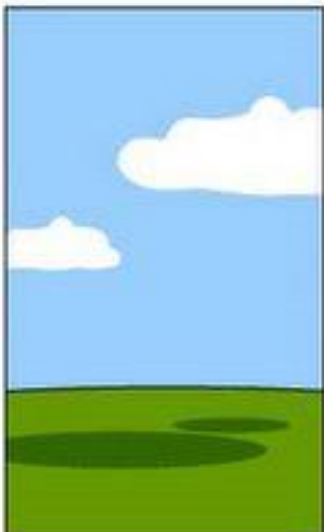
How the Analyst designed it



How the Programmer wrote it



How the Business Consultant described it



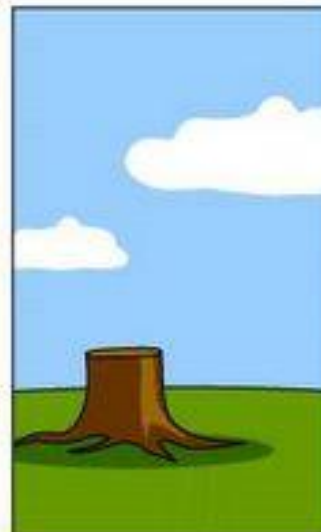
How the project was documented



What operations installed



How the customer was billed



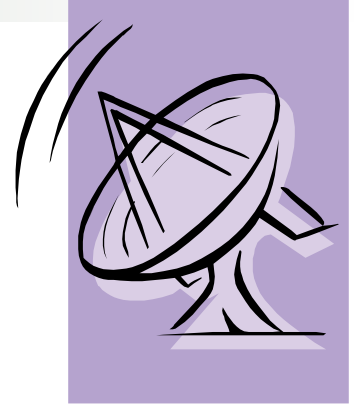
How it was supported



What the customer really needed



## Communication techniques

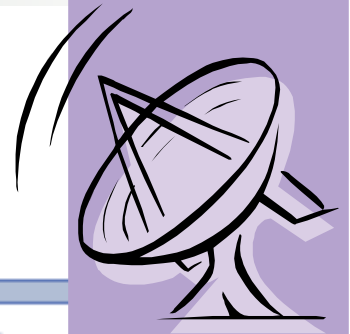


### Principles of good communication:

- ✓ Communicate with yourself – before you try to understand others, you have to understand yourself!
- ✓ Put all important information in writing
- ✓ Make internal meetings regularly (once a week)
- ✓ Make sure to take advantage of the newest technology
- ✓ Value different opinions, ideas, thoughts
- ✓ Control your emotions – treat others right
- ✓ Listen to your business partners – take your time!
- ✓ Be open minded, look around – search for new ideas

