Fundamentals of Project Management

vedavit

Trainer **: Hari Prasad Thapliyal**

(PMP, PMI-ACP, CSM, MBA, MCA, PGDOM, PGDFM, CIC, PRINCE2-Practitioner)

[**PMI-ACP** **: #318050]**

[PMP **: #1563385]**

Ground Rule

- Please keep your mobile on the silent mode.
- Always take your calls outside the training room.
- Keep your focus on the ongoing topic.
- Wait for your turn during the questionnaire round.
- Strictly follow the workshop schedule for managing the time.
- Celebrate every moment/every contribution
- Everybody needs to contribute

Our Values for This Project

- Focus
- Respect
- Communication
- Courage

Workshop Agenda

Day 1:

- Introduction & Expectation Setting
- Context Setting
- Introduction to Project Management Framework
- Project Management Processes an Overview
- Project Initiation
- Project Planning – Overall, Scope, Schedule

Day 2:

- Project Planning – Cost, Quality, HR, Communication, Risk, Procurement, Stakeholder
- Project Execution: Project Work, Quality, HR, Communication, Procurement, Stakeholders
- Project M&C: Integrated Change, Scope, Schedule, Cost, Quality, HR, Communication, Risk, Procurement, Stakeholder
- Project Closure

Top 10 Reasons NOT to Use Project Management

10. Our customers really love us, so they don't care if our products are late and don't work.
09. Organizing to manage projects isn't compatible with our culture, and the last thing we need around this place is change.
08. All our projects are easy, and they don't have cost, schedule, and technical risks anyway.
07. We do not have any customer and we don’t care about what happens to us.
06. We might have to understand our customers' requirements and document a lot of stuff, and that bothers us
05. Project management requires integrity and courage, but they do not pay us extra for this.
04. Our bosses won't provide the support needed for project management; they want us to get better results through magic.
03. We'd have to apply project management blindly to all projects regardless of size and complexity, and I don’t find any reason for this stupidity.
02. I know there is a well-developed project management body of knowledge, but I can't find it under this mess on my desk.
01. We figure it's more profitable to have 50% overruns than to spend 5% on project management to fix them.

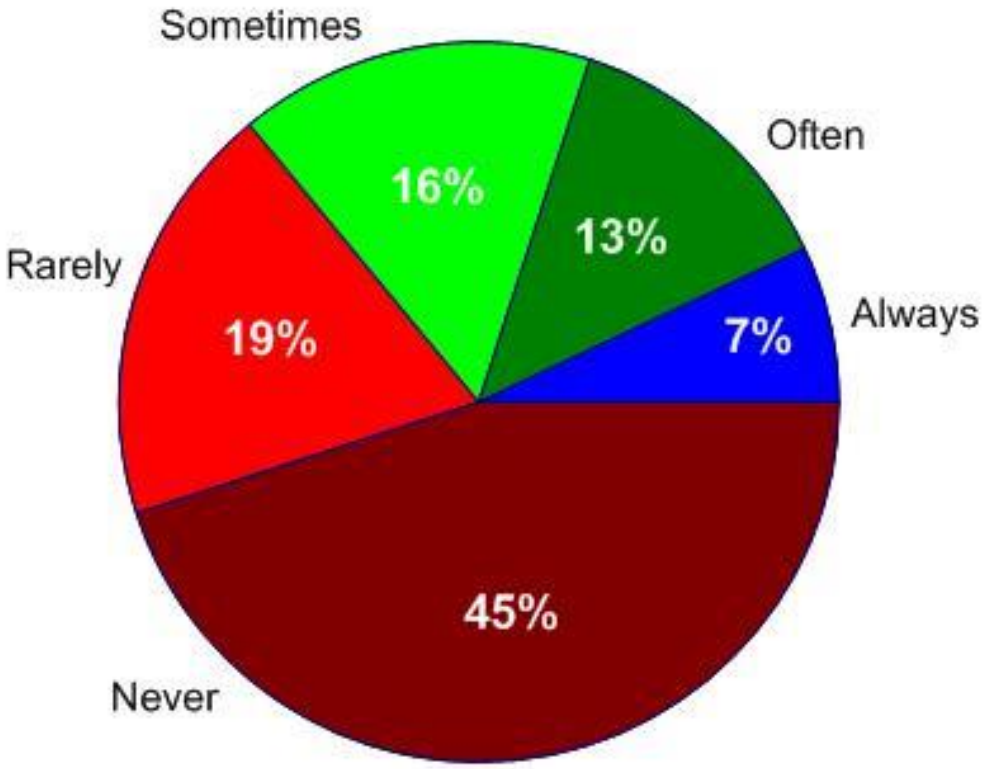
Why do Projects fail?

- Lack of User Input/involvement.
- Lack of Executive support.
- Unrealistic Expectations.
- Unclear/changing Goals.
- Incomplete Requirements & Specifications.
- Changing Requirements and Specifications.
- Lack of appropriate methodologies.
- Lack of experienced Project Manager.
- Lack of skilled staff.
- Poor estimation and planning.
- Failure to communicate and act as a team.
- Poor Risk Management.
- Lack of Vendor control.
- **All these points towards Project Management**

Abstracted from Standish group report

Value of Delivered and non-used Features

Average percentage of delivered functionality actually used when a serial approach to requirements elicitation and documentation is taken on a "successful" information technology project.



Source: Chaos Report v3, Standish Group.

- The scope of this course is to introduce participants to International Standard of Project Management practices, an Overview of the framework
- The Terms, Terminologies & Discussions will be based on Project Management concepts and framework referred to

Project Management Institute, PMI (US), Publication : PMBOK® Guide Fourth edition, (Project Management Body Of Knowledge)

Introduction to Project Management Framework

What is a Project?

'A Project is a temporary endeavor undertaken to create a unique product or service'

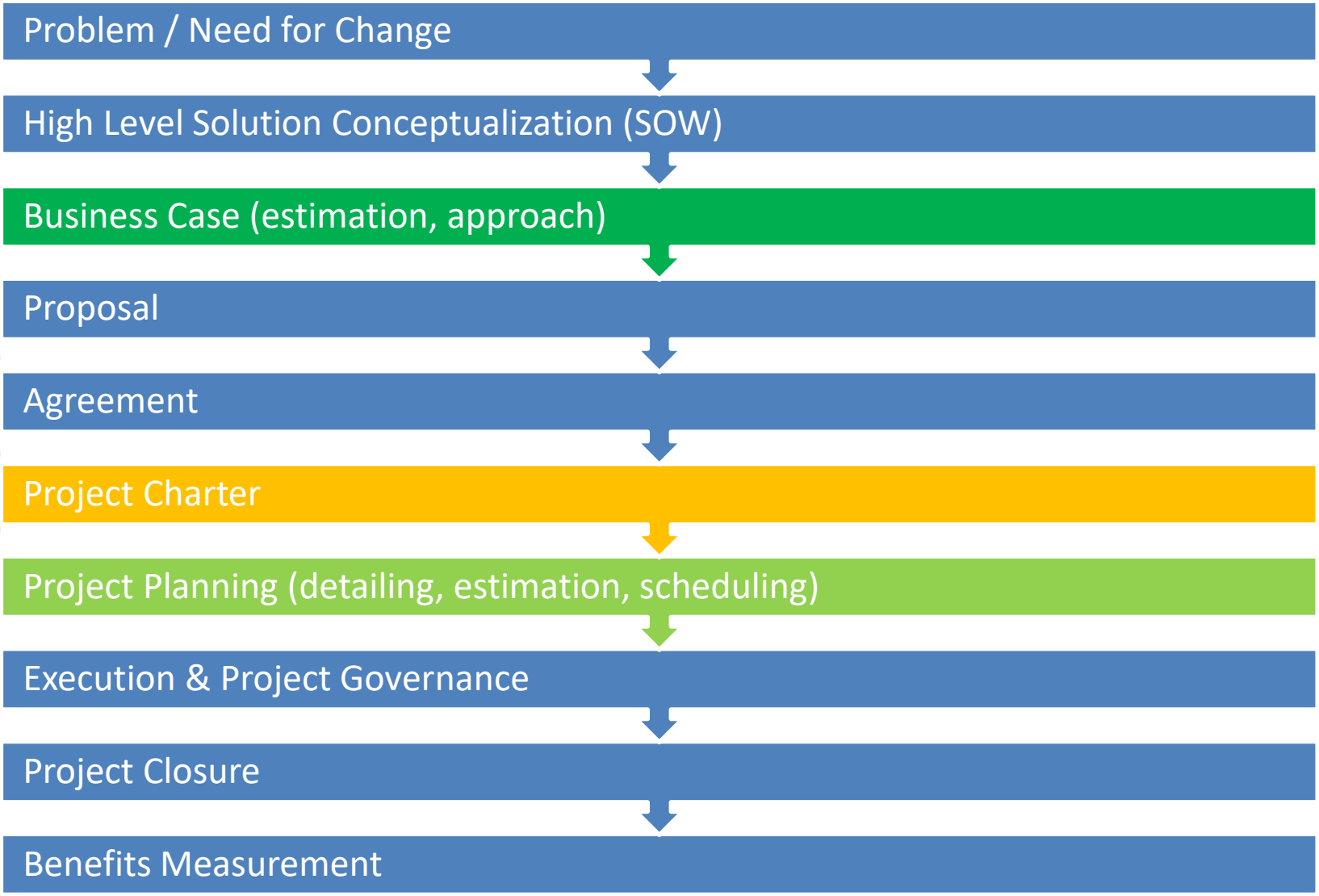
- *Temporary* : 'every project has a definite beginning and a definite end'
- *Unique:* 'the product or service delivered is different from others'

Organizations resort to Projects to achieve their strategic needs, which cannot otherwise be attained through normal operational means.

Source of Project?

- Need for improvement
- Market Competition
- Strategic/ Mission/ Vision
- Government Regulation
- Environmental Forces

Project From Idea to Deliverable



Project vs Operations

Attribute	Projects	Operations
Charter	Permanent Project Charter	Semi-permanent charter
Change	Catalyst for change	Maintains status quo
Product	Unique product or service	Standard product or service
Team	Heterogeneous teams	Homogeneous teams
Time	Start and end date	Ongoing
Requirments	Progressive elaboration	Predefined product

Project Constraints

Evaluate the competing demands and their impact on project outcomes.

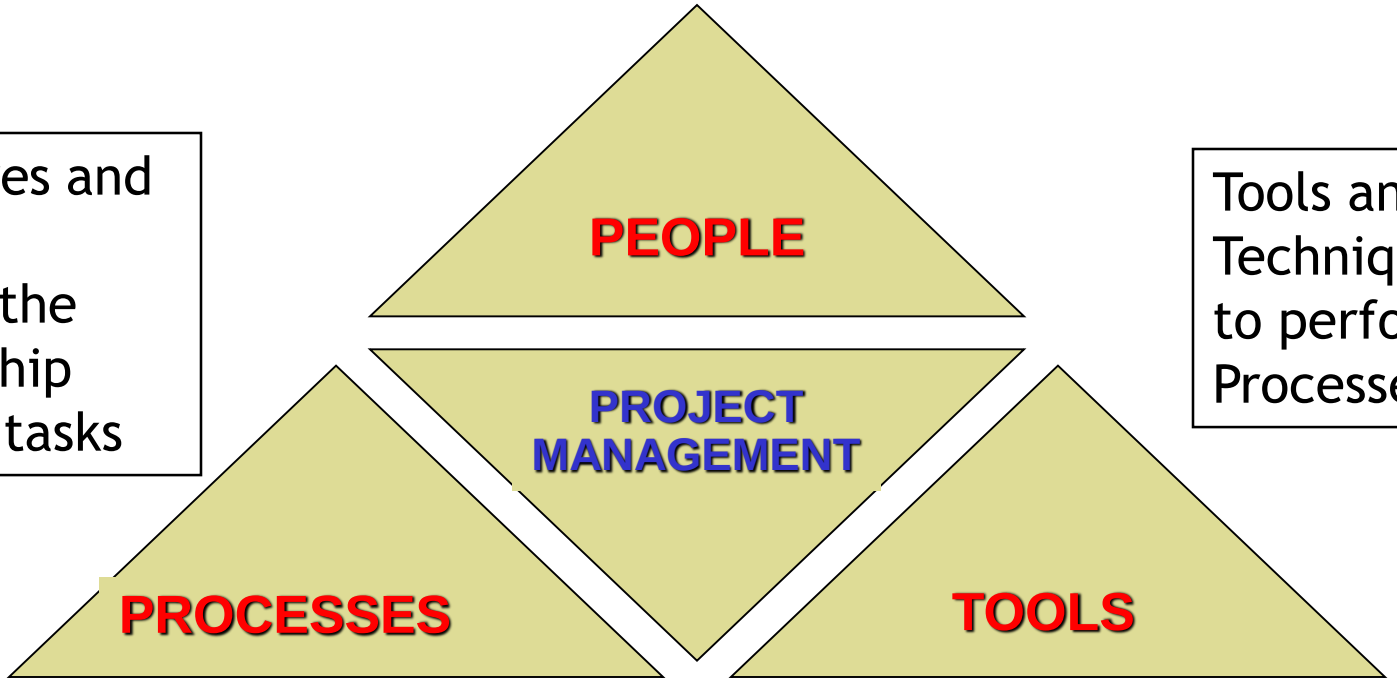
What is Project Management?

'Application of knowledge, skills, tools and techniques to project activities to meet the Project requirements'

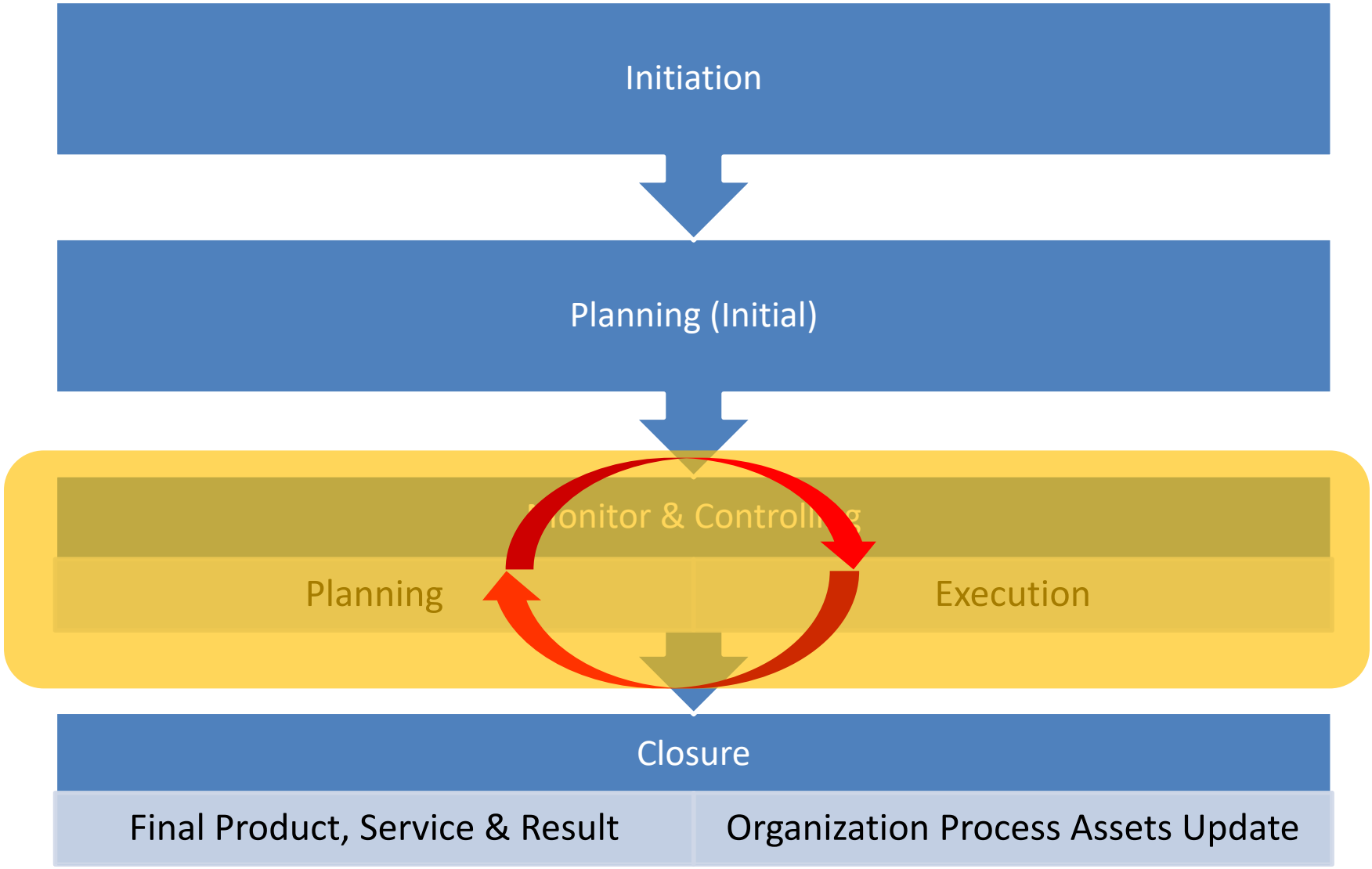
People with skills, knowledge and motivation

Procedures and methods defining the relationship amongst tasks

Tools and Techniques to perform Processes



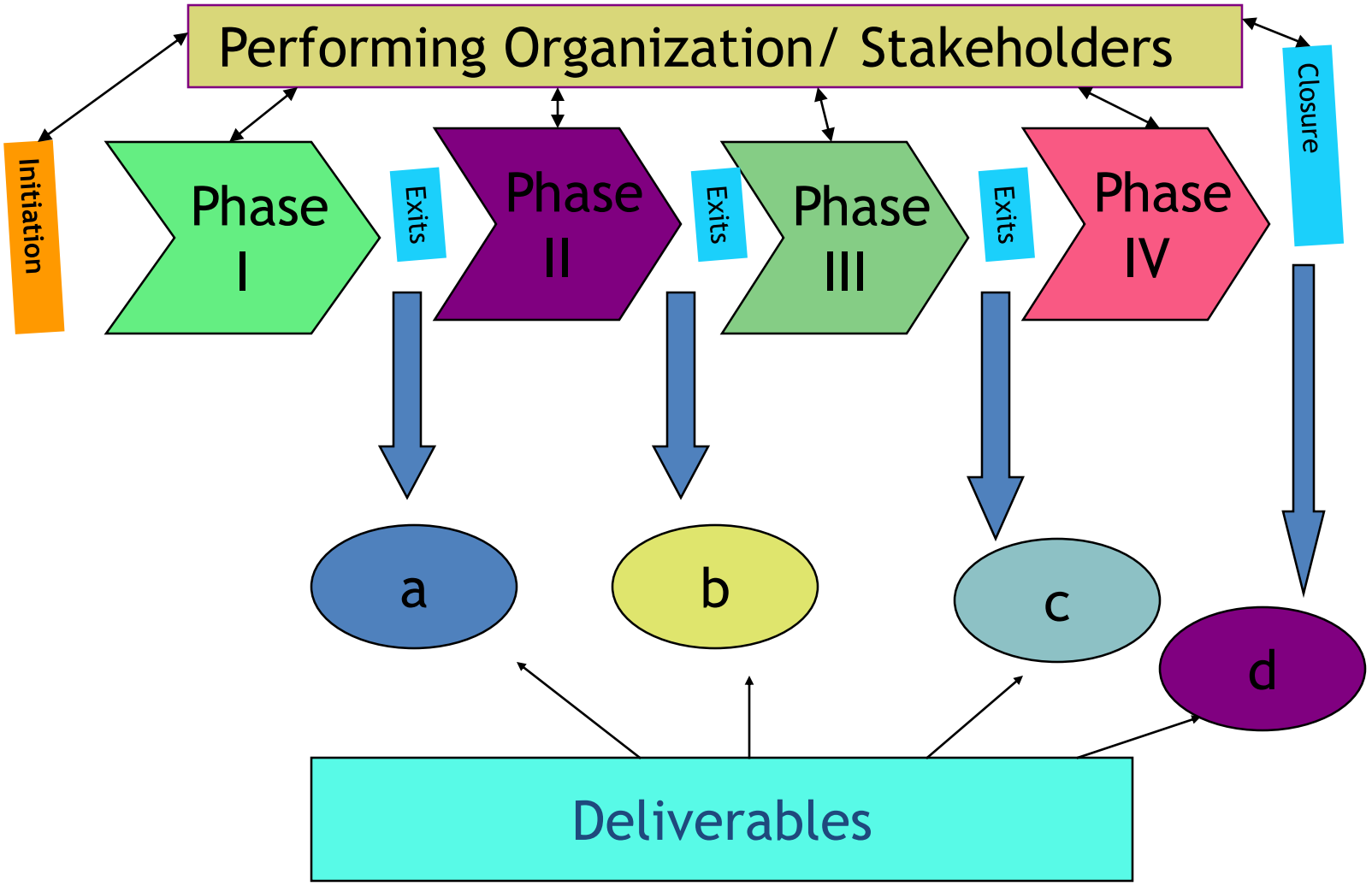
Project From Initiation to Closure



Project Phases

- ✓ Projects are divided into phases where extra control is required to effectively manage the completion of the major deliverables
- ✓ Collectively, the project phases put together is known as **Project life cycle**
- ✓ Each phase is marked by one or more tangible verification work product
- ✓ The conclusion of a project phase is generally marked by a review
- ✓ The phase end points are referred to as phase exits, milestones, phase gates, decision gates, stage gates or kill points
- ✓ Starting a phase before approval of deliverables of a previous phase is called Fast Tracking
- ✓ Your Project Must have Phases

Understanding Project Lifecycle

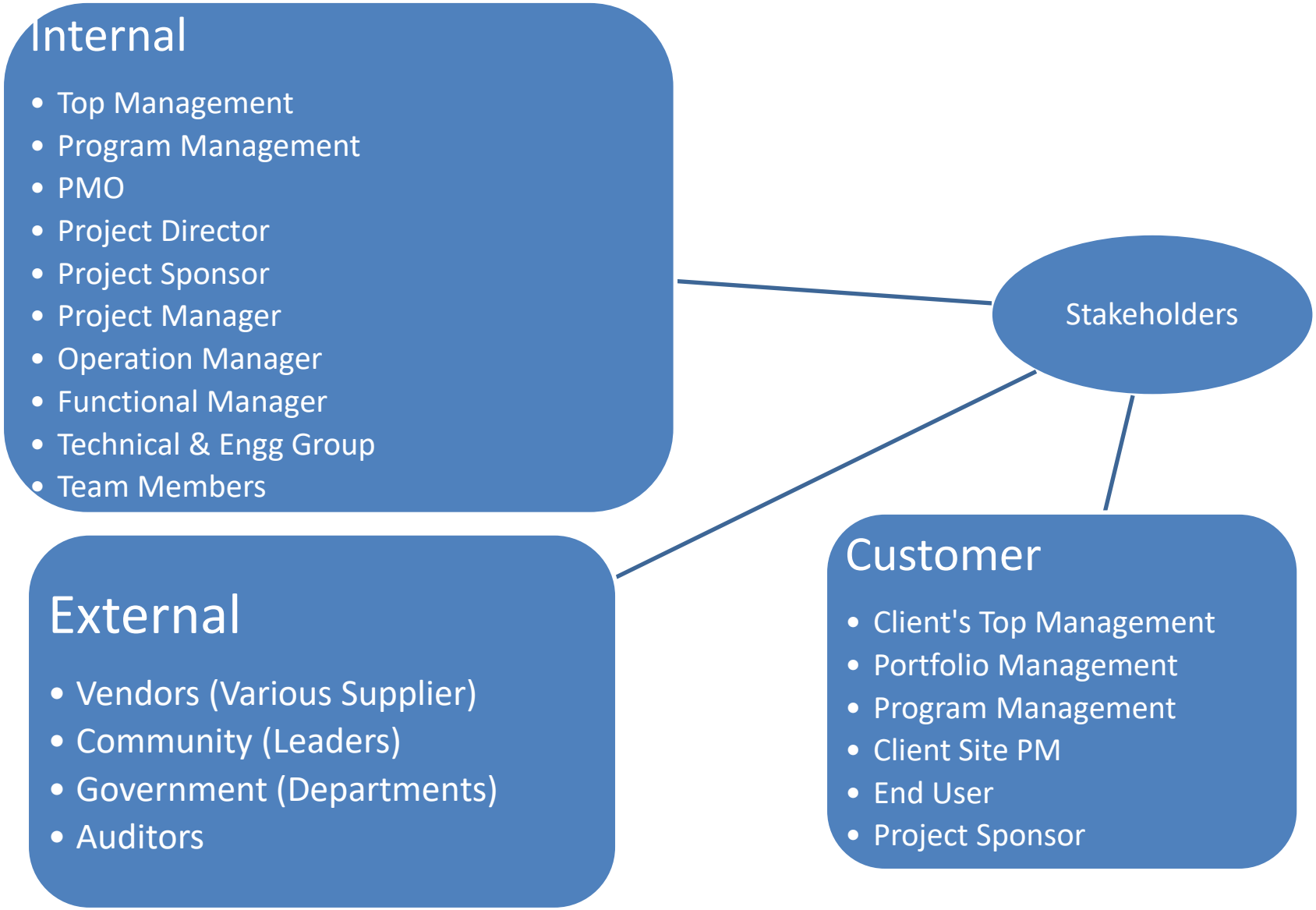


Who are Stakeholders?

