

BPE

→ Activities (Streamline) $A_1 \rightarrow A_2 \rightarrow A_3$

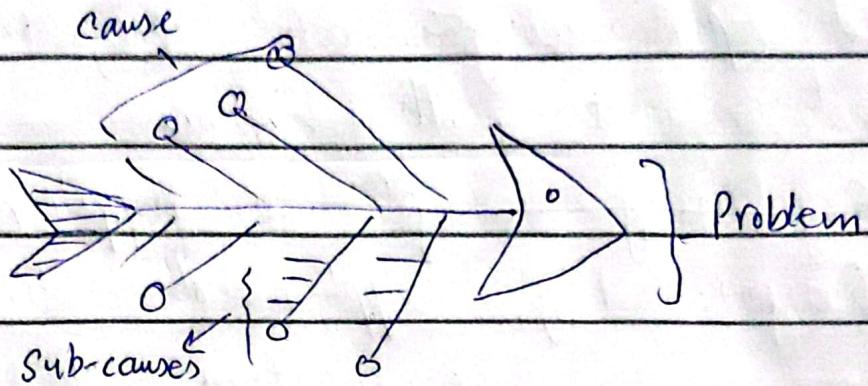
→ Sequence

Left-to-right workflow → Order

ERP → Enterprise Resource

2-10-23

BPE



Fishbone Diagram

- Identify possible causes
- Visualize a potential cause of a problem
- Five 'M' Man, Machine, Material, Money,

Measurement

- Cause can be bigger and their can be many subcauses
- 4, 6, 8 categories

① Problem Statement

② Mention the categories

③ Brainstroming in each category

④ Root Cause Analysis

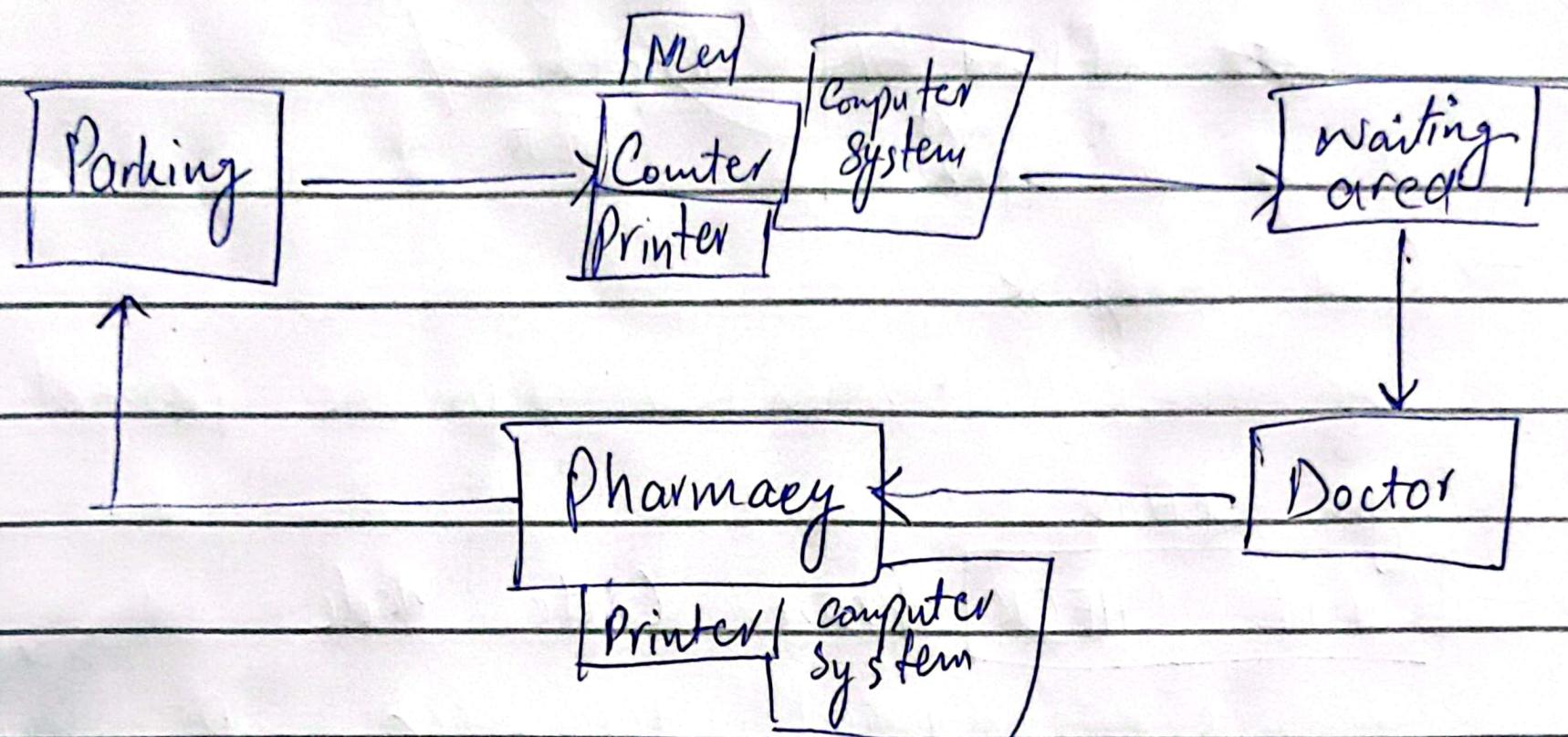
→ Pareto Analysis (80-20 Principle)

