

15.05.18.

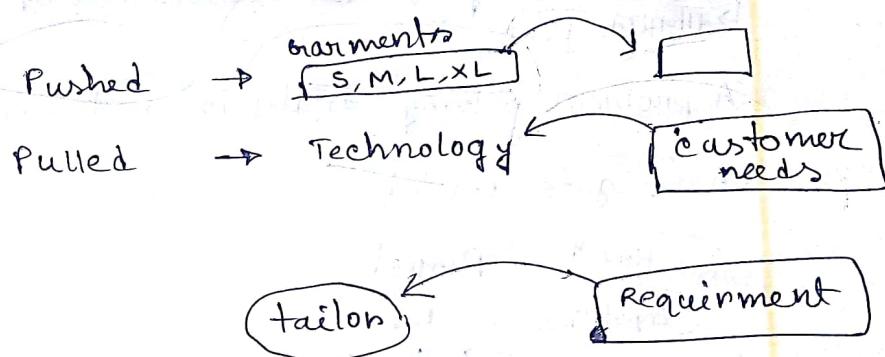
ME-4117

Management of Innovation :-

R&D → research, development.

Common tools : Brainstorming
Virtual prototyping

Innovation process may be either pushed or pulled process.



What to do and how to do ?

The product lifecycle of products is getting shorter because of increased competition.

Brainstorming :- A group creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members.

Virtual prototyping :- CAD - design software (design software)
CAE - computer aided engineering - simulate

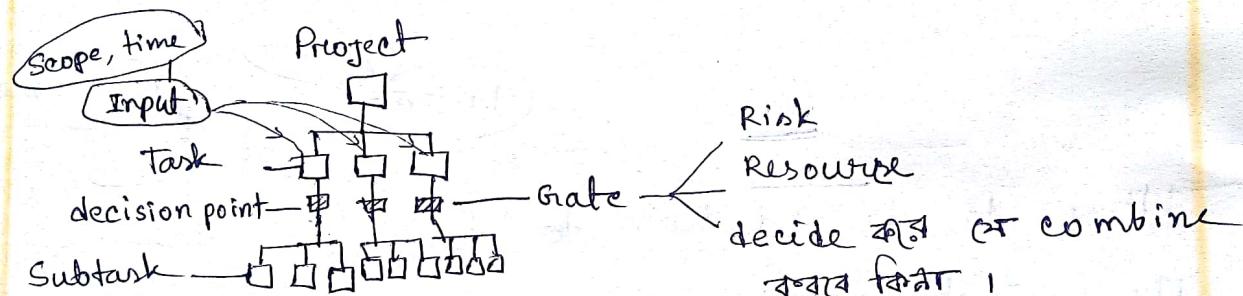
Product Lifecycle management : trade off bet'n this two. { Competition ↓ Quality ↑ }

Idea management : internal customer → employee
external " → normal customer.

TRIZ : Theory of the Resolution of Invention-related tasks.

A problem solving, analysis and forecasting tool.

Phase gate model :



Project management :

Goal
specified time

constraints → scope, time, quality and budget.

for for resource
only

Product line planning :-

Market

↓
Product

↓
Product line

Trade off { minimize marketing risk
maximize difference among items }

Portfolio management : Investment policy

কোন ধরণের কোনো
invest করা।

16.05.18

TQM

Total Quality Management.

Quality → Customer Satisfaction.

→ TQM in different stages in product development.

QFD → Quality function deployment

Customer / Strength → Material Design

PAC → Production Activity Control

SFC → Shop Flow } feedback first

Traditional quality control system emphasizes on inspection activity which aims at "finding bad parts traditional



Mistake proof process → Poka - yoke

Characteristics of TQM :

1. Continual improvement : customer freq প্রয়োগ করে update
করতে হবে।

2. Customer focus :- customer সহিত ও মনুষের কাছে হব।

3. Orgn

4. Employee empowerment ; closest to the job. this concept gives birth to Quality circle (QC).

5. Team approach :

6. Competitive benchmarking :-
target for ?

7. knowledge of tools :-

8. Internal and external customers :-

Satisfying external by satisfying internal customer .

(C) Freddie us 10³ point warr point ~~giving~~ explanation.

Q. Long term relationship with the suppliers : Partners, provide quality goods and services.

=0 =

20.05.18

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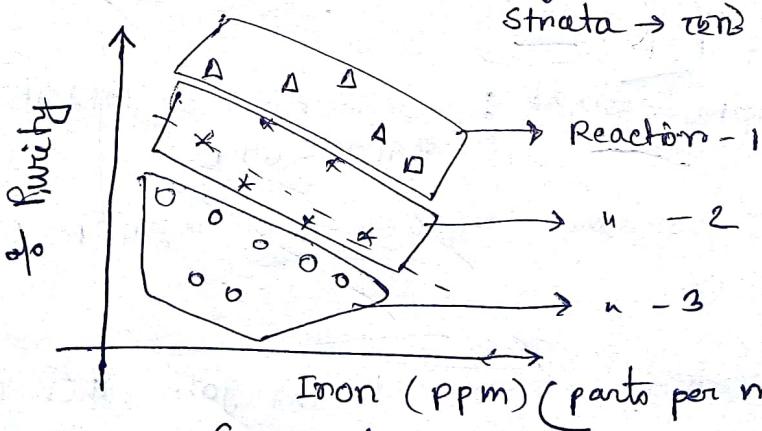
Tools of TQM :- 95% problem & can be solved by check sheet :- Tally type . data arrange ~~for~~ 7

Type	tally	frequency
Distortion		7
Crack		5
Spatter		3

Stratification analysis :-

Data

↓
strata → तर्बे तर्बे segments अनि कर्या।



प्रैग्नल क्षेत्रम्

Purity क्षेत्र...

-अतिक्रमित निम्न लागत

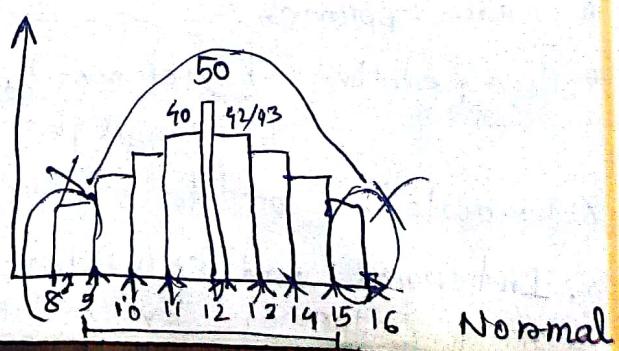
Histogram: Graphical view of Frequency distribution