Persons or organizations who are actively *involved* in the project or whose interests maybe positively or negatively *affected* by the performance or completion of the project

Source PMBOK Guide Version 5.0

Stakeholders



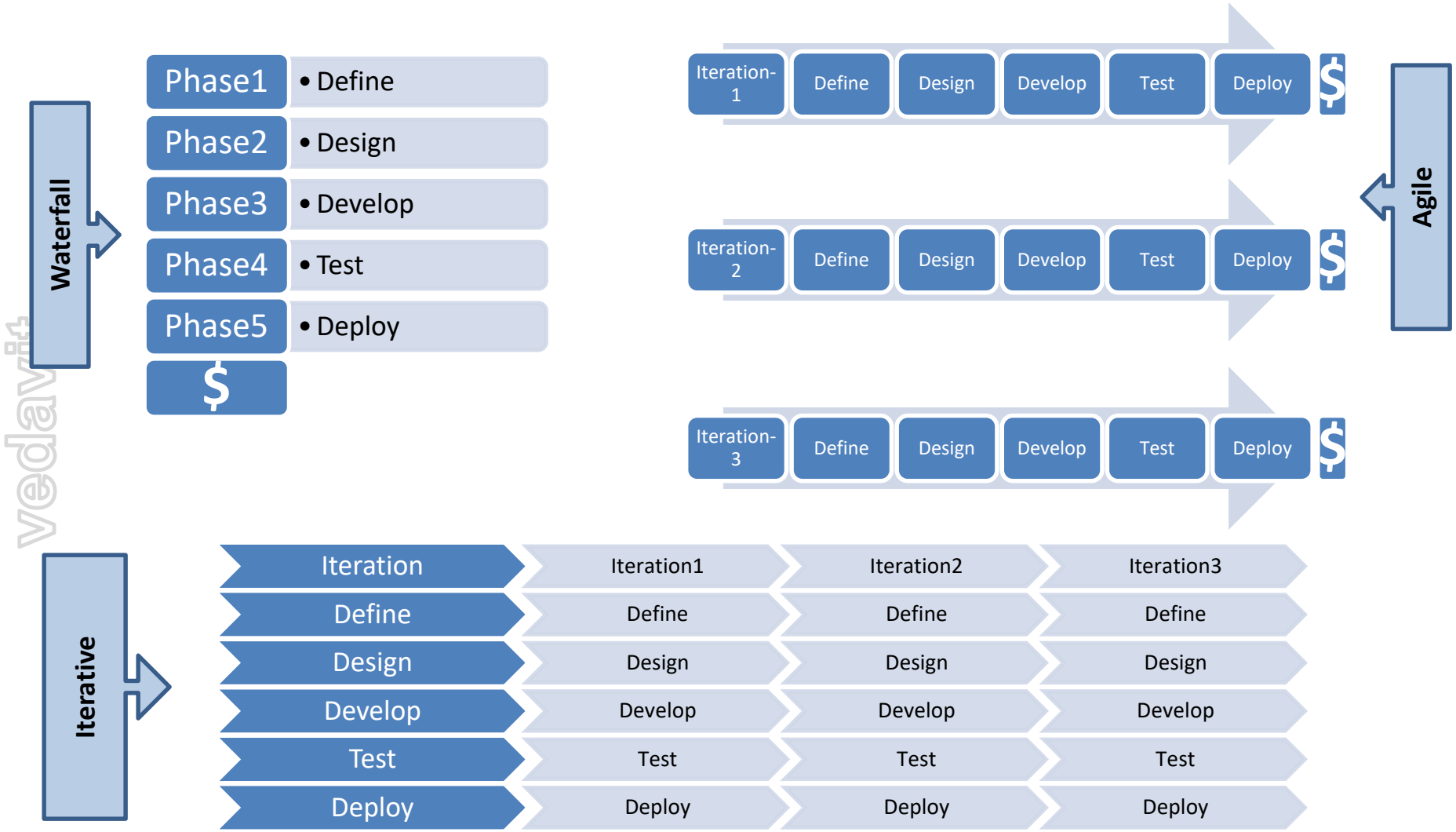
Manthan Time

Do, Discuss, Relate to Work

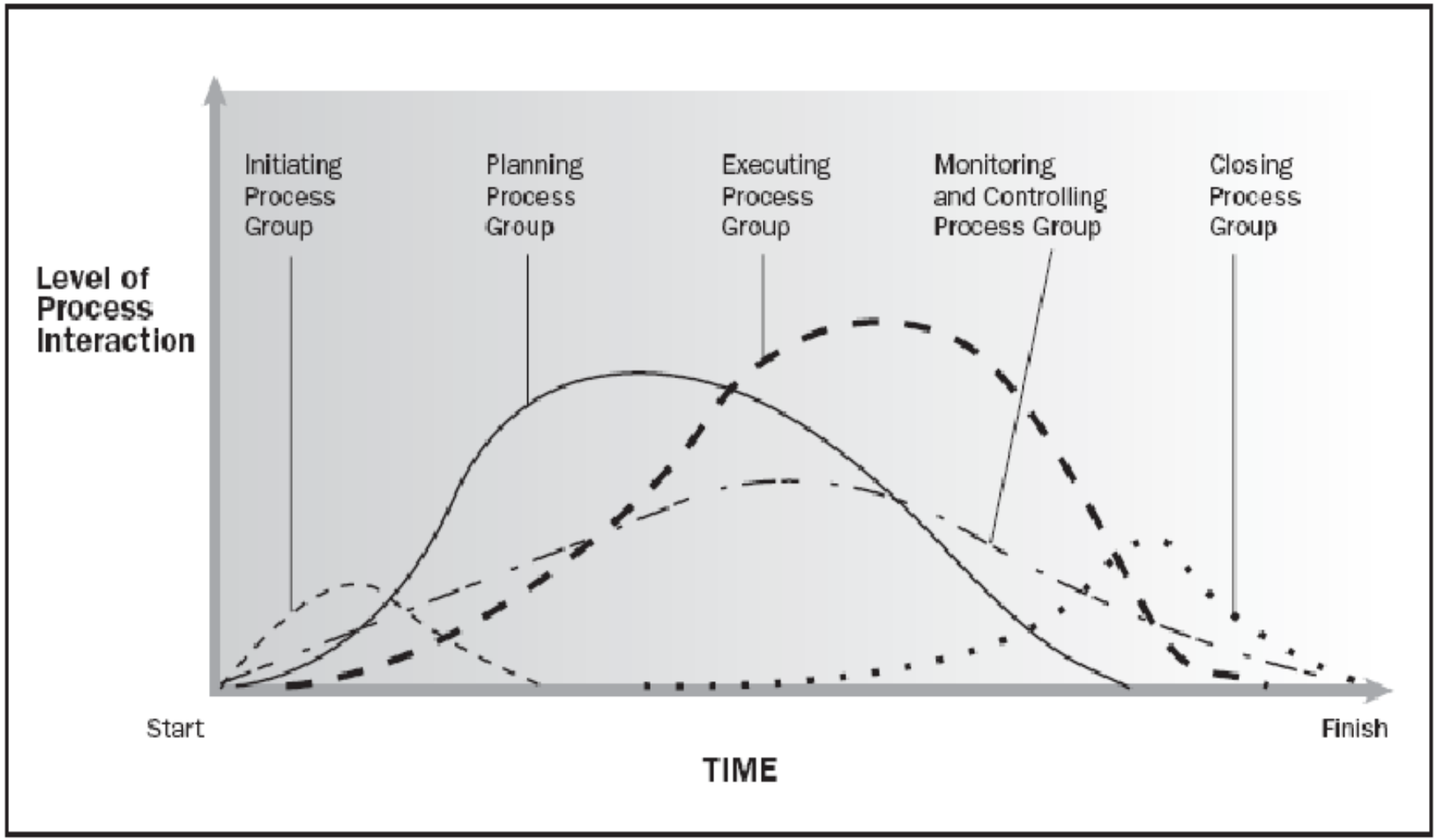
Let's Prepare Stakeholder Register

Value Delivery & Project Life Cycle

Lifecycles: Waterfall- Iterative- Agile



Project Lifecycle (PLC) & Level of Activities



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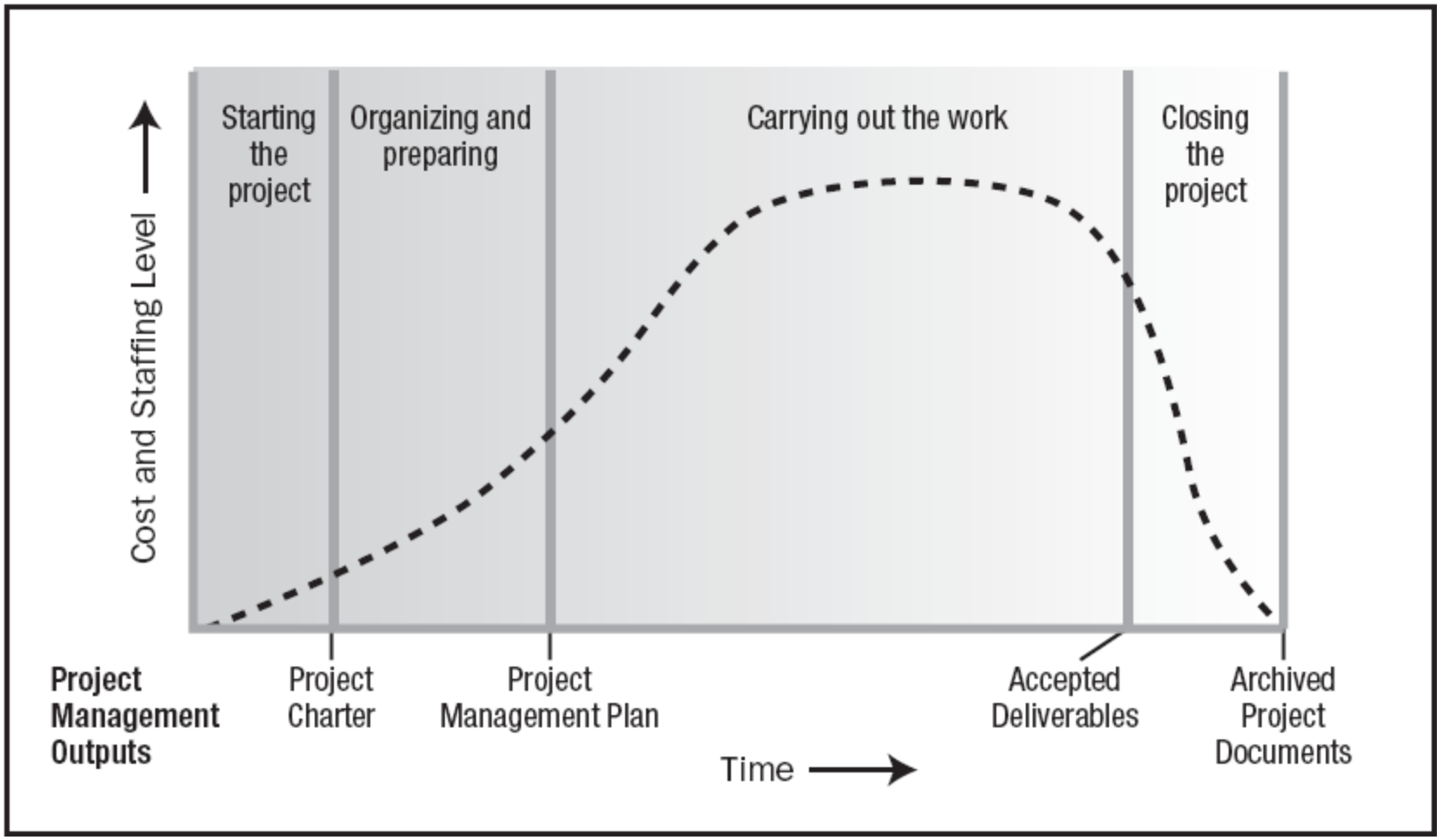
Typical Costing & Staffing across PLC



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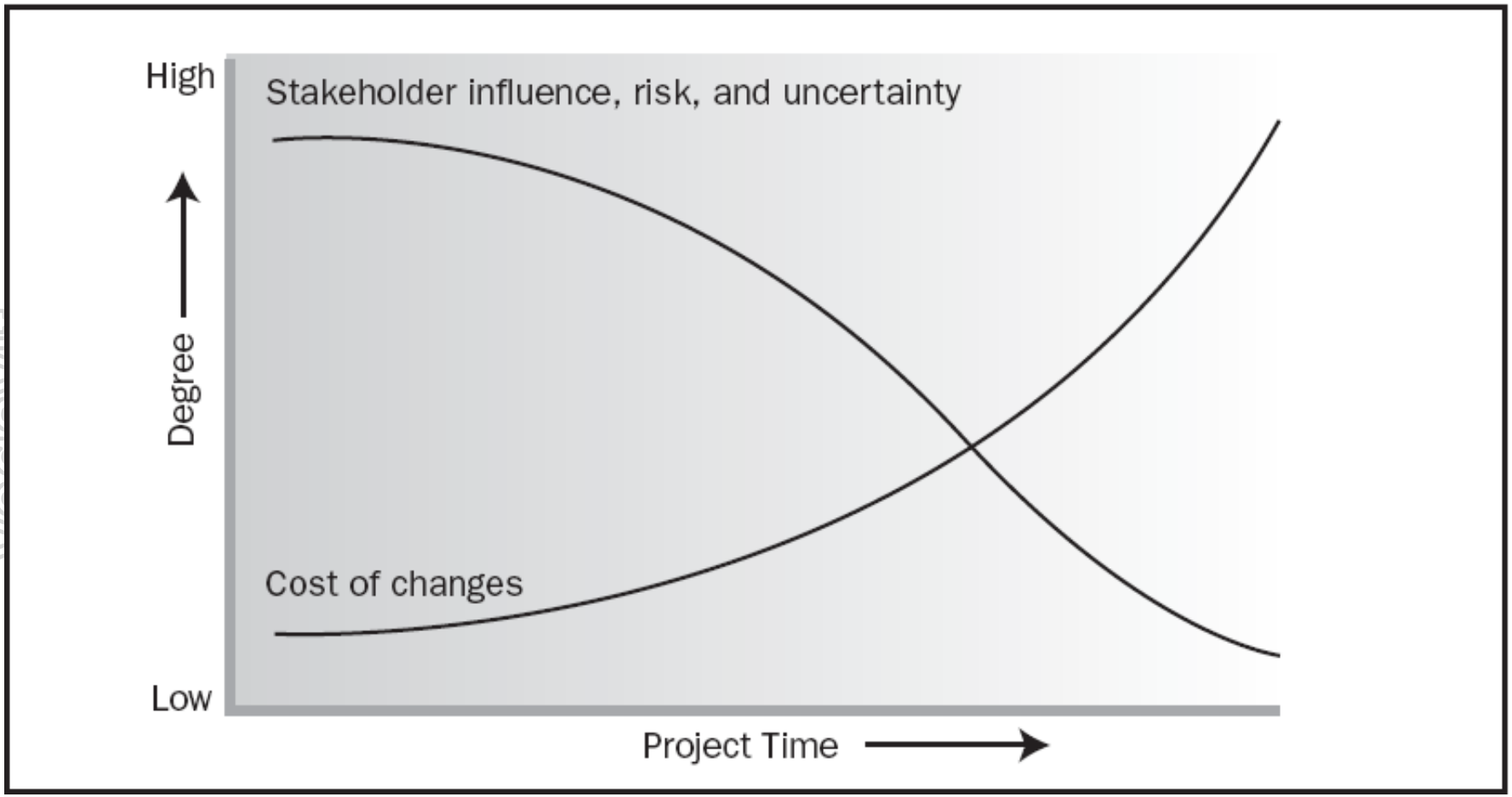
Risk, Cost of Change in PLC



Source PMBOK Guide Version 5.0

Project Success Rate & Organizational Types

- ✓ Functional
- ✓ Matrix
  - ✓ Weak Matrix
  - ✓ Balanced Matrix
  - ✓ Strong matrix
- ✓ Projectized

Organizational Influence

Organization Structure / Project Characteristics	*Functional*	*Matrix*			*Projectized*
		Weak Matrix	**Balanced Matrix**	**Strong Matrix**	
Project Manager's Authority	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Resource Availability	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Who controls the project budget	Functional Manager	Functional Manager	Mixed	Project Manager	Project Manager
Project Manager's Role	Part-time	Part-time	Full-time	Full-time	Full-time
Project Management Administrative Staff	Part-time	Part-time	Part-time	Full-time	Full-time

Source PMBOK Guide Version 5.0

Progressive Elaboration

- Project scope unfolds during the project execution. Scope of the next phase depends upon the output or success of previous phase.

- It is Scope Management Concept.

Rolling Wave Planning

- Activities of any deliverable can be known when we know what need to be delivered.
- Attribute of the activities can be known only when we know what are the activities and what are deliverables.
- It is Time Management Concept.

Project Data, Information, Report

Project Management Plan

- Project Management Plan includes
  - All Subsidiary Plan (Configuration, Cost, Risk etc)
  - All Baselines Related to Project
  - Project Management Methodology
  - Project Lifecycle and Project Phases
  - Process Tailored List
  - Tailored Process

Subsidiary Plan

Subsidiary plan needs to be developed for each aspect of the project. For every aspect (Scope, Time, Cost, Quality, Resources, Communication, Risk, Stakeholder) you need to know following

- What are the activities which need to be done?
- Who will perform these? Is any training required to perform these activities.
- When these activities will be performed?
- How will you measure success?
- What tool you will use for this?
- How will you execute the work of this aspect?
- How will you control this aspect?
- Most of these activities are related to Planning of the Plan and **NOT** of the planning of Execution

Management by Exception

- Project Manager should have enough control required to manage the project with minimum day intervention from the Management
- Project boards should have checkpoint and event based control over the project
- Project manager and project board should work within their tolerance limit of scope, time, cost and quality
- Tolerance limit should be defined in project management plan.

Organizational Process Assets

- Process Assets which created by the organization while doing the project in past
- Processes, Standards, Guidelines, Checklist, Templates standardized by the Quality Department or PMO
- Lessons learned report of the previous projects
- Consider them for project Initiation, Planning, Executing, Monitoring & Controlling and Closing. Do not reinvent the wheel in project management.
- *e.g. Time/Cost/Resource Estimation database, Risk database, Issue Register, Skills Database*

Enterprise Environmental Factors

- Constraints which are not in control of a Project Manager and the project manager has to consider them to make project successful.
- These constraints are imposed by environment of those enterprises which are involved in the project
- Consider them for project Initiation, Planning, Executing, Monitoring & Controlling and Closing
- *e.g. Skill Availability, Market Condition, Attitude of People, Organization Culture, Climatic Condition, Political Condition, Bosses etc.*

Manthan Time

Do, Discuss, Relate to Work

What are EEFs & OPAs of My Project?