→ 5 Whys

→ PDCA

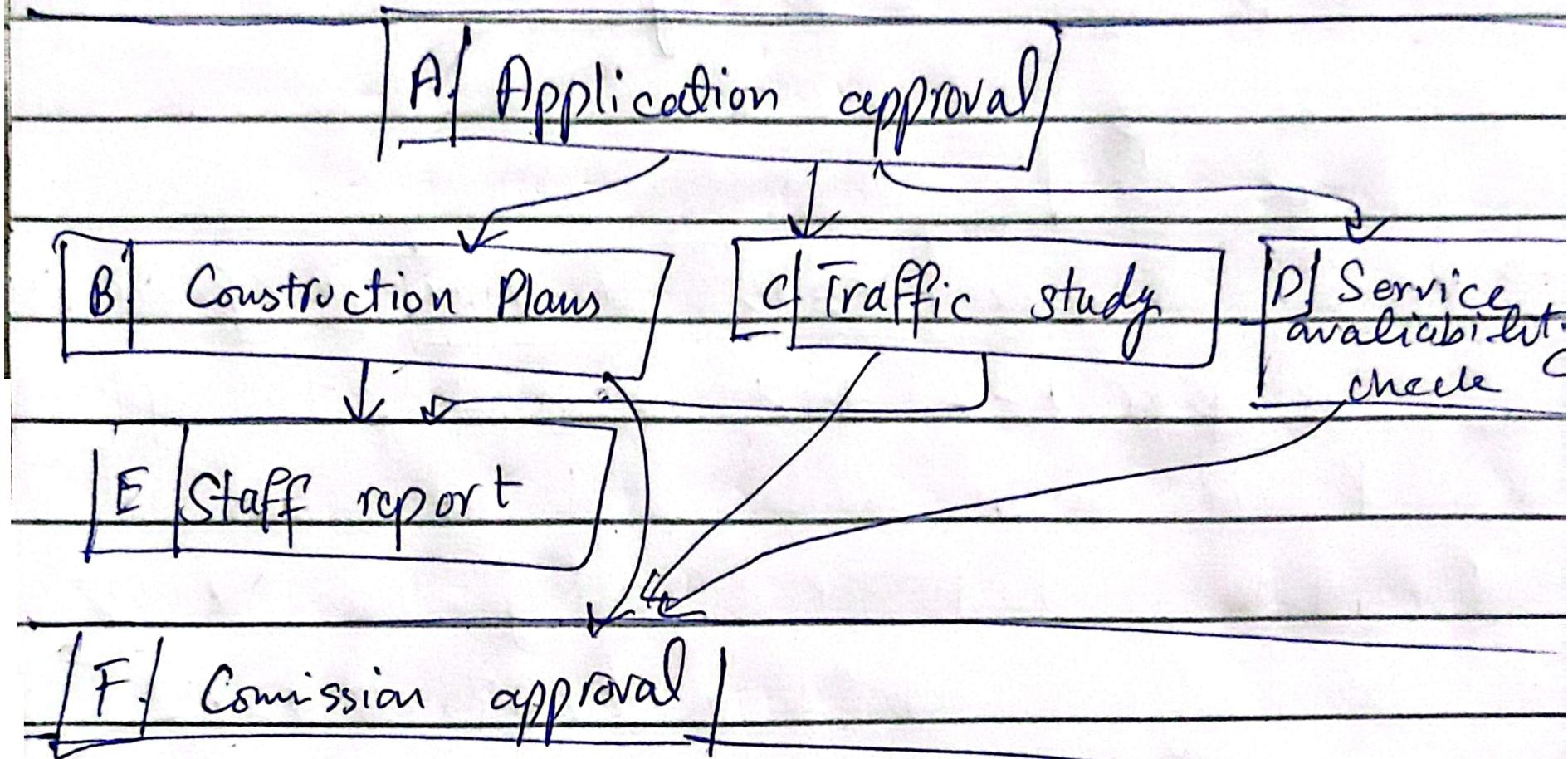
→ Failure Mode and Effect Analysis

BPE Process

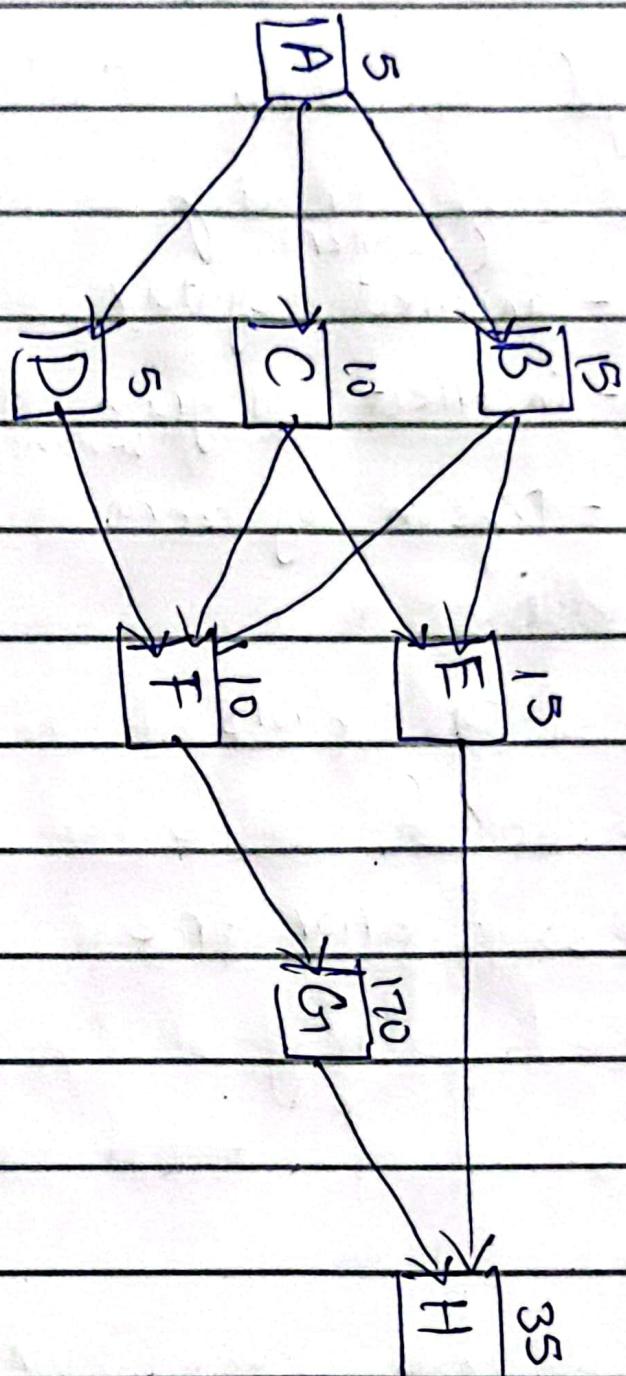


BPE

Koll business Center



Koll business center
Country Engineers Design Department



Time →

ABFH = 70

ACEH = 65

ACFGH = 225 230

ADFGH = 225

The Seven waste of Lean

- What is a non-value adding operation?

Types of work

Value adding

Value effort

→ Costs time

→ Costs