# Communication techniques

## A new model of organization:



### Any Source



Web



Business Information Warehouse



Operational System

### Any Role



MD



CEO



SVP Sales

### Any Device



PDA



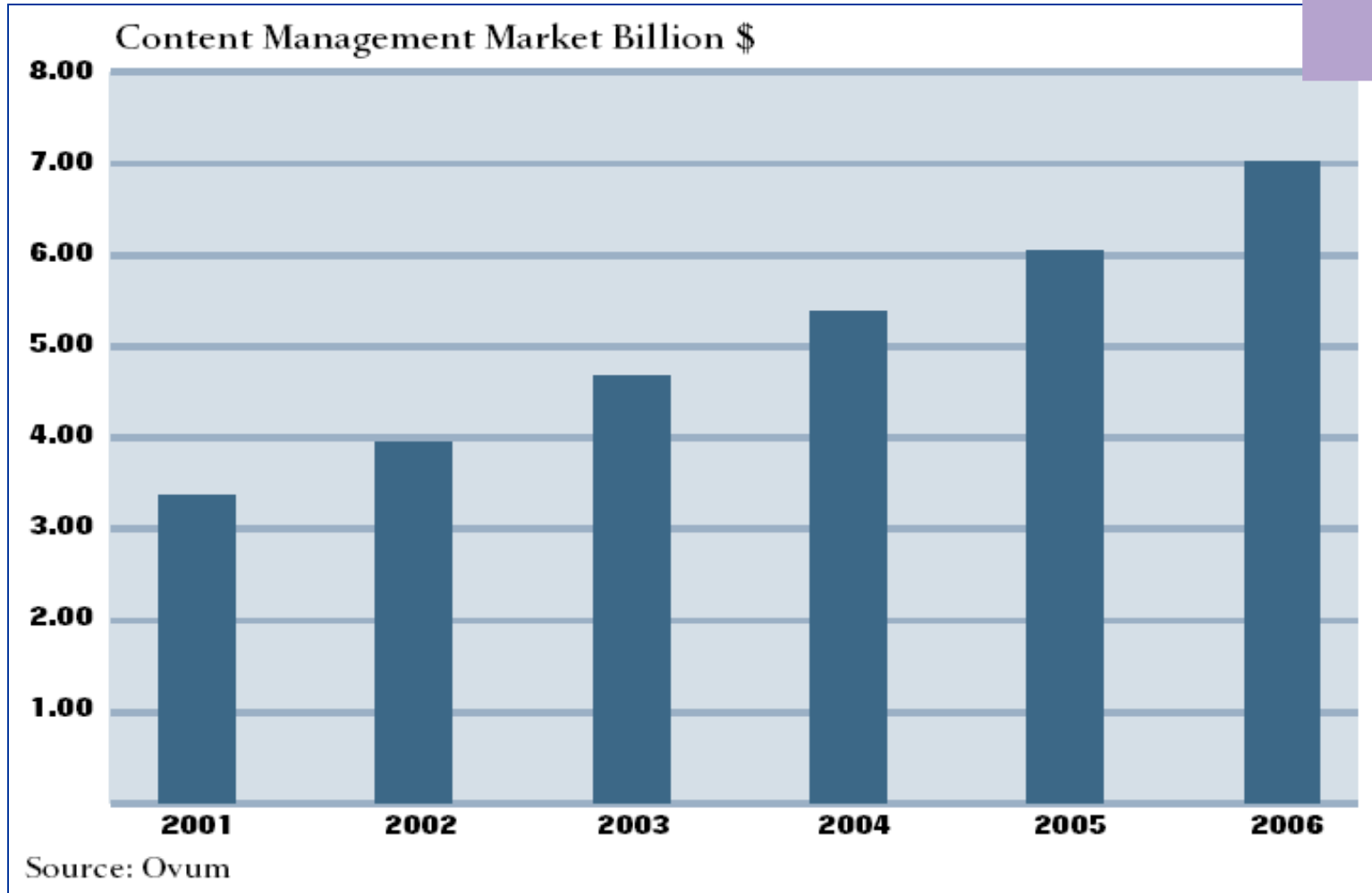
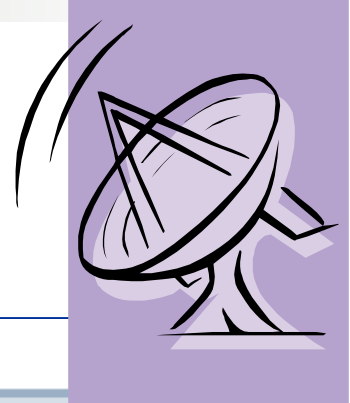
Mobile Workplace



PC

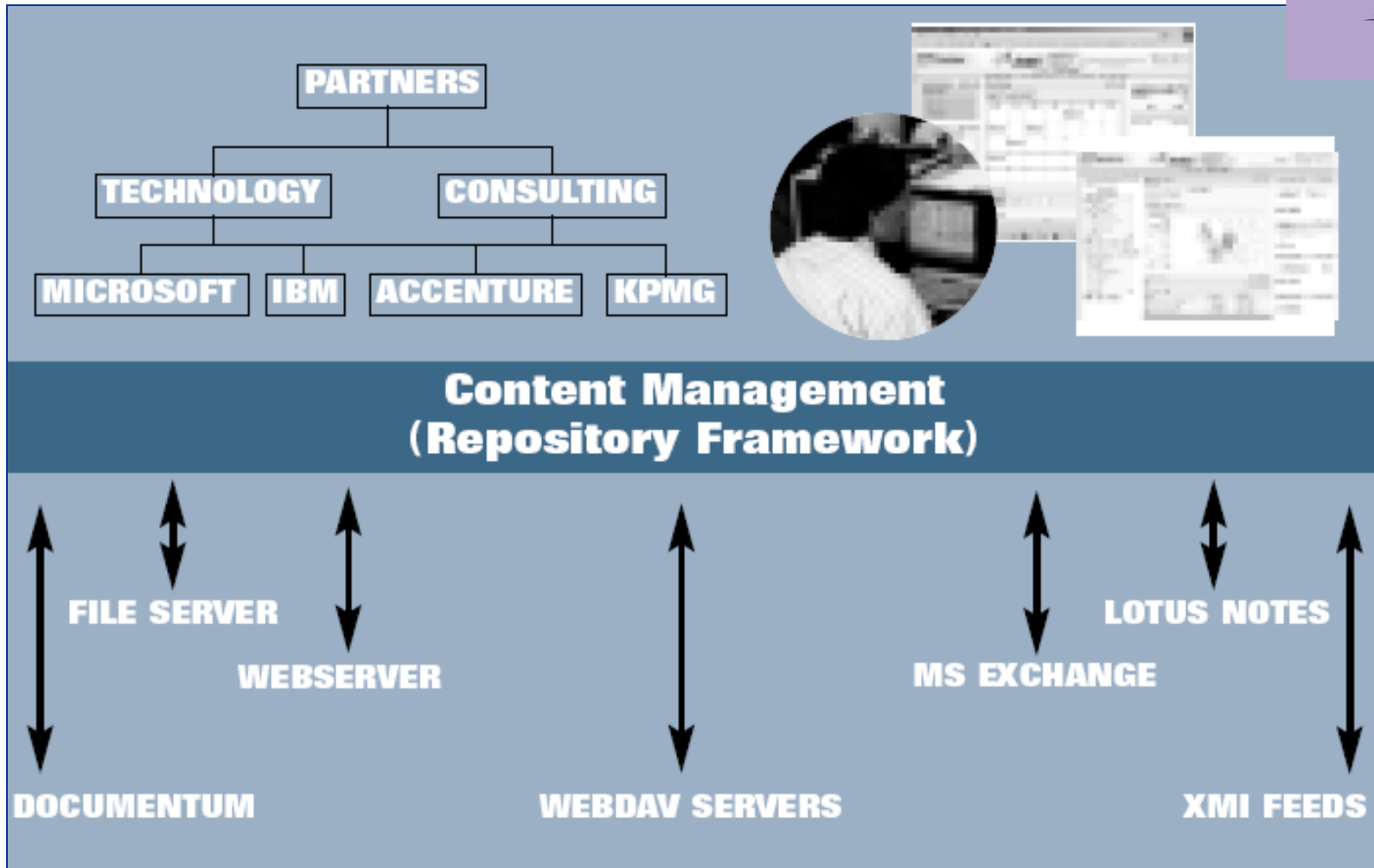
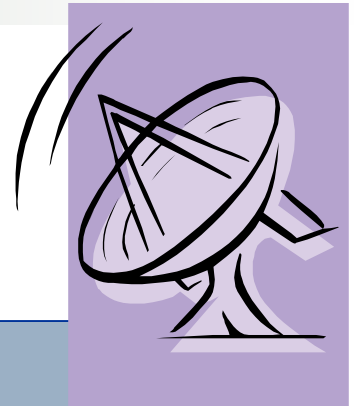
# Communication techniques