Project Selection Criteria

			Year 1	Year 2	Year 3					Discount Rate	10%	
Project	Project name	Outflow	Inflow	Inflow	Inflow	Asset Value at the End of 3rd Year	IRR Calc	IRR	PBP (Years)	PV	NPV	BCR
P1	Start Hotel	995		200	250	900	990.48	11.50%	2.5	1029.3	34.3013	1.034474
P2	Invest in MF	800	250	300	350	800	803.19	36.00%	2.5	1339.2	539.2186	1.674023
P3	Invest in Green Field Tech	690		700	200	400	687.30	30.00%	2.0	1029.3	339.3013	1.491741

Maximum IRR (Internal Rate of Return)

Lowest PBP (Payback Period)

Higest PV (Present Value)

Highest NPV (Net Present Value)

Hight BCR (Benfit Cost Ratio)

- PBP- Payback Period is a time in which original invest is realized.
- PV = FV / (1+ r)^n
  - PV= Present Value
  - FV= Future Value
  - r = Discount Rate
  - n = Number of Years
- NPV = Inflow – Outflow (Take Positive Value)
- IRR = A discount rate at which [Outflow – Inflow =0]
- BCR = Benefits (Present Value) / Cost (Output)

Project Manager Responsibilities

- Estimates of size, efforts & schedule
- Risk identification, analysis, prioritization, monitoring & control
- Resource allocation, resource backup and utilization
- Scope management
- Communication- reviews, steering committee meetings, stakeholder identification and expectation management
- Stakeholder Expectation Management
- Defect free product delivery on time within budget
- Team motivation, team management, training & development, appreciation, career planning, interview
- Deliver as per contract & proposal
- Procure as per contract & proposal
- Configuration management, data backup
- Quality planning
- Cost optimization
- Presales & proposals
- Technical guidance to team – if team members are not available do their work (after project manager has completed his work & he has spare time)

10 Aspects of Project

- Scope
- Time
- Cost
- Quality
- Human Resource
- Communication
- Risk
- Procurement
- Stakeholder
- Integration

Process Groups

Project Management Processes Can be grouped in 5 groups

- Initiation Processes
- Planning Processes
- Executing Processes
- Monitoring and Controlling Processes
- Closing Processes

Project Initiation

Project Charter

First document created by Project Sponsor

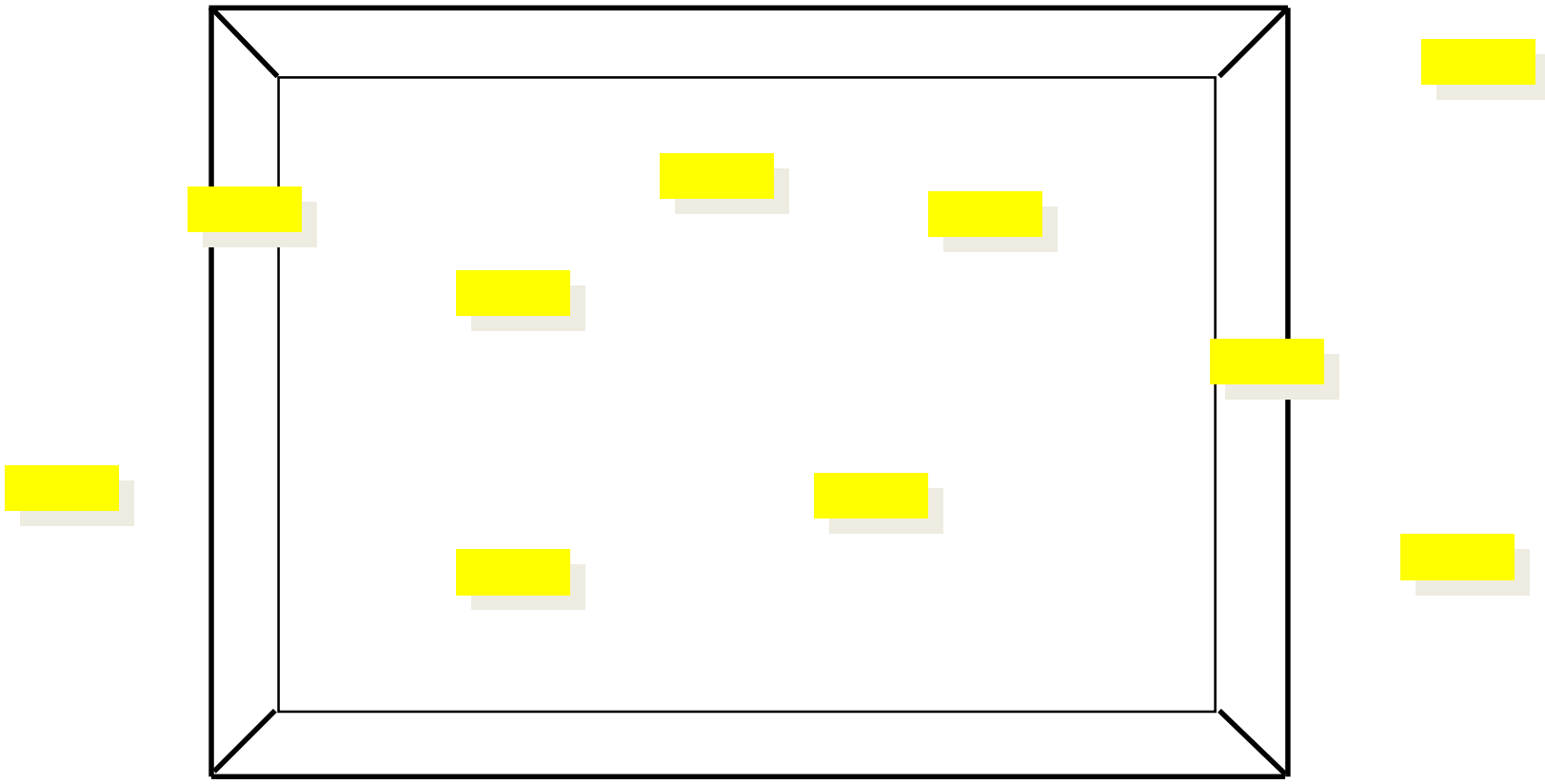
- To formally acknowledge the existence of the project within organization
- Identify and authorize project manager
- To document all the initial understanding between project sponsor and project manager
- Should not be more than 2 page in size.
- More the work has been done before writing Project Charter more realistic estimate it has.

Project Charter Template

1. Project purpose or justification
2. Measurable project objectives and related success criteria
3. High – Level Requirements/Deliverables
4. High – Level Project description
5. High – Level Risks, Assumptions, Dependencies, Constraints
6. Summary milestone schedule
7. Summary Budget
8. Project approval requirements
9. Assigned project manager, responsibility, and authority level
10. Name and authority of the sponsor or other person(s) authorizing the project charter
11. Project Start date

Understand Project Boundary

In the Frame / Out of the Frame Flip Charts



Manthan Time

Do, Discuss, Relate to Work

Prepare Project Charter

Project Planning

Scope Aspect

- Scope Management Plan
- Requirement Management Plan
- RTM
- WBS
- WBS Dictionary
- Scope Baseline

Scope of Work

While planning consider both

- **Project Scope** "The work that needs to be accomplished to deliver a product, service, or result with the specified features and functions."

- **Product Scope** "The features and functions that characterize a product, service, or result."

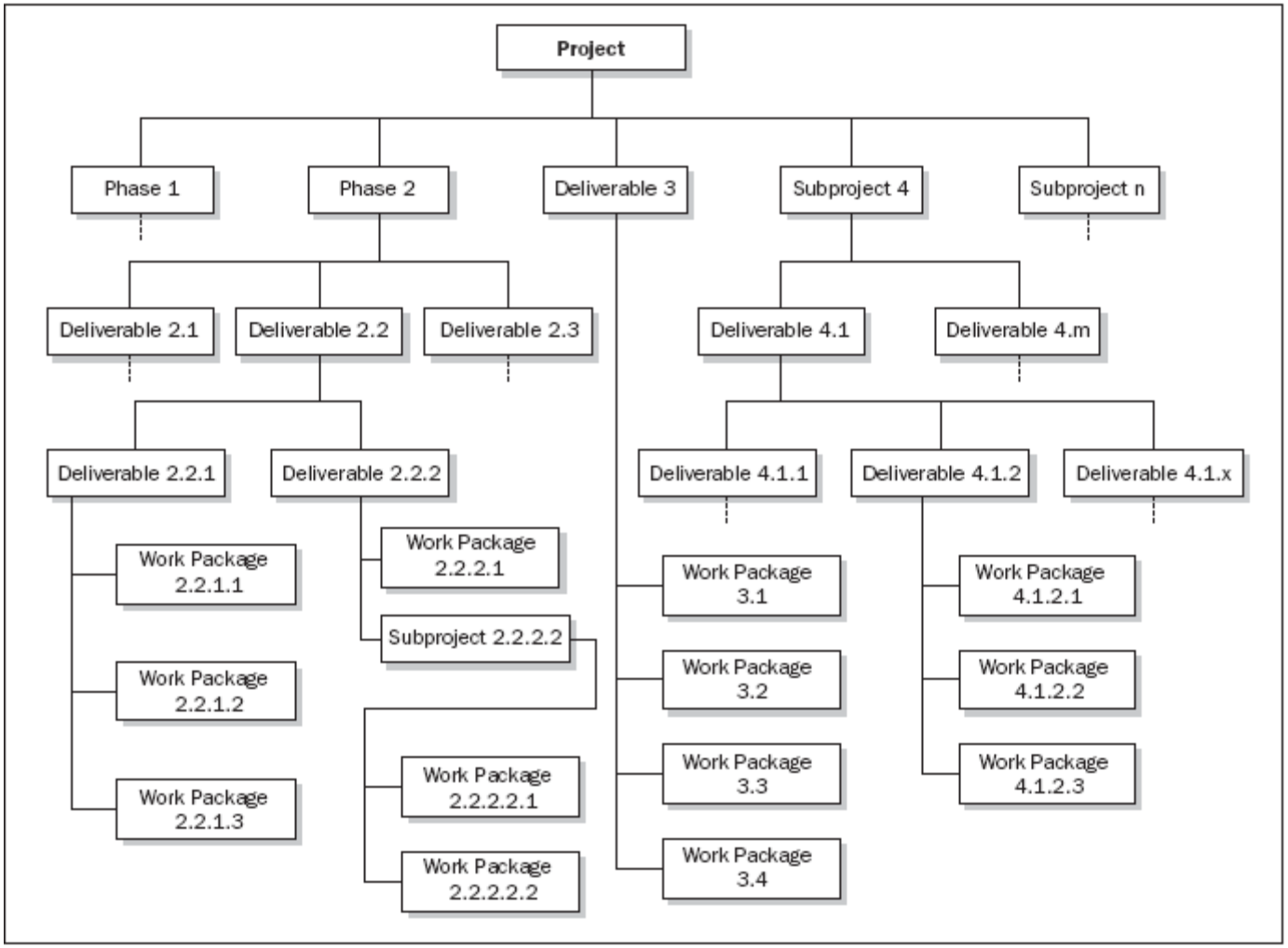
The Work Breakdown Structure

- The Work Breakdown Structure is a hierarchical chart used to organize the work of a project into related areas
- It shows the breakdown of a project depending on the visibility and control needed
- Each of these major components are then subdivided into the tasks necessary to reach successful project completion
- Each of these major components are then subdivided into the work necessary to reach successful project completion.

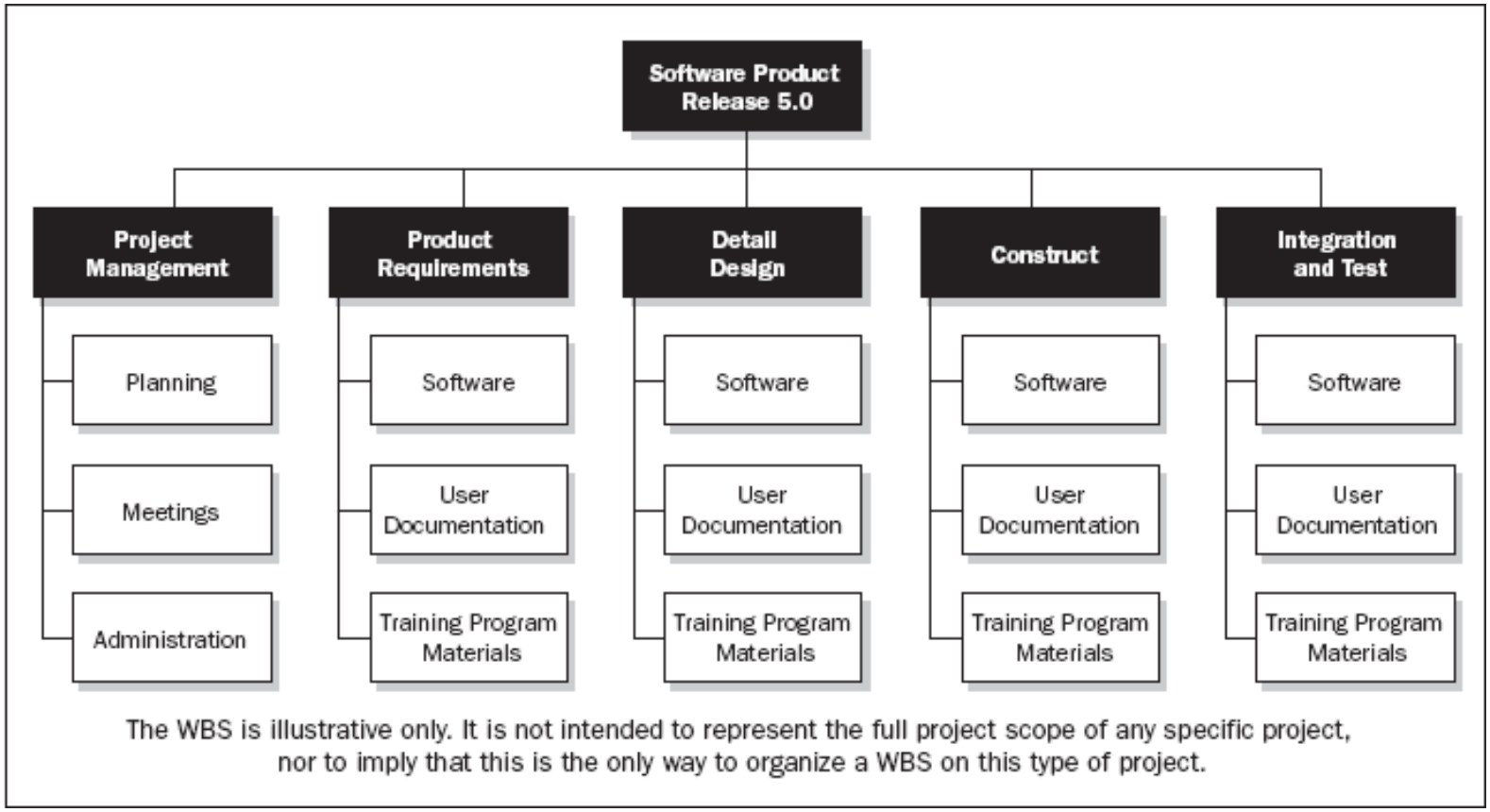
WBS Types

- Phase Driven
- Department Driven
- Milestone Driven
- Component Driven
- Location Driven
- …….

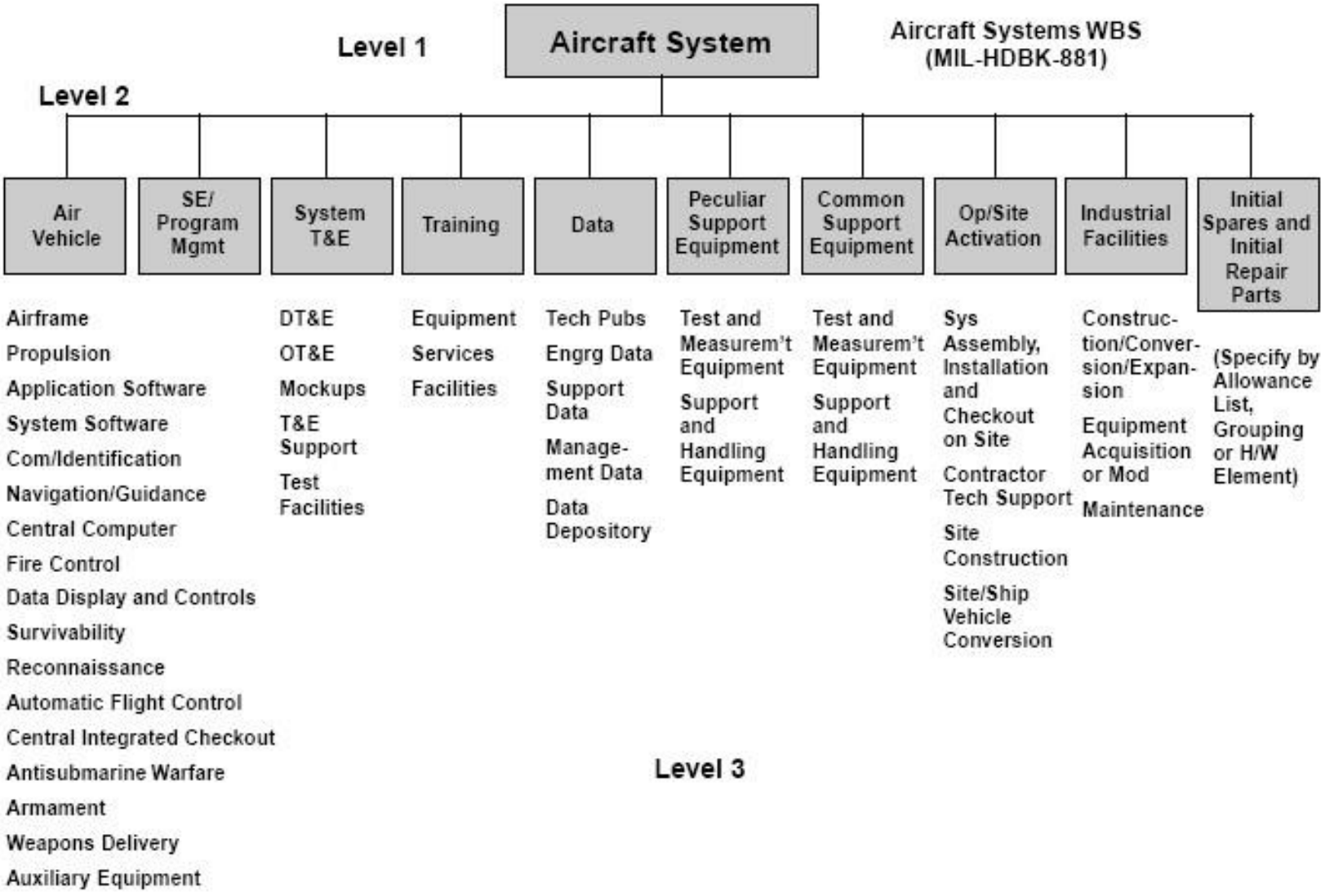
Phase oriented WBS



Department oriented WBS



Subproject Oriented WBS



My Tools & Techniques

1. Interviews
2. Focus Groups
3. Facilitated Workshops
4. Group Creativity Technique
5. Group Decision Making Techniques
6. Questionnaires and Surveys
7. Observations
8. Prototypes
9. Benchmarking
10. Context diagrams
11. Document Analysis
12. Product Analysis
13. Product breakdown
14. System analysis
15. Requirement analysis
16. System engineering
17. Value engineering
18. Value analysis
19. Alternatives Identification
20. Decomposition
21. Inspection

Requirement Traceability Matrix

- What is RTM?
- When to setup & update this?
- How to use it?
- Structure of RTM
  - Requirement #
  - SOW Ref#
  - Functional Requirement Ref#
  - Design Ref#
  - Test Ref#
  - UAT Test Ref#
  - Status
  - Requirement Owner (Stakeholder)
  - Due Date
  - Type of Requirement
  - Dependency

Manthan Time

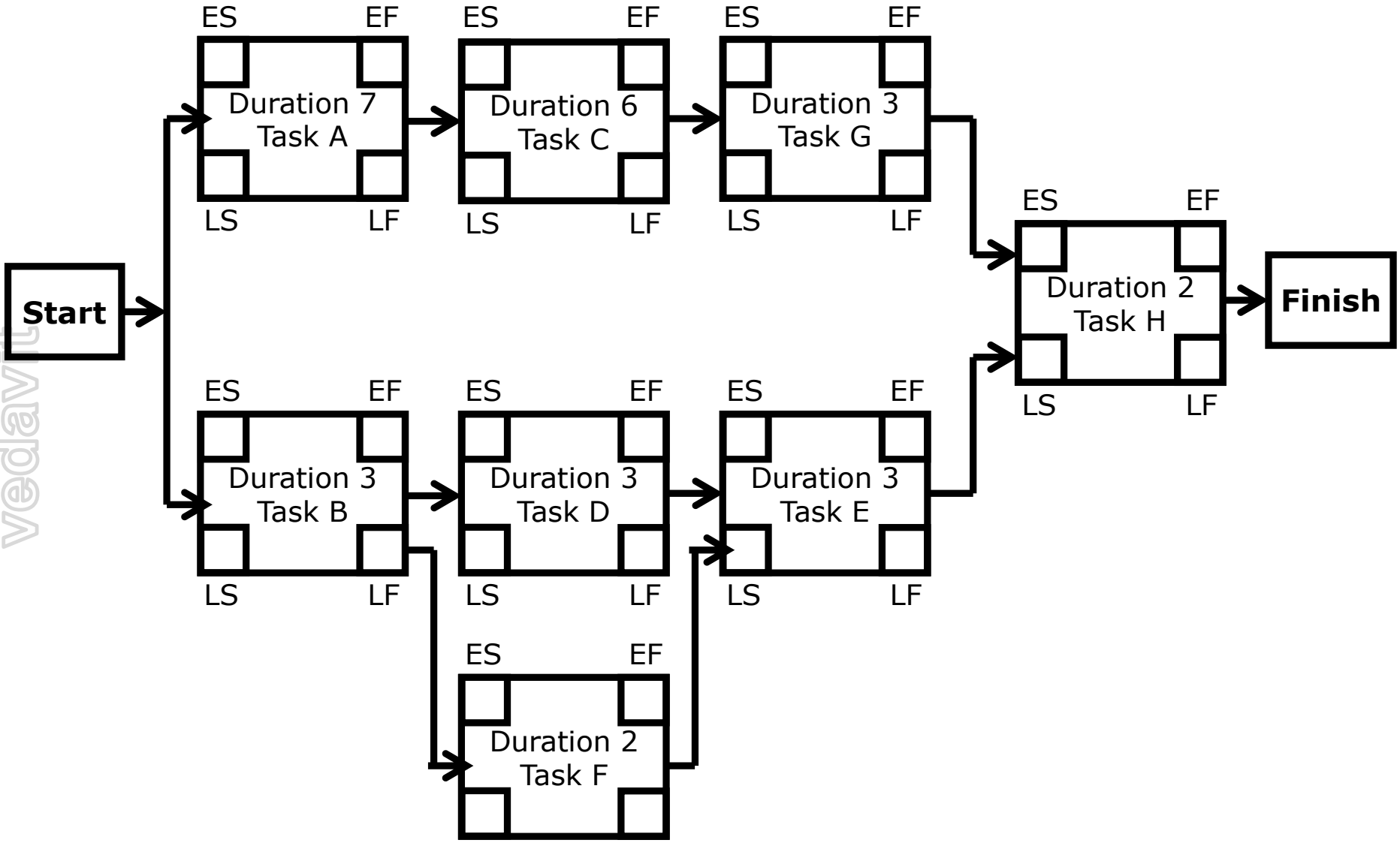
Do, Discuss, Relate to Work

Let's Define Success Criteria / Setup RTM for our project

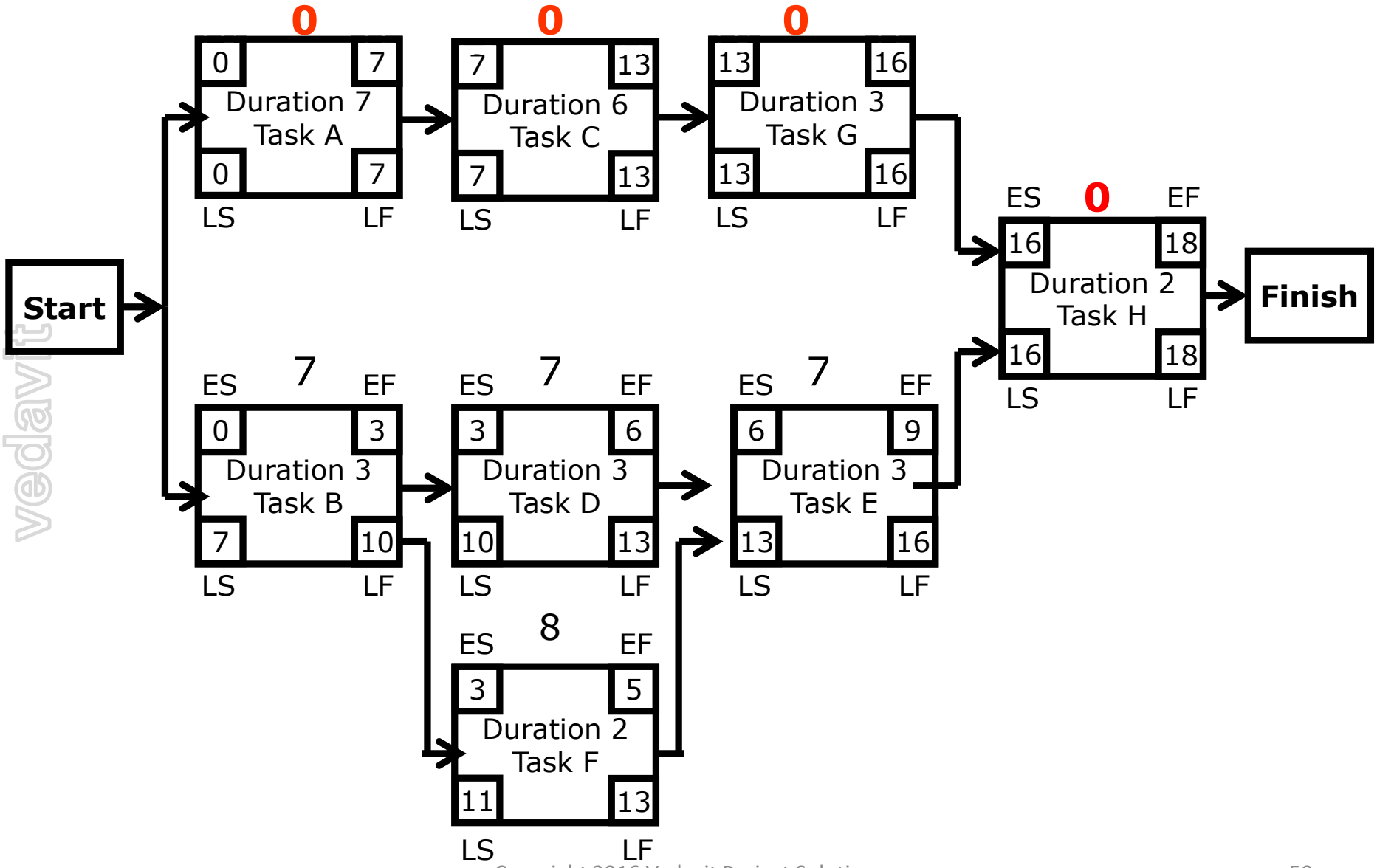
Time Aspect

- Activities
- Milestones
- Activity Attributes
- Sequencing
- Estimation- Resources
- Estimation- Duration
- CPM, CCM
- Schedule Baseline

