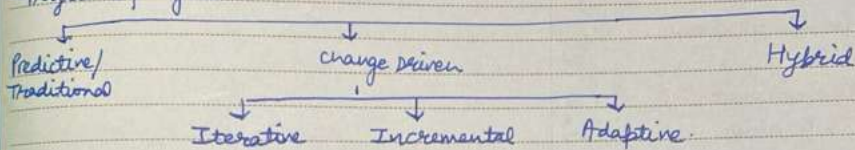


INTRODUCTION

DATE: / /

1. Project → Unique, Temporary, Progressively elaborated.
2. Operations → ongoing
3. Portfolio → Collection of Projects/Programs/operations → for Strategic.
4. Phase → Collection of logically related activities, produces deliverables.
5. Program → Grouped projects that are inter-related.

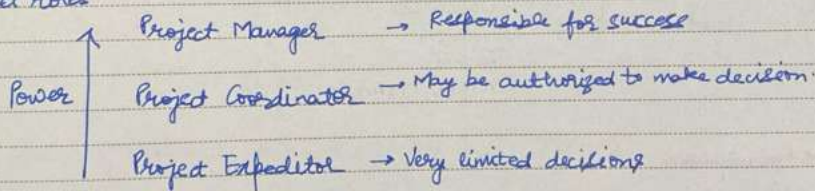
→ Project life cycle



→ Project Governance → Framework + Functions + Processes.
Tailored.

→ Stakeholder → Person / Group of People / organiz^{ns} affected.

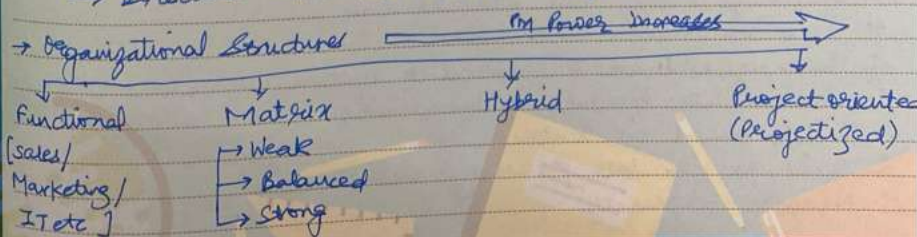
→ Project roles:



→ Project Management Offices.

- Supportive → Support like templates, training, lessons
- Controlling → Determine the framework / methodology
- Directive → Control & the PM report to them.

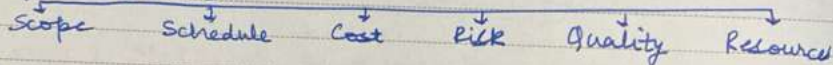
→ Organizational Structure



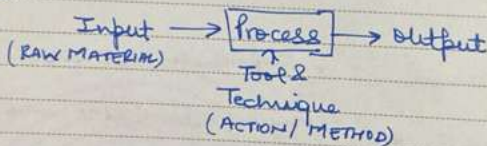
→ Process Groups + Knowledge Areas.

| | | | |
|---------------------|-----|----------------------|------|
| 1. Integration Mgmt | (7) | 1. Initiating | (2) |
| 2. Scope | (6) | 2. Planning | (24) |
| 3. Schedule | (6) | 3. Execution | (10) |
| 4. Cost | (4) | 4. Monitor & Control | (12) |
| 5. Quality | (3) | 5. Closing | (1) |
| 6. Resource | (6) | | |
| 7. Communications | (3) | | |
| 8. Risk | (7) | | |
| 9. Procurement | (3) | | |
| 10. Stakeholder | (4) | | |

→ Project Constraints.

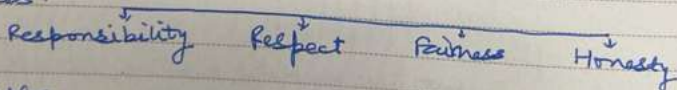


→ Process



→ Principles

→ Values:



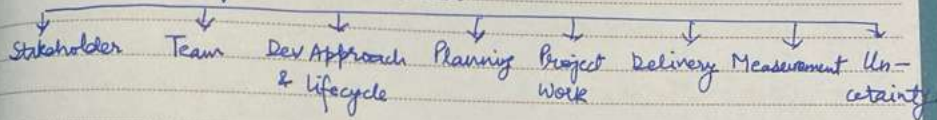
→ Principles

1. Be a diligent, respectful & caring steward.
2. Create a collaborative project team env.
3. Effectively engage with stakeholders.
4. Focus on value.
5. Recognize, evaluate & respond to system interactions.
6. Demonstrate leadership behaviours.
7. Tailor based on context.
8. Build quality into processes & deliverables.
9. Navigate complexity.