length 12 cm

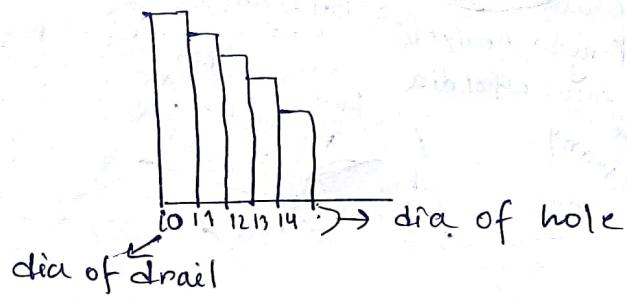
tolerance : 9-15 cm

Symmetric

Belt shaped



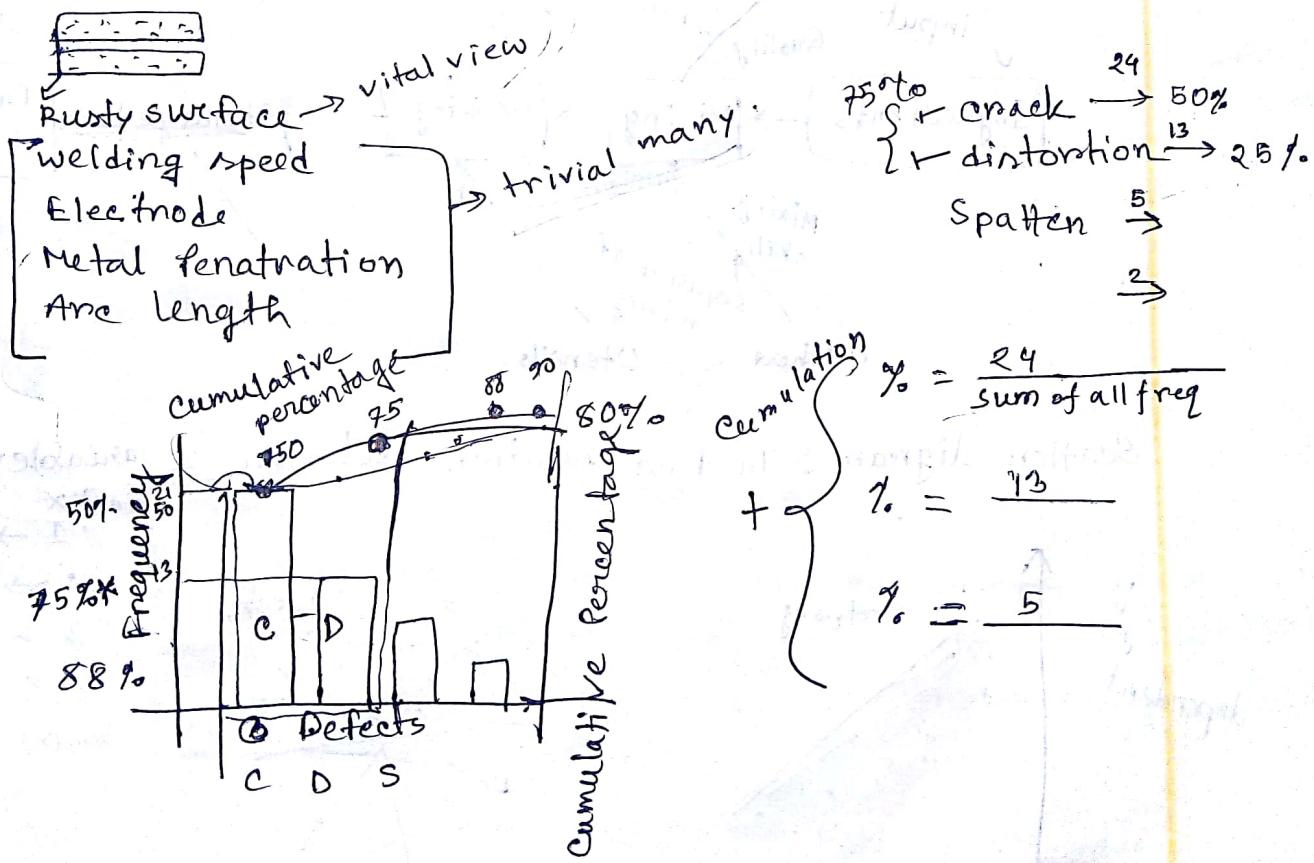
Skewed distribution :-



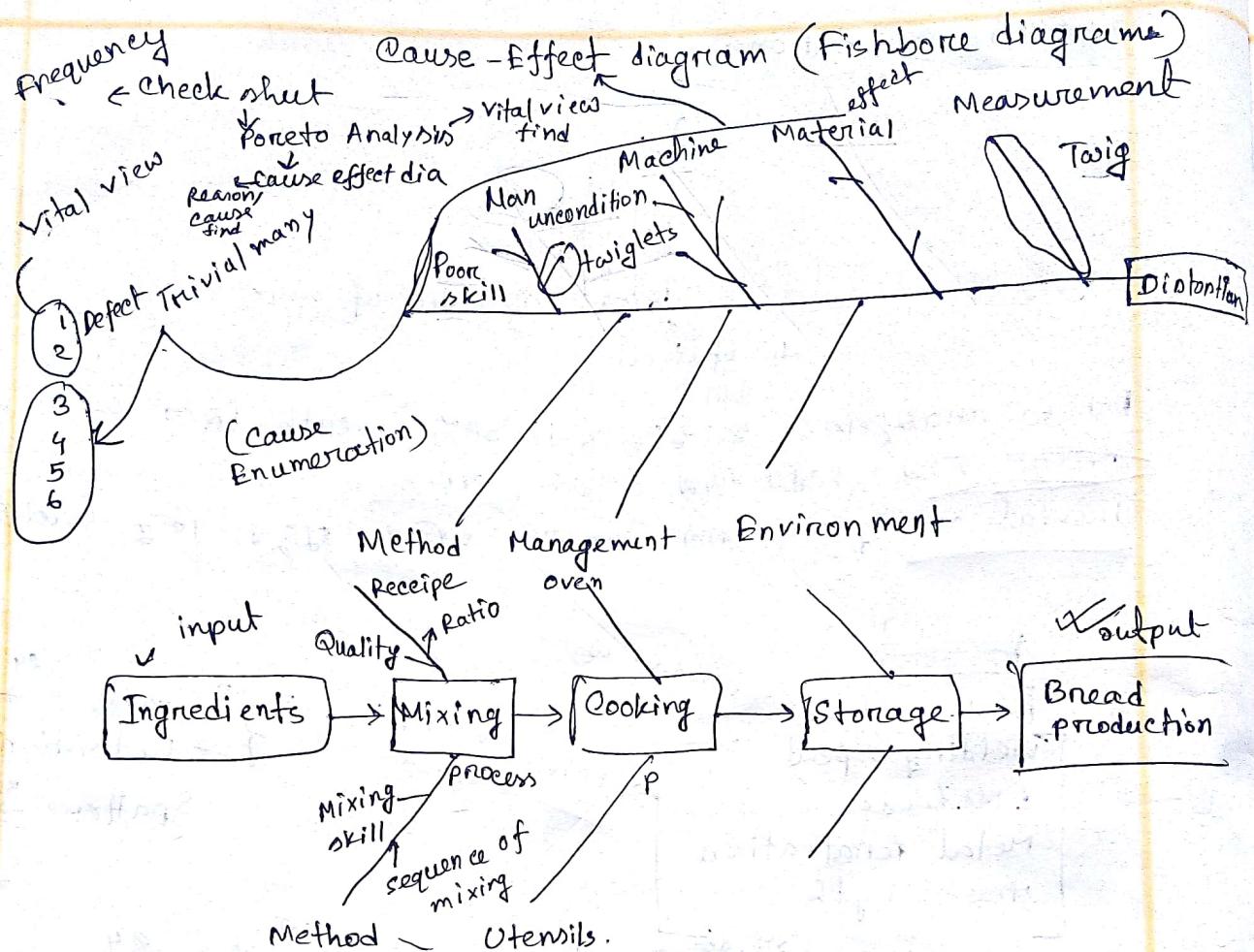
Pareto analysis :- 20% স্বামূল্য 80% waste নিয়ে ওর্কে

vital view : মুক্ত অসম মাধ্যম করা

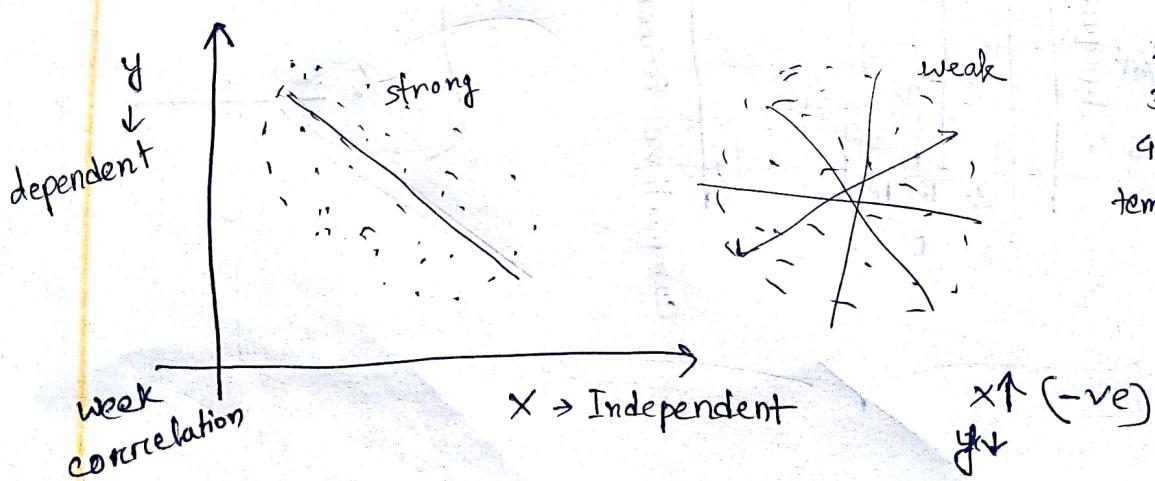
Trivial many : " দুর্বল অব্যাহৃত প্রয়োগ করা



22.05.18.



Scatter diagram :- To find relation between 2 variables.



days (X)	Y Defects
1	26
2	15
3	18
4	19

item (X) Defect (Y)

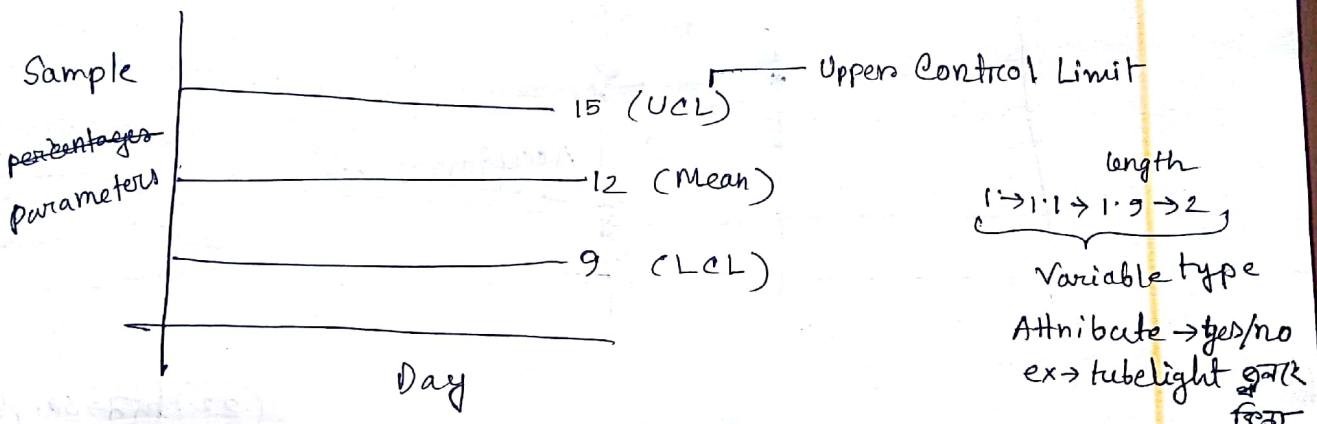
Population → जो data है
 Sample → 20 जो 40 का data
 { अन्तिम class
 } यह: 1st period

Tolerance = 30
 expected → 12 cm
 Range → $\mu \pm 3(\sigma) = 12 \pm (3 \times 1) = 9-15$

Day	Length
1	
2	
:	
20	

control/not / chart

To decide the process in control/not.



24.05.18

ME-4117 Control Chart

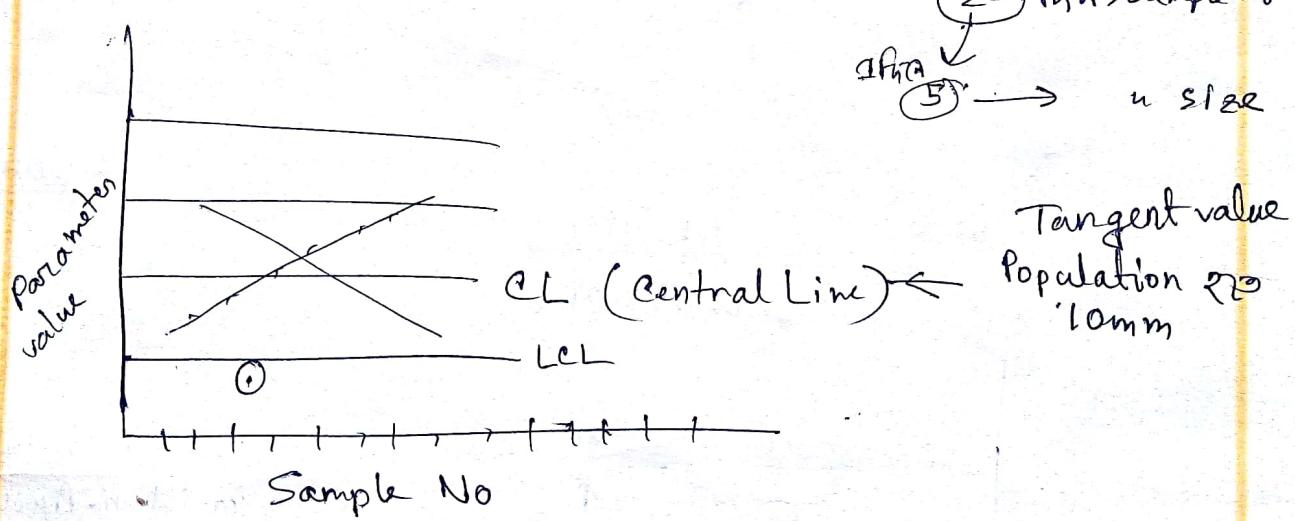
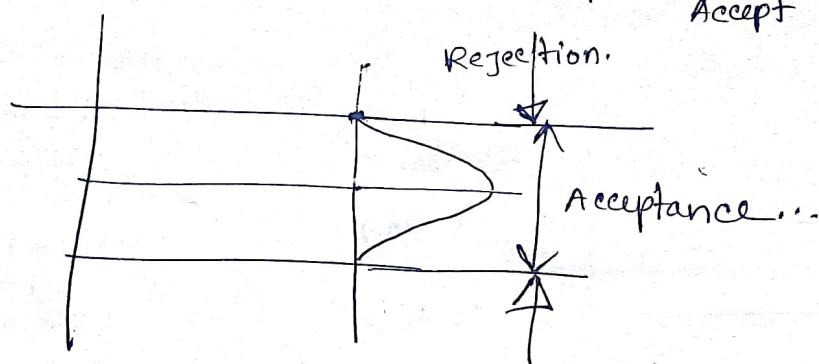
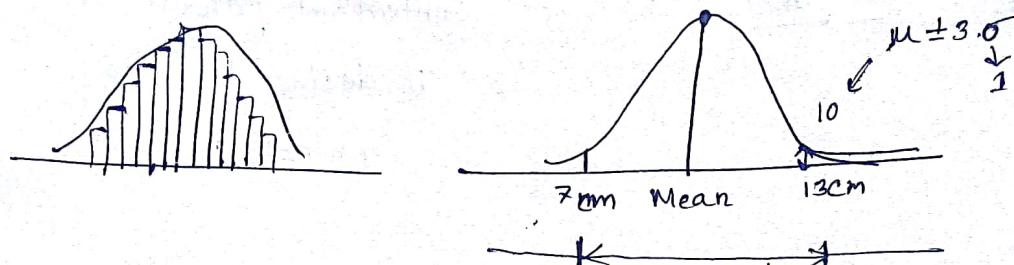


1. Chance/Common cause → Small variation. Process अचेवमान रखता हाय
2. Assignable cause → Process is in control

2. Assignable cause:

→ large deviation

→ To much → Process out of control.