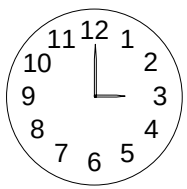
Critical Path



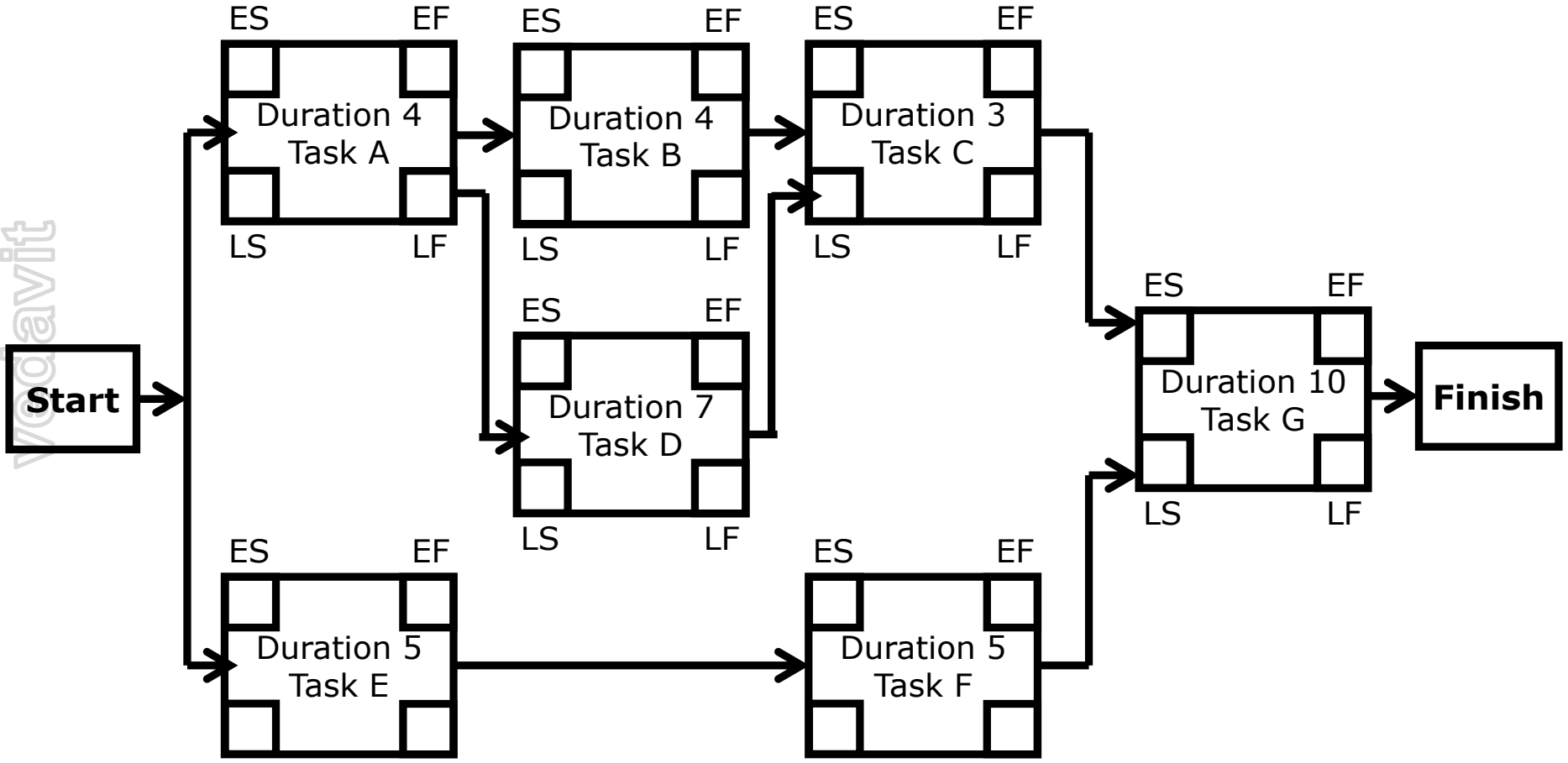
Critical Path – Longest Path, Zero Float



Discussion/Excertise-16

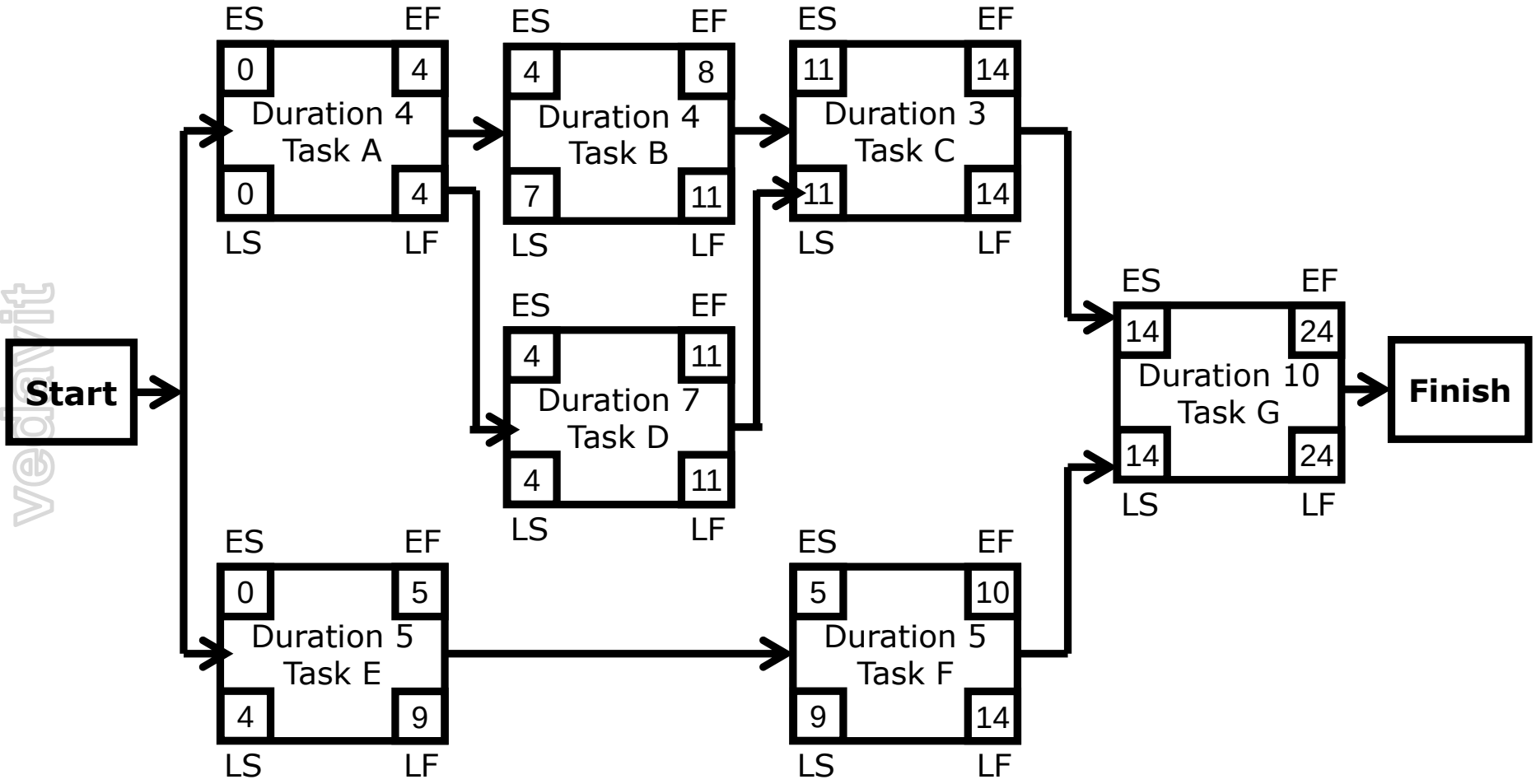


5 Minutes



Network Exercise - solution

Critical Path : ADCG



Facts/Tips for Critical Path

- Total Float is the amount of time the task can delayed without delaying the project finish date.
- Free float is the amount of time a task can slip without delaying the early start of any task that immediately follows it
- It is possible that a zero float activity may not be on critical path
- Longest path & shortest time possible to complete the project
- A project can multiple critical paths
- Difference between late and early is float
- Positive float (the activity can wait to start even after previous activity finishes)
- Negative float (the activity must start before previous finishes)
- Zero float (the activity must immediately start after the finish of previous one)
- Crashing activities to short the overall duration of project
- Fast-tracking activities to short the overall duration of project
- Be cautious that non-critical activity is not being delayed than the allowed free float
- Take care of sub-critical path or non-critical path
- Manage critical path resources very closely
- Do not overload critical path activity resources
- Avoid multitasking for resources working on critical path activities

My Tools & Techniques

1. Precedence Diagramming Method
2. Dependency Determination
3. Alternatives Analysis
4. Group Decision Making Techniques
5. Reserve Analysis
6. Schedule Network Analysis
7. Critical Path Method
8. Critical Chain Method
9. Resource Optimization techniques
10. Modeling Techniques
11. Leads and Lags
12. Schedule Compression
13. Scheduling Tool

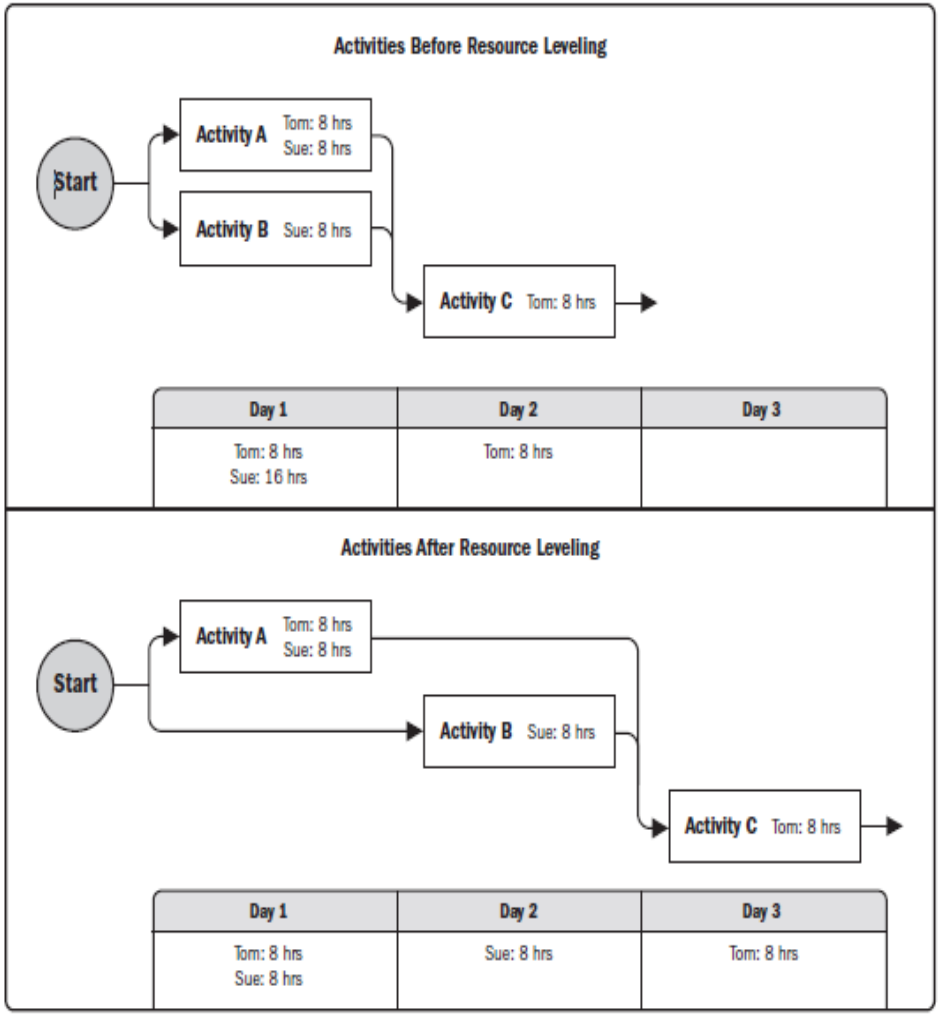
Resource Optimization Techniques

- **Resource Levelling**

  Ensure resource are not allocated more than their availability for the given project. Can lead to change in critical path.

- **Resource Smoothing**

  Adjust activities in such a way that resources requirement do not exceed than defined limit. No change in critical path. Activities can be delayed within their float (free/total).



Estimation Techniques

- Analogous Estimation
- PERT Estimation
- Parametric Estimation
- Bottom-up Estimation
- Expert Judgement
- Wideband Delphi
- Published Estimated Data

Manthan Time

Do, Discuss, Relate to Work

Critical Path Identification/ Optimization

Cost Aspect

- Estimating Activity Cost
- Documenting Basis of Estimation
- Funding Requirements
- Determine Cost of Quality
- Cost Baseline

My Tools & Techniques

- Cost of Quality
- Fund Limit Reconciliation
- Cost Aggregation
- Earned Value Management
- Vendor Bid Analysis
- Forecasting Methods
- Progress Review Methods

Project Cost Estimation Ranges

Cost estimation may include only Direct Cost or in combination of with Indirect Costs

Class Name	%	Range
Definitive	- 5 -> +5%	10%
Capital Cost	-15 -> +10%	25%
Appropriation	-25 -> +15%	40%
Budget Estimates	-10 -> +25%	35%
Feasibility	-35 -> +25%	60%
Order of Magnitude (Ballpark Estimate)	-50 -> +50%	100%

Type of Costs

- **Transaction cost:** Example- Buying a used car. Search, Bargain, Policy
- **Sunk/Retrospective Cost:** a cost that has already been incurred and cannot be recovered. Sinking cost in installation of some software/systems. Selling a newly purchased car.
- **Opportunity Cost:** choice of a best alternative lost while making a decision. The opportunity cost of leaving their money in the Chinese stock market or Chinese real estate market is too high relative to yields available in the USA real estate market. The cash expenditure of $100 represents a lost opportunity to purchase something else with the $100.
- **Material Cost:** Material are those things which will be consumed in the project and cannot be taken out of the project after product is handover to customer.
- **Labour Cost:** Cost of human resources, for which project has to pay for every hours of timesheet.
- **Service Cost:** Cost of equipment, testing, training, third party audit.
- License Cost, Network equipment Cost are material cost

Classification: Type of Cost

- Variable Cost: Pay on usage. Depends upon output.
- Fixed Cost: Fixed for per period irrespective of usage.

Bakers (Labor)	Cakes (Q)	Total Revenue (TR)	Marg. Rev. MR=ΔTR/ΔQ	Fixed Cost (FC)	Variable Cost (VC)	Total Cost TC=FC+VC	Avg. TC ATC=TC/Q	Marginal Cost MC=ΔTC/ΔQ
1	19.53	$ 117	$ 6.00	$ 200	$ 50	$ 250	$ 12.80	$ 2.56
2	38.16	$ 229	$ 6.00	$ 200	$ 100	$ 300	$ 7.86	$ 2.68
3	55.90	$ 335	$ 6.00	$ 200	$ 150	$ 350	$ 6.26	$ 2.82
4	72.80	$ 437	$ 6.00	$ 200	$ 200	$ 400	$ 5.49	$ 2.96
6	104.17	$ 625	$ 6.00	$ 200	$ 300	$ 500	$ 4.80	$ 3.19
8	132.50	$ 795	$ 6.00	$ 200	$ 400	$ 600	$ 4.53	$ 3.53
10	157.99	$ 948	$ 6.00	$ 200	$ 500	$ 700	$ 4.43	$ 3.92
13	191.36	$ 1,148	$ 6.00	$ 200	$ 650	$ 850	$ 4.44	$ 4.49
16	219.44	$ 1,317	$ 6.00	$ 200	$ 800	$ 1,000	$ 4.56	$ 5.34
20	249.61	$ 1,498	$ 6.00	$ 200	$ 1,000	$ 1,200	$ 4.81	$ 6.63
25	277.32	$ 1,664	$ 6.00	$ 200	$ 1,250	$ 1,450	$ 5.23	$ 9.02
30	295.78	$ 1,775	$ 6.00	$ 200	$ 1,500	$ 1,700	$ 5.75	$ 13.55

Classification: Type of Cost

- Direct Cost : Cost of resources, which are used for a specific activity.

- Indirect Cost or Overhead Cost: Cost of resources, which are used for multiple activities. Admin Salaries, Rent, Utilities,
  - Admin Overhead
  - Manufacturing Overhead

Total Cost of Ownership

- Cost of Development
- Cost of Deployment
- Cost of Maintenance
- Cost of Support
- Cost of Phasing out

Manthan Time

Do, Discuss, Relate to Work

Let's Discuss Cost Component of our Project

Manthan Time

Do, Discuss, Relate to Work

Connecting dots ….. Estimation, Range, Confidence, Assumptions

Quality Aspect

- Plan Process Audit
- Plan Inspection and Testing
- Plan Process Improvement
- Prepare review, inspection, test checklist
- Identify metrics to measure project and product quality
- System for data collection, analysis and logging variance

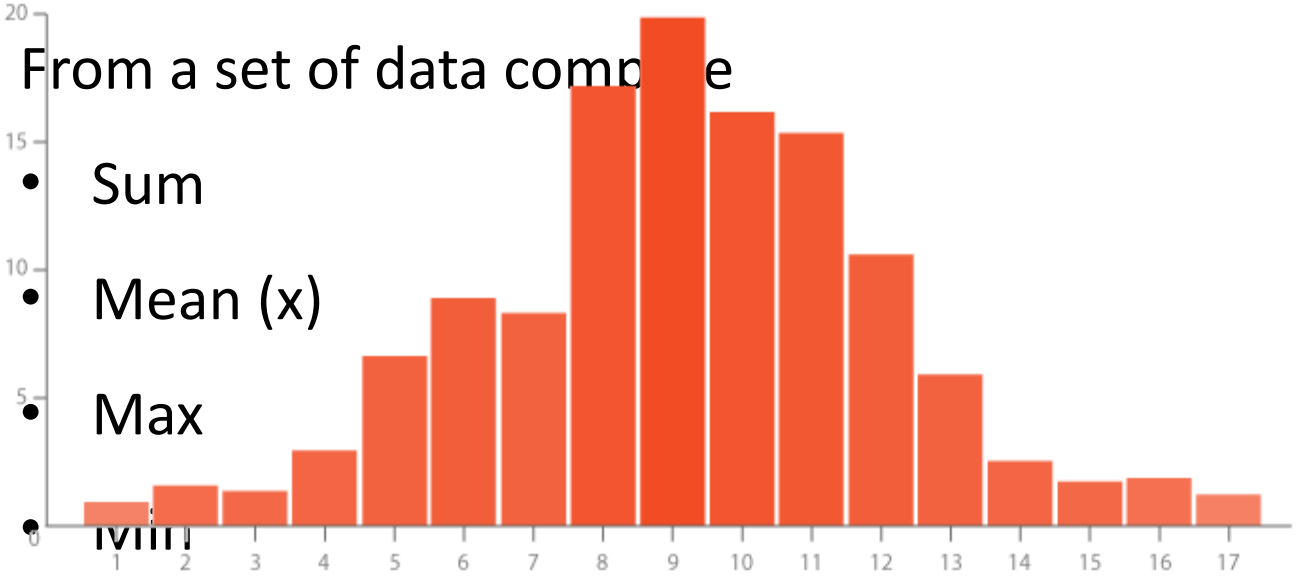
7 Basic Quality Tools

1. Check Sheet
2. Histogram
3. Pareto Chart
4. Scattered Diagram
5. Flowchart
6. Fishbone Diagram
7. Control Charts

"As much as 95% of quality related problems in the factory can be solved with seven fundamental quantitative tools." - Kaoru Ishikawa