10. Optimize risk responses
11. Embrace adaptability & resiliency
12. Enable change to achieve the envisioned future state

→ Domains

Groups of related activities

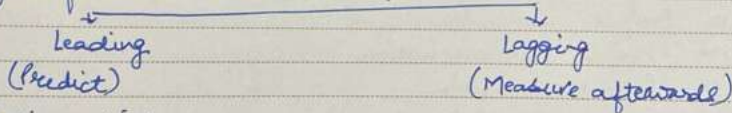


⇒ Stakeholder engagement

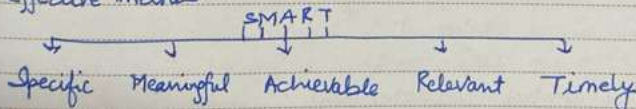
Identify → Understand → Analyze → Prioritize → Engage → Monitor

⇒ Measurement

→ Key Performance Indicators (KPIs)



→ Effective metrics



→ Pitfalls in metrics

1. Hawthorne effect → Do no work, just measure
2. Vanity metric
3. Demoralization
4. Mislead
5. Confirmation bias

x

→ Project Documents

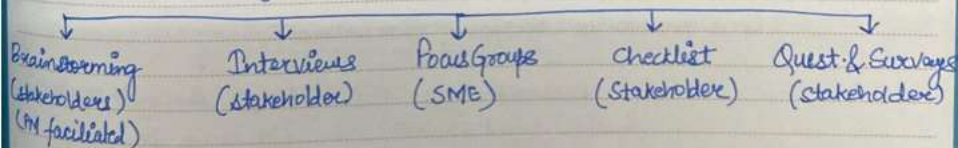
↳ They are not part of Project Management plan
↳ 33 in count

- | | |
|--------------------------------------|-------|
| 1. Activity Attributes | MDLIB |
| 2. Activity list | T |
| 3. Assumption log. | ACSS |
| 4. Basis of estimates. | PR |
| 5. Change log. | |
| 6. Cost estimates. | |
| 7. Cost forecasts. | |
| 8. Duration estimates. | |
| 9. Issue log. | |
| 10. Lesson learned Register. | |
| 11. Milestone list. | |
| 12. Physical Resource assignments. | |
| 13. Project calendars | |
| 14. Project communication. | |
| 15. Project Schedule. | |
| 16. Project Schedule N/w diagram. | |
| 17. Project Scope Statement. | |
| 18. Project team assignments. | |
| 19. Quality control measurements. | |
| 20. Quality metrics. | |
| 21. Quality Reports. | |
| 22. Requirement Documentation. | |
| 23. Requirement traceability metrics | |
| 24. Resource breakdown structure | |
| 25. Resource Calendars. | |
| 26. Resource requirements. | |
| 27. Risk Register. | |
| 28. Risk report. | |
| 29. Schedule data. | |
| 30. Schedule forecast. | |
| 31. Stakeholder Register. | |
| 32. Team charter | |
| 33. Test & evaluation documents. | |

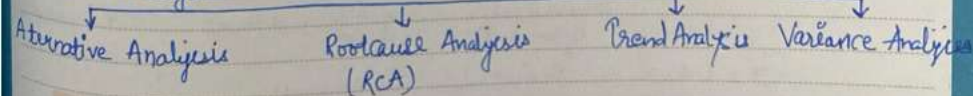
→ Project Management Plan

1. Scope Management plan.
2. Requirement mgmt plan
3. Schedule Mgmt Plan
4. Cost mgmt plan.
5. Quality mgmt plan.
6. Resource mgmt plan
7. Communication mgmt plan
8. Risk mgmt plan
9. Procurement mgmt plan.
10. Stakeholder mgmt plan
11. Change Mgmt plan.
12. Configuration mgmt plan.
13. Scope baseline [Create WBS]
14. Schedule Baseline [Develop schedule]
15. Cost Baseline. [Determine budget]
16. Performance measurement plan
17. Project life cycle description.
18. Development approach.