* Increasing or decreasing Trend.

* Mean shift.

Decision :

1. Mean Shift.

2. Increasing/Decreasing trend?

3. Points which are out of UCL & LCL (4-5)

4. Points which are very close of UCL & LCL?

P-chart:
↳ attribute

Sampling distribution

$$\textcircled{P} \quad np$$

$$p = \frac{\text{defective unit + value}}{\text{Total unit}}$$

sample mean \rightarrow no. of defective unit

$$\text{Mean} = \frac{d}{n} = \frac{np}{n} = p$$

$$\text{Variance} = \frac{np(1-p)}{n^2} \quad \begin{matrix} \text{samp} \\ \text{size} \end{matrix}$$

$$\text{Standard deviation} = \sqrt{\frac{\text{Variance}}{n}} \quad \begin{matrix} \text{sample size} \\ n \end{matrix}$$

$$= \sqrt{\frac{np(1-p)}{n}}$$

$$= \sqrt{\frac{p(1-p)}{n}}$$

$$\begin{aligned} \text{UCL} &= E(a) + k \sqrt{\text{Var}(a)} && \xrightarrow{\text{factor } 3\sigma} \\ \text{CL} &= E(a) && \xrightarrow{\text{standard deviation}} \\ \text{LCL} &= E(a) - k \sqrt{\text{Var}(a)} \end{aligned}$$

$$\text{UCL} = p + 3 \sqrt{\frac{p(1-p)}{n}}$$

$$\text{CL} = p$$

$$\text{LCL} = p - 3 \sqrt{\frac{p(1-p)}{n}}$$

Chap- 9

146-151

Chp-10
160, 161,

29.05.18

 \hat{p} = population

If P is not given

$$P = \frac{\sum_{i=1}^m d_i}{mn} \rightarrow$$

defective units in
the i^{th} day

$\frac{d_i}{mn}$ → Sample size

No of days

fraction non-conforming

- ① Graph
- ② Dott plot line.
- ③ Decision

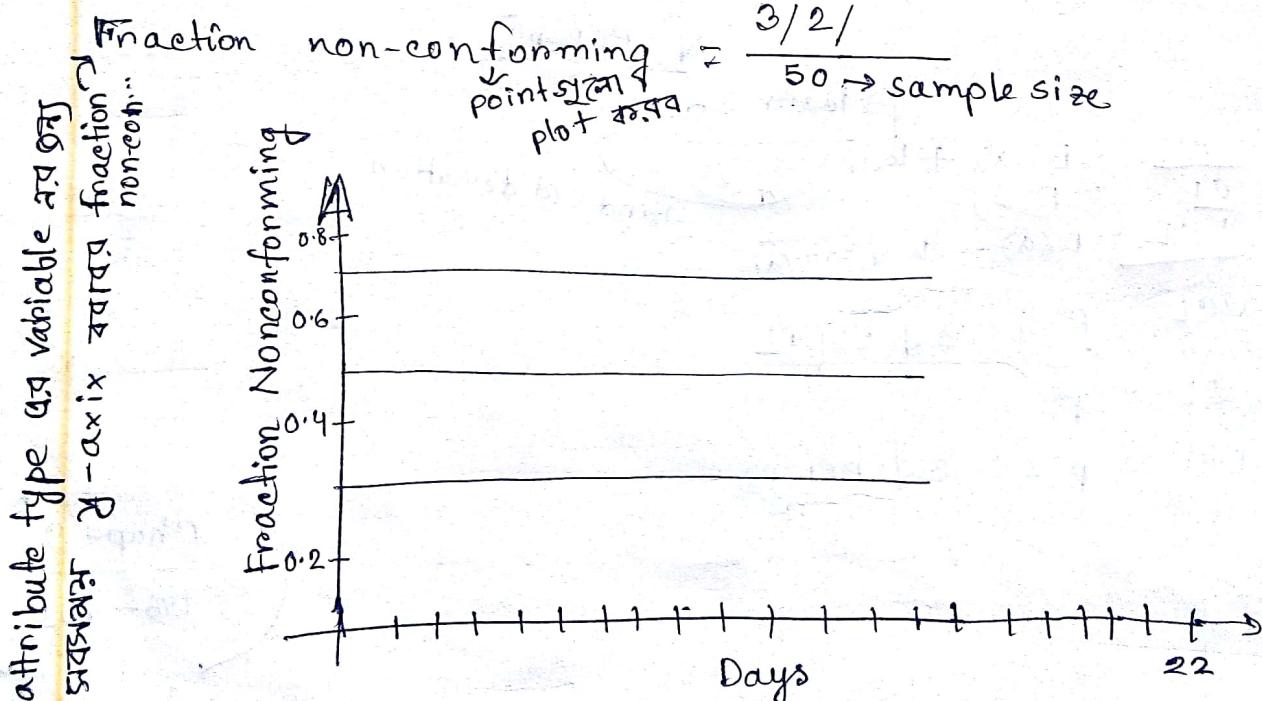
Problem : $n = 50$

$$m = 22$$

No of failure per day at a particular day,

$$\frac{3/2}{50} \rightarrow$$

sample size



Control chart কি DJ :-

1. Fraction nonconforming find.
2. P find

0.3 \rightarrow UCL
0.55 \rightarrow LCL

3. UCL
4. CL
LCL } find

$$\bar{P} = \frac{\sum_{i=1}^m d_i}{mn} = \frac{67}{22 \times 50} = 0.0609$$

$$= 0.0609.$$

4. Graph plot

5. Decision

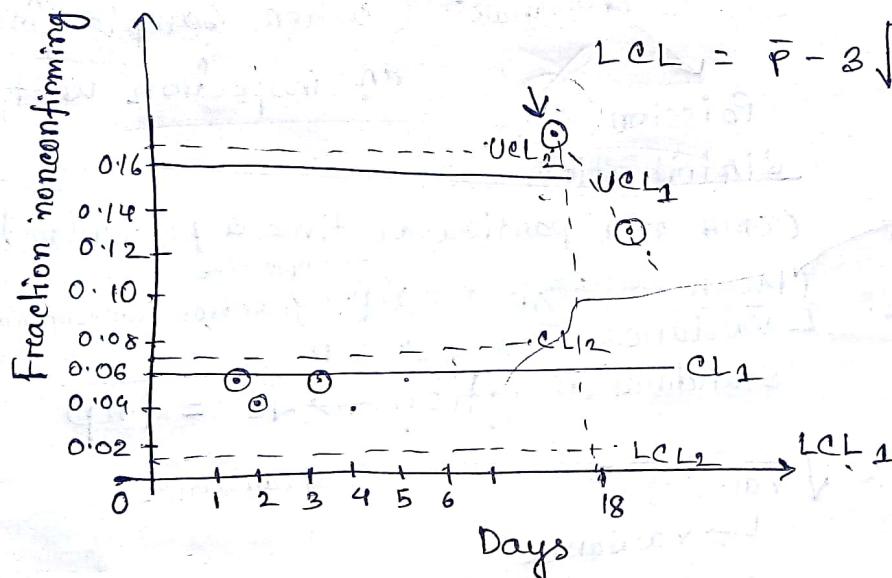
6. Discard

$$UCL = \bar{P} + 3\sqrt{\frac{\bar{P}(1-\bar{P})}{n}} = 0.1624$$

$$CL = \bar{P} = 0.0609$$

$$LCL = \bar{P} - 3\sqrt{\frac{\bar{P}(1-\bar{P})}{n}} = -0.04$$

\checkmark (-ve)
○ ধৰণ



18-তাম ফিল এর বাইরে চলে যাব।

UCL নেই বাইরে গেল discard যাব।
LCL নেই বাইরে গেল discard যাব।

$$18-তাম ফিল রয়ে গেলে, \bar{P} = \frac{(67-9)}{(22-1) \times 50} = 0.0555$$

31.05.18

1. Fraction nonconforming find. * $p \rightarrow$ fraction nonconforming

2. \bar{P} find

$$3. UCL \rightarrow p + \sqrt{\frac{p(1-p)}{n}}$$

C_L } find
 LCL

4. Graph plot.

5. Decision

6. Discard

* np chart:

no of nonconforming plot करावा।
sample size

c-chart (when sample forms
an inspection unit)

Poisson
distribution

(कठिन ग्रन्ति particular time & particular location)

Expected value
= mean value

Mean $\rightarrow \lambda = np \rightarrow$ sample size

Variance $\rightarrow c = np$

Standard deviation $\rightarrow \sqrt{c} = \sqrt{np}$

$$UCL = E(a) + K \sqrt{\text{var}(a)}$$

$$C_L = c + 3\sqrt{c} \quad \text{variance}$$

$\sqrt{\text{variance}}$

$$C_L = E(a) = c$$

$$LCL = c - 3\sqrt{c}$$

Problem

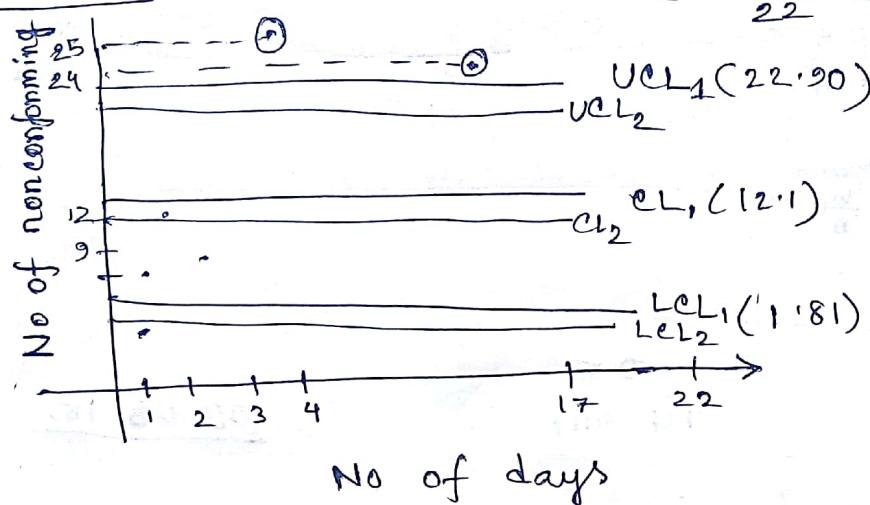
$c \rightarrow$ population वाले non-conformities

$$\bar{c} = \frac{\text{Total defect}}{\text{Total day}}$$

$$K = \frac{150}{22}$$

$$\bar{c} \rightarrow c$$

C-Chart



UCL এর পাইজে discard করব, 3rd day $\rightarrow 25$
 17th " $\rightarrow 24$

$$\bar{c} = \frac{272 - 25 - 24}{22 - 2} =$$

Problem :- 25, 30, 40 σ -chart (full inspection)