## A new model of organization:



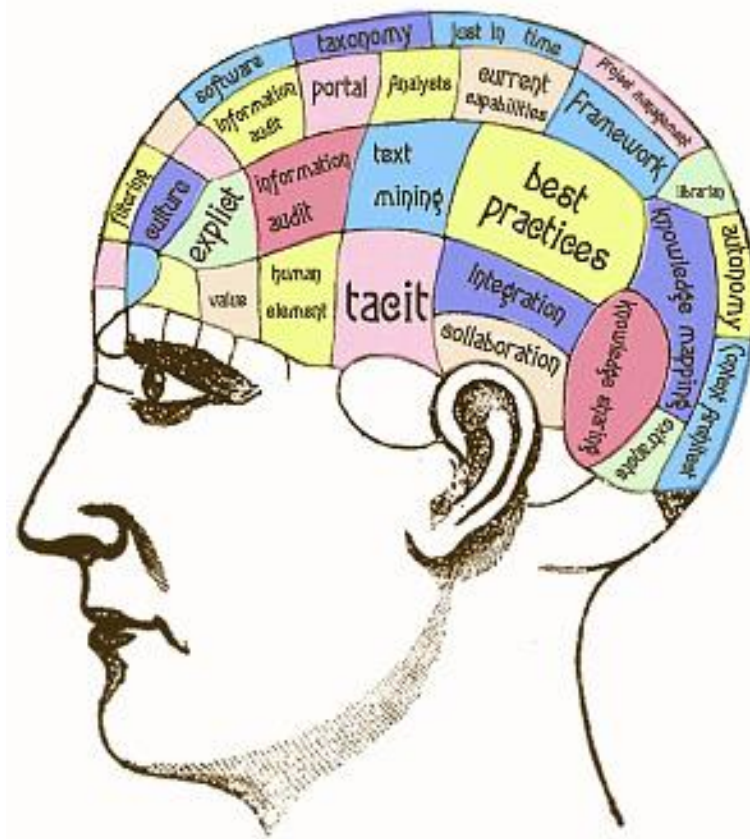
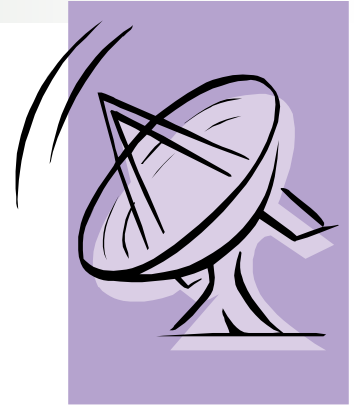
# Communication techniques

## A new model of organization:



# Communication techniques

## Intellectual capital:





## **PROJECTS List – project management**

**Project 1: Charts analysis – LOB**

**Project 2: Gantt chart analysis**

**Project 3: PERT**

**Project 4: PERT – MS Visio**

**Project 5: PERT – MS Project**

**Project 6: BEP analysis**

**Project 7: ISO – resources allocation**

**Project 8: MS Project – resources allocation and control**

**Project 9: ECP / MS VISIO**

**Project 10: Cash Flow analysis**

**Project 11: Communion techniques and principles**

**Project 12: ?**