Lean Six Sigma Green Belt Certification Course

simplilearn

Management and Planning Tools

Learning Objectives

By the end of this lesson, you will be able to:

- Identify the tools that help in planning and managing projects.
- Use the tools to control project processes.

Tools for Managing a Project

How can a team systematically manage and compare many different ideas, activities, or issues to come to a consensus and take action?

Project Team

The 7 Management and Planning Tools

The Seven Tools

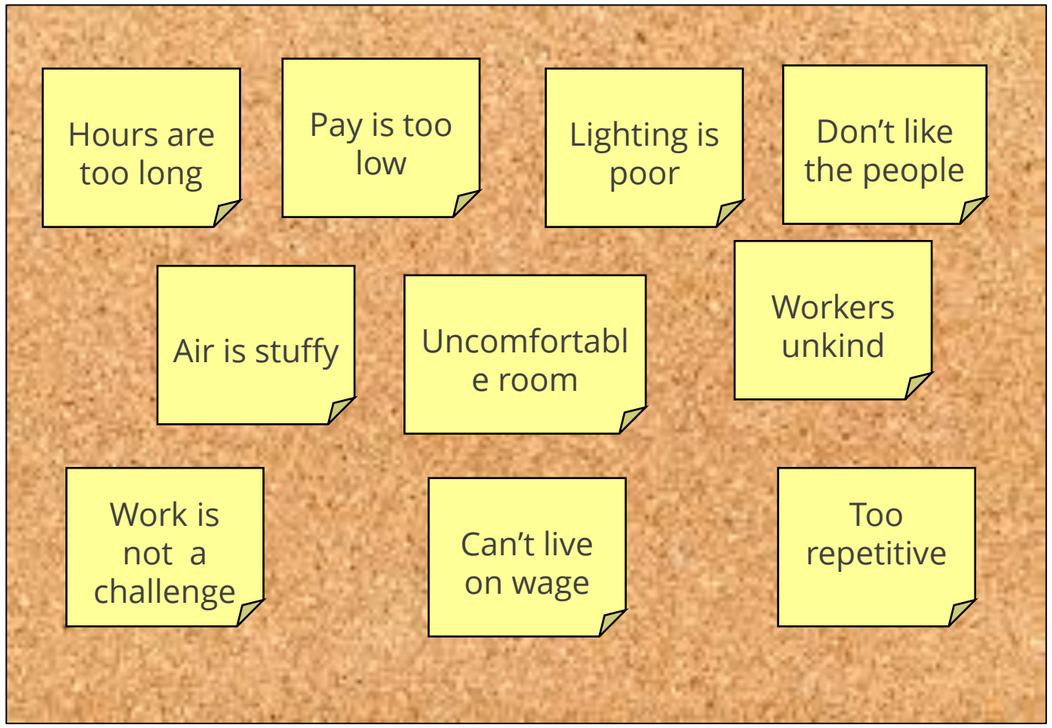
Affinity Diagram: Description

- Used when consensus of a group is necessary to solve unfamiliar problems
- Helps organize several ideas into similar categories or using their natural relationships