Non-valuable

Types of work

Value adding

Value effort

→ costs time

→ costs money

→ add value

Valueable

Non-value adding

Valuable efforts

Obvious waste

Cost time, money,
add no value

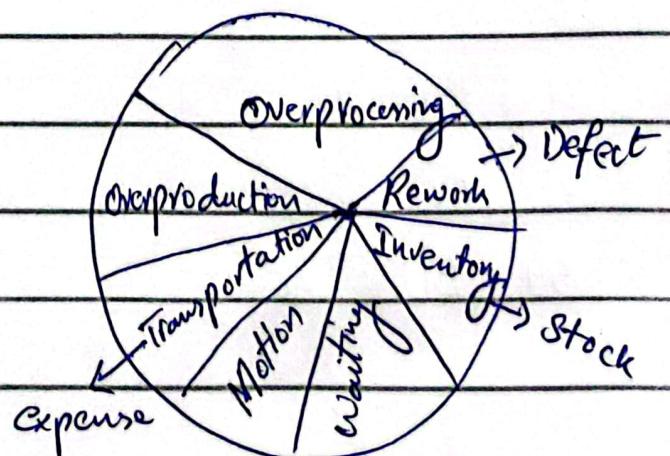
Waste

"Where we draw the line between
waste and non-value elements"

Waste

"Anything other than the minimum
amount of equipment, materials, parts
and working absolutely essential to
production."