Check Sheet

Histogram



From a set of data comp e

- Sum
- Mean (x)
- Max
- Min

Histogram

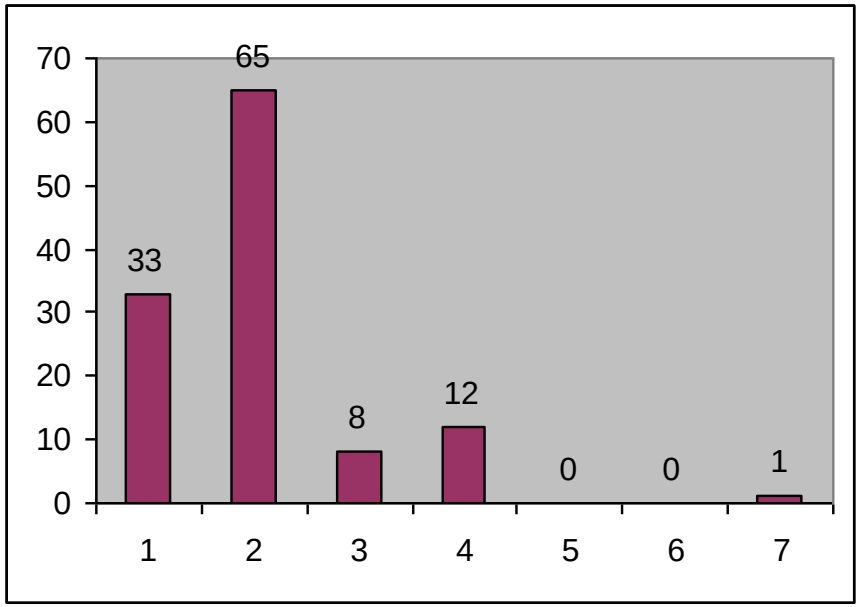
Data Set from last Thursday(pizza slices of Pizza Hut)

2 2 1 2 2 4 1 3 1 2 1 2 2 4 3 4 1 4 3 2 2 3 2 1 2 2 1 2 2 1 4 2 2 1 2 1 2 2 1 2 1 2 1
2 1 2 1 2 1 2 2 2 1 2 1 2 1 1 2 2 2 3 1 4 2 2 3 2 2 2 1 2 3 2 2 4 2 2 4 4 1 2 2 2 3 2
2 1 2 2 4 2 1 2 4 2 1 7 2 1 2 2 3 1 2 1 1 2 1 2 2 2 1 2 2 1 2 1 2 2 2 4 0 4

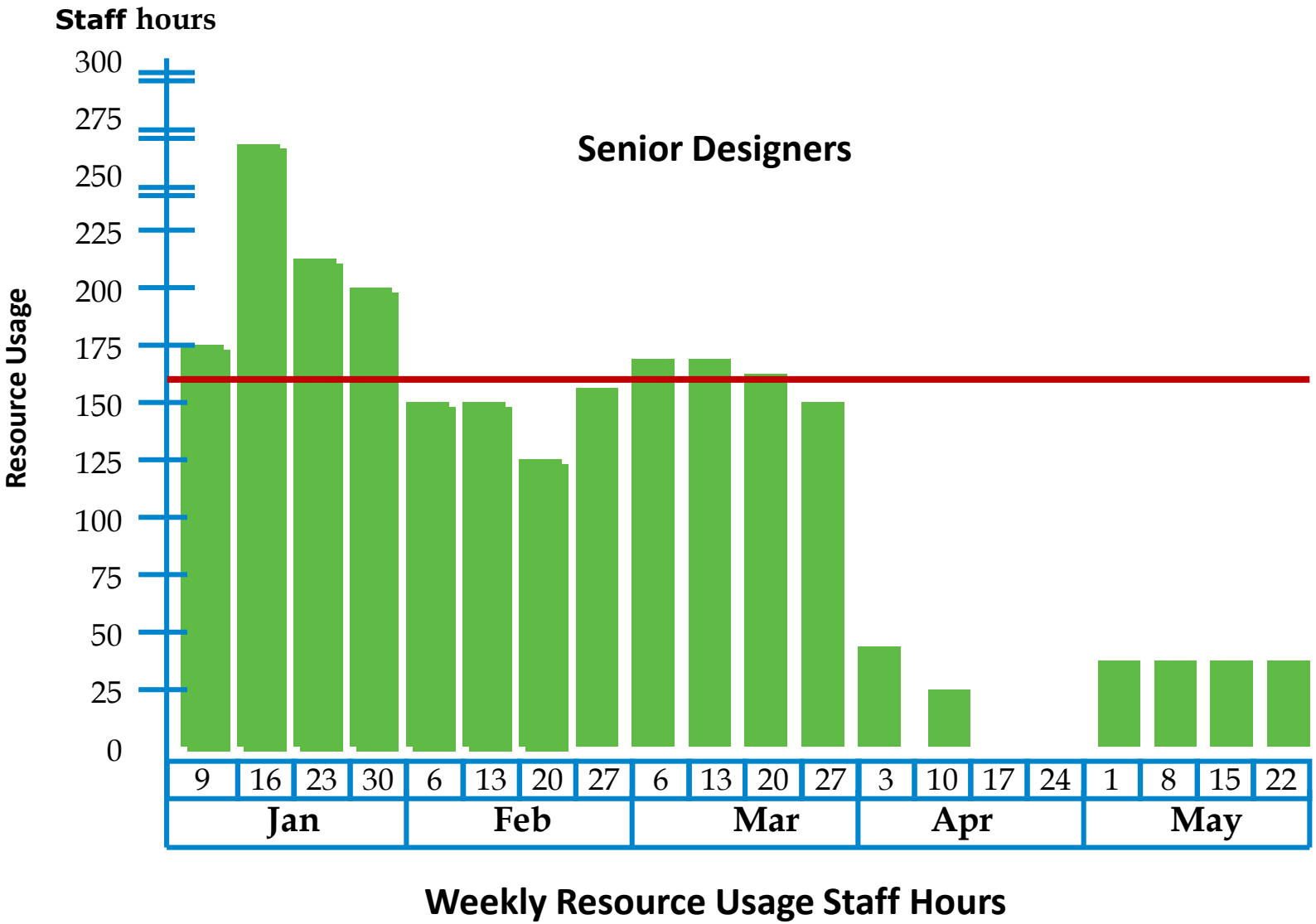
Mean = 2.032258

Max = 7

Min = 0



Histogram

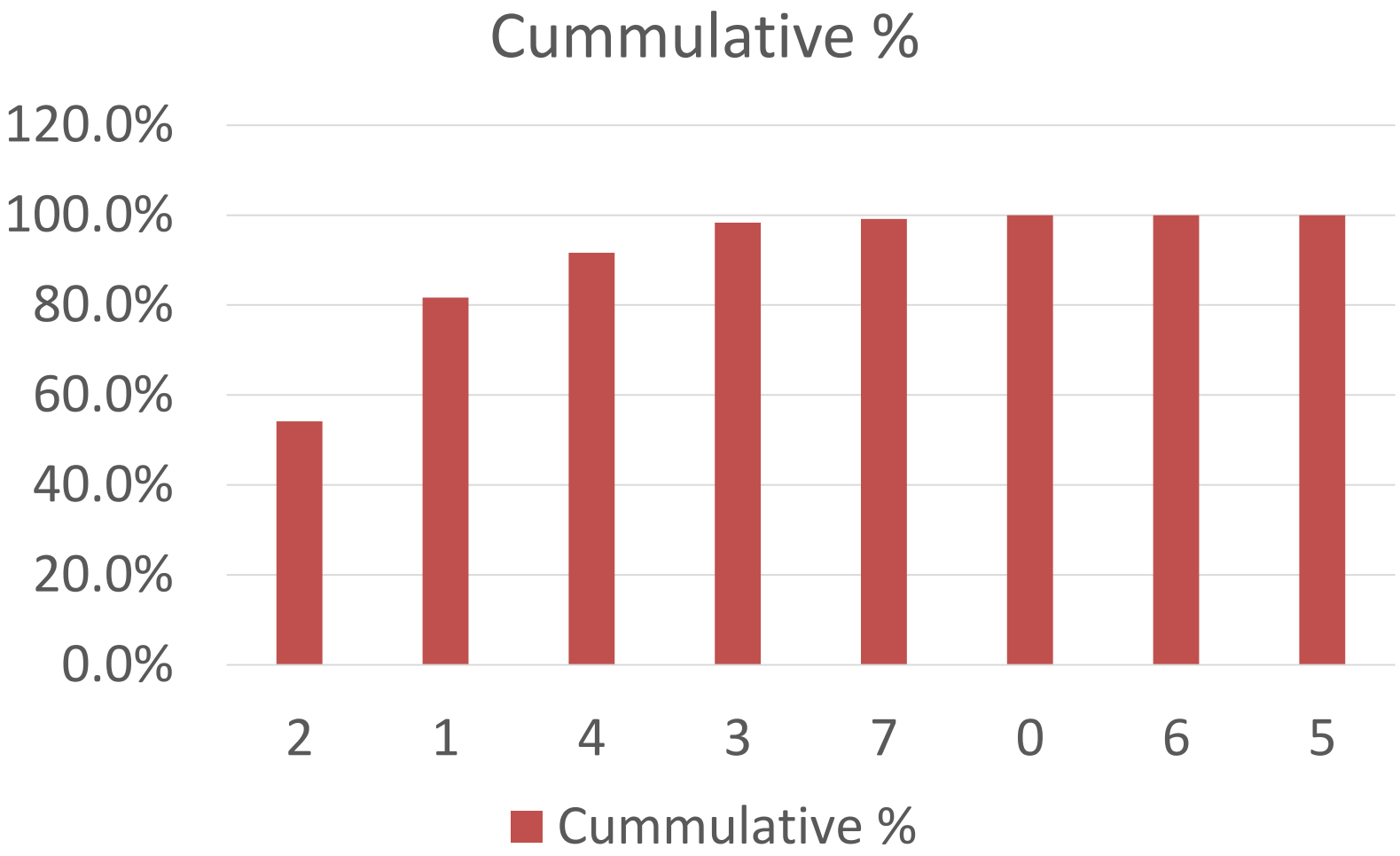


Weekly Resource Usage Staff Hours

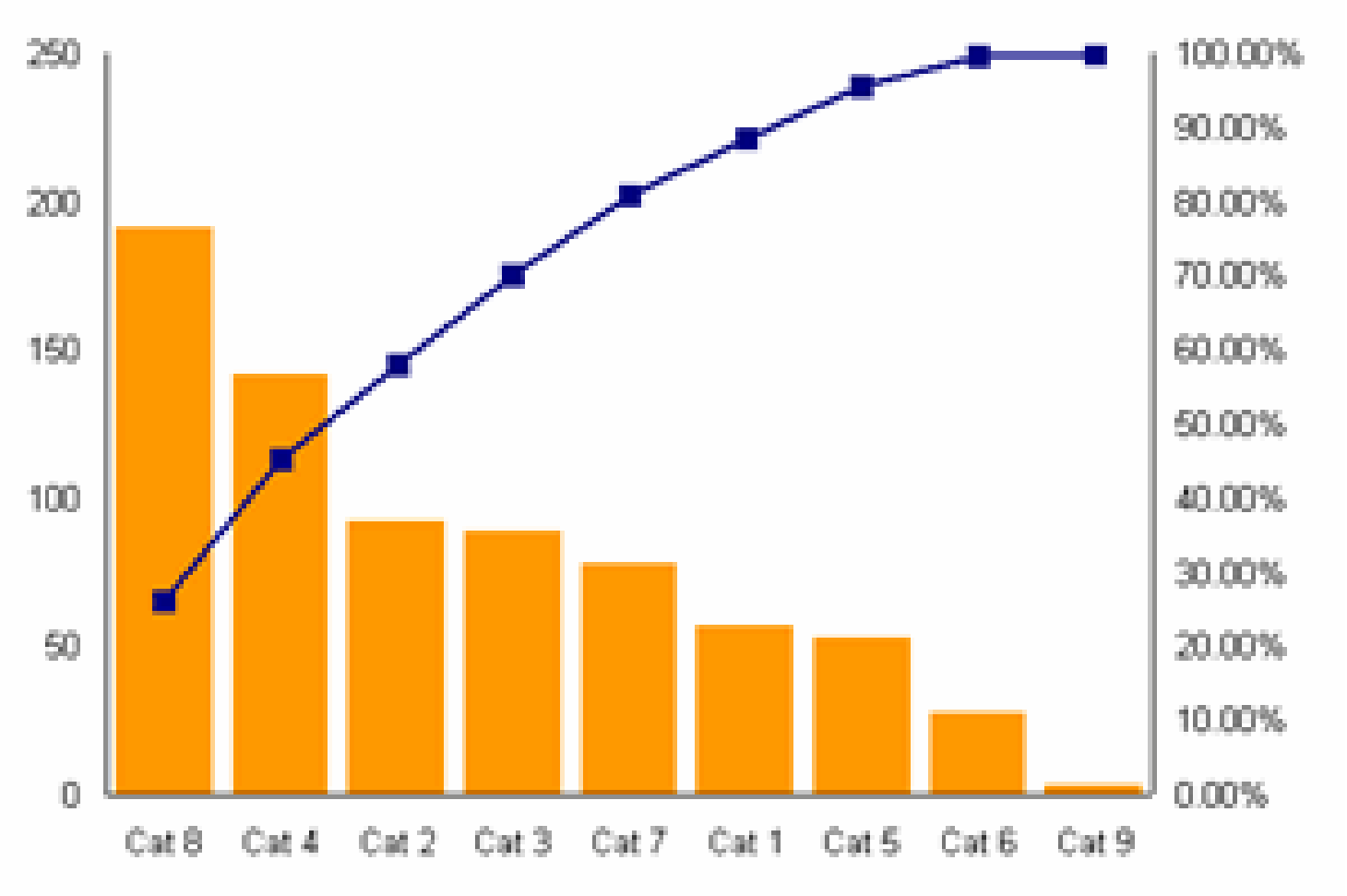
Pareto Chart

80/20 Rule Slices	Frequency	%
0	1	0.8%
1	33	27.5%
2	65	54.2%
3	8	6.7%
4	12	10.0%
5	0	0.0%
6	0	0.0%
7	1	0.8%

Pareto Chart

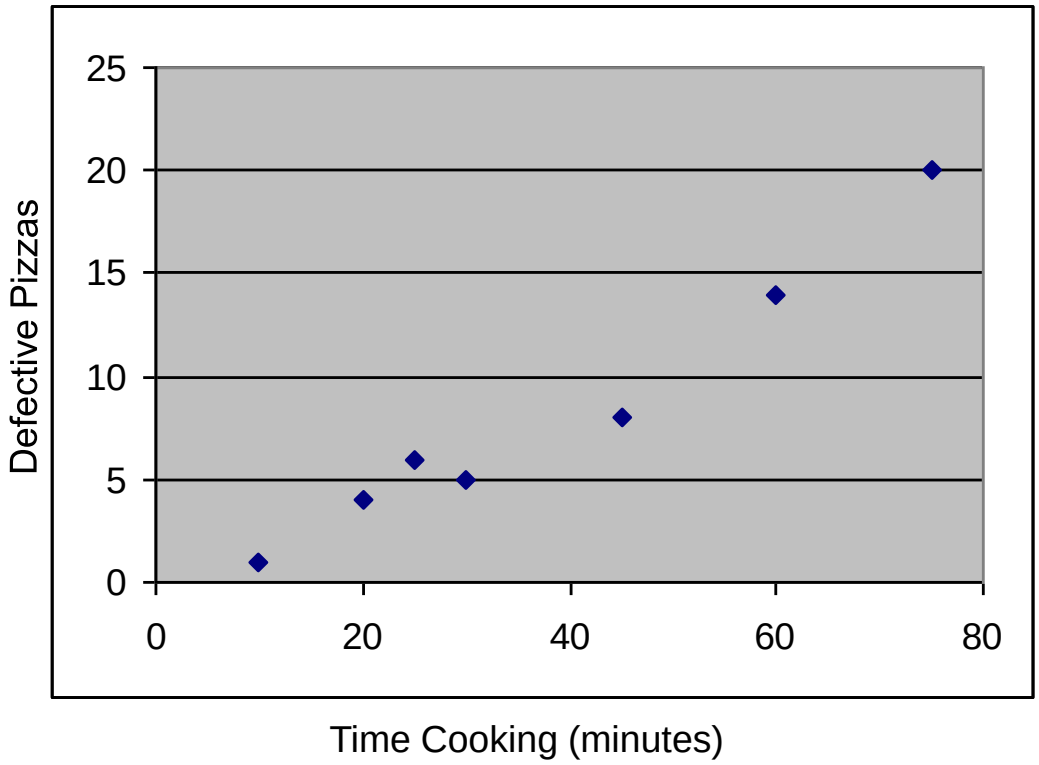


Pareto Chart



Scattered Diagram

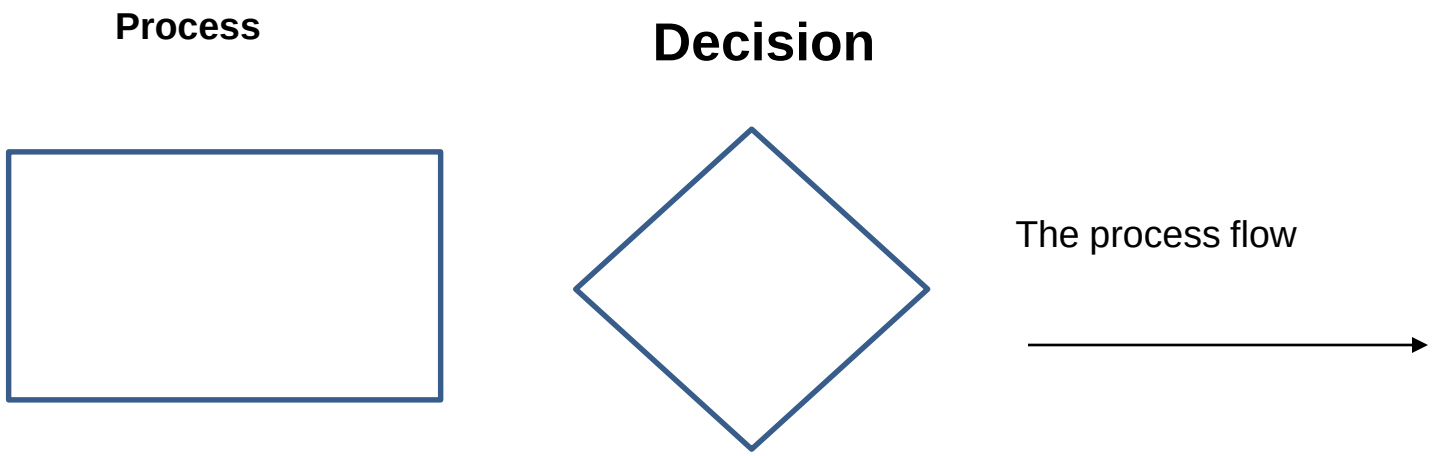
Minutes Cooking	Defective Pies
10	1
45	8
30	5
75	20
60	14
20	4
25	6



In this simple example, you can find the existing relationship without much difficulty but…

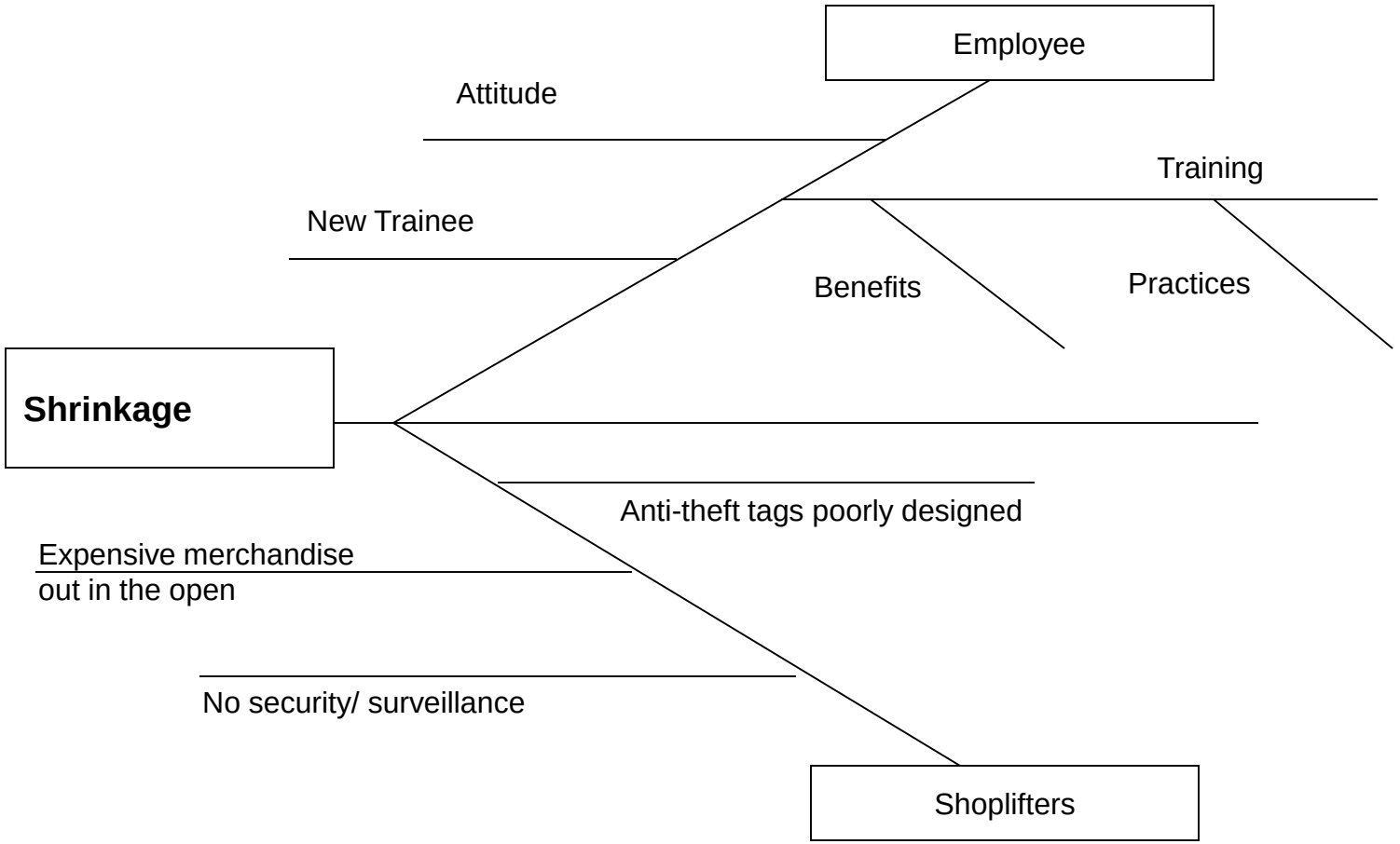
Flowchart

A graphical picture of a PROCESS



Fishbone Diagram

Problem: High Inventory Shrinkage at local Drug Store



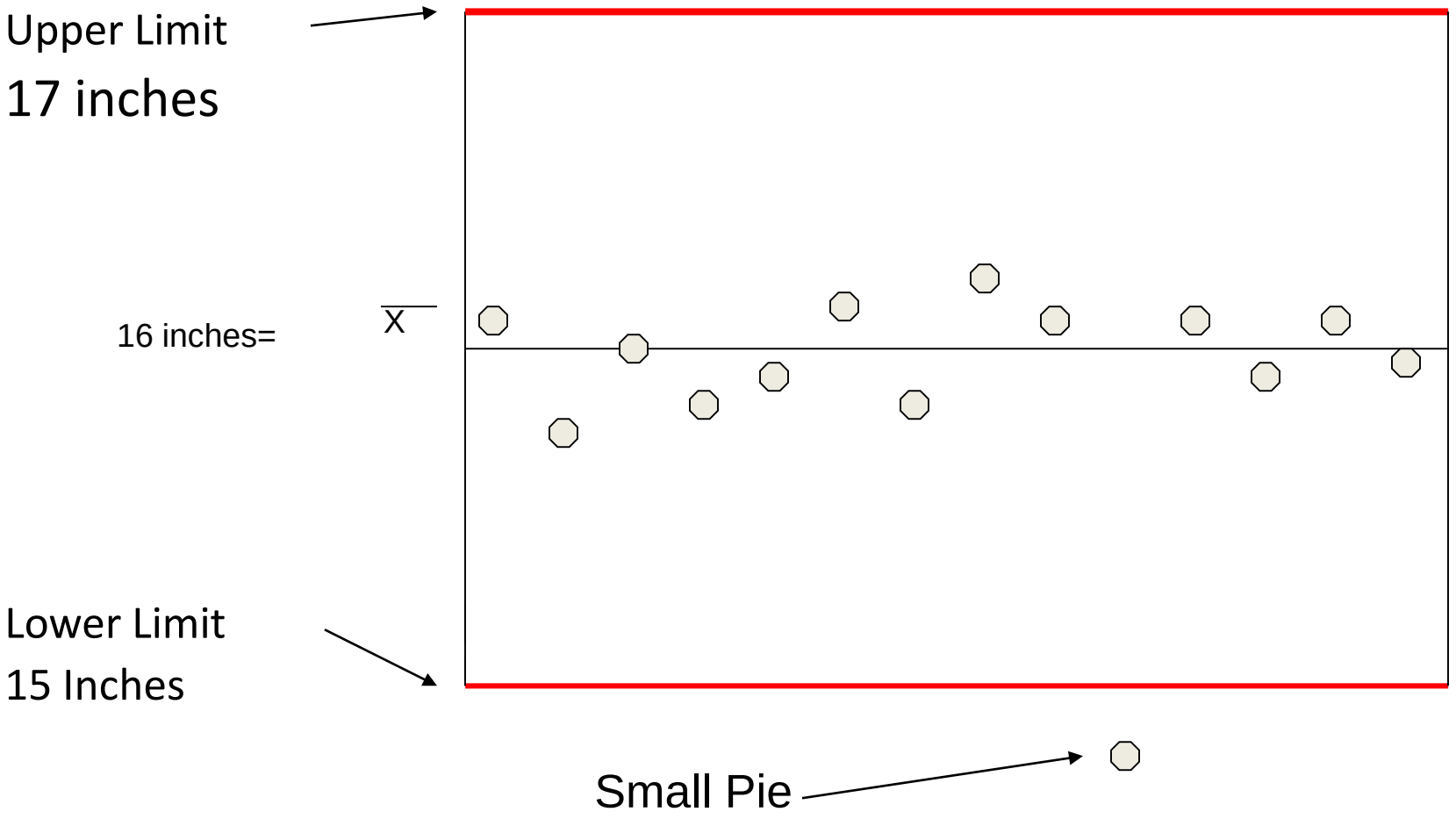
Control Chart

Pizza Hut Management wants to get in on the control chart action

- Average Diameter = 16 inches
- Upper Limit = 17 inches
- Lower Limit = 15 inches

Control Chart

- What do you interpret from this chart?