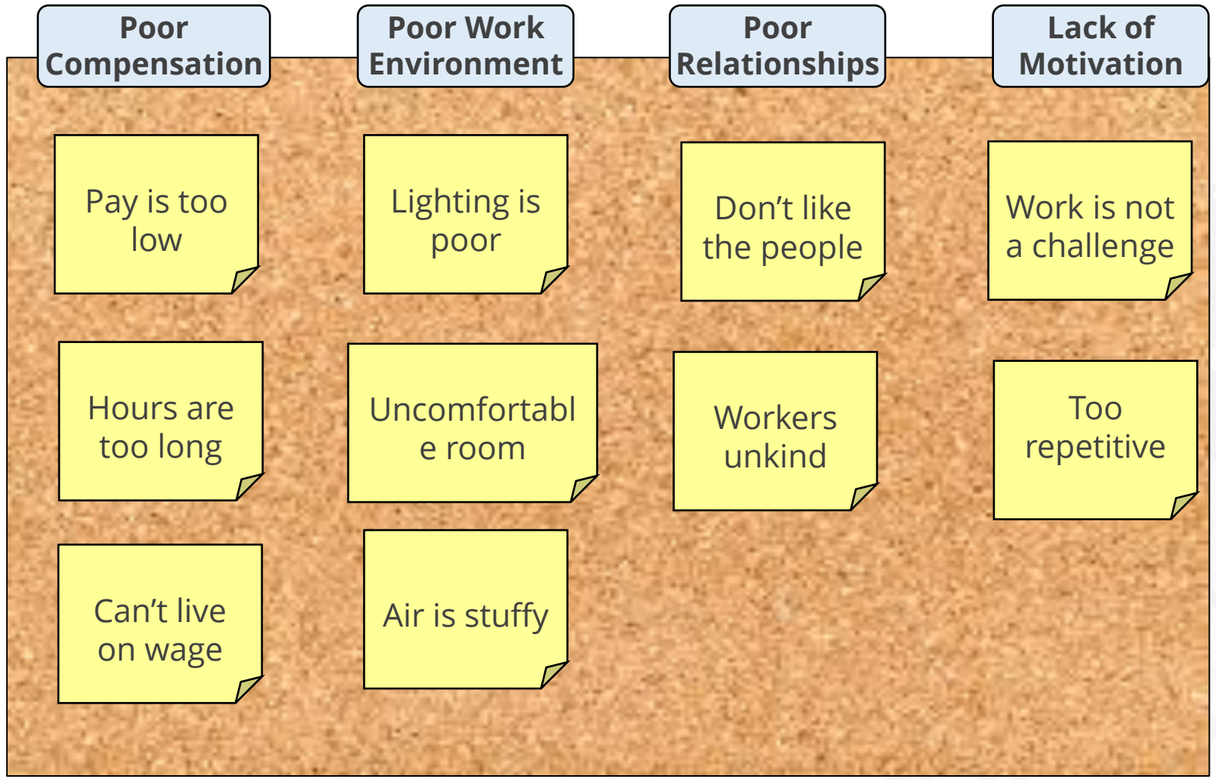
The tool is also useful for analyzing verbal data, such a results from VOC surveys.