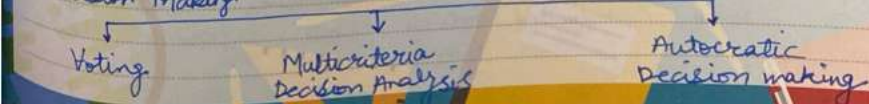
→ DATA Gathering Methods



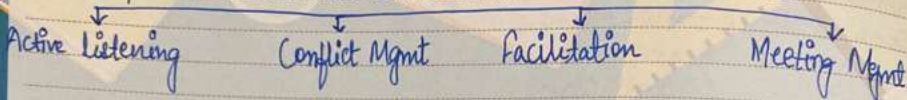
→ Data Analysis



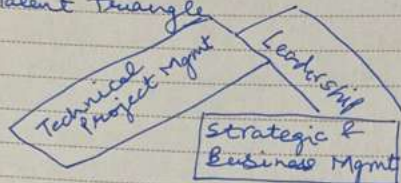
→ Decision Making



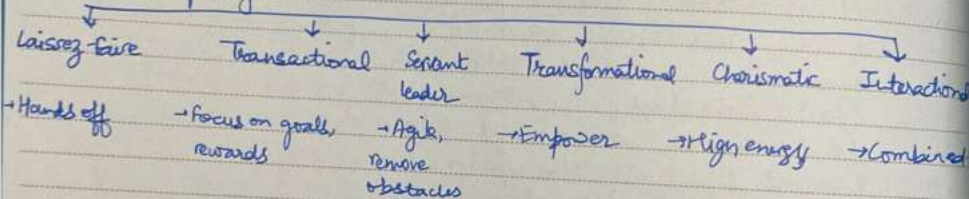
→ Interpersonal & Team Skills:



→ PMI Talent Triangle



→ Leadership styles:



→ INTEGRATION

→ DEVELOP PROJECT CHARTER

↳ 1 input is Business Documents

Business Case

(Whether project is worth)

Project Benefits Mgmt Plan
(Measure benefits)

↳ 1 input is Agreements

Service level Agreement

Letter of intent

Contract

Work required for payment

↳ 1 input is Project Selection Methods

ROI

Benefit Cost Ratio

Economic Value Add

Internal Rate of Return

Opportunity Cost

Payback Period

Present Value

4. change Models

1. Managing changes in Organizⁿ

- 1) Formulate change
- 2) Plan change
- 3) Implement change
- 4) Manage Transition
- 5) Sustain change

2. ADKAR Model

- 1) Awareness
- 2) Desire
- 3) Knowledge
- 4) Ability
- 5) Reinforcement

3. 8 Step process → top down Approach

- 1) Create Urgency
- 2) Form a powerful coalition
- 3) Create a vision for change
- 4) Communicate the vision
- 5) Remove obstacles
- 6) Create short term wins
- 7) Build on the change
- 8) Anchor the changes in corporate culture.

4. Virginia Satir Change Model

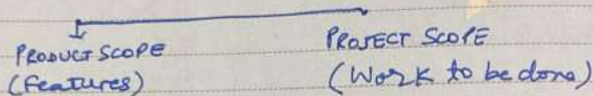
- 1) Late status quo
- 2) The foreign element
- 3) Chaos
- 4) The transforming idea
- 5) Practice and integration
- 6) New status quo

5. Transition Model William Bridges

- 1) Ending, losing & letting go
- 2) The neutral zone
- 3) The new beginning

→ Scope Management

- Gold plating → extra work which is not in scope.
- Scope creep → unauthorized work added to scope

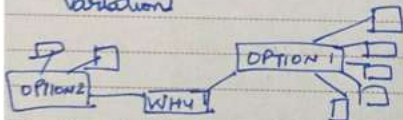


→ Benchmarking → Comparing to other projects / industry standards

→ Data representation

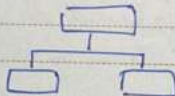
Idea/Mind Mapping

- Gathered in Brainstorming
- Mapped together to discover new considerations / Variations



Affinity Diagram

- ↳ large ideas grouped & sorted together for review.



→ Prototypes.

→ Requirement Traceability Matrix.