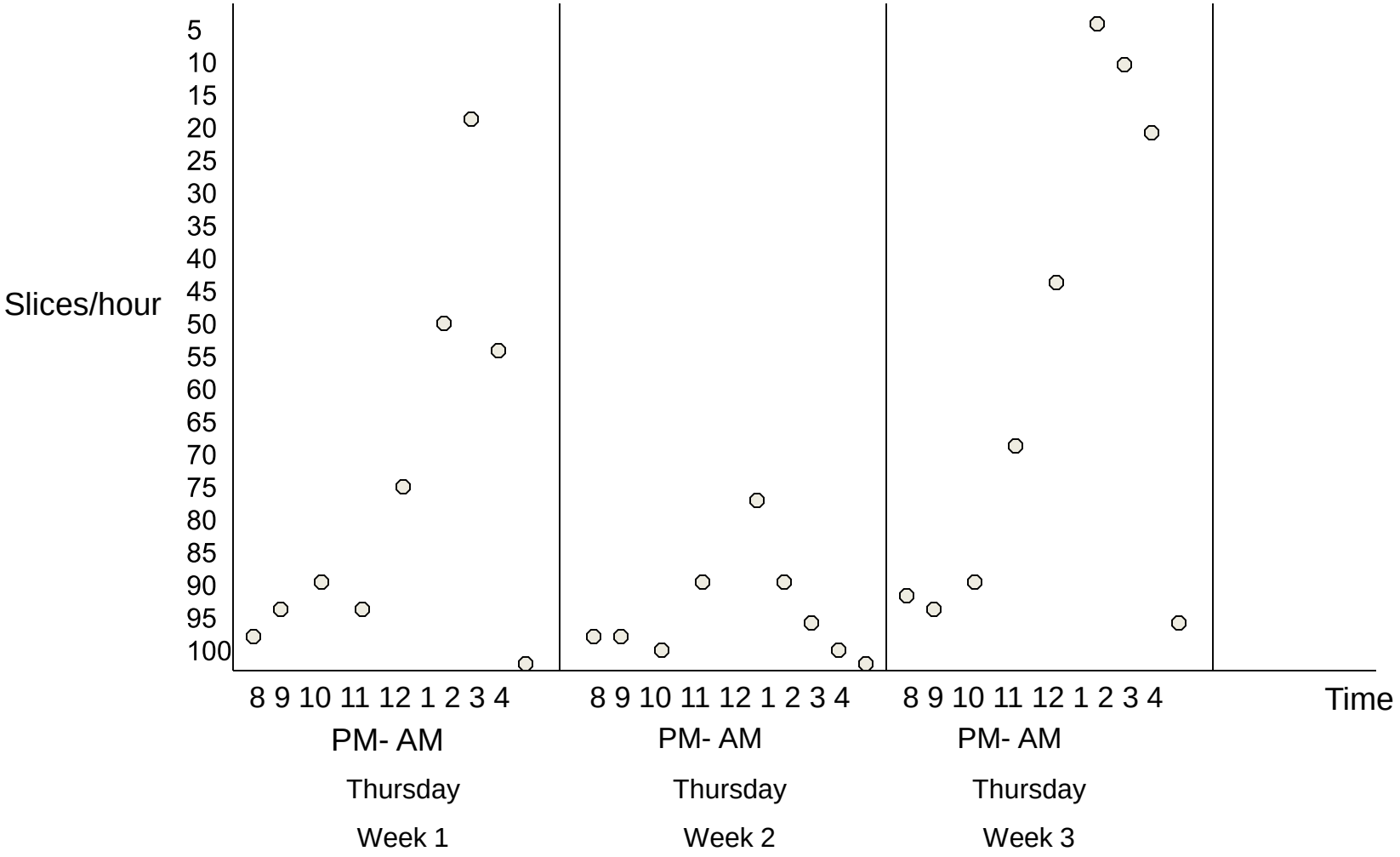


Some Other Analytical Tools

1. Run Charts
2. DOE
3. Mind Map
4. PESTLE
5. QFD
6. Value Stream Mapping
7. Value Chain Analysis
8. Variance Analysis
9. What if Scenario Analysis
10. Decision Tree

Run Charts

- Pizza Hut counter.
- What do you interpret from this chart?



DOE

Design of Experiments is an analytical technique, which aims using testing (experiments) to test different values of quality system or product.

- Reduce time and cost, design and testing of a product or system
- Improving the quality of a product or system
- Reducing the cost of pilot series

Mind Map

PESTLE

PESTLE Analysis is an analytical technique used for the strategic analysis of organizational surroundings.

- Political
- Economical
- Social
- Technological
- Legal
- Ecological

QFD (Quality Function Deployment)

QFD is used for quality planning in the development of customer requirements into product requirements. It therefore converts **customer requirements to product characteristics**. This method

- Reducing the number of product changes
- Reducing the cost of the product development
- Shorten the product development time
- Transfer the customer requirements into the final product

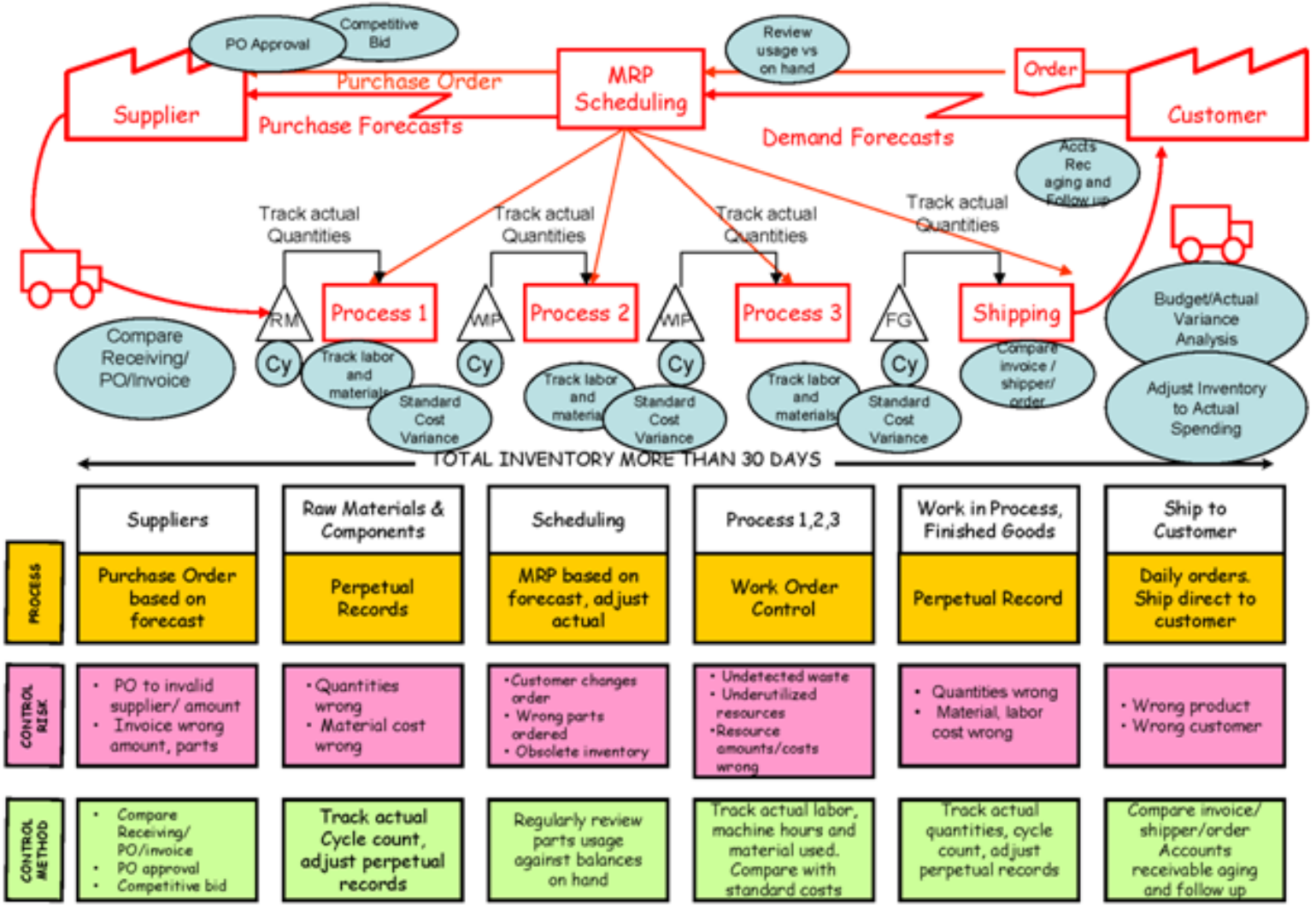
QFD

Attributes	Consequences
Safety	The vehicle provides accurate safety warnings.
	The vehicle has high safety and standard ratings.
Efficiency	The vehicle gets good mileage.
	The vehicle is energy efficient.
	The vehicle has high horsepower.
Cost	The vehicle is affordable.
	The vehicle has an extensive warranty.
	The vehicle is a hybrid (i.e., it splits power between electric and gas).
Performance	The vehicle has towing capabilities.
	The vehicle does not compromise speed and handling.
	The vehicle can be driven for longer distances (>400 miles).
Comfort	The vehicle provides a comfortable ride.
	The vehicle has a quality audio system.
	The vehicle is climate controlled.
	The vehicle comfortably fits a sufficient number of people.
Eco-friendliness	The vehicle has low emissions.
	The vehicle is environmentally friendly.

Value Stream Mapping (VSM)

It uses a graphical display of the **flow value (flow value visualization)**, which can be financial, material, information or other and it helps deeper understanding of the entire flow of the production processes that pass through the entire organization and its relation to the organizational management system, planning and customer requirements.

Value Stream Mapping (VSM)



Value Chain Analysis

Value Chain Analysis is a useful tool for working out how you can create the greatest possible value for your customers.

- **Activity Analysis:** First, you identify the activities you undertake to deliver your product or service.
- **Value Analysis:** Second, for each activity, you think through what you would do to add the greatest value for your customer.
- **Evaluation and Planning:** Thirdly, you evaluate whether it is worth making changes, and then plan for action.

Variance Analysis

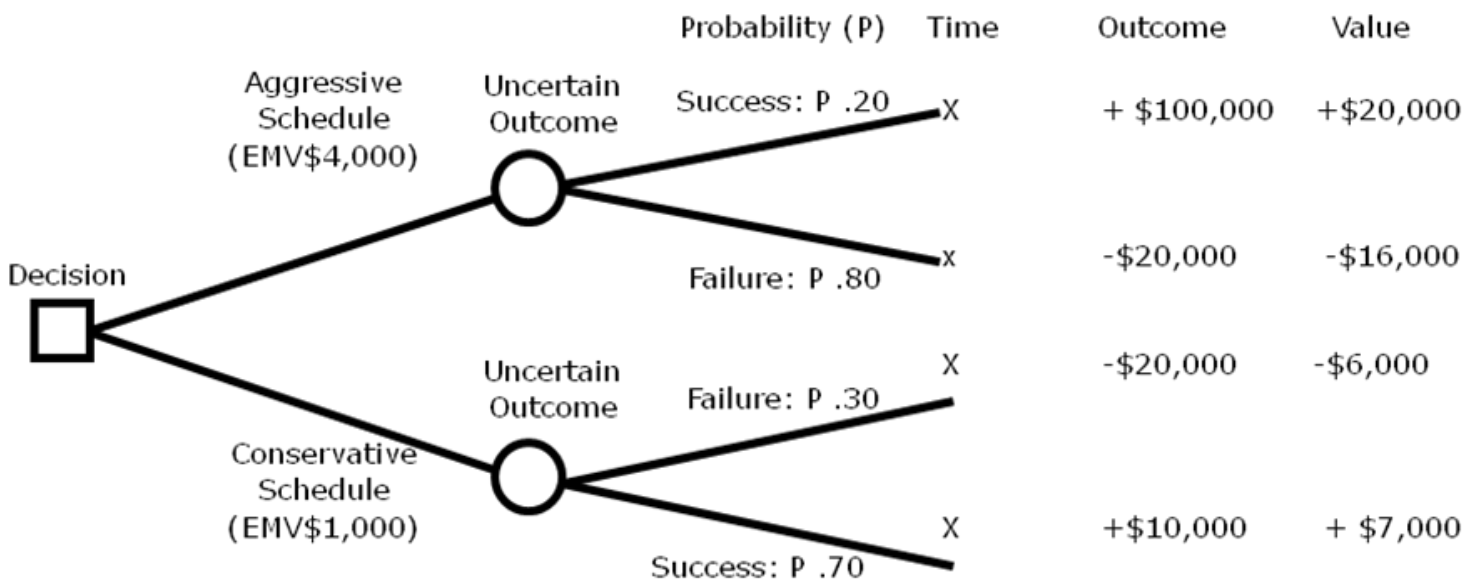
Compare actual vs planned

What if Scenario Analysis

Assess the feasibility of project schedule under adverse conditions. Prepare a contingency plan to overcome the problems. Or prepare mitigation plan to reduce the impact of unexpected situations.

Decision Tree

A decision tree is a diagram that describes a decision under consideration and the implications of choosing one or other available alternatives



- Expected monetary value (EMV) of result Outcome x Probability of that outcome
- Expected monetary value of a decision sum of EMVs of all Outcomes stemming from that decision
- Aggressive schedule has expected monetary value of $4,000 and is "preferred" over conservative schedule with expected monetary value of $1,000

Human Resource Aspect

- Staffing Plan
- Calendar
- Role & Responsibilities
- Reporting Relationship
- Training Plan
- Appraisal and Feedback System
- Team Motivation

My Tools & Techniques

- Observation & Conversation
- Project Performance Appraisals
- Conflict Management
- Interpersonal Skills

Types of Power

- Formal – positional, granted by organizational/upper mgmt
- Expert – power earned through a recognized level of knowledge or skill in a specific area
- Reward – the power to give a positive consequences, like promotions, salary rise etc.
- Penalty – the power to provide negative consequences, like suspension, termination, reprimands
- Referent – power gained when team members admire, and willingly follow an individual as a role model

Responsibility Assignment Matrix - RAM

PERSON / PHASE	Shiv	Ram	Jim	Karl	Rita	Mohan	...
Requirements	S	R	A	P	P		
Functional	S		A	P		P	
Design	S		R	A	I		P
Development		R	S	A		P	P
Testing			S	P	I	A	P

P = Participant A = Accountable R = Review required

I = input required S = Sign-off required

Manthan Time

Do, Discuss, Relate to Work

RAM for My Project

Team Development / Tuckman Model

✓ Five Stages of Team development

- ✓ **Forming** – Members of the group get to know each other and try to set up some ground rules about behavior
- ✓ **Storming** – Conflicts arise as various members of the group try to exert leadership and the methods of operation are being established
- ✓ **Norming** – Conflicts are largely settled and a feeling of group identity emerges
- ✓ **Performing** – Emphasis now is the task at hand
- ✓ **Adjourning** – The group disbands

Sequence is followed for each individual/group

Manthan Time

Do, Discuss, Relate to Work

How to create cohesiveness and sense of team-play in my Team?

Communication & Stakeholder Aspect

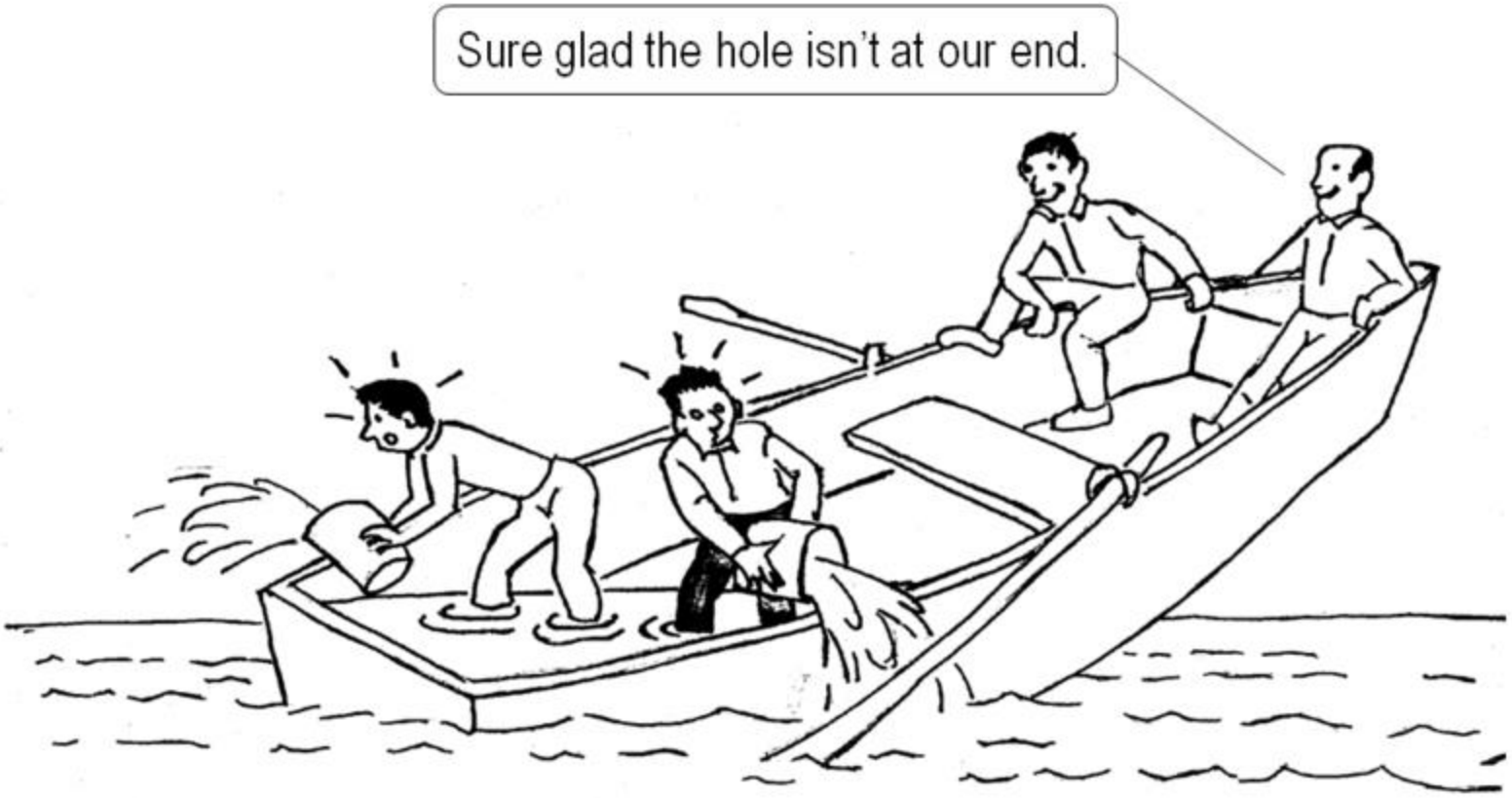
- What report format, who, when, how, by whom, frequency
- Who will engage, when, how, frequency
- Ensure communication and engagement

My Tools & Techniques

1. Communication Techniques
2. Communication Models
3. Communication Methods
4. Information Management Systems
5. Performance Reporting

Risk Aspect

- How to perform risk management activities
- Identify Risk
- Analyse & Assess Risk
- Plan Risk Responses



Who like surprises?