TIMWOOD



Lean \Rightarrow work with minimum defect

Creativity

Every activity should be considered as waste unless it:

\rightarrow Meets an explicit customer requirement

\rightarrow Cannot be shown to be performed more economically.

\rightarrow Quiz on Thursday

23 - 11 - 2023

Daily Routine

Valuable	Non-Valuable
5:35 Wash face	
5:40 Fajr Prayer	5:45 Instagram Reels
6:00 BIT Papers read-out	watch
	7:47 Music
7:00 Breakfast	10:25 Paper discussion
7:14 Left for bus	
7:35 Bus	
8:47 Arrived	
9:20 AJ Lecture	
10:54 BIT Lecture	

BPE Quiz 2

→ Anything other than minimum amount of equipments, materials, parts and time absolutely essential to production.

→ Anything other than absolute minimum resources of material, equipment and manpower required to add value to product.

① Transport waste is movement of material that directly does not add value to product.

→ Equipment, material should be closed so that they can move from one process to another process easily.

Causes: • Poor layout • Large Batch
Overproduction • Lengthy or complex material handling system.

② Inventory waste is stock and work in progress ~~in~~ excess of the requirement necessary to produce goods or service "JIT"

Cause: • Large batch size
• ~~Incapable~~ process • ~~Failure to observe~~
• ~~FIFO~~ first-in first-out • Large ~~changeover~~ change over time

③ Motion waste is motion of (any unnecessary)

man and/or equipment that does not add value to product or service

Cause: Poor workstation layout • Poor method

design • Large batch size • Reorientation of material

④ Over production waste is the major kind

of waste in which the product is produced ^(or faster) more than customers requirement

Causes • Large batch sizes • Unreliable process

• Unstable schedule • Unbalanced cells

• Working to forecast / inaccurate information

⑤ Over processing waste is adding more value

to the process or service

① Painting ~~→~~ unseen area

② Unnecessarily tight tolerance

Cause: • No standardisation of best

techniques • Unclear specification

• Quality acceptance standards

⑥ Defect is waste of correction includes

additional work performed on a

product or service.

Cause: • Inadequate training • Skills

• Incapable (processes + suppliers) • Operator ^{shortage} error

⑦ Waiting waste is any idle time produced when two interdependent processes are not completely synchronized.

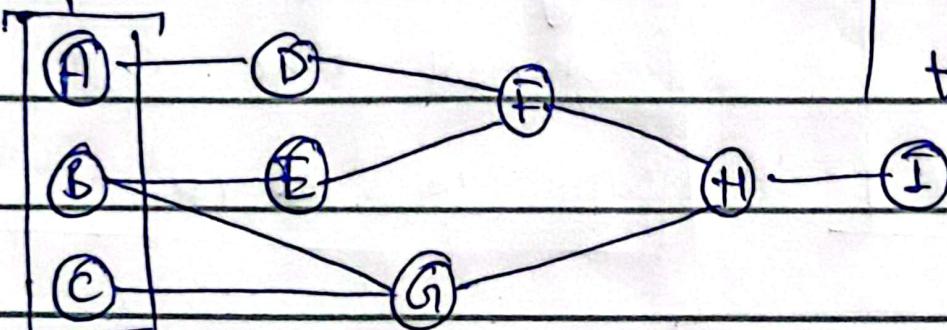
→ Slow or stopped process

- Cause:
- Poor man / machine coordination
 - Unreliable process
 - Long changeovers
 - Time required to perform rework
 - Batch completion, not single pieces transfer between operations

CPM (Critical Path Method)

Activity Chart (Network)

Raw

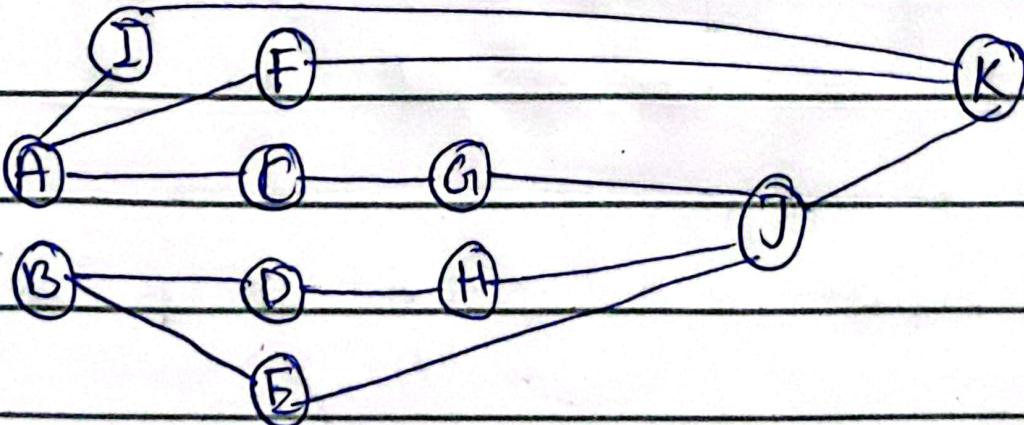


- Left → Right

→ 4 types of dependencies

→ Six steps common to PERT / CPM

[Time Question]