25 ft \rightarrow 2, 2, 4 (ক্ষয়-অনুমান)

30 ft \rightarrow 3, 4, 4 (২)

40 ft \rightarrow

$$100 \downarrow \quad \downarrow \text{full}$$

$$5 \rightarrow 1 \rightarrow 25 \text{ ft}$$

$$\bar{u} = \frac{\text{Total No of defective units}}{\text{Total Sample size}} = \frac{72}{625} =$$

Mean $\rightarrow \bar{u}$

$$\text{Variance} \rightarrow \frac{\bar{u}}{n}$$

$$\text{Standard deviation} \rightarrow \sqrt{\frac{\bar{u}}{n}}$$

Mean + 3 × standard deviation

$$UCL = \bar{u} + 3\sqrt{\frac{\bar{u}}{n}}$$

$$CL = \bar{u}$$

$$LCL = \bar{u} - 3\sqrt{\frac{\bar{u}}{n}}$$

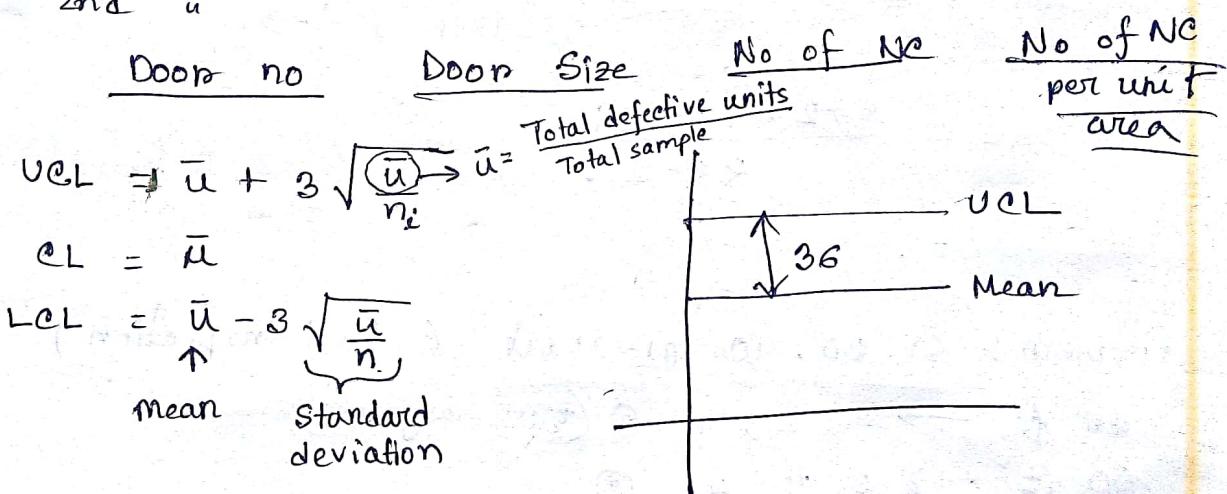
DO

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NC → Non-conforming.

$$\frac{\text{3rd Column}}{\text{2nd } u} = \text{4th column area}$$



$$\bar{u} = \frac{72}{635} = .$$

$n_i \rightarrow n$ varies

$$25 \rightarrow n_1$$

$$30 \rightarrow n_2$$

$$40 \rightarrow n_3$$

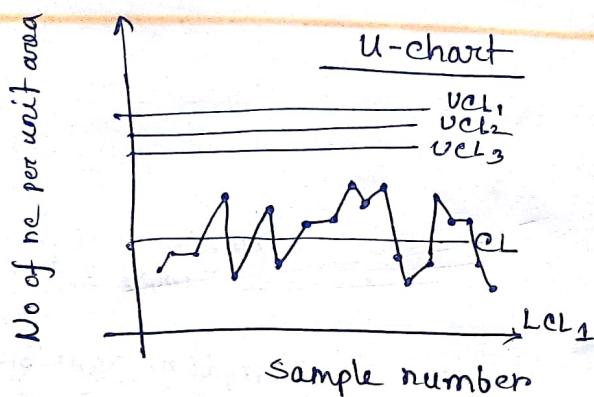
$$n_1 = 25$$

$$n_2 = 30$$

$$n_3 = 40$$

$$UCL = \bar{u} + 3\sqrt{\frac{\bar{u}}{25}} \quad | \quad UCL = \bar{u} + 3\sqrt{\frac{\bar{u}}{30}} \quad | \quad UCL = \bar{u} - 3\sqrt{\frac{\bar{u}}{40}}.$$

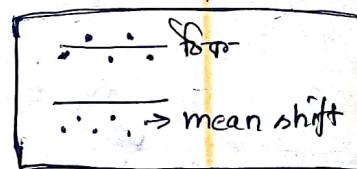
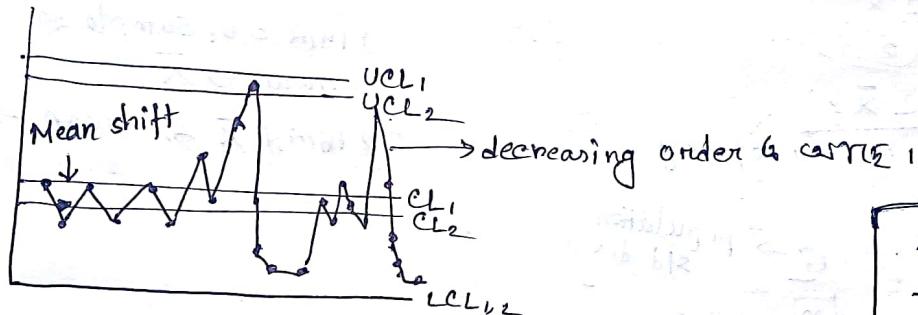
03.06.18



5th → 40 feet door size
(उत्तर वा UCL लग रहे हैं)
वर्तमान वास्तविक किमां
लाइन चार्ट

$$\bar{p} = \frac{\text{total defective unit}}{m \times n}$$

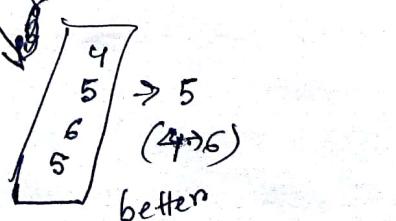
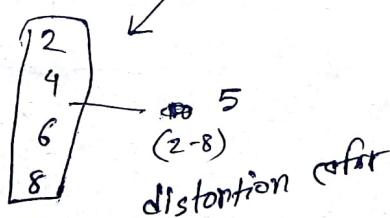
day \nwarrow
sample size \searrow



Control chart for variables

2 parameters:

1. Central tendency $\rightarrow \bar{x} | \mu$ population mean
sample mean
2. Dispersion or variable variability $\rightarrow R | s | \sigma$ population standard deviation
Range sample standard deviation

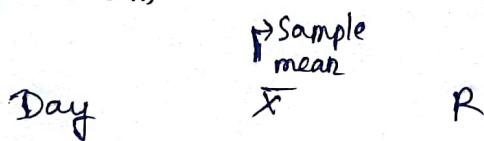


$$1. \bar{X} - R$$

$$2. \bar{X} - S$$

3. CUSUM chart..

↳ cumulative sum



$$X = \{10, 10.2, 10.5, 11, 11.2\}$$

$$\bar{X} = \frac{\sum_{i=1}^{n=5} X}{5}$$

$$\bar{X} = \frac{\sum_{j=1}^m \bar{X}_j}{m} \rightarrow \text{no of day}$$

$m \rightarrow$ no of day
 $n \rightarrow$ sample size

Sampling distribution
of Sample mean

Central Limit theory
 $\mu \approx \bar{X}$

1 for 5 टी sample में
mean $\rightarrow \bar{X}$

22 फॉर्म्स \bar{X} का mean $\rightarrow \bar{X}$

$$\sigma_{\bar{X}} = \frac{\sigma \rightarrow \text{population std. devia}}{\sqrt{n} \rightarrow \text{sample size}}$$

Sample std. devia.

= 0 =

27.06.18

$$\bar{x} = \frac{\sum x}{n}$$

$$= \frac{5+5+4+6}{4}$$

\bar{x} -R chart

Day (m)

	Sample No / Sample size (n)				\bar{x}
	1	2	3	4	
1	5	5	4	6	5
2	6	4	6	4	5
3	4	6	3	5	4.5
4	3	6	5	3	5.2
5	4	3	4	5	4