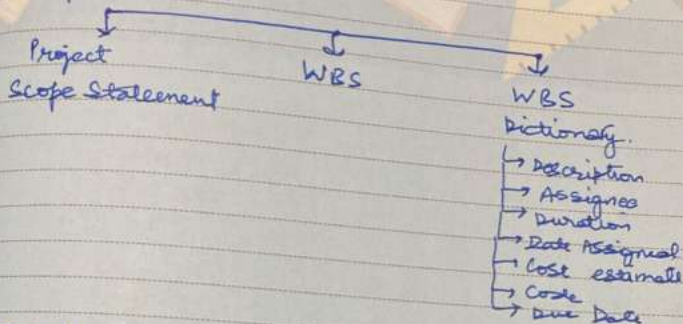
- who provided requirement
- why requirement is added
- Description of requirement
- Current status.

→ Project Scope Statement

- Description / Goals
- Identified risks
- Acceptance criteria
- Constraints / Exclusions

→ Decomposition → Breaking down the deliverables into small components.

→ Scope Baseline



→ Job shadowing → an interpersonal & team skill

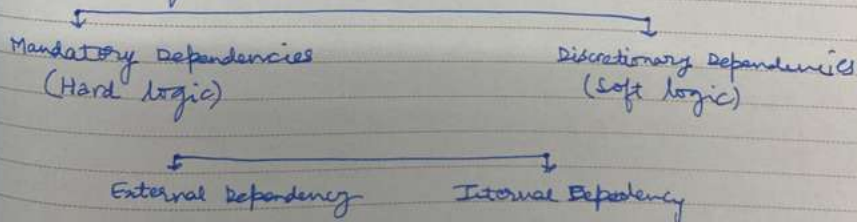
= X =

→ SCHEDULE

→ Sequence Activities

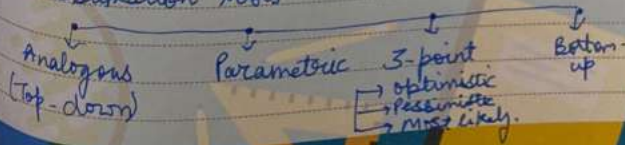


→ Dependency determination

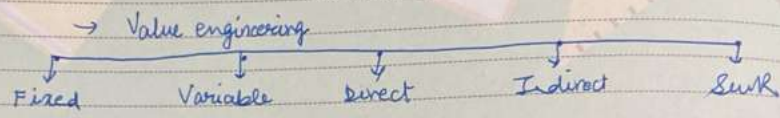


→ Leads - a successor activity can be advanced by this much
Lags - delay in successor work package / activity.

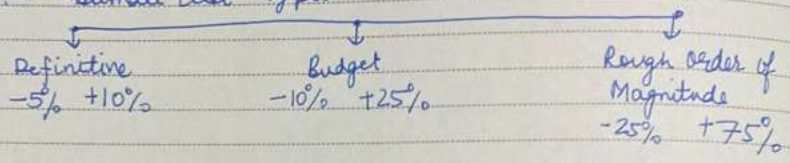
→ Estimation tools



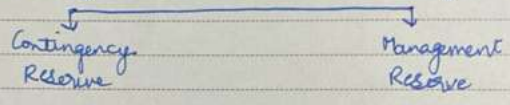
→ Cost



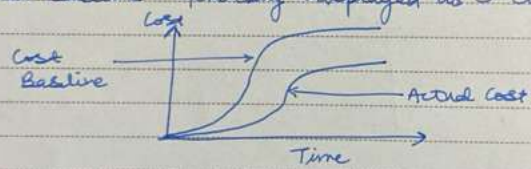
→ Estimate Cost Types



→ Reserve analysis - tool in 'Determine budget'



→ Cost Baseline: Generally displayed as S-curve



→ Earned Value Management

1. BAC (Budget) @ completion
2. PV (Planned value) = $\text{Planned \% Complete} \times \text{BAC}$
3. EV (Earned Value) = $\text{Actual \% Complete} \times \text{BAC}$
4. AC (Actual cost) = Amount spent
5. CV (Cost Variance) = $\text{EV} - \text{AC}$
6. CPI (Cost Performance Index) = EV / AC
7. SV (Schedule Variance) = $\text{EV} - \text{PV}$
8. SPI (Schedule Performance Index) = EV / PV
9. EAC (Estimate @ completion) = BAC / CPI
10. ETC (to) = $\text{EAC} - \text{AC}$
11. VAC (Variance @) = $\text{BAC} - \text{EAC}$
12. TCPI (To-complete Performance Index) = $(\text{BAC} - \text{EV}) / (\text{BAC} - \text{AC})$

→ Quality

Quality Grade

→ Quality Methodologies

Total Quality Mgmt (TQM)
→ Everyone is responsible

kaizen
→ Continuous Improvement

ISO 9000

Just in time Inventory

Deming Cycle
→ Plan, do, check, Act

Six Sigma

→ Terms

→ Attribute - Does a character conform
Sampling

→ Variable - How well a characteristic conform.
Sampling

→ Mutual exclusivity - 2 events can't occur together

→ Tolerance - specified range of acceptable results.