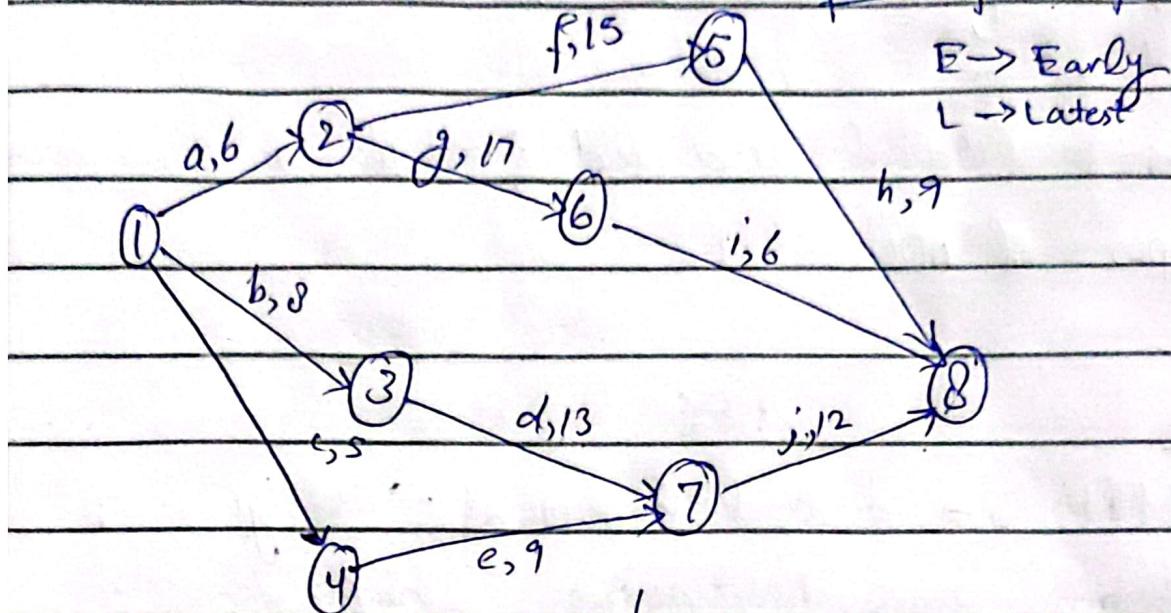


- Longest Path is called Critical Path
- Slack → Delay

S - F
S - S
F - S

• Right → Left

ES	EF
LF	LS



Left → Right
Critical Path

1 - 3 - 7 8

Right → Left

• Shortest time cost
path in reverse

When moving Left → Right
Longest Path is considered
considered

When moving Right →
left shortest p-time
cost path is considered

- SLACK

→ Choose the path with shortest or no Slack

Business Process Mapping

- Output vs Outcome

- ~~gumba~~ walk

- nNVA - necessary non-value adding

Value Stream Mapping VSM