R chart

$$\bar{x} \downarrow$$

Decision

$$R = \frac{x_{\max} - x_{\min}}{d_3}$$

\bar{x} chart

$$UCL = \bar{x} + \frac{3}{d_2 \sqrt{n}} R = \bar{x} + A_2 R$$

$$CL = \bar{x}$$

$$LCL = \bar{x} - \frac{3}{d_2 \sqrt{n}} R = \bar{x} - A_2 R$$

$$\bar{x} = \frac{\sum x}{m}$$

$$\frac{m}{2}$$

$$\frac{d_2}{0.5}$$

$$\frac{A_2}{1.1} \quad \frac{d_3}{0.4}$$

$$3$$

$$0.6$$

$$1.2 \quad 0.5$$

$$4$$

$$0.7$$

$$1.3 \quad 0.6$$

$$5$$

$$0.8$$

$$1.4 \quad 0.2$$

R-chart

$$UCL = \bar{R} \left(1 + \frac{3d_3}{d_2} \right) \quad d_2 = 0.6$$

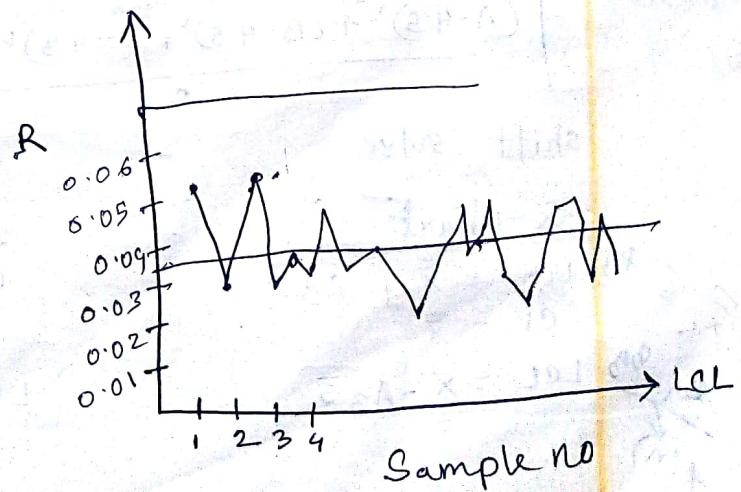
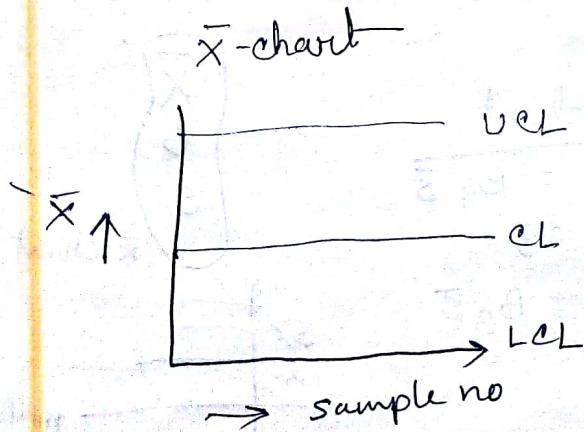
$$= \bar{R} D_4 \quad d_3 = 0.7$$

$$CL = \bar{R}$$

$$LCL = \bar{R} \left(1 - \frac{3d_3}{d_2} \right) \quad = \bar{R} D_3$$

D_3	D_4
2.1	3.1
2.2	3.2

R-chart



R → Dispartion

01.07.18.

Sample Standard Deviation.
Population " "

(G) অঙ্গন

\bar{x} -S chart

\bar{x} -R → $\frac{n}{3/4}$

\bar{x} -S → > 10

m(i) Day
 $i=1$ Sample No.

(j), Sample Size n

1
→ 2
3
4
5

9 6 3 6
6 5 4 3
5 6 5 4
3 3 6 5
4 4 3 6

\bar{x}_i

$\bar{x}_1 = 4.75$

$\bar{x}_2 = 5$

$\bar{x}_3 = 4$

$\bar{x}_4 =$

$\bar{x}_5 =$

\bar{x}

$$\bar{x} = \frac{4.75 + \dots + 4.8}{5}$$

$$= 4.5$$

s_i

$s_1 =$

$s_2 =$

$s_3 =$

$s_4 =$

$s_5 =$

$$\frac{4+6+3+6}{4}$$

$$\bar{s} = \frac{1}{5} \sum_{i=1}^5 s_i$$

4674
 x_i s_i
 \bar{x} \bar{s}

$$s_1 = \sqrt{\frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + (x_3 - \bar{x})^2 + (x_4 - \bar{x})^2}{4-1}}$$

$$s_2 = \sqrt{\frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + (x_3 - \bar{x})^2 + (x_4 - \bar{x})^2}{4-1}}$$

$$\text{calculator} = \sqrt{\frac{(A-4.5)^2 + (B-4.5)^2 + (C-4.5)^2 + (D-4.5)^2}{3}}$$

shift solve

\bar{x} -chart

$$UCL = \bar{x} + A_3 \bar{s}$$

$$CL = \bar{x}$$

$$LCL = \bar{x} - A_3 \bar{s}$$

B_{31}
 $f(n)$

S-chart

$$UCL = B_3 \bar{s}$$

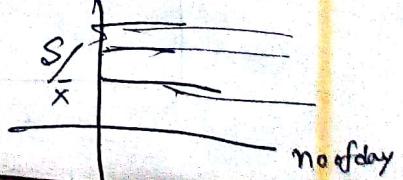
$$CL = \bar{s}$$

$$LCL = B_{31} \bar{s}$$

1st u

X
↓
S

\bar{x} -chart

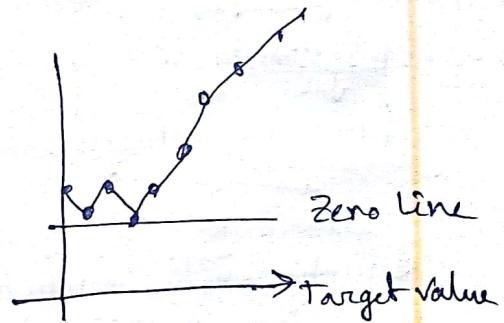
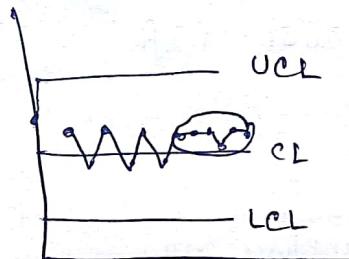


03.02.18.

Special Control chart

CUSUM chart
cumulative summing \rightarrow sensitive to small deviation
from target value

Shewhart
control chart



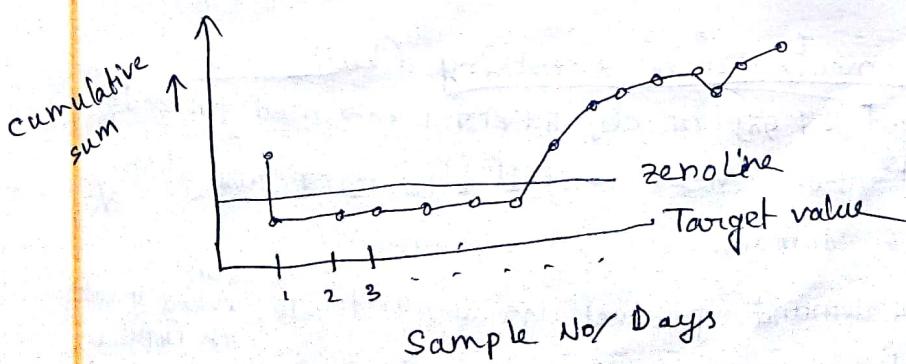
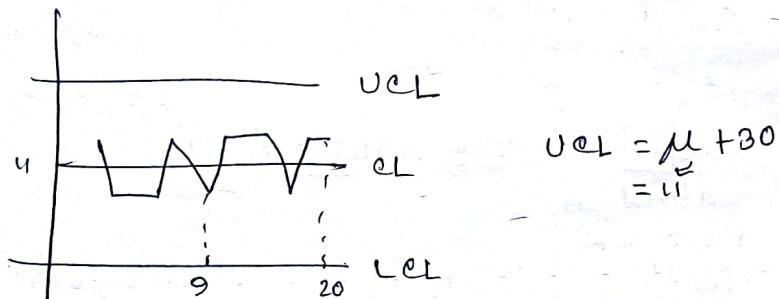
Given

Target Value (11)
(Population mean)

$$\begin{aligned} \text{sample deviation} &= \bar{x} - \text{target value} \\ &= 11.20 - 11 \\ &= 0.20 \end{aligned}$$

Special use:

- (i) Liquid substances.
- (ii) where 100% inspection is done.

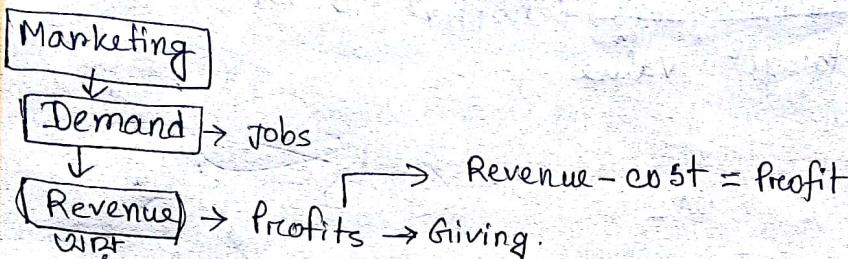


08.07.18.

Sales and Marketing 1st chapter (রঁ)

Marketing : - জনপ্রিয় কৃষ্ণা কোম পৰাটি goods and service

Sales : বিক্ৰি কৰা,



Society service → university → marketing কৰা।

Marketing management : - কোম একটি মাঝেই কাস্টমারদেৱ ৰমিহীন
অনুযায়ী product বিক্ৰি কৰা।

Marketed ?

- i) Experiences → share (মূল: retail coster)
- ii) Events → context
- iii) Properties
- iv) Organization
- v) Information → জুজ, কান্দা, অফিসি
(Non-profit)
- vi) Idea →

Goods
Person
Services
Places

(Non-profit)
(University)
Non-profit

Who markets :

Marketer

পৰাৰ marketing
স্থান

Prospect/Customer (খোচ কিনাৰ)

attention
Purchase
Donation
vote

Types of Demand ?

Need → requirements for something (basic req)

Want → part. need এৱে গৰ্ব আৰু obj নৰকীয়। ex → need for food.

Demand → particular need আৰু full-fulfill এৱেৰ বাবে ability
শাকে, demand.

মানৱৰ পৰাপৰ
জৰুৰী পৰাপৰ

Negative Demand : - টম demand product দ্বাৰা demand নহ'য়, avoid দৃঢ়ত্ব
tk ফিছিল

Nonexistence : - টম obj আৰু কোন existance আৰেনা, Example : গোলি,
(অন্যান্য গোলি AR, LR দ্বাৰা)

Latent demand :- काम घराते obj जो व्याप्ति interest करते but market नहीं available होते।

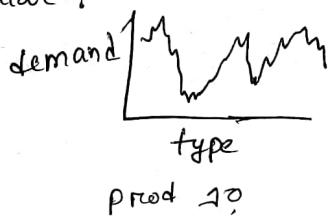
Ex: Nokia phone.

Full demand :- customer द्वारा demand वाले marketer द्वारा supply एवं उपलब्ध होते।

Ex: नारियन, toothpaste.

Overfull : customer req अधिक, market supply कम।

Irregular :



विभिन्न अवधियां फॉर्म वाले अस्थायी demand.