Affinity Diagram: Example

Factors that increase turnover of employees



Sticky Papers



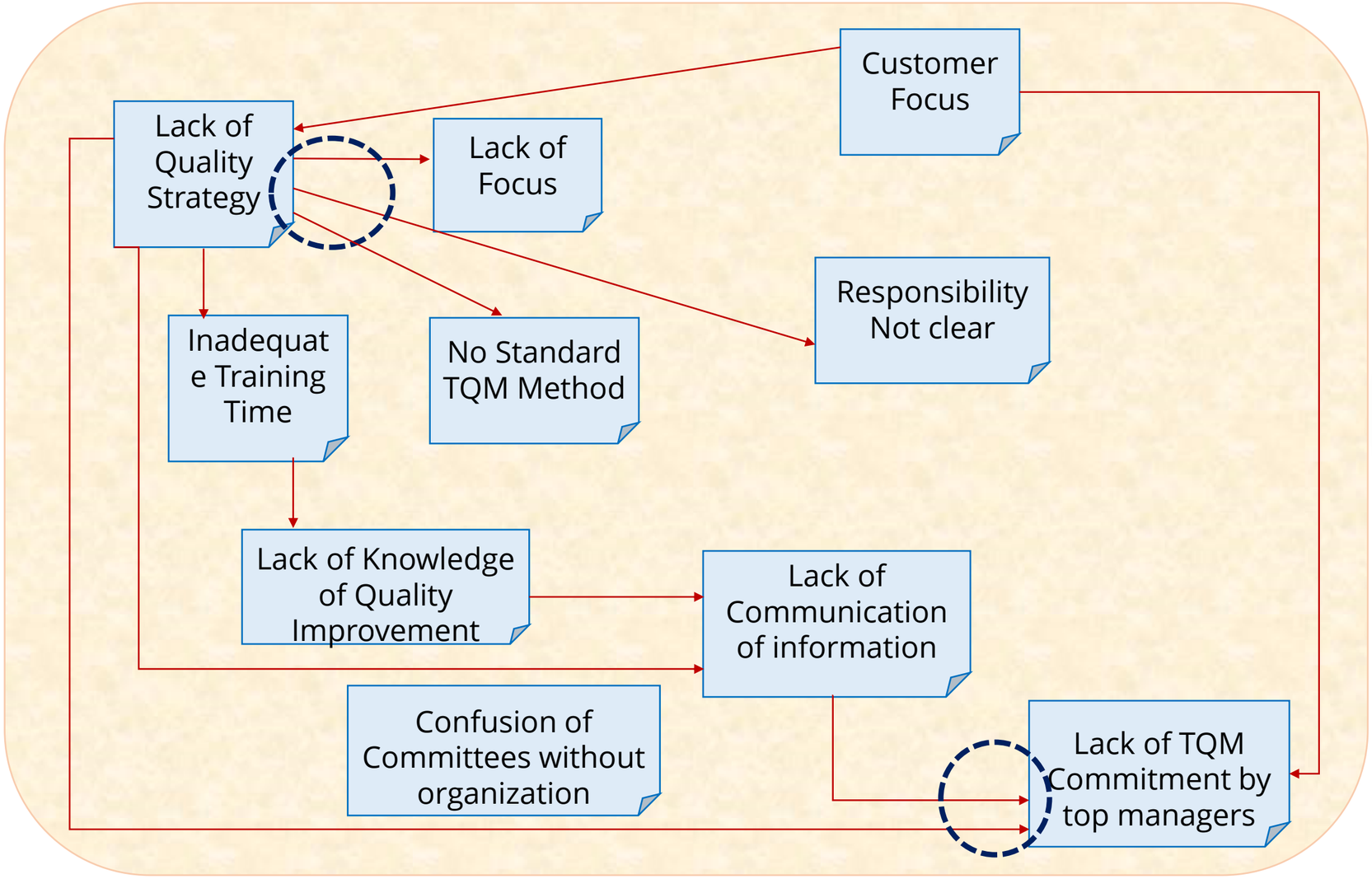
Categorized under Header Cards

Interrelationship Diagram: Description

- Used when a problem is complex and cause and effect relationships must be viewed
- Used after an affinity diagram
- Illustrates the relationship between ideas