• SIPOC Tools

BIT

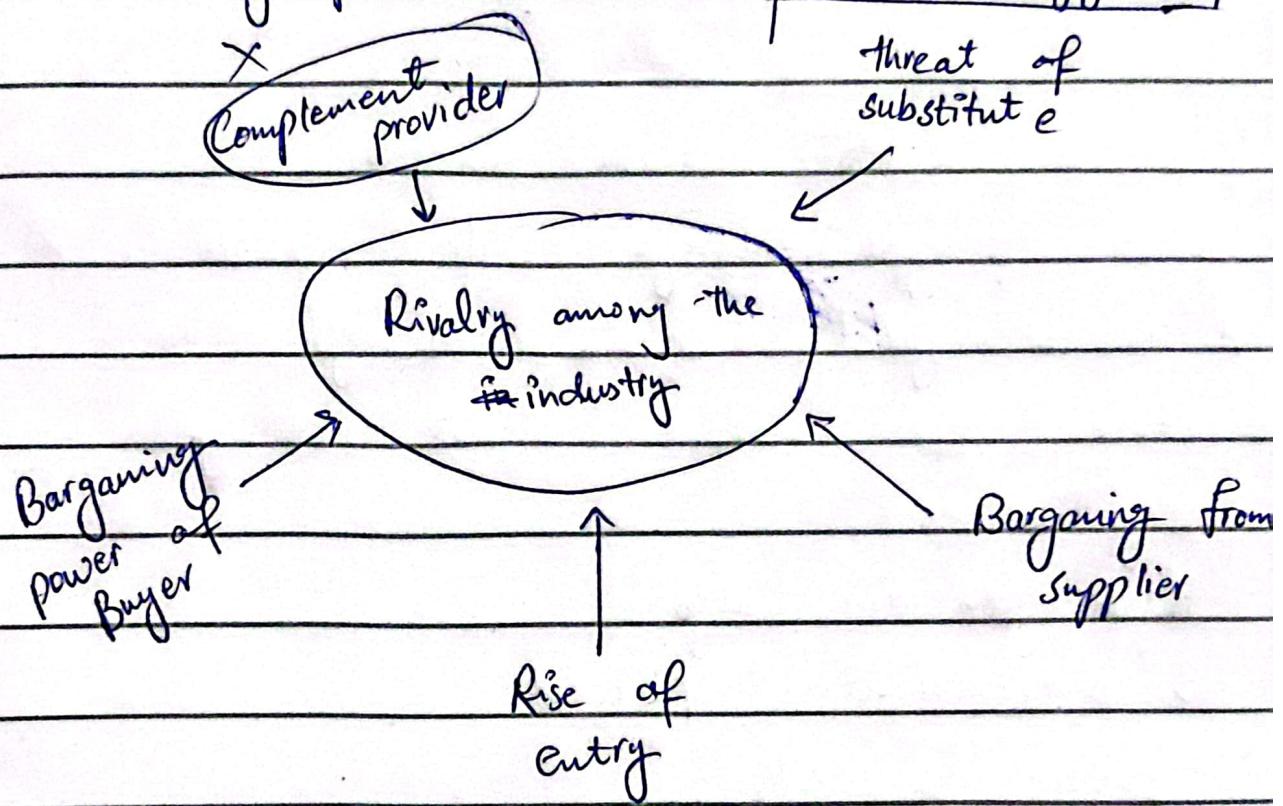
innovative idea

↓
to get
in to

Business Strategies

- Cost leading/ leadership
- Differentiation
- Focus group

Head to Head competition is called Red Ocean Strategy



Q. What is Blue Ocean Strategy? (Starting)

→ First strategy used through innovation

Starting of the business → Blue Ocean

End point of business → Red Ocean

BPE

The project Network

- Flowchart That graphically represents

① sequence ② dependencies ③ start and finish time of activities that is the critical path.

