Continuous Improvement Toolkit
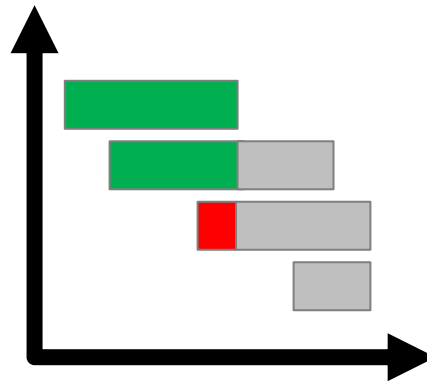
Gantt Charts
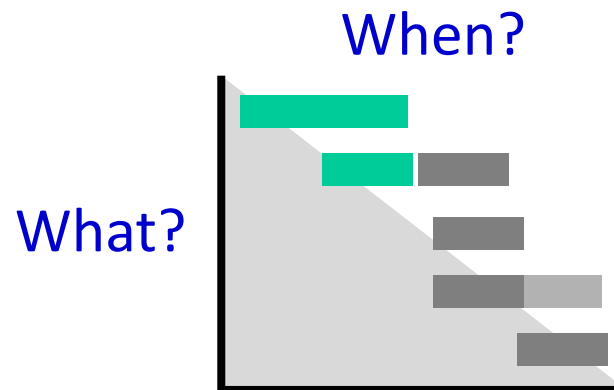
The Continuous Improvement Map

Managing Risk
PDPC
FMEA
RAID Log*
Risk Assessment*
Fault Tree Analysis
Traffic Light Assessment

Deciding & Selecting
Decision Balance Sheet
Importance-Urgency Mapping
Force Field Analysis
Cost Benefit Analysis
Break-even Analysis
Voting
TPN Analysis
Decision Tree
Pick Chart
Four Field Matrix
Critical-to Tree
QFD
Portfolio Matrix
Kano Analysis
Matrix Diagram
Paired Comparison
Cost of Quality*
Pugh Matrix
Prioritization Matrix
Pareto Analysis
C&E Matrix

Planning & Project Management*
Daily Planning
PERT/CPM
MOST
RACI Matrix
Activity Networks
SWOT Analysis
Stakeholder Analysis
Project Charter
Improvement Roadmaps
PDCA
Policy Deployment
Gantt Charts
DMAIC
Kaizen Events
Control Planning
A3 Thinking

Understanding Performance
Lean Measures
Bottleneck Analysis**
Process Yield
OEE
KPIs
Capability Indices
Descriptive Statistics
Gap Analysis*
Reliability Analysis
Histograms & Boxplots
Graphical Analysis
MSA
Run Charts
Benchmarking**
Control Charts
Data collection planner*
Sampling

Understanding Cause & Effect
ANOVA
Chi-Square
Hypothesis Testing
Probability Distributions
Design of Experiment
Multi vari Studies
Confidence Intervals
Scatter Plots
Correlation
Regression
5 Whys
Root Cause Analysis
Data Snooping
Fishbone Diagram
Tree Diagram*
SIPOC*
Morphological Analysis
How-How Diagram**

Implementing Solutions**
Standard work
Document control
Cross Training
Value Analysis
Mistake Proofing
Ergonomics
Simulation
TPM
Automation
Pull
Flow
Just in Time
Visual Management
5S
Waste Analysis
Quick Changeover
Process Redesign
Time Value Map

Data Collection
Check Sheets
Interviews
Questionnaires
Focus Groups
Observations

Creating Ideas
Brainstorming
SCAMPER**
Attribute Analysis
Affinity Diagram
Relationship Mapping*
Mind Mapping*
Lateral Thinking
Suggestion systems

Designing & Analyzing Processes
Spaghetti Diagram
Value Stream Mapping
Flow Process Charts
Service Blueprints
Flowcharting
IDEF0
Process Mapping

- Gantt Charts

A Gantt Chart:

❑ A visual representation that provides an instant overview of the status of a project.

❑ Outlines all activities involved in a project against a timescale.

❑ Simply lists what needs to be done and when.

❑ Great ways to manage project schedule simply and easily.

When?

What?

- Gantt Charts

❑ Used by any industry that requires **project management**:

- Construction.
- Telecommunications.
- Information technology.
- Management consulting.
- Change management.
- Problem solving and continuous improvement.
- …
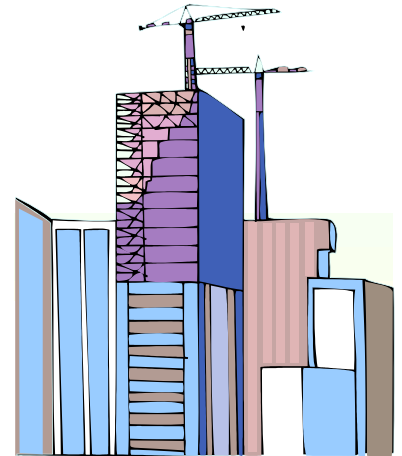
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When They are Used?