Interrelationship Diagram: Example

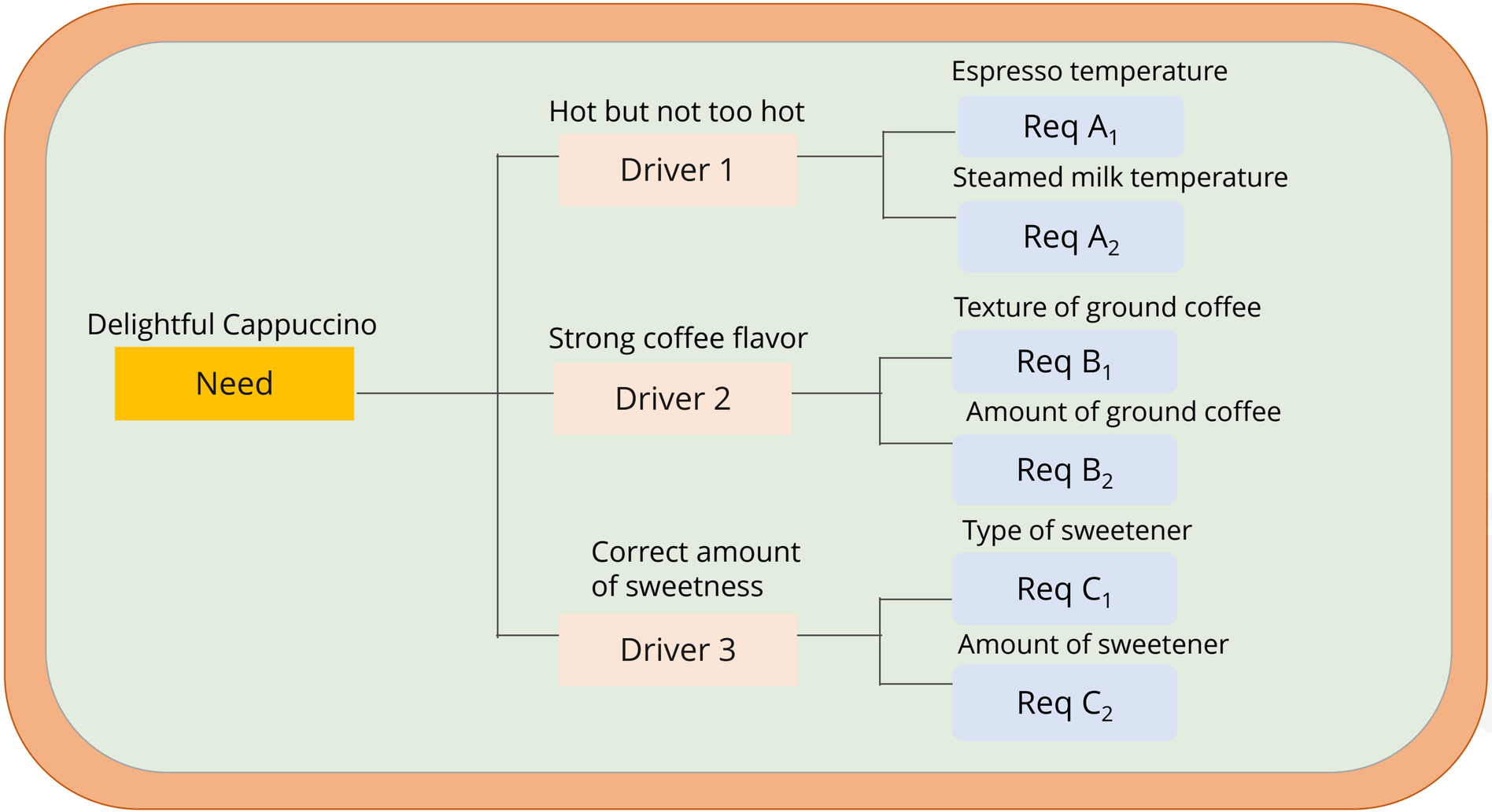
Developing a quality plan in an organization



Tree Diagram: Description

- A systematic approach to solve a problem to reach a predefined goal
- Used to develop actions to execute a solution
- Enables analyzing a process in detail
- Used to evaluate implementation issues for potential problems
- Used as a communication tool to explain process details

Tree Diagram: Example



Matrix Diagram: Description

- Shows the relationship between objectives and methods, results and causes, and tasks and people
- Provides information about the relationships
- Helps determine the strength of relationships
- Provides importance of task and method elements of the subject
- Helps in organizing a large number of inter-process activities

Matrix Diagram: Types

L Type Matrix	T Type Matrix	X Type Matrix	Y Type Matrix	C Type Matrix
Compares one list against another with one set of elements on the x-axis and one set along the y-axis.	Compares one list against two others, in pairs, with two sets of elements on the y-axis which are split by a set of elements on the x-axis.	Compares four lists, each against two other lists, in pairs, with two sets of elements on both the x and the y axes.	Compares three lists, each against the other in pairs - two L type matrices joined at the y axis.	Compares three lists against one another, a combination of two L type matrices joined at the y axis in a three dimensional space.

Matrix Diagram: Example

This T-shaped matrix relates product models to their manufacturing locations and to their customers.

Texas Plant	●		○	○
Mississippi plant		●		○
Alabama plant	○			●
Arkansas plant		○	●	
● Large volume ○ Small volume	Model A	Model B	Model C	Model D
Zig corp.		●		
Arlo Co.	○	○	○	●
Lyle Co.			○	○
Time Inc.	●			●

Prioritization Matrices: Description

- Are L-shaped matrices
- Are used to prioritize tasks, products, or service characteristics based on known weighted criteria
- Are methods for making decisions without using computers
- On the down side, are rigorous and time-consuming decision making tools