→ Prevention

→ Inspection

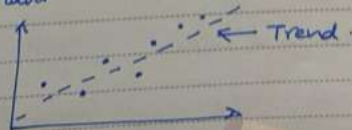
→ Control limits: boundaries of common variation in a stable process.

→ 1 tool in Manage quality is → Ishikawa/Fishbone diagram which tells the causes of defects

→ Flowcharts

→ A type of Histogram → Pareto Chart (80-20 rule)

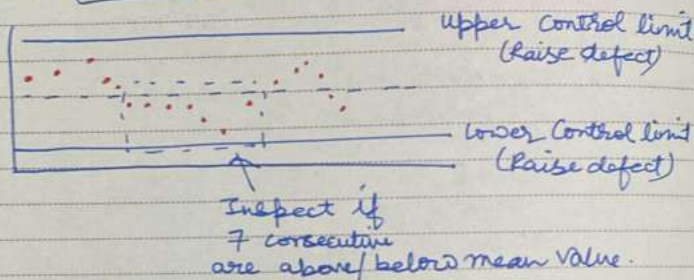
→ Scatter diagram → shows trends in the data



→ Design for X - design something keeping 'X' element in mind

→ 1 tool in Control quality is → CONTROL CHART.

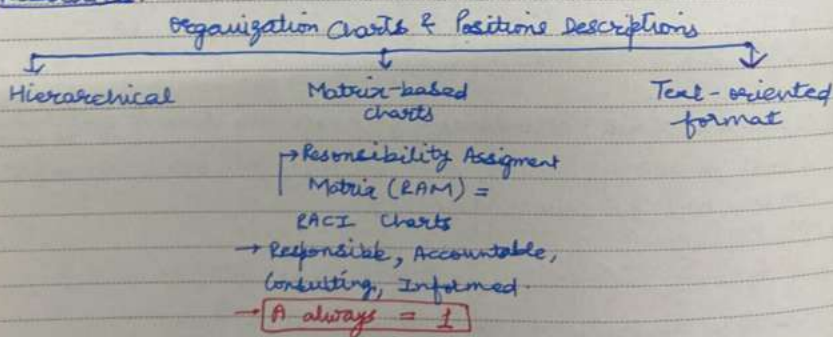
- Tells if a process is in control
- Uses RULE of 7



→ Flowchart = process diagrams used to show possibility of room for improvement.

= x =

→ Resources



→ develop team → Tuckman's ladder

1. Forming
2. Storming
3. Norming
4. Performing
5. Adjourning

→ Colocation = Tight Matrix

→ Develop team → Maslow's hierarchy of needs

1. Physiological → Necessities
2. Safety → Security
3. Social → Needs of love, affection
4. Esteem → Respect
5. Self actualization → Pinnacle

→ Herzberg's theory of motivation

→ Hygiene agents - Must, but if absent, are demotivating

→ McGregor's Theory X & Y

- X → Micromanage, distrust
- Y → Self led, motivated

→ Z → Emphasis of well-being, steady employment.

→ Expectancy theory - People behave based on what they expect as a result of their behavior.

→ McClelland 3 need theory

1. Achievement
2. Power
3. Affiliation

→ Forms of Power

1. Reward power
2. Expert power
3. Legitimate (Formal power)
4. Referent - Respect
5. Punishment

→ Situational Leadership Models:

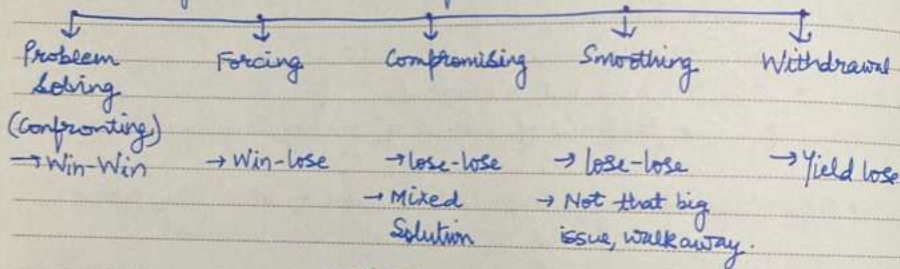
→ OSCAR Model

1. O → Outcome (What you need) (Future State)
2. S → Situation (Where are you right now) (Current State)
3. C → Choices/Consequences
4. A → Action
5. R → Review

→ Bassens Sibbet Model

- | | | |
|--------------|---|--|
| Create Team | { | Step 1 - Orientation - Why |
| | | 2 - Trust building - Who |
| | | 3 - Goal clarification - What |
| | | 4 - Commitment - How, define the plan |
| Sustain Team | { | 5 - Implementation - Start working |
| | | 6 - High performance - Reach new level |
| | | 7 - Renewal - Working through changes |

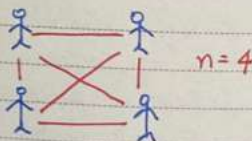
→ Manage Team - Tool - Conflict Resolution



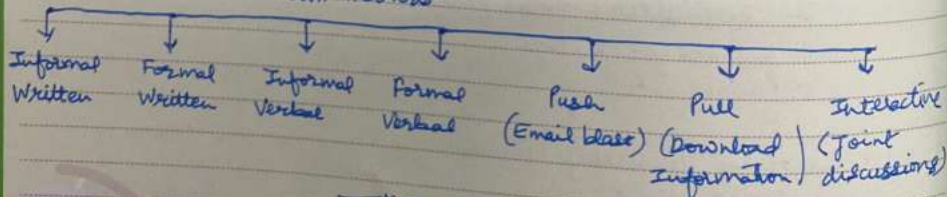
→ Communications

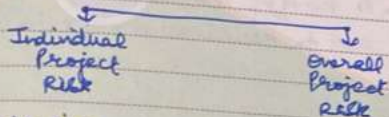
→ Communication channel

$$\Rightarrow \frac{n(n-1)}{2}$$



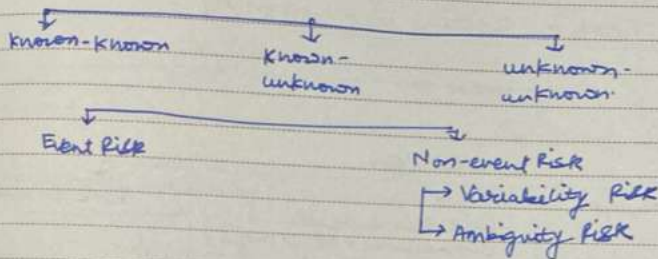
→ Communication methods



→ Risk

→ Risk appetite

→ Risk Tolerance



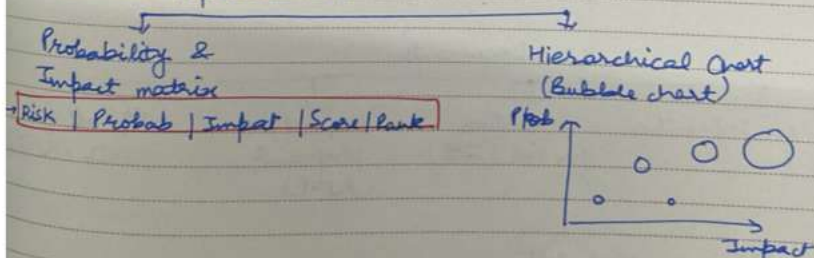
→ Identify risk - tool - SWOT analysis

| | |
|-------------|----------|
| STRENGTH | WEAKNESS |
| OPPORTUNITY | THREAT |

→ Risk Register

| Risk ID | Risk | Response | Cause | Project Area |
|---------|------|----------|-------|--------------|
|---------|------|----------|-------|--------------|

→ Risk Data Representation



→ Quantitative analysis

→ Sensitivity analysis → Tornado Chart



→ Influence chart = A kind of flowchart for graphical aid to decision making in uncertainty

→ Decision-Tree Analysis
= Make or buy analysis.