❑ Identifying and planning activities and their expected durations.

❑ Monitoring and tracking the progress.

- Identifying issues that can delay the project.

❑ Serving as communication tools by:

- Showing the team the progress they are making.

- Keeping management updated on project progress.

- Gantt Charts

❑ A Gantt chart can also be used to plan your personal projects and track your own targets.
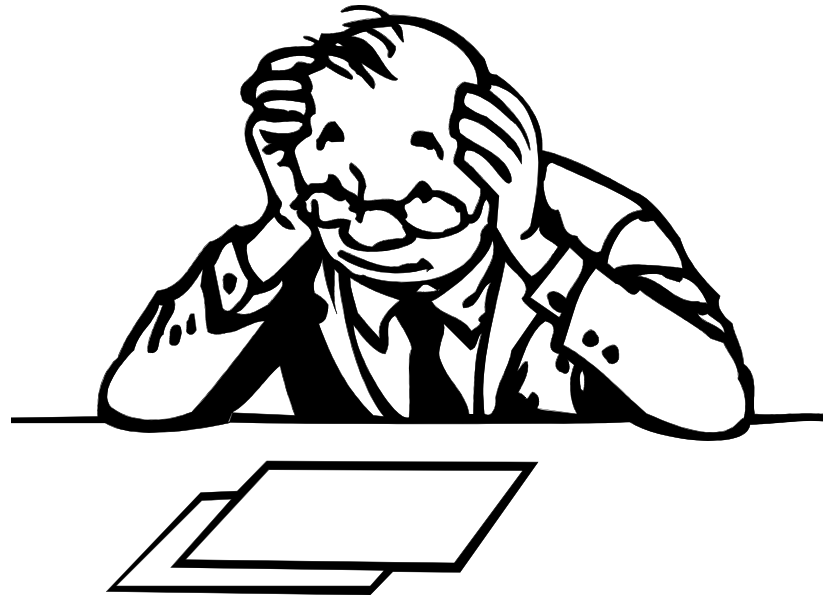
- Gantt Charts

Benefits:

❑ A simple way to schedule your activities.

❑ Allow to see how your project is performing at a glance.

❑ Allow to focus efforts and reacting quickly to unexpected situations.

❑ Allow you to communicate progress and issues as they arise.

❑ Help determining the needed resources.

- Gantt Charts

❑ A Gantt chart is a type of bar chart that shows the start and end dates of the your activities.

❑ **You can see in a Gantt chart:**
   • The activities (**What?**).
   • The duration of activities (**When?**).
   • The responsible person or team for completing each of them (**Who?**).
   • The order in which they will be accomplished.

- Gantt Charts

❑ **Other information can also be shown:**

- The needed resources.
- The cost estimates.
- The key project milestones.
- The dependencies between activities
- The critical paths
- The progress and status of activities.
- The progress and status of the project as a whole.
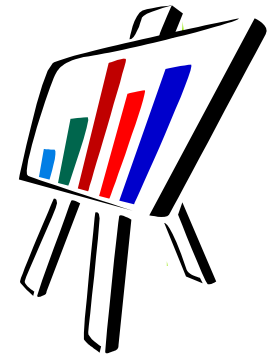
- Gantt Charts