Prioritization Matrices: Examples

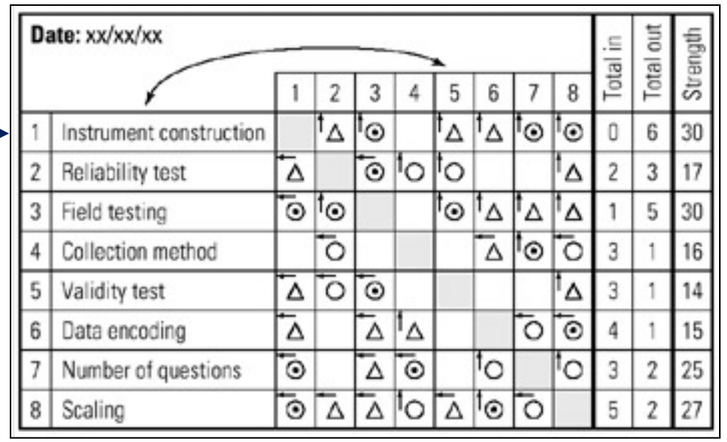
Full analytical criteria method

	CRITERIA WEIGHT	1	2	3	4	5	6	7	8	9	TOTAL	DECIMAL VALUE
1	Little to no customization ne	X	0.20	0.10	0.10	0.10	0.10	0.20			0.80	0.01
2	Service costs	5.00	X	0.20	0.20	0.10	0.20	5.00			10.70	0.08
3	Ease of use: administration	10.00	5.00	X	1.00	1.00	0.20	10.00			27.20	0.20
4	Ease of use: user	10.00	5.00	1.00	X	5.00	5.00	10.00			36.00	0.27
5	Conforms to open web stand	10.00	10.00	1.00	0.20	X	0.20	1.00			22.40	0.17
6	Scalable	10.00	5.00	5.00	0.20	5.00	X	5.00			30.20	0.23
7	Directory-based access cont	5.00	0.20	0.10	0.10	1.00	0.20	X			6.60	0.05
8	CRITERIA #8								X		0.00	0.00
9	CRITERIA #9									X	0.00	0.00
	COLUMN TOTALS	50.00	25.40	7.40	1.80	12.20	5.90	31.20	0.00	0.00	133.90	1.00

Consensus criteria method

	Criteria and Weights					
	0.3	0.3	0.2	0.2		
	Customer Benefit	$ Saving	Ease to Implement	Low Cost	TOTAL	RANK
Project A	3	1	4	1	2.2	4
Project B	2	3	2	3	2.5	2
Project C	4	4	1	2	3.0	1
Project D	1	2	3	4	2.3	3