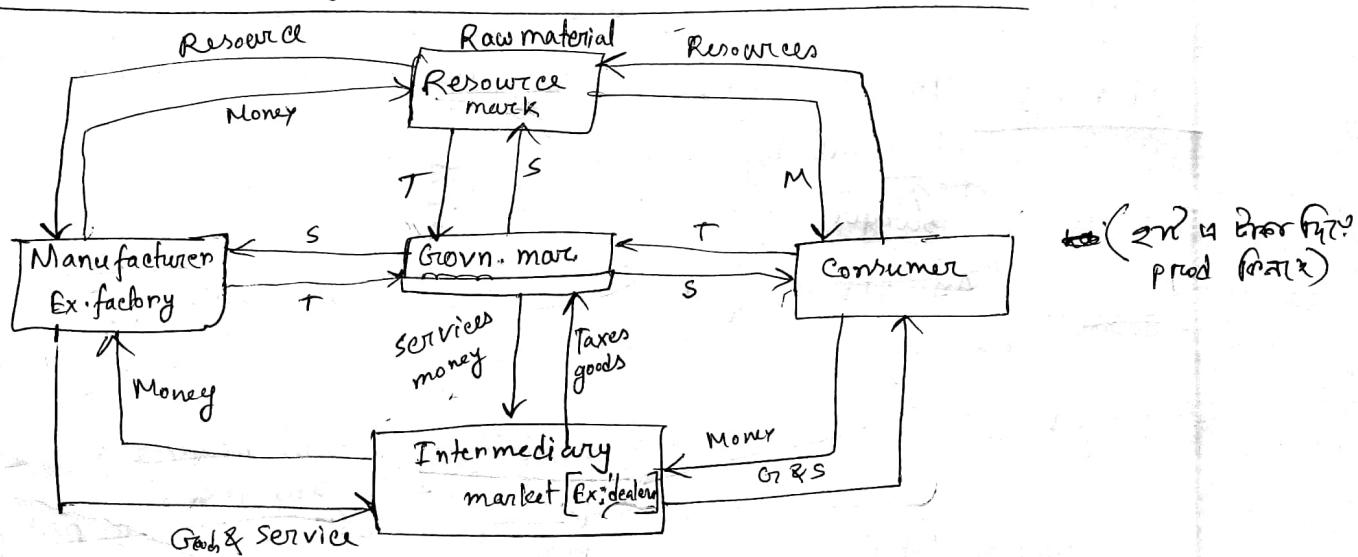
Ex: बरसातीले व्याप्ति demand.

time आणि वेळा depend वाले,

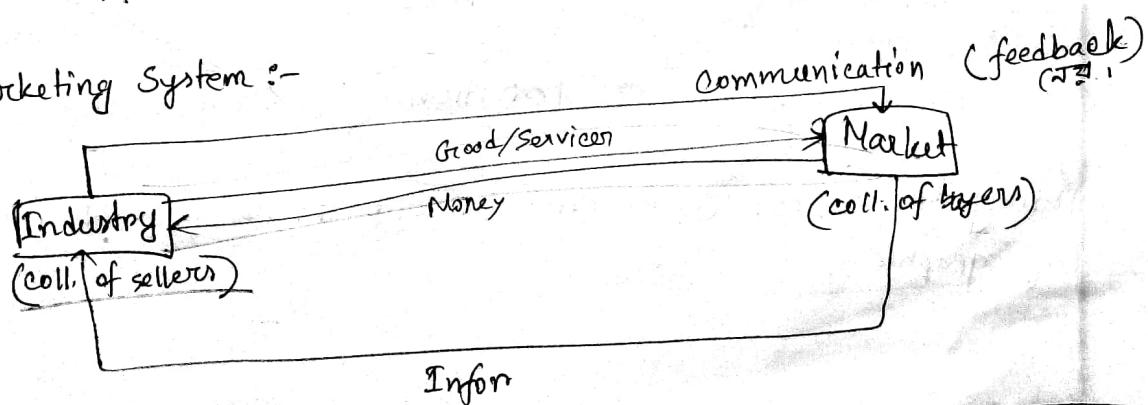
Declining : अवृद्धी खाले demand कम.

Unwholesome : society द्वारा निषिद्ध किला गो demand. ex: फुट्टरोप, मद।

Fig : Structure of flow in product chain rule.



Simple Marketing System :-



10.07.18.

Marketing Management - concepts

key Customer Markets :-

- Global ")
- Business ")
- Customer ")
- Government ")

Markets :-

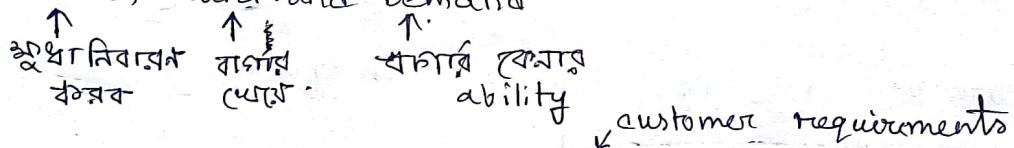
Market place : physically prod. existence ଥାଏ,

" spaces : " " " " " " online.

Meta markets : ମହାକାଶକୁ ଅନ୍ତର୍ଗତ prod. industry ଥାଏଇ clusters area ଥାଏ,

core marketing concepts (Explain କିମ୍ବା exm)

Needs, Want and Demand



Offerings: The intangible value proposition is made
physical by an offerings.
Burger

Brands: An offering from a known source.

Ex: McDonald's burger.

Target market

(କୌଣସି ମାର୍କ୆ଟ କୁ
place ବାବା)

) Target Market

Segmentation (ଏକାଟି ମାର୍କ୆ଟ କୁ କୌଣସି କୌଣସି ଏଣେ
ଡାମ୍ପ କରିବା)

(Demographic, psychographic,
behavioral difference

Positioning (କଥାନ୍ତିରେ, କିମ୍ବାକୁ sell କରାଯାଇବାକୁଠାରୀରେଟିବିଟି)

Demographic: ଜୀବିତର କିମ୍ବାକୁ ଅନ୍ତର୍ଭବ କରାଯାଇବାକୁଠାରୀରେଟିବିଟି

Psychographic:

Value and satisfaction :-

Offerings

↓
Main value ↑

combination of ↑ quality,
↑ service and price ↓
(qsp)

customer value triad ←

judgement of perceived performance with expectation < satisfaction

- disappointed < " " that ৰে expect' u থাক' "
- satisfaction ≈ " " " "
- delighted > " " " "

Marketing channels :

- 1) Communication " : advertisement ফর কিয়কা
- 2) Distribution " : warehouse.
- 3) Service " : after sell service. Ex: AC সেবা

Marketing environment :

- 1) Task environment: Producing, distributing, Promoting the offerings -
- 2) Broad " : External factor

6 component .

1. Demographic environment:
2. Economic
3. Sociocultural
4. Natural
5. Technological
6. Political

12.07.18.

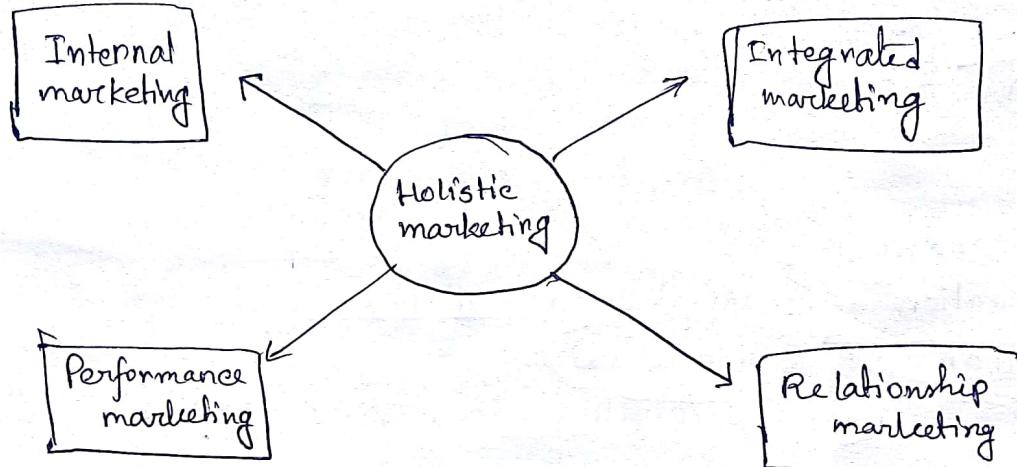
Kotler
কটল

Supply chain :

Raw materials → finished goods → delivery to customer

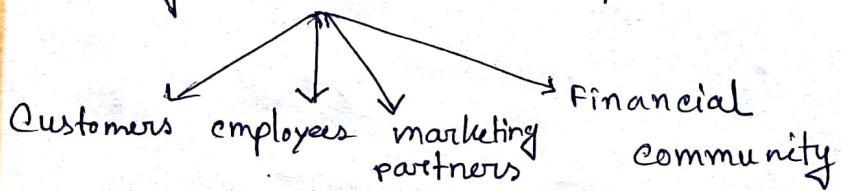
Competition → একান্ত মার্কেট টেক থার্ড চেম্প কোম্পেন্সেশন
হয়।

fig-1.5 Holistic marketing : development, design and implementation of marketing program.



Relationship marketing :

* long term relationships.



* লঞ্চের Goal fulfill কৰাৰ ব্যৱহাৰ কৰাৰ কোম্পানি,

Integrated marketing :

* Assembles marketing program.

12.OCT.18.

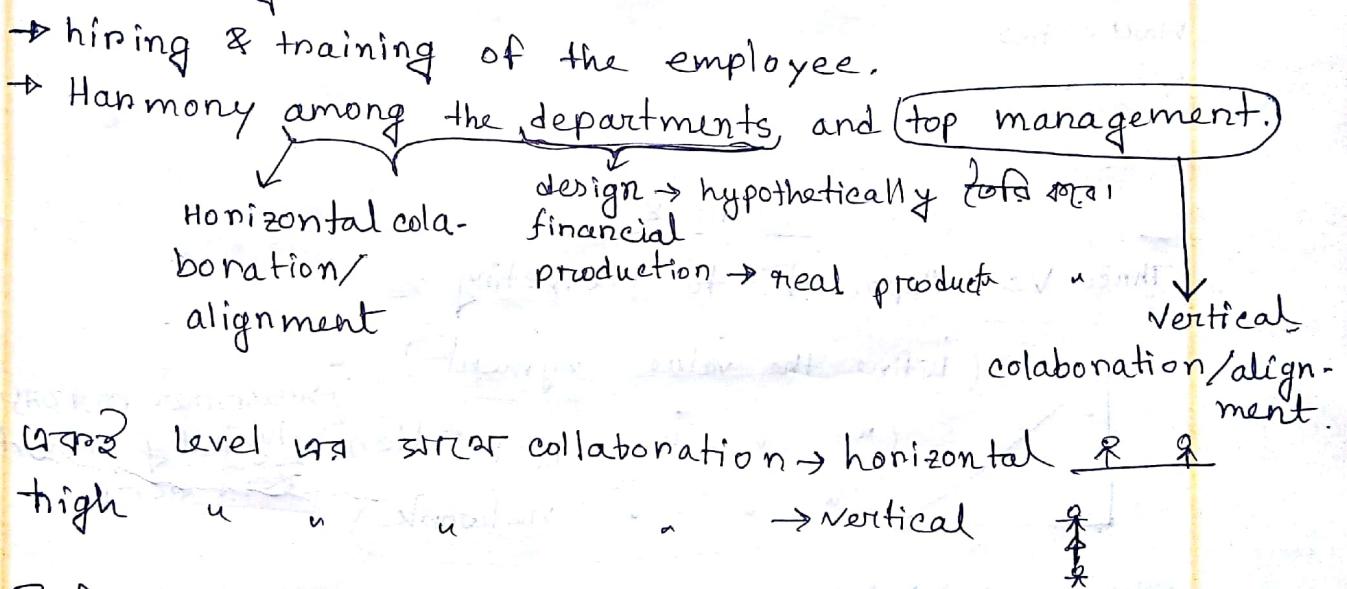
1. Many different marketing activities can create, communicate and deliver value
2. Marketers should design & implement any one marketing activity with all other activity in mind.