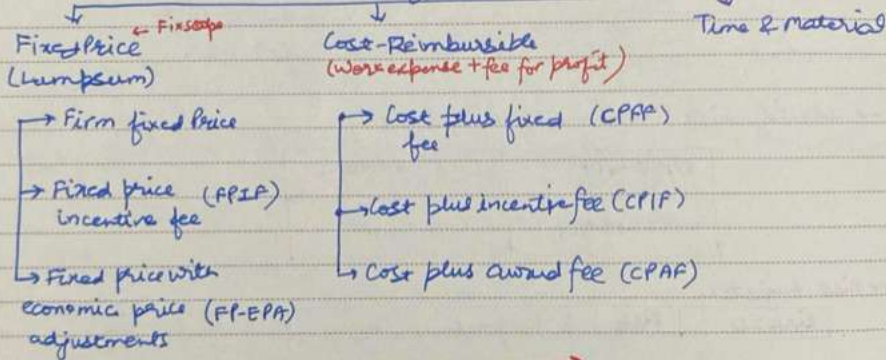
$$EMV = \text{Probability} \times \text{Risk}$$

$$\text{Total} = \text{Initial cost} + EMV$$

= x =

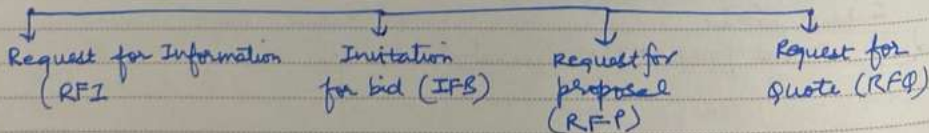
Procurement

Contract Types



Buyer Risk Increase →

Bid Documents



- Pre-approven seller list.
- Source selection criteria.
 - Independent cost estimate
- Procurement Statement of work - tells what will be procured.
- Procurement strategy - outlines procurement contract type.

Stakeholder

→ stakeholder cube

3D cube → Interests + Power + Influence of stakeholder

→ Salience model (of stakeholders)

↓
Power↓
Urgency↓
Legitimacy

→ Directions of influence

↓
Upward↓
Downward↓
Outward↓
Sideward

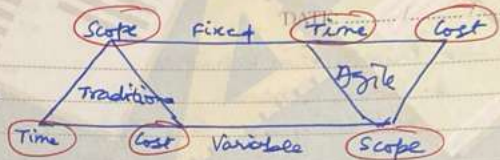
→ Stakeholder engagement assessment matrix

↓
Unaware↓
Resistant↓
Neutral↓
Supportive↓
Leading

= X =

→ Agile

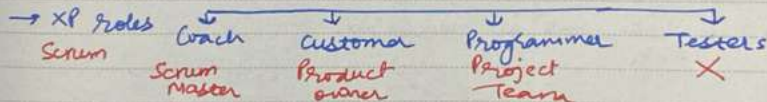
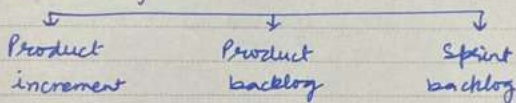
→ Investing the triangle



→ Agile Manifesto Values

- | | | |
|-------------------------------|----------|-----------------------------|
| 1. Individuals & Interactions | - over - | Processes & Tools |
| 2. Working Software | - over - | Comprehensive Documentation |
| 3. Customer Collaboration | - over - | Contract negotiation |
| 4. Responding to change | - over - | Following a plan |

→ Scrum artifacts



→ Metaphor

→ Sprint Release

Sprint/Release planning
Product owner
Retrospective
Scrum Master
Dev Team
Daily Scrum

Iteration
Small Release
Planning game
Customer
Reflection
Coach
Team
Daily Standup

→ Little's law

We can predict completion time based on queue size.

→ Minimum viable product

→ Prioritization Techniques

1. Simple Scheme

- ↳ Priority 1 → Priority 2 → ... etc
- ↳ Problematic if multiple items are P1.