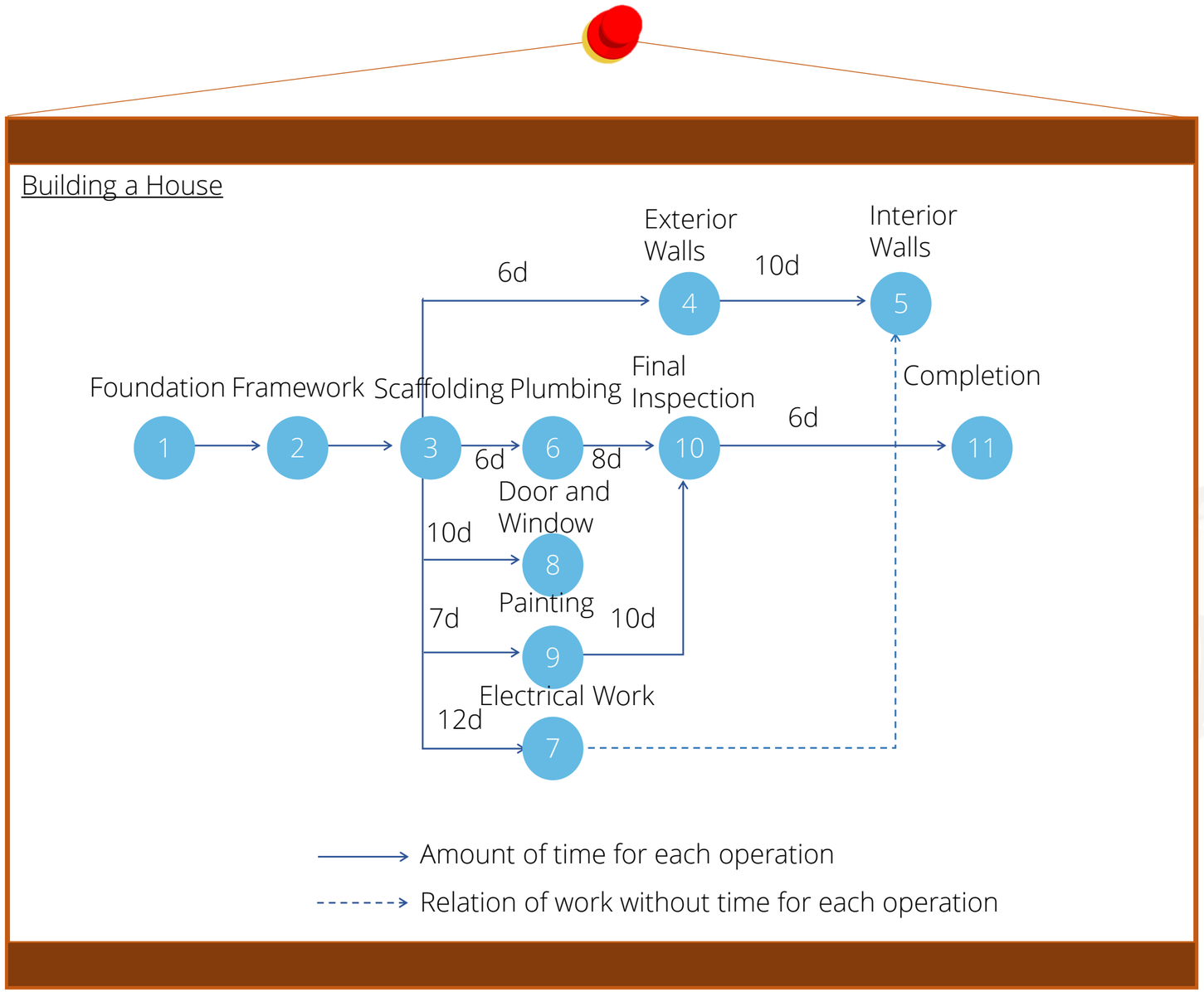
Combination interrelationship matrix method



Activity Network Diagrams: Description

- Show the time required for solving a problem
- Help identify items in a process that can be done in parallel
- Are used to schedule and monitor tasks in a complex project or process