Example : MRI machine.

i)sells, ii) installation iii) maintenance iv) training,

Internal Marketing :-

In the Organization



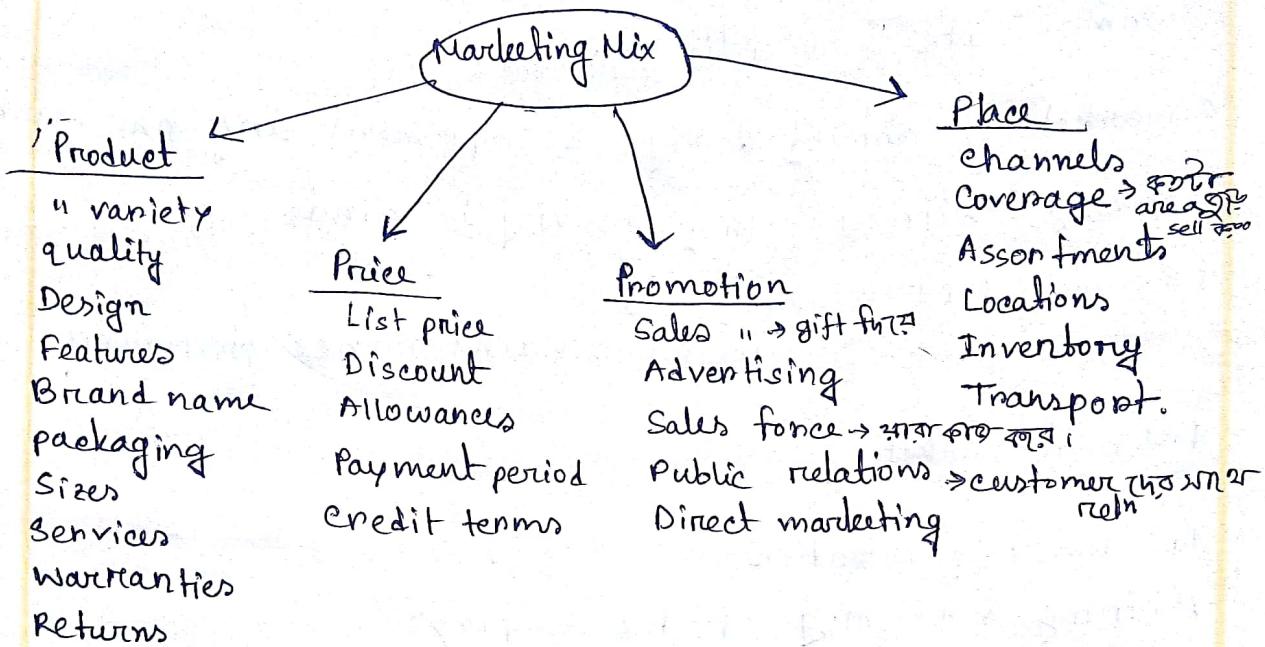
Performance Marketing :-

- Evaluate financial non & profit
non-financial returns & university & society & environment effect
- Customers feedback.
- Legal, ethical, social, environmental effects of marketing activities.

=o=

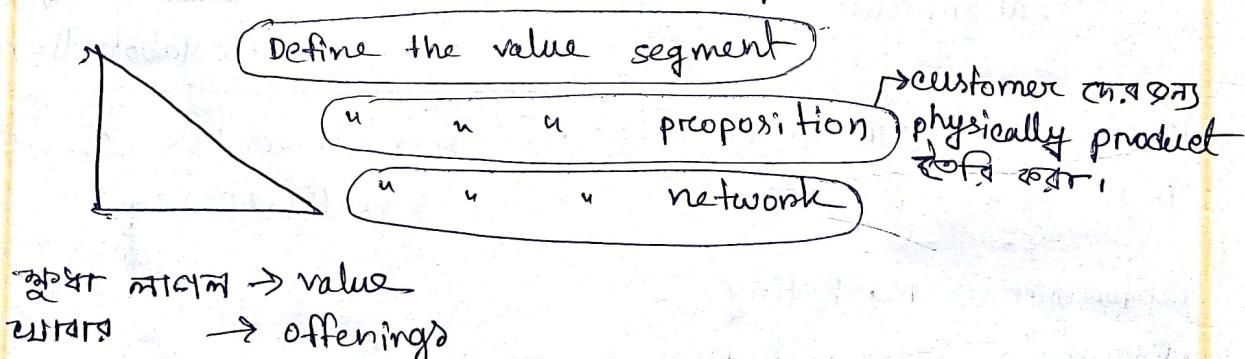
15.07.18.

Fig-1.4 The Four P's of the Marketing Mix



Chp-2

Three V's Approach to Marketing .

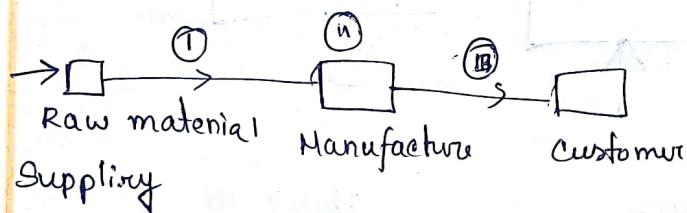


What is the value chain ?

The value chain is a tool for identifying ways to create more customer value because every firm is a synthesis of primary and support activities performed to design, produce, market, deliver and support its product.

Primary activities

1. Inbound logistics.
2. Operation
3. Outbound
4. Marketing.



Support activities

1. Procurement
2. Technology development
3. Human resource Management
4. Firm Infrastructure \rightarrow layout
স্টকোর
থেবে।

Characteristics of Core Competencies :-

competitive benchmarking

standard.

Difficult to imitate.

"chip rate a বাহ্যিক country থেকে raw material নিয়ে
অবস্থা, outsourcing !!"

Holistic Marketing : sees itself as integrating the value creation, exploitation, and delivery activities

with the purpose of building long-term, mutually satisfying relationships and corresponding

Stakeholder \rightarrow সকল স্তর

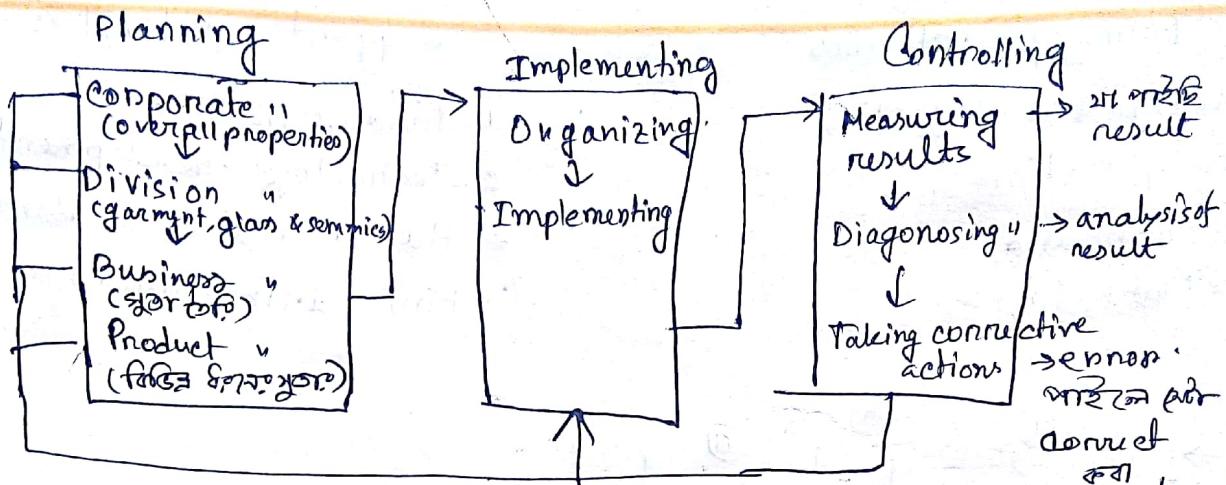
Marketing Plan :

levels of : Strategic, Tactical,
(overall scenario) (particular product)

of a product 4 P's
 \downarrow add 5P's

creation
exploitation
and delivery

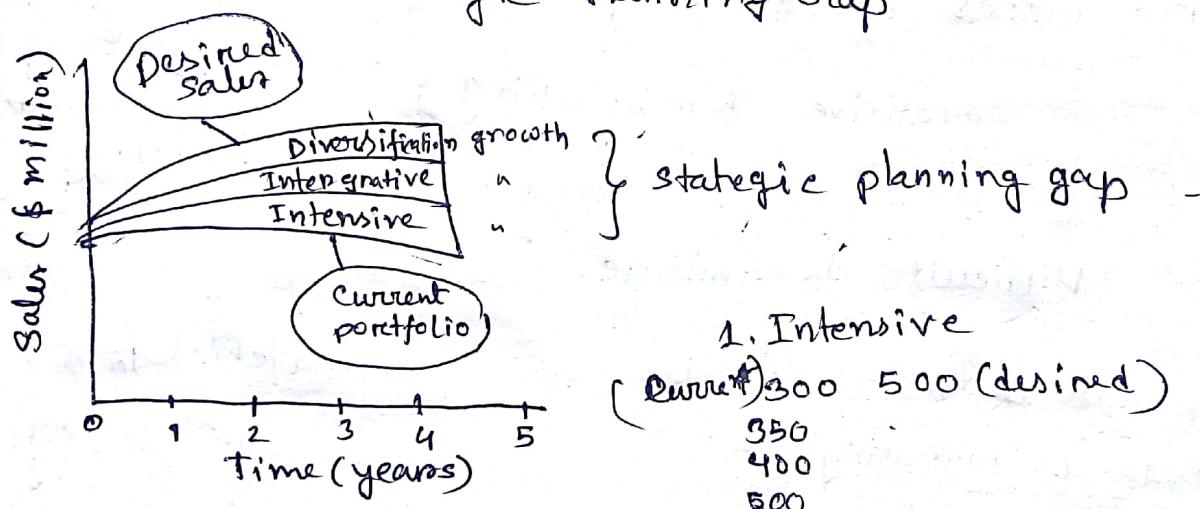
Planning Implementation



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Fig. 2.3 . The Strategic Planning Gap