❑ **A detailed Gantt chart can answer the following questions:**

- What are the activities that must be accomplished?
- In what order?
- How long should they take?
- Which activities are on time and which are no?
- Who should do them?
- What are the needed resources?
- What are the key stages and milestones?
- What are the relationships between the various activities (sequential or simultaneous)?
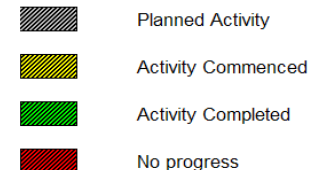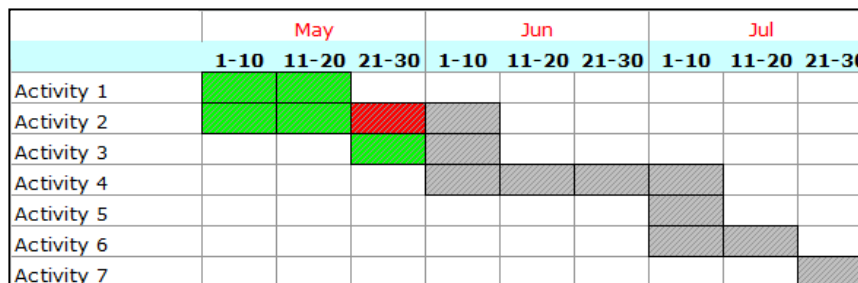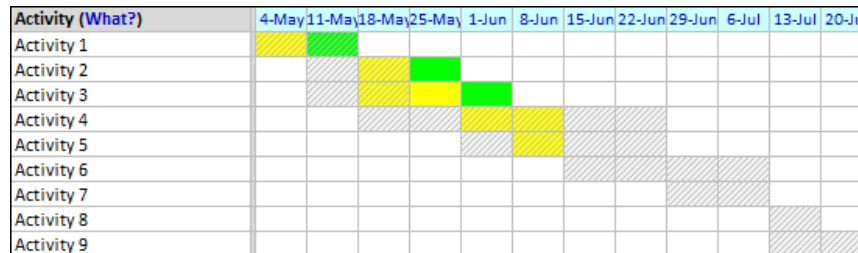- What is the percentage of completion?
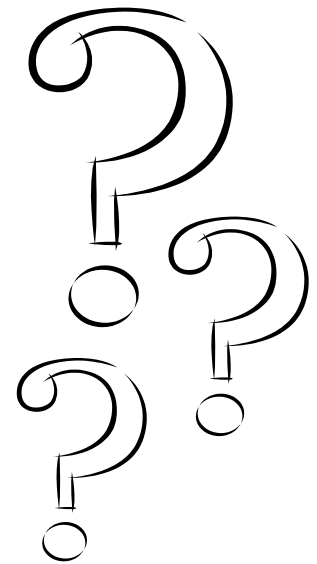
- Gantt Charts

❑ A Gantt chart is created by drawing horizontal bars to represent time duration of activities.

❑ **By looking at the chart, you can see:**

- The sequence of the activities.
- How long each activity takes.
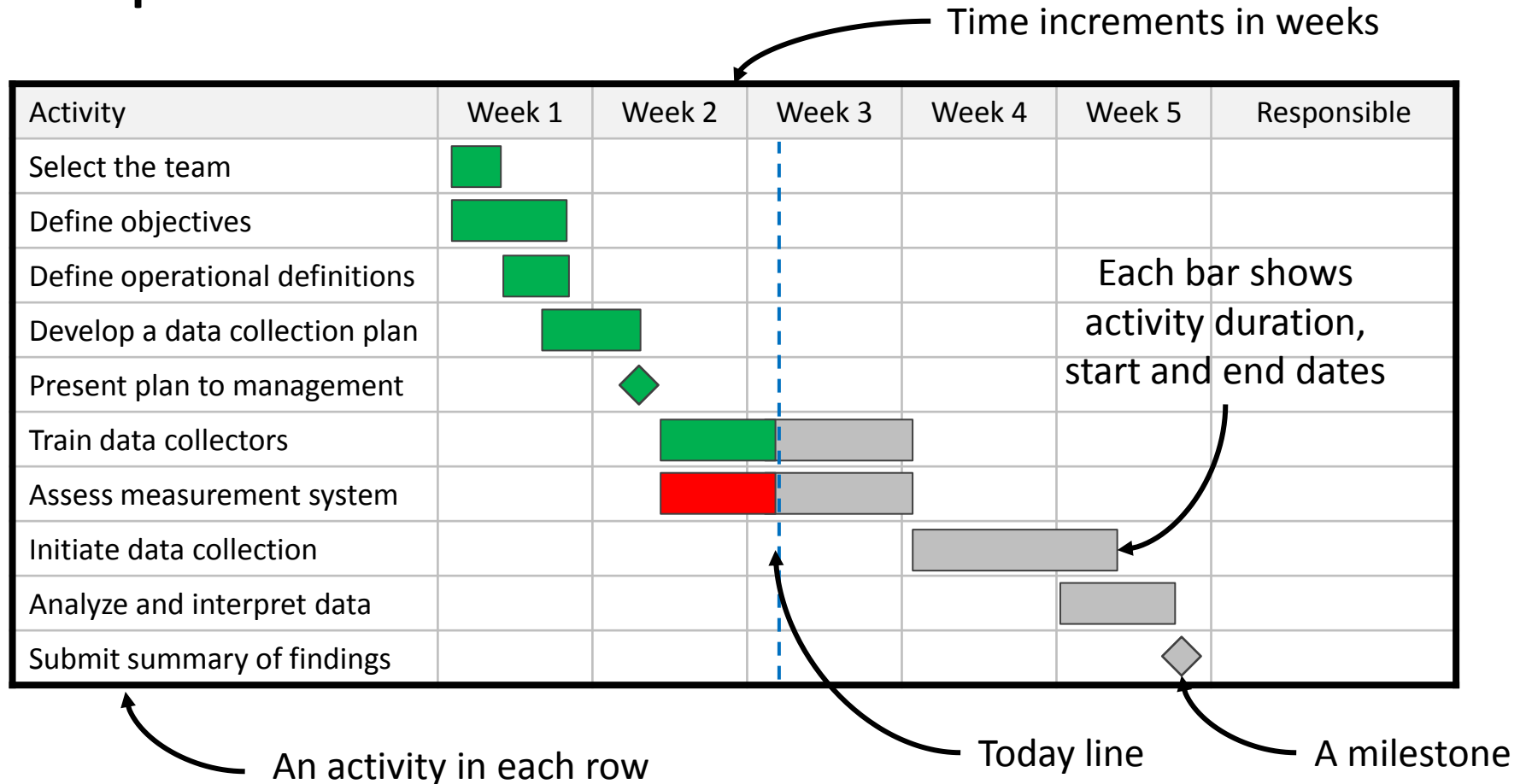- Compare the planned and actual duration of the activities.
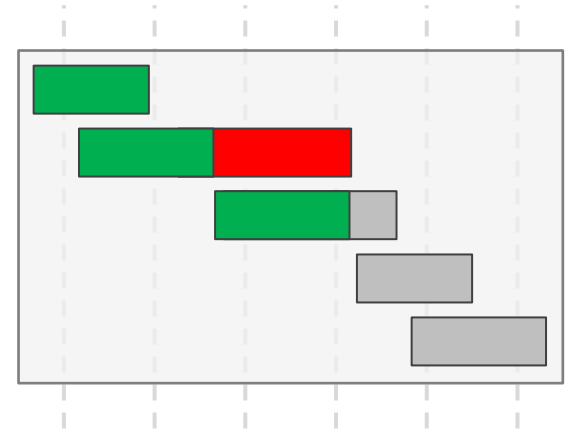
- Gantt Charts