Critical - which cannot be delayed

↳ critical path - longest

⑧ Rules

① Left - to - Right always

② An activity cannot begin until an preceding activity is finished

③ Arrow indicates precedence and flow

Arrow can cross each other

④ Each ~~arrow~~ ^{activity} have a specific number/name

⑤ ID number must be larger than the preceding activity

⑥ No loop , cannot go back

⑦ No condition statement

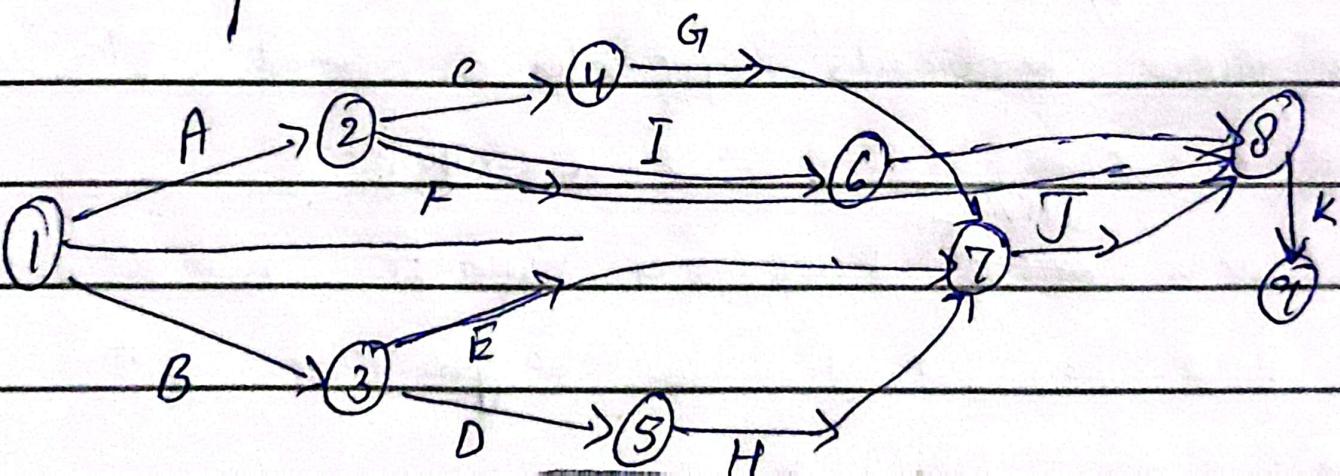
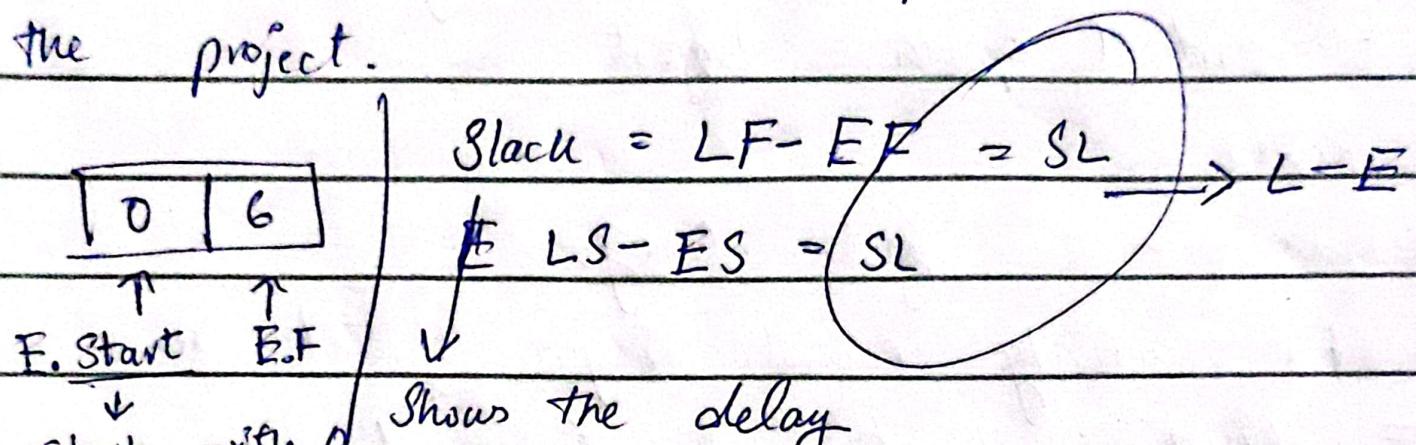
⑧ Common node can be used when there are multiple starts

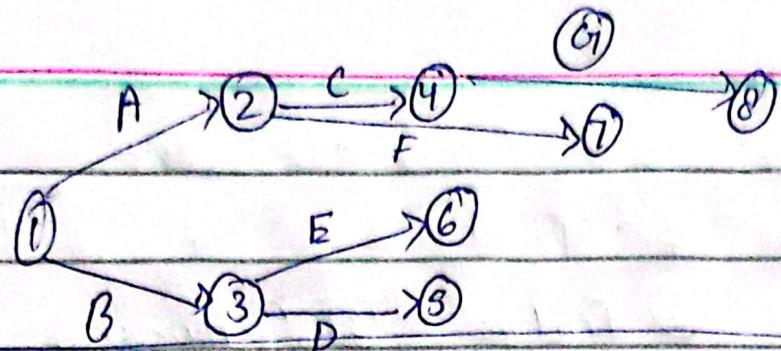
- CPM - deterministic ~~value~~ method that

uses fixed time estimate for each activity

Six Step

- ① Define project and its activity
- ② Define relationship
- ③ Draw the network
- ④ Assign time to each activity
- ⑤ Compute the longest path
- ⑥ Use a network to help plan control the project.





TQM → art of managing the entire organization to achieve excellence

- Nine dimensions

- A product can be good in one dimension and can be poor in other

① Performance - the primary product characteristic

② Features - Secondary characteristic

③ Conformance - Meeting standards

④ Reliability - Consistency of performance over time for the unit to fail.