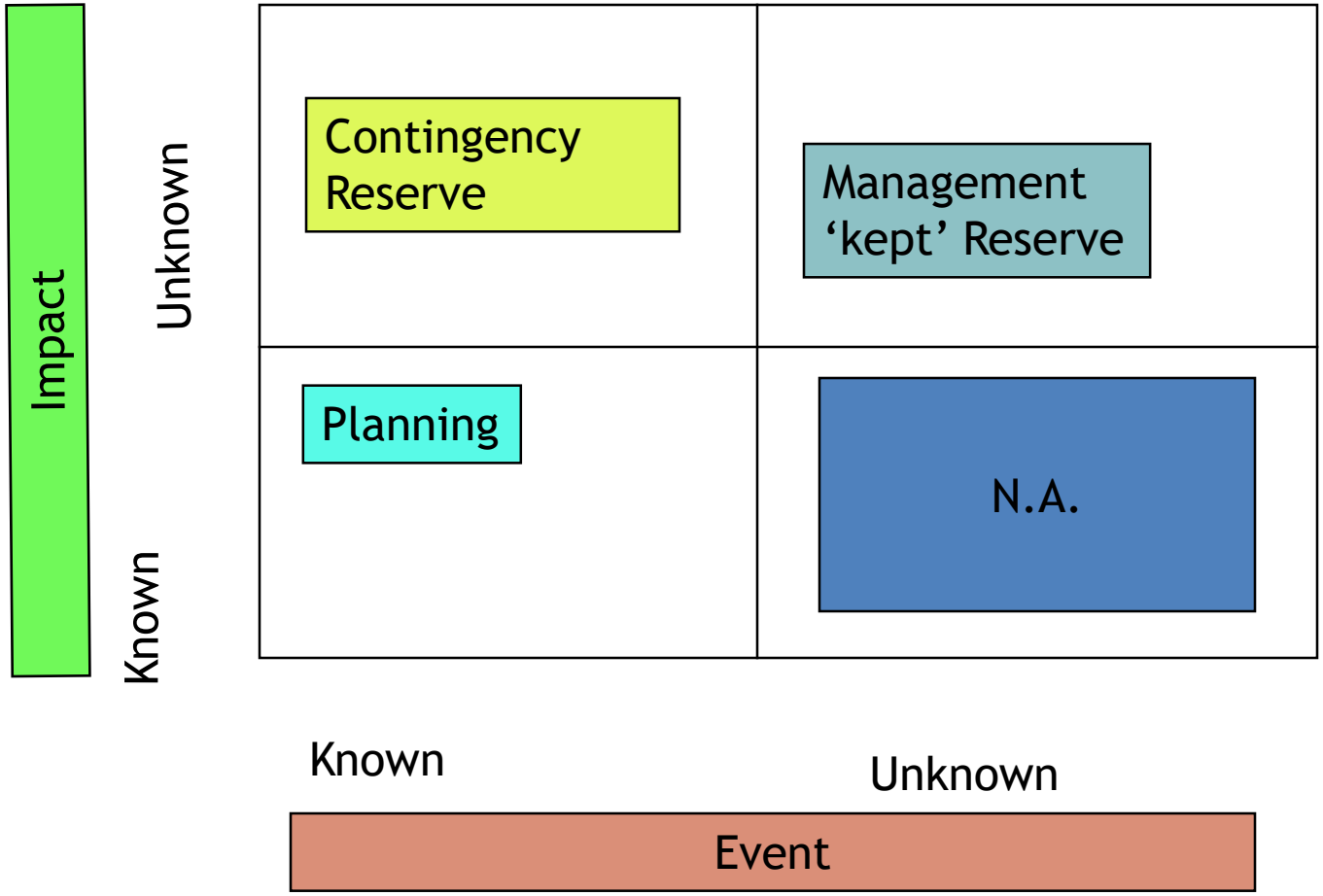
Every Project has risks associated with it!

- Commercial viability.
- Technical feasibility.
- Competitors move ‘faster’.
- Customers’ preferences may change.
- ‘VC’ resources may ‘dry up’.
- Project Sponsor changes or may not give continued support.
- Attrition.
- Project scope, time or cost related issues.
- Government regulations.

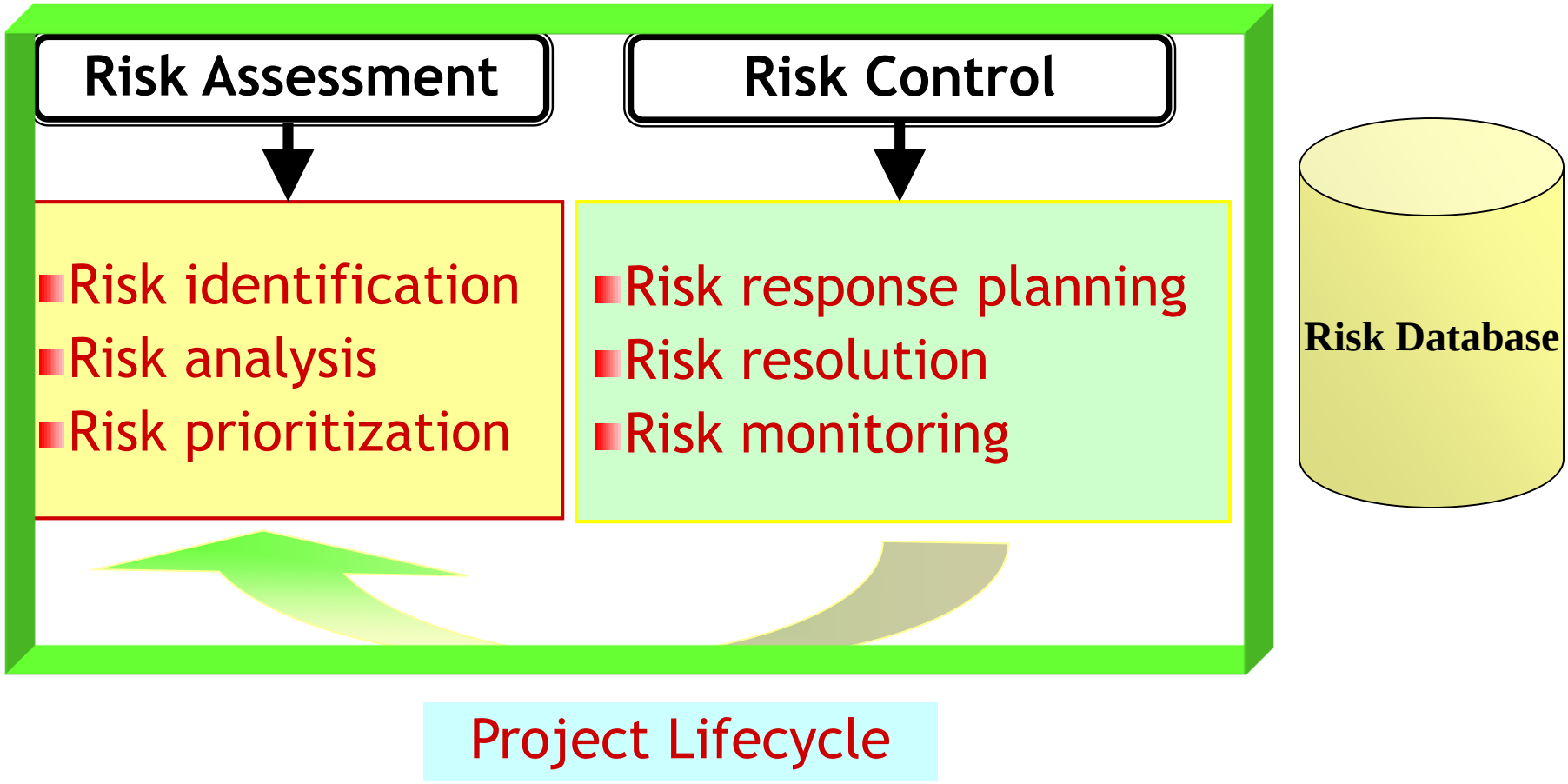
My Tools & Techniques

- Documentation Review
- Checklist Analysis
- Risk Data Quality Analysis
- Strategies for Negative Risk or Threats
- Strategies for Positive Risk or Opportunities
- Contingency Reserve Determination
- Assumption Analysis
- SWOT Analysis
- Expert Judgement

Risk Event / Impact matrix



Risk Management Process



Risk Estimation

#	Risk	Likelihood	Impact	Risk Exposure
R1	Requirements stability – rapidly changing	**0.1**	**0.8**	**0.08**
R2	Specification takes longer than expected	**0.3**	**0.7**	**0.21**
R3	Reusable components – library is unreliable	**0.5**	**0.7**	**0.35**
R4	Module testing demonstrates errors or deficiencies in design	**0.1**	**1**	**0.10**
R5	Module coding takes longer than expected	**0.4**	**0.5**	**0.20**
R6	Test bed for system II OS not available at the time of system testing	**0.7**	**0.8**	**0.56**
R7	Staffing not available at the right time for critical path activities	**0.5**	**0.6**	**0.30**

Risk Prioritization

#	Risk	Likelihood	Impact	Risk Exposure	Rank
R6	Test bed for system II OS not available at the time of system testing	**0.7**	**0.8**	**0.56**	1
R3	Reusable components – library is unreliable	**0.5**	**0.7**	**0.35**	2
R7	Staffing not available at the right time for critical path activities	**0.5**	**0.6**	**0.30**	3
R2	Specification takes longer than expected	**0.3**	**0.7**	**0.21**	4
R5	Module coding takes longer than expected	**0.4**	**0.5**	**0.20**	5
R4	Module testing demonstrates errors or deficiencies in design	**0.1**	**1**	**0.10**	6
R1	Requirements stability – rapidly changing	**0.1**	**0.8**	**0.08**	7

Good Risk Management Practices

- Acknowledge that risks are inevitable.
- Communicate risks openly.
- Reward people who prevent crisis, not just those who create crises and then manage them.
- Use organization's risk database for cross project learning.
- Take the Expert help whenever needed.
- Remember all risks are important .

Bad excuses in Risk Management

- We have no risk.
- We deal with problems as they arise.
- How can you predict what will happen 6 months from now?
- Our job is to develop software, not to fill out bureaucratic forms.
- That external interface is not in our risk management program because the interface is not our responsibility.
- We deal with problems as they arise.
- That method is proven and therefore not a risk. The speaker at the conference said so.
- My tech people will rebel if we identify as a risk a lack of skills needed to do development.
- We have to bid the lowest cost to win; we'll worry about doing the job when we get it.

(source-The Little book of bad excuses- SPMN)

Risk Response Strategies

	Threats or Negative Risk	Positive Risk or Opportunities
1.	Avoid	Exploit
2.	Transfer	Share
3.	Mitigate	Enhance
4.	Acceptance	Acceptance

Manthan Time

Do, Discuss, Relate to Work

Let's Prepare a Risk Register

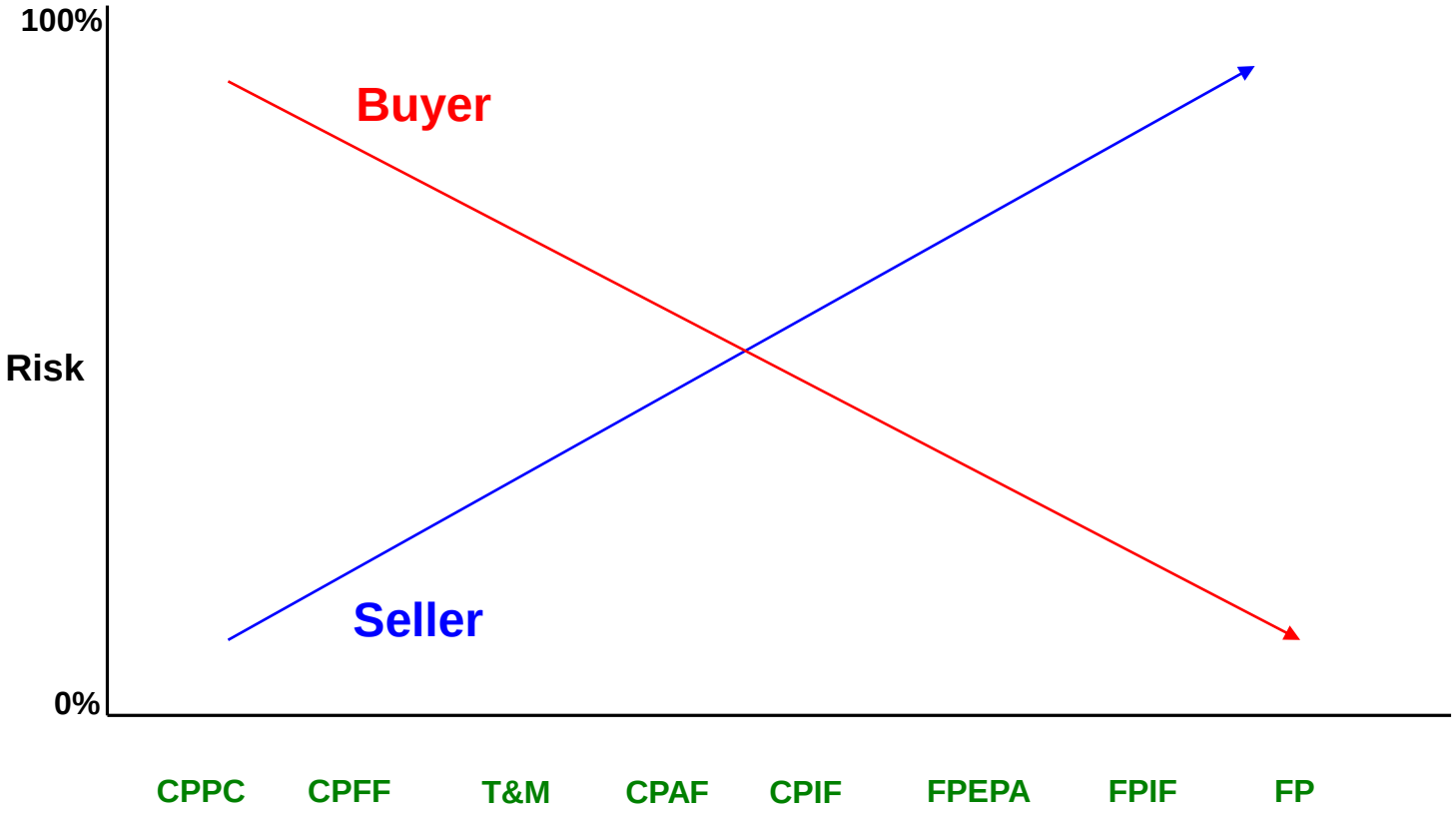
Procurement Aspect

- What is needed, when, where, how to ensure quality
- Process of changing procurement contract during execution
- Procurement Contract types
- Tender documents
- Make or Buy Decision
- How to select vendors
- Legal part of agreements

My Tools & Techniques

- Market Research
- Make Buy Decision
- Contract Types Determination
- Expert Judgement

Contract type & Risk



Manthan Time

Do, Discuss, Relate to Work

What service/product we procure? What kind of contract is that? Who makes decision of completeness of work?

Project Execution

Perception Management

- People give their own meaning to the data, event, behavior to the world around them is perception creation.
- Perception is about organizing the data and creating an image in mind.
- Only through validation you can find that perception was correct or incorrect.

What do you see?

Perception Management Steps

Think: How people are perceiving you

Know: How you are actually being perceived

Decide: How you want to be perceived

Story: Create a full end-to-end consistent story, which you want tell to achieve your goal

Meet: Meet to the people and tell your story

Feedback: Ask them questions which helps you in knowing whether your goal is achieved

Confirm: Paraphrase the feedback to confirm whether you understood properly

Thanks: Say thanks to people who have given time to listen your story.

By: Hari Thapliyal

Overall Aspect

- Authorize work
- Track Progress
- Intervene if there is deviation happening or needed from the plan
- Coordinate with stakeholders
- Ensure resources are available on day to day basis

My Tools & Techniques

- Work Authorization System
- Project Management Information System
- Meetings (Standup, Work Review, Trouble Shooting)

Quality Aspect

- Ensure process are being followed
- Review process being audited
- Recommend change in the process if needed
- Observe the best practices from project for institutionalization

Human Resource Aspect

- Hire people or move people from other department into the project
- Interview people for skills, attitude, value system
- Set expectation as per the team ground rule
- Motivate people to delivery high quality work on time and budget
- Give feedback to the team members
- Conduct training and team building activities
- Check effectiveness of training and team building activities

My Tools & Techniques

- Interpersonal Skills
- Training
- Team-building activities
- Ground Rules
- Co-location
- Recognition and Rewards
- Personnel Assessment Tools
- Pre-assignment
- Negotiation
- Acquisition
- Virtual Teams
- Multi-criteria decision analysis

Stages of Team Development

- Forming
- Storming
- Norming
- Performing
- Adjourning

Conflict Management

Conflicts - good or bad ???

Traditional view – Conflicts are bad, created by people and to be avoided

Current view – Conflicts are good and need to be confronted in order to bring out real issues and resolve them

Conflict Management

Sources of conflict

- Schedules
- Project Priorities
- Technical Issues
- Personality Conflict
- Cost
- Scarce resources
- Personal work styles
- Administrative Procedures

Conflict Management

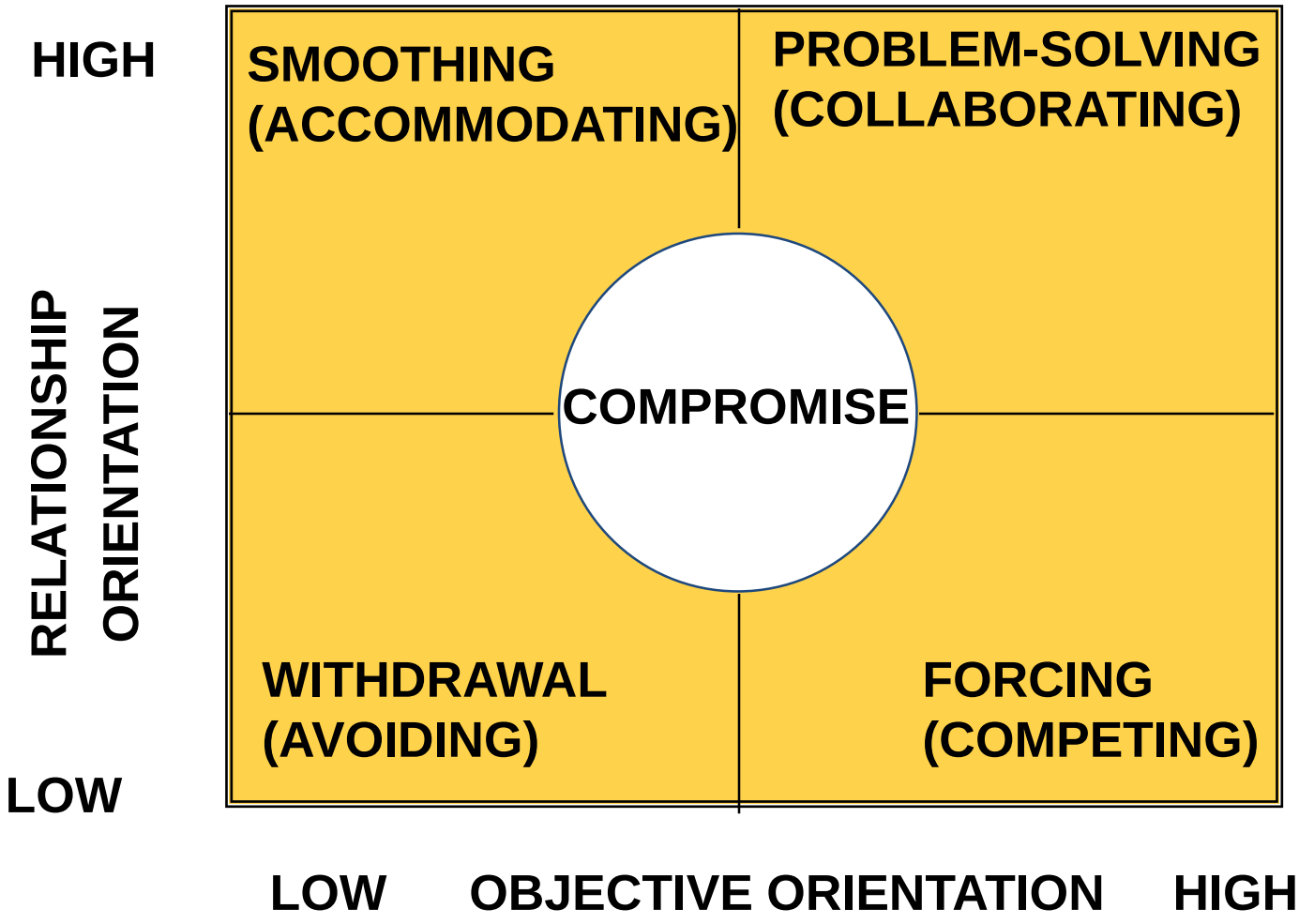
Characteristics of conflict

- Conflict is natural and forces a search for alternatives
- Conflict is team issue
- Openness resolves conflict
- Conflict resolution should focus on issues, not personalities
- Conflict resolution should focus on the present not on the past
- Attitude of learning from the incident helps parties in conflict life cycle

Conflict Resolution

- Withdrawal – avoiding, giving up, stop gap, passive reaction, buying time, appropriate for “cooling off” time, no solution. Lose-lose outcome
- Smoothing – grudging agreement, avoids conflict, appeasing, friendly atmosphere. No lasting solution, lose outcome
- Compromising – bargaining, acceptable agreement, some satisfaction to each party, not ideal solution, trade off, a form of definitive solution. Lose outcome.
- Confronting/Problem Solving – approached as an issue to be solved by examining alternatives.
  Give and take attitude, open dialog – direct approach, pinpoints problem, develops alternatives, objectively resolves issues, time consuming, ultimate solution, Win-Win outcome
- Collaborating – leading to consensus and commitment by incorporating multiple viewpoints and insights from differing perspectives.
- Forcing – Uses power, used as a last resort, ill feeling may result, Win-lose outcome. Win-Lose outcome

Conflict Resolution



Motivational Theories

1. Frederick Herzberg's Hygiene & Motivation Factors
2. Abraham Maslow’s Hierarchy of Needs
3. Expectancy Theorem of Motivation by Victor Vroom
4. Job characteristics model of Oldham-Hackman
5. Theory X & Y of McGregor

Communication & Stakeholders Aspects

- Send routinely planned reports
- Address the need of ad-hoc reports
- Engage stakeholders on daily basis and optimize the power and interest balance

My Tools & Techniques

1. Communication Techniques
2. Communication Models
3. Communication Methods
4. Information Management Systems
5. Performance Reporting
6. Interpersonal Skills
7. Management Skills

Procurement Aspect

- Ask for proposals
- Evaluate proposal
- Negotiate with potential vendors
- Sign agreement and award contracts

My Tools & Techniques

- Procurement Audits
- Procurement Negotiations
- Record Management System

Manthan Time

Do, Discuss, Relate to Work

Key Takeaways for Project Execution

Project Monitoring & Controlling

Understand the Big Picture of Measurement of Tracking

If you cannot measure you cannot manage

- Vision or Destination Statement of Organization/Department
- Strategic Objective Organization/Department
- BSC 4 Perspective (Balanced Score Card)
  - **Financial Performance** (increase revenue, increase profit, lower cost)
  - **Internal Business Process**: Efficiency (process efficiency, lower cycle time, reduce waste)
  - **Customer**: Satisfaction (lower wait time, improve customer retention)
  - **Organizational Capacity**: Knowledge and Innovation (Improve Skills, Improve Tools, Improve Technology)
- Create Strategy Map
- Key Performance Indicator (KPI) of BSC
- Performance Measure & Target Strategic Initiative

Overall Aspect

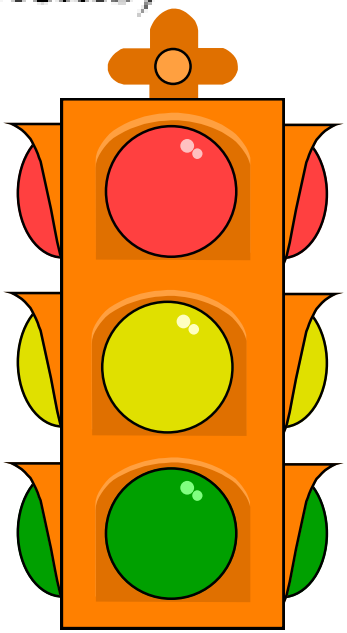
- Collect information required from the sources
- Prepare reports
- Determine cause of variance, if any
- Ensure change request are identified and classified
- Take decision on change request

Types of Reviews/reports

- Status Reports
- Progress Report
- Forecast Reports
- Weekly reviews
- Status/Progress reviews
- Management reviews
- Milestone/phase end reviews
- Customer reviews
- Vendor reviews

Project Dashboard (RAG)

- Time (How are we going against schedule)
- Cost (How are we going against budget)
- Resources (How much time are we spending on the project)
- Scope (Is the scope creep in line with expectations)
- Quality (Are we reviewing and fixing quality problems)
- Actions (Do we have action items outstanding)



Issue Management

- Log issues and Issue source.
- Determine action for resolution.
- Establish responsibilities and timeline for action.
- Track issue for resolution.
- Escalate issue as per escalation procedure.