❑ Can be drawn by hand.

❑ Can be implemented using spreadsheet applications.

❑ If you need more elaborated features, you might want to go for a project management software.
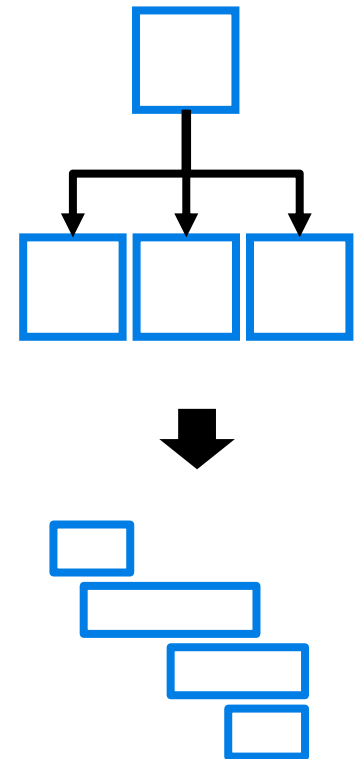
- Gantt Charts

Example:

Time increments in weeks

Activity	Week 1	Week 2	Week 3	Week 4	Week 5	Responsible
Select the team	▮					
Define objectives	▮					
Define operational definitions	▮					
Develop a data collection plan		▮				
Present plan to management		◆				
Train data collectors		▮	▮			
Assess measurement system		▮	▮			
Initiate data collection				▮		
Analyze and interpret data					▮	
Submit summary of findings					◆	

Each bar shows activity duration, start and end dates

An activity in each row

Today line

A milestone

- Gantt Charts

Work Breakdown Structure:

❑ A hierarchical deliverable-oriented breakdown of the work.

❑ Helps dividing the overall project into smaller more manageable categories of work.

❑ Represents the entire scope of work for any given project.

❑ Precedes detailed activity planning.

- Gantt Charts

Work Breakdown Structure:

❑ Each descending level represents more details of work.