⑤ Durability - Useful life, includes repair

⑥ Service - Resolution of problems, ease of repair

⑦ Response - Human to human interface

⑧ Aesthetics - Sensory characteristic

⑨ Reputation - Past performance

① Performance ② Conformance

③ Feature ④ Reliability ⑤ Durability

⑥ Response ⑦ Service ⑧ Aesthetics

⑨ Reputation

Parameters

① Price ② Quality ③ Cost Delivery

9 Dimensions of TQM

① Performance ② Feature ③ Conformance

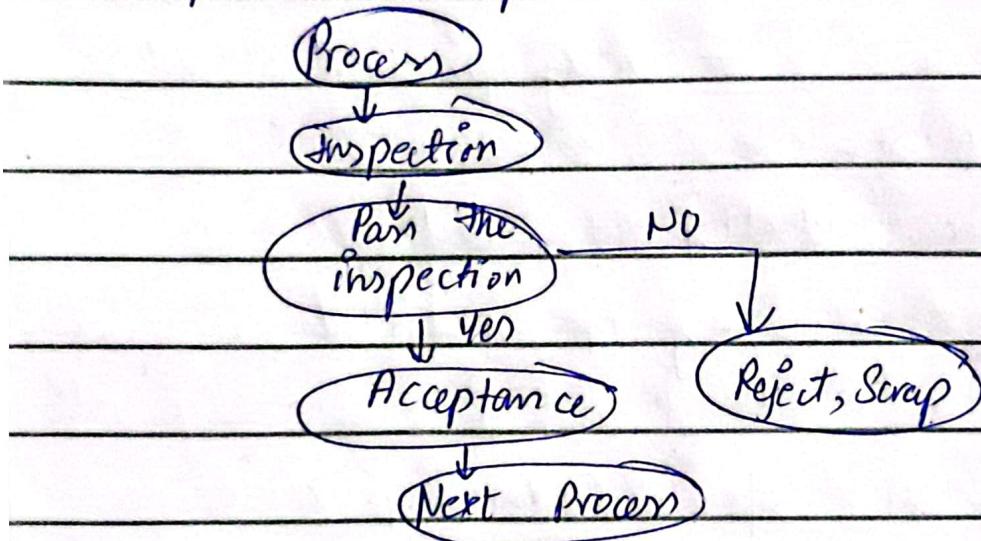
④ Reliability ⑤ Durability ⑥ Service

⑦ Response ⑧ Aesthetics ⑨ Reputation

⑩ Parameters of TQM

① Quality ② Price ③ Delivery

Acceptance Inspection Model



Quality Parameters

① Quality of Design - Design reflects a product or service that satisfies the customer need or expectations.

② Quality of Conformance - Design that follows the standards

③ Quality of Use - Product is easy to use, reliable and maintainable.

Quality Performance

① Quality of Design - design that satisfies user's expectations or need

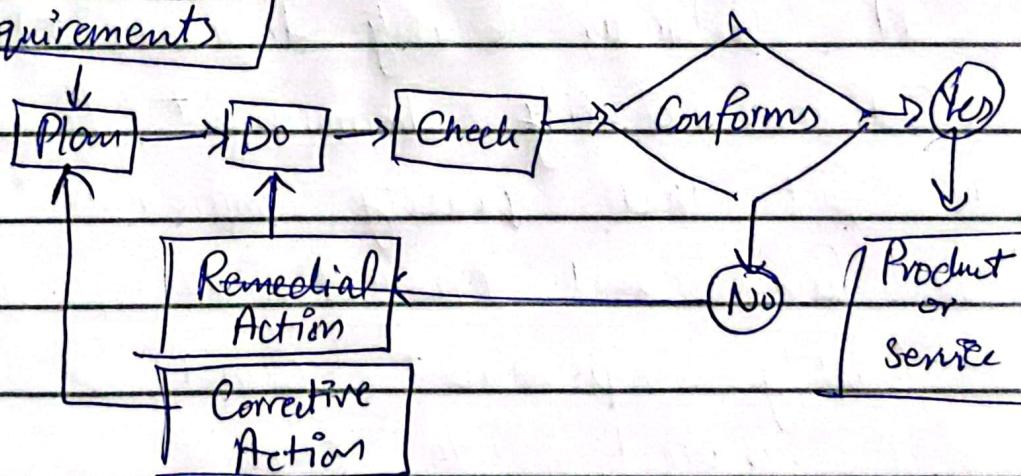
② Quality of conformance - design that follows the standard

③ Quality of use - design that is easy to use and reliable.

→ Quality Control

↳ Part of GM focused on fulfilling requirements of the customers for the quality products.

Requirements



Prevention not inspection

↳ Quality in design

- Detection is a waste

- Detection is foolproof

- Detection demotivates.

Prevention means:

- Tackling the potential root cause, not the effect
- Solving the problem at source, not managing around them
- Removing the problem for good, not just for once.

Prevention means:

- ① Tackling the problem at root cause,
- ② Solving the problem at source
- ③ Removing the problem for good.

CGI (Continuous Quality Improvement)

Continuous Quality Improvement focus on the fact that quality improvement cannot be found and repaired into product.

- Quality improvement cannot be found and repaired into product.

By force, it cannot has to be build in step by step.

- Quality improvement cannot be ^{found} implemented and repaired into a product.

Quality improvement cannot be found and repaired into a product.