Scope Aspect

- Ensure there is no gold-plating
- Ensure work on track
- Ensure customer/end users are engagement on regular basis to validate the product of the project
- Take customer feedback to improve product
- Approval from customer of the feature/component/work done

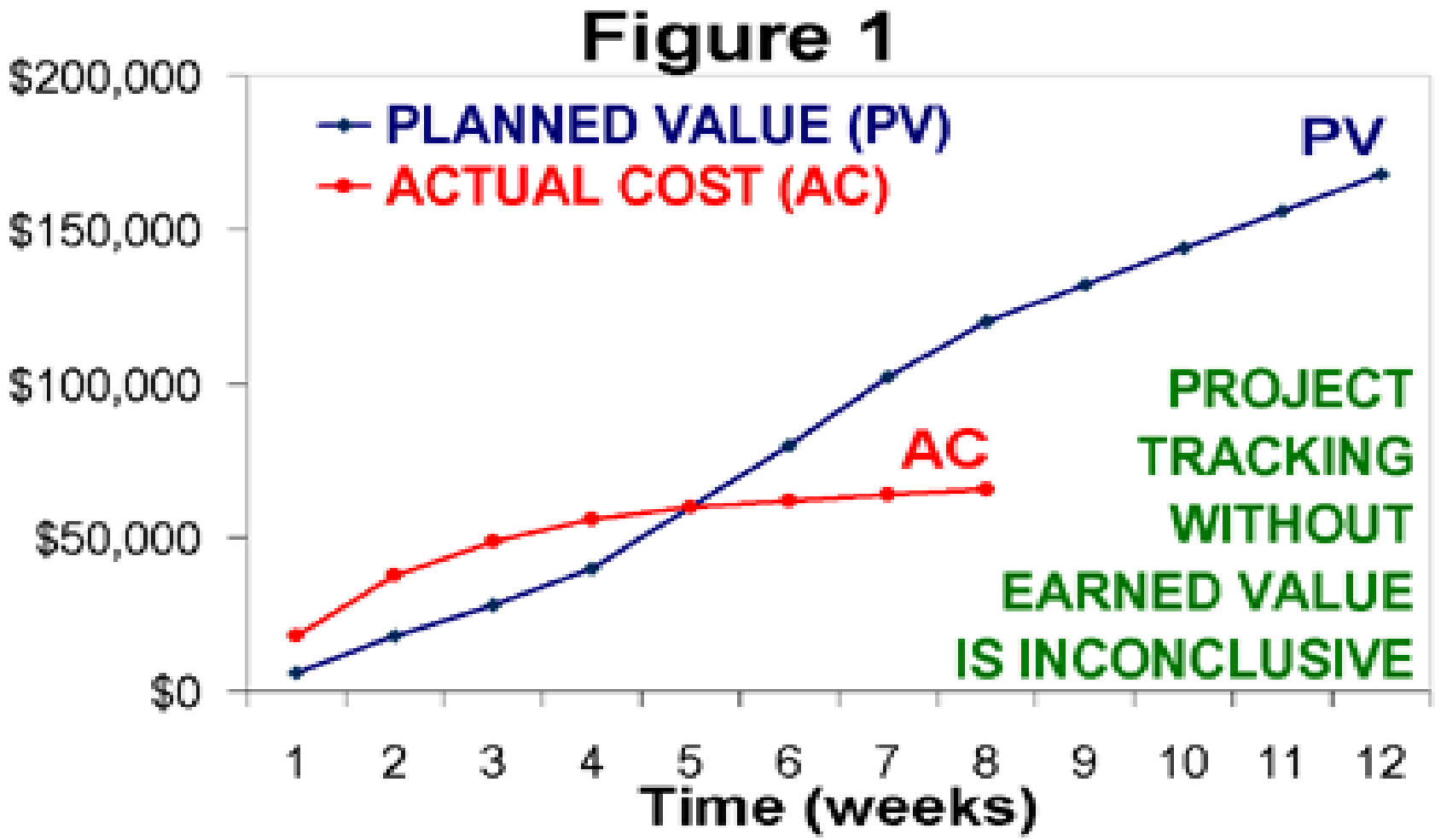
Time, Cost, Quality, Risk, Procurement

- Test the product/component/output
- Analyse project progress & product test data and determine variance, if any
- Prepare CAPA for out of limit variances
- Identify new risk, if any
- Evaluate effectiveness of risk management strategy
- Evaluate progress of procurement
- Raise change request to vendor for fixing issues, if any

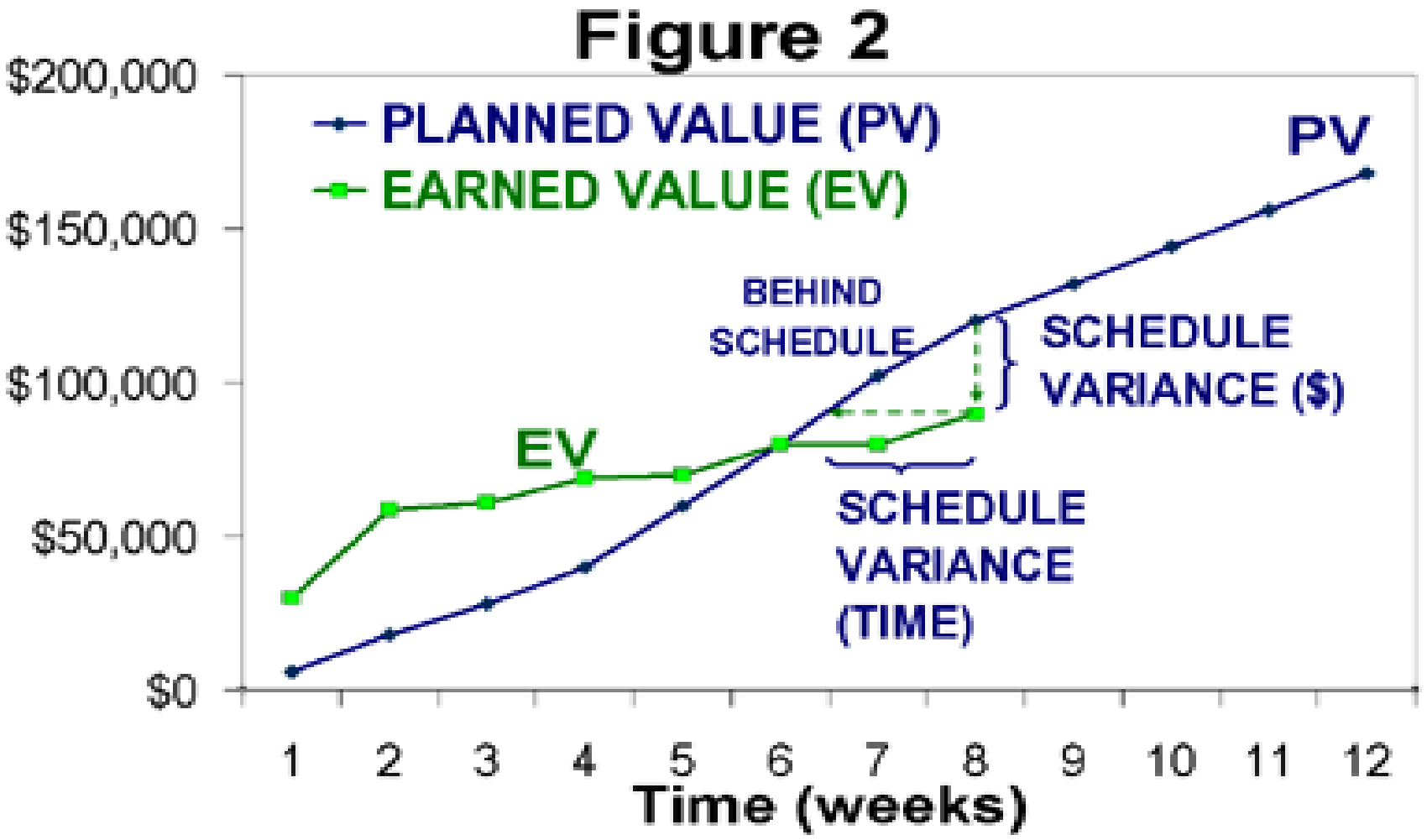
Earned Value Management

- BAC= Variance at completion
- PV = Planned Value
- AC = Actual Cost
- EV = Earned Value
- ETC = Estimate to Complete
- EAC = Estimate at Completion
- SPI = Schedule Performance Index
- CPI = Cost Performance Index

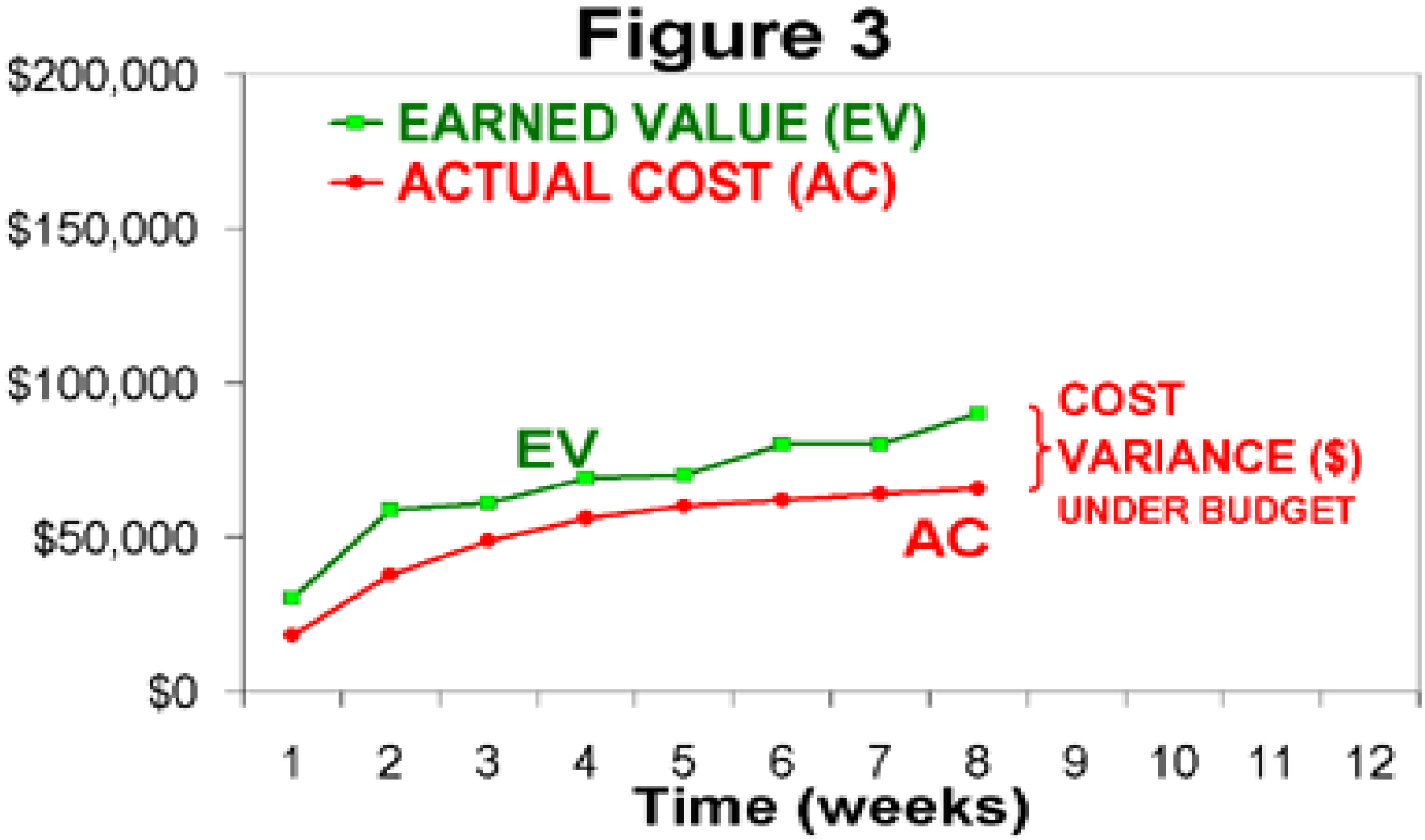
How project is progressing?



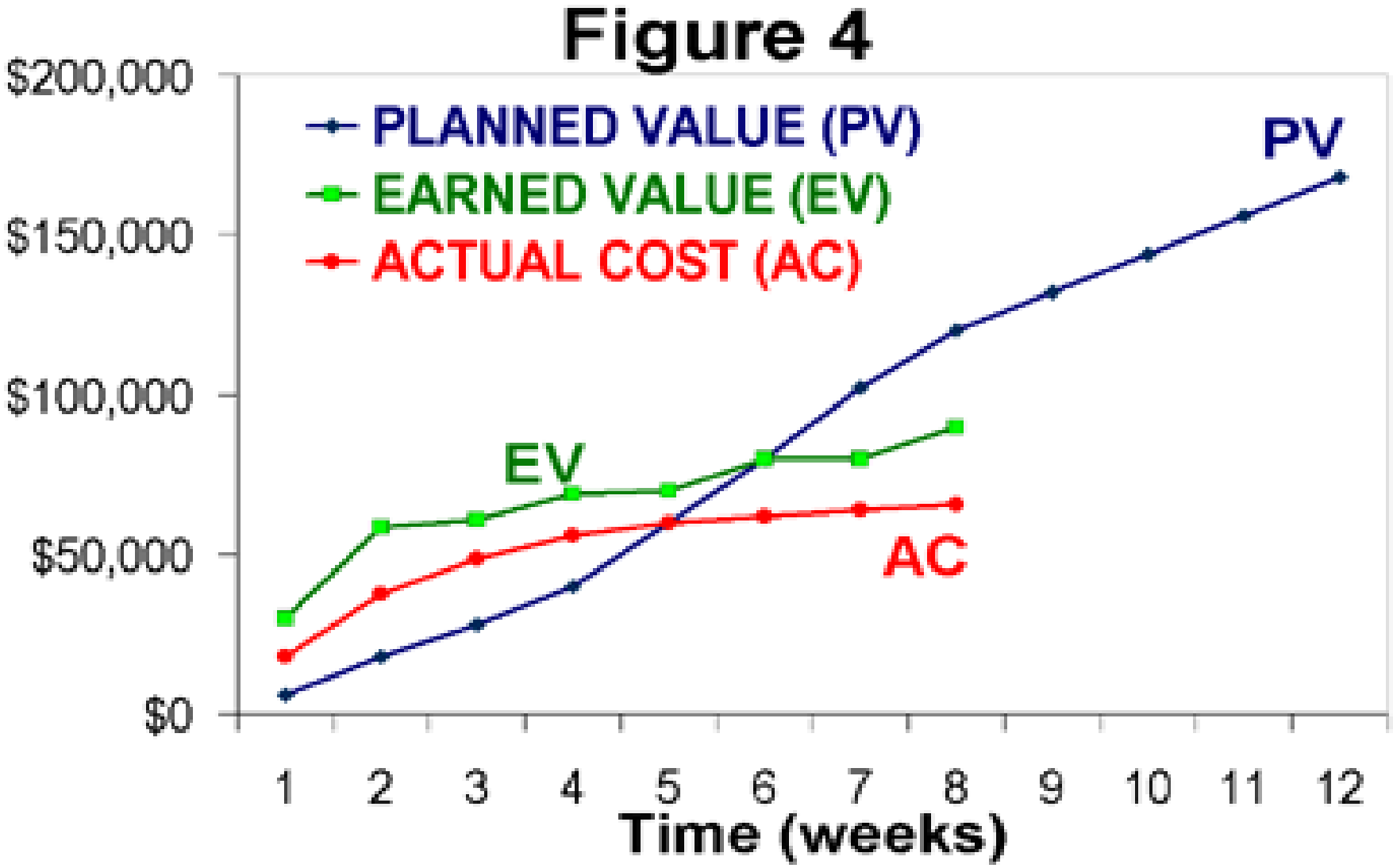
How project is progressing?



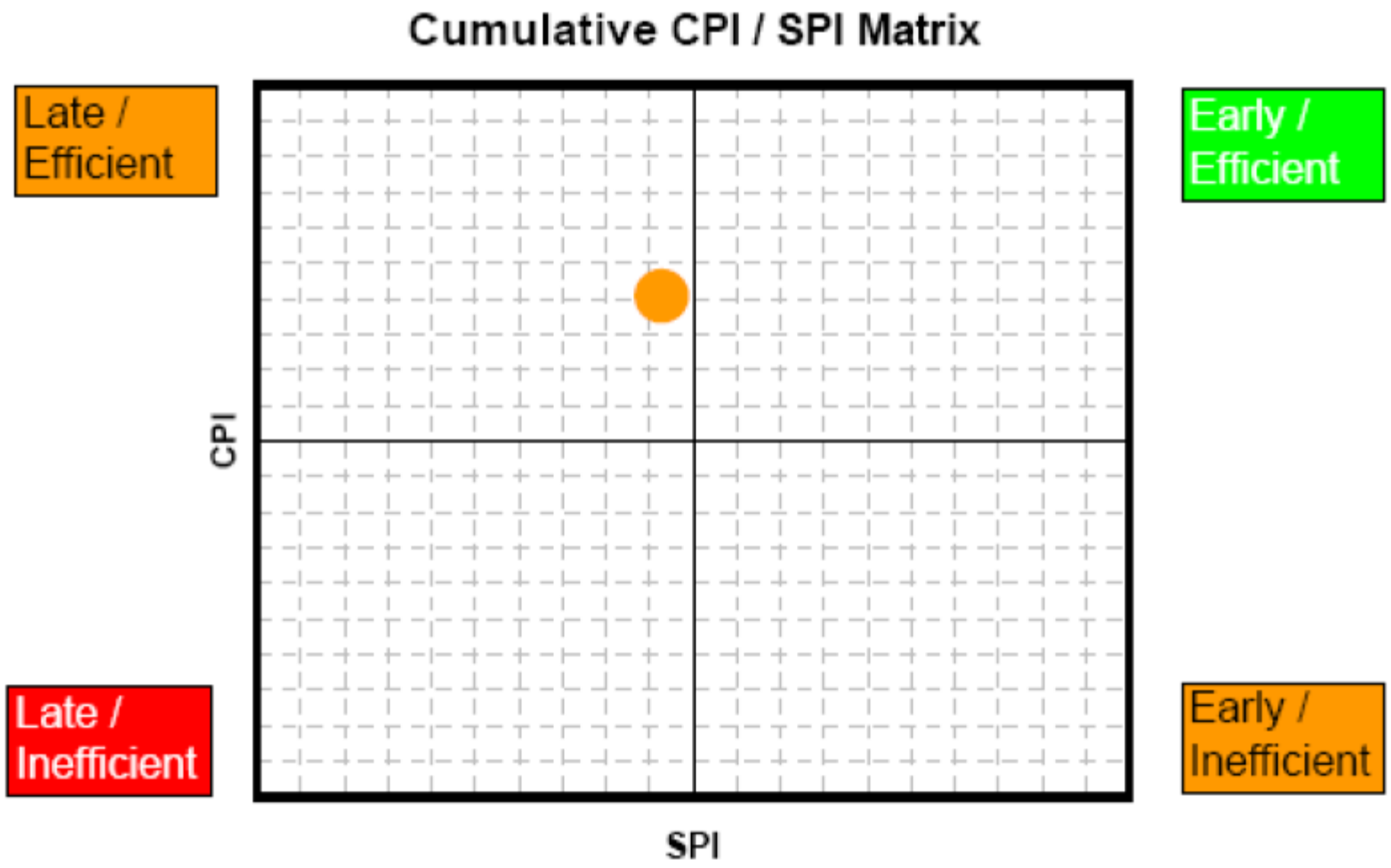
How project is progressing?



How project is progressing?



CPI & SPI Summary



Earned Value Rules

- 0% - 100%
- 50% - 50%
- 20% - 80%
- 25% - 75%

Communication, Stakeholders

- Re-evaluate communication & engagement need of stakeholders
- Pay attentions to the issues raised by them
- Update report formats, communication plan, engagement plan, if required

Manthan Time

Do, Discuss, Relate to Work

Let's Identify Metrics Required to Manage

Project Closure

Overall, Procurement

- All the procurement contracts are closed
- Settle any claim issue with vendors or transfer case to account and legal department
- Prepare follow-up action plan
- Handover all accepted deliverables to customer
- Lessons learned workshop
- Share lessons learned with organization
- Archive all the project repository
- Inform team members and disband team

Project Manager in Nutshell

Should

- Be a resourceful person who can get things done and keep all relevant stakeholders informed.
- Ensure work is estimates in terms of size, efforts & schedule
- Ensure risk identification, analysis, prioritization, monitoring & control is done periodically
- Ensure right resource allocated for the work, resource backup and utilization
- Ensure team is motivated, career planning, training and development activities are being done
- Ensure scope and requirements are management
- Ensure stakeholders are sufficiently engaged, their expectations are managed they are being communicated proactively
- Ensure project objectives are met in terms of time, cost, scope and defect free product.
- Ensure all contractual obligations are fulfilled
- Ensure procurements are as per contract & proposal
- Ensure Configuration management, data backup
- Ensure lessons learned are documented and implemented
- Ensure cost is optimized
- Participate in presales & proposals

Agile Project Management

Level of Planning

- Project Level Planning
- Release Level Planning
- Iteration Level Planning

Kanban Board

Standup Meetings


hari.prasad@vedavit-ps.com


+91 9535999336


http://rarementors.com


https://in.linkedin.com/in/harithapliyal


@harithapliyal


http://pmlogy.com/pml/lifeisprojectplus

Hari P Thapliyal,

PMP, PMI-ACP, MCITP, Princ2 Practitioner, CSM, MBA, MCA, CIC, PGDFM

PMO Architect & Project Management Evangelist

Profile: http://in.linkedin.com/in/harithapliyal

For content related queries please contact me via

hari.Prasad@vedavit-ps.com