❑ The work activities are contained within the lowest level:

- In the form of work products or deliverables
- Often called work packages.
- By describing deliverables and not activities, the project team has more freedom for planning work activities.

```
        1              2

   1.1   1.2   1.3

1.1.1  1.1.2  1.1.3
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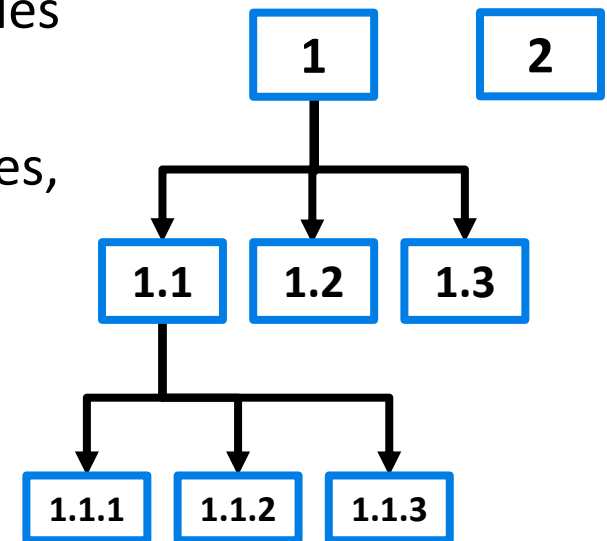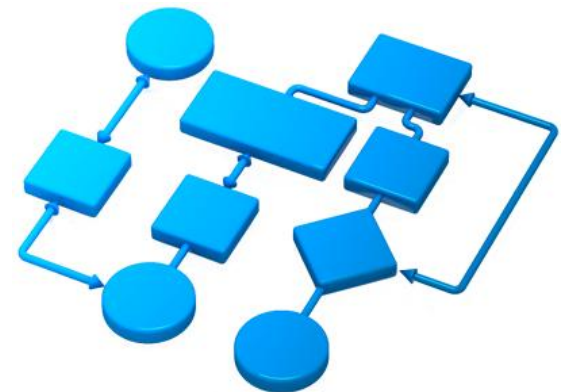
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Work Breakdown Structure:

❑ Reduces the project scope and complexity.

❑ Provides a structured vision of what is to be delivered.

❑ Provides the basis for schedule development and control

❑ Provides a framework for resource planning and cost estimating.
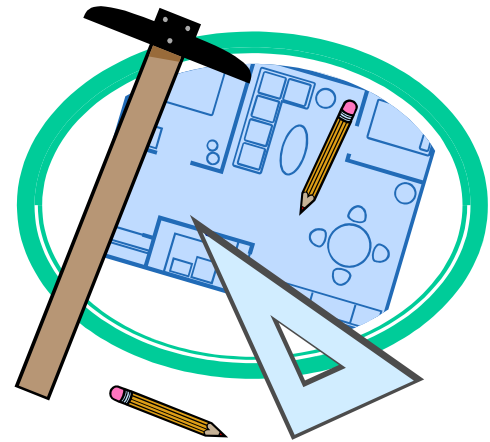
- Gantt Charts

Approach:

❑ Identify the major categories and all the required work to be completed (use WBS).

❑ Record all activities by sequence of completion.

❑ Estimates the start date and the time required for each activity.

❑ Draw horizontal bars to represent the activities and their durations.

❑ Assign responsibilities.

❑ Identify milestones and recourses.

❑ As the project progresses, update the chart to reflect changes as soon as they occur.
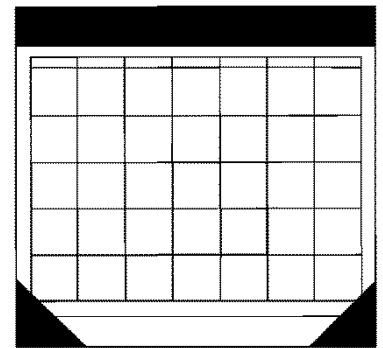
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Further Information:

❑ Some activities will need to be completed before you can start the next one (FS).

❑ For example, if you are conducting a survey, you need to finish the data collection before you can start the data analysis.

❑ Other activities can't end until preceding ones have ended (FF).

❑ In general, there are four main relationships between sequential activities: (SS, SF, FS & FF)

- Gantt Charts

Further Information:

❑ It's always better to complete a project ahead of schedule rather than behind schedule.

❑ It is always helpful if there is a **safety factor** to allow for slippages.

- Reserve analysis – to account for schedule uncertainty.
- Contingency reserves – known-unknowns.
- Management reserves – unknown-unknowns.

- Gantt Charts

Further Information:

❑ Size your activities appropriate to your needs.

- • If you are managing a time-critical process, you may break down your activities into more specific steps.
- • If you want to maintain general oversight on the project, you may have fewer activities.

❑ Be careful when allocating scarce resources such as expensive equipment or highly qualified experts.