2. MoSCoW

- ↳ Must have, Should have, Could have, would like (best not now)

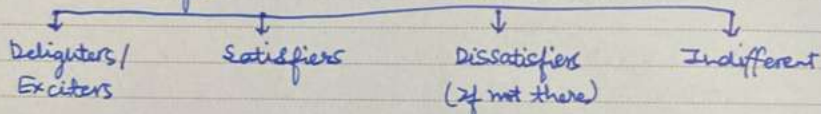
3. Dot Voting / Multi-Voting

- ↳ Distribute dots to requirements

4. Monopoly money.

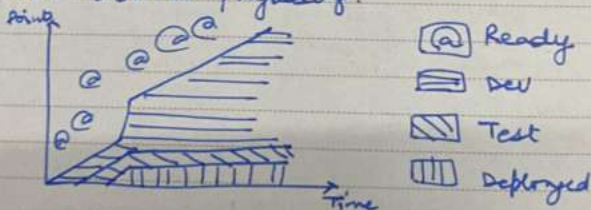
5. 100 point method

6. ★ Kano Analysis



→ Cumulative flow Diagram (CFD)

- ↳ Tells how work is progressing.



is widening, its bottleneck are activity

→ Agile contracting

- ↳ Money for nothing - After x amount delivered, sponsor closed, you keep money.
- ↳ Charge for free - replace task x with y

→ Gulf of evaluation - one person interpretation is different from other.

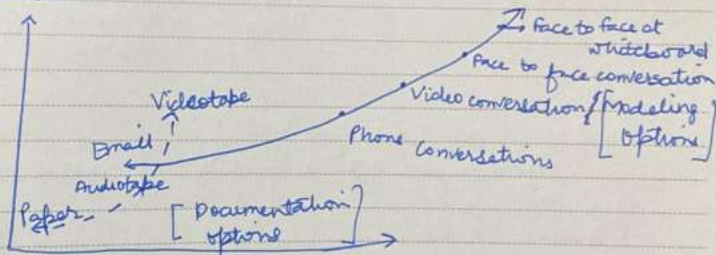
$$= x =$$

- Agile ~~Chatterbox~~ Chatterbox
- Use SWs & I/H
 - May use project tweet

- Agile modeling
- Use case diagram
 - Data models (RDBMS)
 - Screen design
 - Wireframes

- Persona
- Quick guide of key stakeholders & interests.

- Communications



- Stakeholder zones

Red zone

Green zone.

- Workshop - meeting where work gets done

- Brainstorming

quiet
Writing

Round
Robin

Free for
all

- Collaboration Games

Remember
the future
(priorities)

Prune the
Product tree
(understand
dependencies of
tasks)

Speedboat
(Sailboat)
(Wind - keeper)
Anchor - blocker

→ Active listening

Level 1

→ How does it affect me?

INTERNAL

Level 2

→ Put yourself in mind of speaker

FOCUSED

Level 3

→ Reflects in body language

GLOBAL

→ Conflict resolution

↳ Levels of conflict:

1 - Problem to solve

2 - Disagreement

3 - Contest

4 - Crusade

5 - World War

→ Participator decision Models:

Simple Voting

Thumbs up/down/sideways

Pair of five
1 - support
5 - stop!

→ CoCoMo (Constructive Cost Model)

People cost 11 times more than processes

→ Generalizing specialists

→ Models of team development

1. Shu - Ho - Ri

Obey

Move

Find individual path

2. Drayfus model of Adult Skill acquisition

→ Novice → Advanced Beginner → Competent → Proficient → Expert

= X =

→ Parkinson's law = Work tends to expand to fill the time given.

→ Three C's of stories

Card

Conversation

Confirmation

→ Effective user story should be:

Independent

Negotiable

Valuable

Estimable

Small

Testable

→ Wideband Delphi → used for anonymous estimations, prevents.

Bandwagon
effect

HIPPO effect
(Highest paid person's
opinion)

Groupthink.

→ Iteration Types

Iteration
0

→ Development
Iterations

→ Iteration
H

→ lead time - Time for entire process

→ cycle time [——— part of process
[closely related to WIP.
[cycle time = $\frac{WIP}{Throughput}$

→ Kaizen:

Edward Deming [→ PDCA
[Plan - Do - Check - Act

→ Retrospective stages

1. Set stage - 6 minutes
2. Gather data - 40 —
3. Generate insight - 25 —
4. Decide what to do - 20 —
5. Close retrospective - 20 —

Gather data step

- Triple nickel - 5 minute - 5 ideas, 5 people
- Mad / Sad / Glad

Generate Insight

- Fishbone
- Ask 5 whys

Decide what to do

- Set goals that are

S M A R T
Specific Measurable Attainable Relevant Timely

Close

- + → do more (plus)
- Δ → do less (Delta)