Activity Network Diagrams: Example



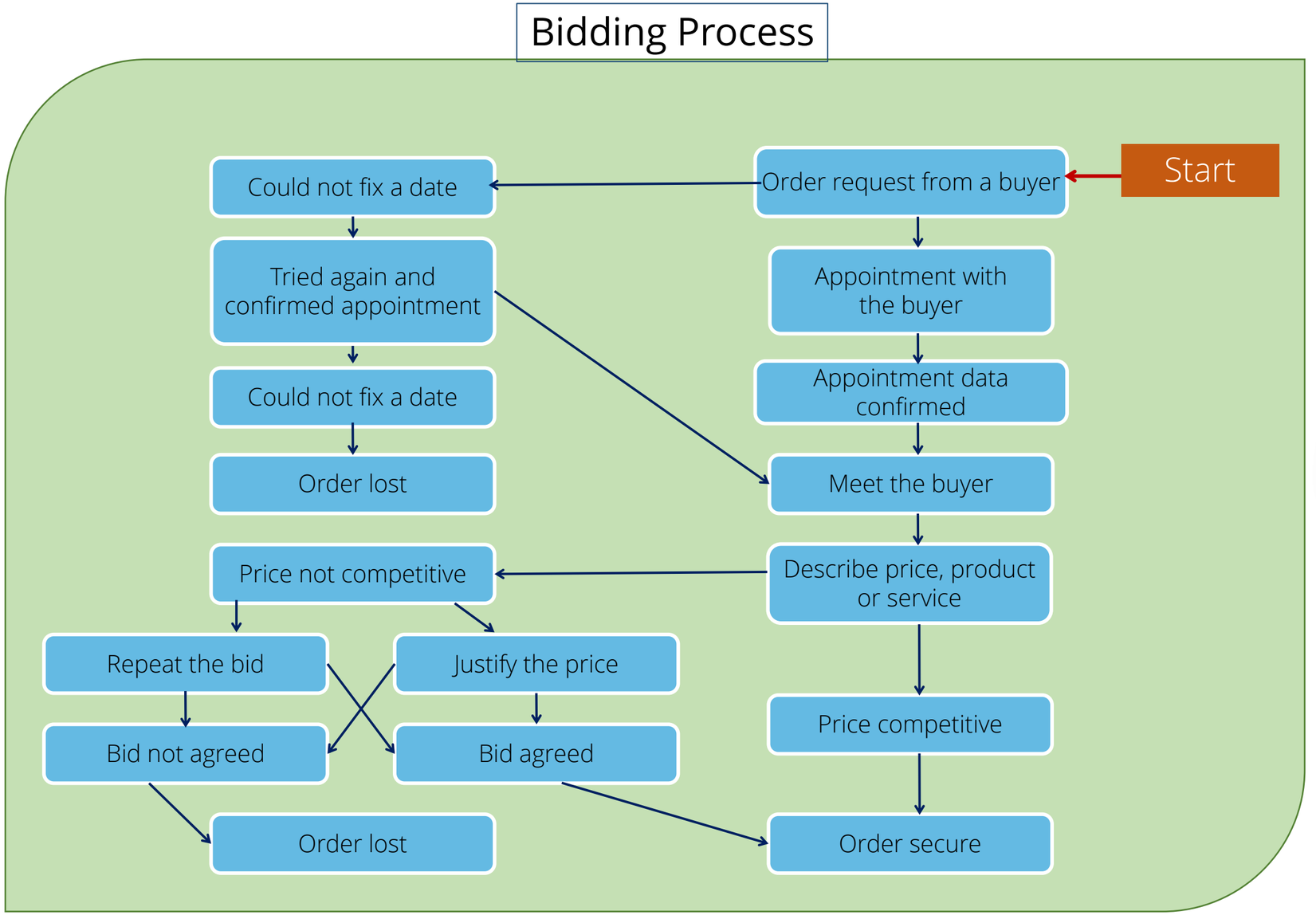
Process Decision Program Chart (PDPC): Description

The PDPC method is used before implementing a plan or when a plan must be completed on schedule.

It helps:

- ✧ Chart the course of events of a process
- ✧ Identify what could go wrong in the process
- ✧ Prepare contingency plans

Process Decision Program Chart: Example



Key Takeaways

- The Affinity Diagram method is used by teams to organize several ideas.
- The Interrelationship Diagram is used to illustrate the relationship between ideas in complex situations.
- The Tree Diagram is a systematic approach to outline and identify the tasks and methods needed to solve a problem.
- Matrix diagrams show the relationship between project objectives and methods.

Key Takeaways

- Prioritization matrices are methods for making decisions without the use of computers.
- Activity Network Diagrams are used to show the time needed to solve a problem.
- The PDPC method helps chart the course of events from the beginning of a process till the end of the process.
- PDPC also helps prepare contingency plans and countermeasures.

Knowledge Check

Knowledge Check

1

Which of the following types of matrix compares relationships in three planes?

A. L Type

B. C Type

C. X Type

D. Y Type

Knowledge Check

1

Which of the following types of matrix compares relationships in three planes?

A. L Type

B. C Type

C. X Type

D. Y Type

The correct answer is **B**

The C Type matrix is a three dimensional matrix and therefore compares relationships on three planes

Knowledge Check

2

Which of the following is not one of the Seven Tools of Management?

A. Affinity Diagram

B. Matrix Diagram

C. Cause and Effect Diagram

D. Activity Network Diagram

Knowledge Check

2

Which of the following is not one of the Seven Tools of Management?

A. Affinity Diagram

B. Matrix Diagram

C. Cause and Effect Diagram

D. Activity Network Diagram

The correct answer is **C**

The Seven Tools of Management are Affinity Diagrams Interrelationship Diagrams, Tree Diagrams, Matrix Diagrams, Prioritization Matrix, Activity Network Diagrams, and Process Decision Program Charts (PDPC).