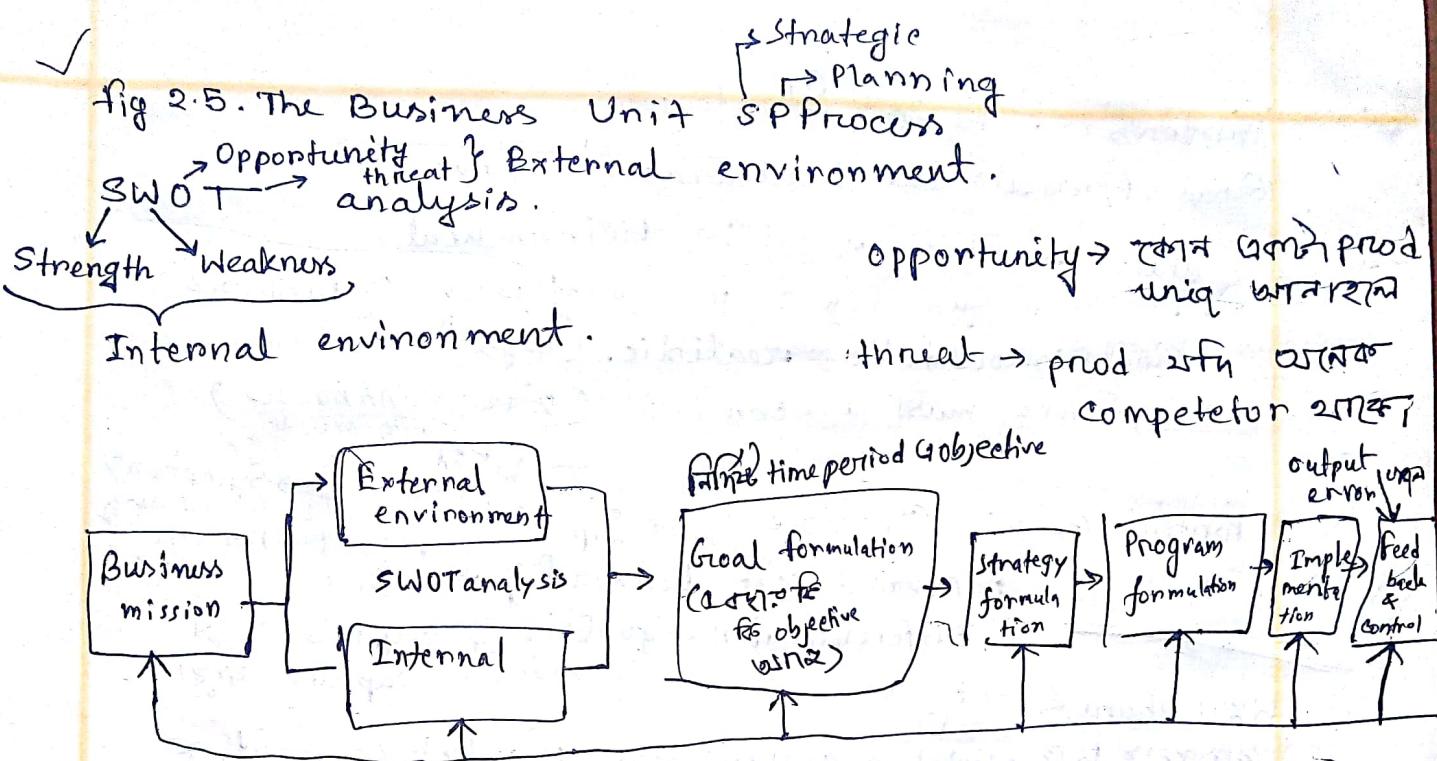
growth within current business - intensive.

acquire business related to current business - integrative
Robit Airtel

Add attractive unrelated business - diversification
garments, tiles factory.

corporate culture : is the shared experiences, stories, beliefs and norms that characterize an organization.

✓ fig 2.5. The Business Unit SPP Process



opportunity → কোন পণ্যের prod
uniq. বা তার রূপ

threat → prod এর কোন পরিস্থিতি
competitor কর্তৃত

Strength → prod এর কোন পরিস্থিতি

Weakness → prod এর কোন পরিস্থিতি

feedback → result দ্বাৰা মেঝে কোন পরিস্থিতি

control → error কোন পরিস্থিতি করা

a) Opportunity Matrix :- Graphically express কোন পরিস্থিতি
opportunity & best.

		Success probability	
		High	Low
Attractiveness	High	1	2
	Low	3	4

1, 2, 3, 4, success prob = high } 1
Altra = u

		Probability of occurrence	
		High	Low
(harmful)	High	1	2
	Low	3	4

1. Best Opportunity 4. Best Threat
accept " " avoid " "
overcome " "

4. no threat → ignore
1 " " → overcome

1 → worst threat.
4 →

threat
↓
ক্ষতিশীল
↓
reject
করা

1. Best Opportunity 4. Best Threat
accept " " avoid " "
overcome " "

Porter's Generic Strategies

Goal Formulation: characteristics

- unit's objectives must be hierarchical.
- " " " quantitative (পরিমাণিত)
- Goals should be realistic. (target)
- Objectives must be consistent (কঠোর কৃত্বে)



* Porter's Generic Strategies : we capture market 61% → Symphony
 3 strategies : Overall cost Leadership → কুণ্টল,
 Differentiation → quality & capture কৃত্বে
 market capture কৃত্বে

নতুন phone ← focus
 iPhone Ad → seg ৭৫ আধুনিক cost কুণ্টল প্রাপ্তি এবং
 new version focus কুণ্টল,
 quality কুণ্টল

=o=

IP

18.08.7.18.

Categories of Marketing Alliances :-

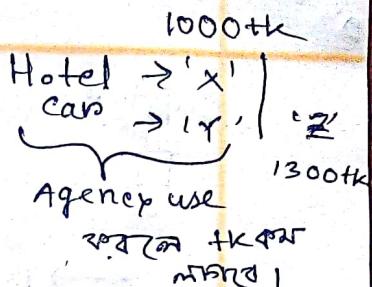
Prod of Service Alliance : merge ২২% : ১২% prod
 company manufac কর্তৃত,

Promotional Alliance : একটি famous brand এ?
 সর্ব ন ন ন ন এ
 gift ফ্রি marketing .

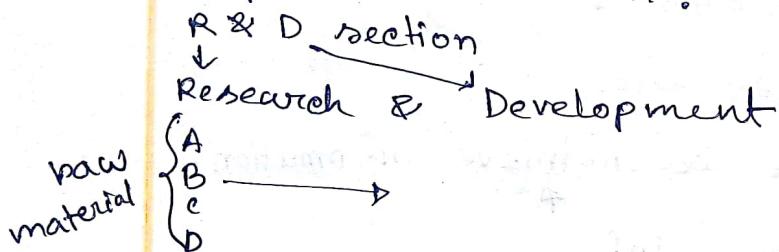
logistics " : transportation, warehouse.

Each ৩
 Prod company একটি truck share ২৫%

Pricing Collaborations :- Four 4x4 cars,



Program formulation :-



Feed back and Control :-

quantitative
pen length = 5 cm
measure " " " = 5.1 cm
feedback ↑
(customer feedback = qualitative feedback)
5.1 > 5 → Quality control.

quantitative — Measurement

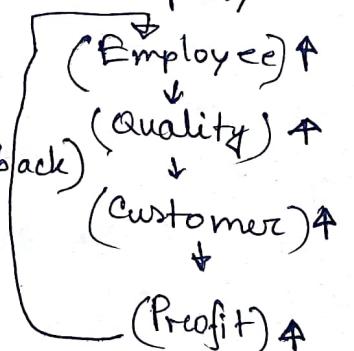
↓
good, better, best ↓ quantitative

Implementation:

best prod must
production is implement
রাখো!

dynamic relationships

↳ stakeholder → satisfied
↳ সক্ষম
company is কৃতিত্ব

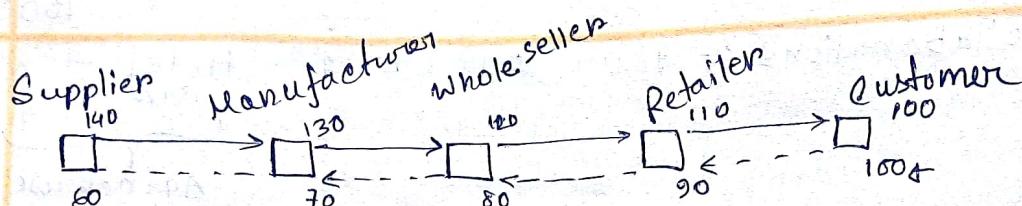


technology dynamic .

=0=

Management Information System (MIS)

22.07.18.



→ Product flow
↔ Information " "

MIS: create, process, store & retrieve information..

Organized / processed data \Rightarrow info.

Info Technique

IT: Tools & Technique (Software)

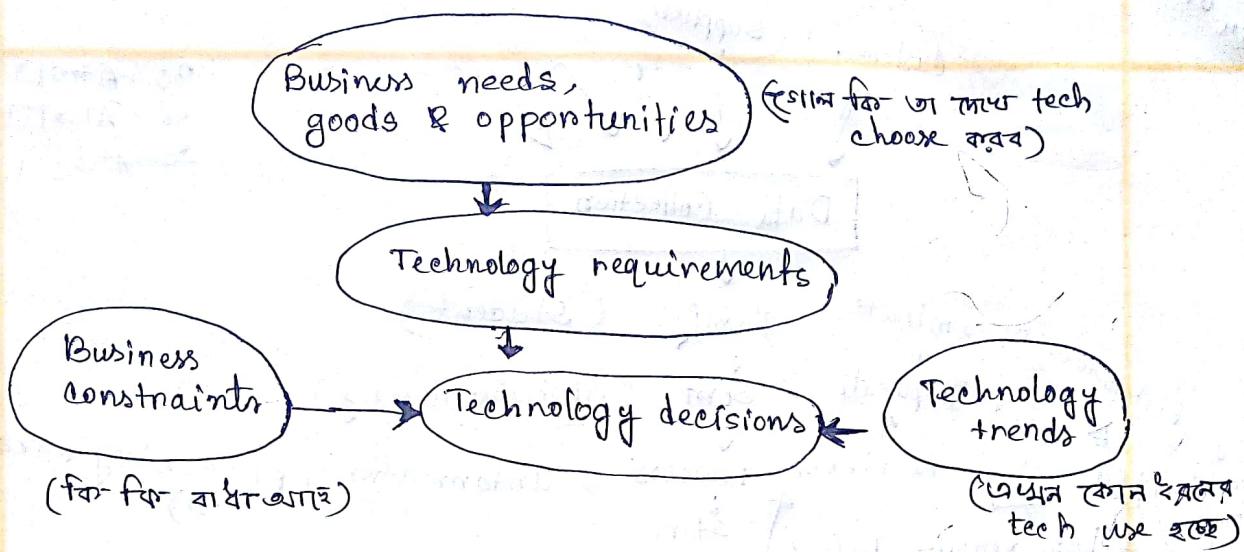
- Microsoft Excel
- ↳ data process \Rightarrow IT,
- No
- Crack A B
- Distortion info
- 1 → Crack
- 2 → A
- 3 → B
- ;
- 100 → Crack
- Crack → 20
- Distortion → 15
- A → 8
- B → 7

Data: - The raw material from which information is gathered.

Information: Data processed and converted into a form that is useful to the decision maker.

How technology decisions are made ?

22.07.18.

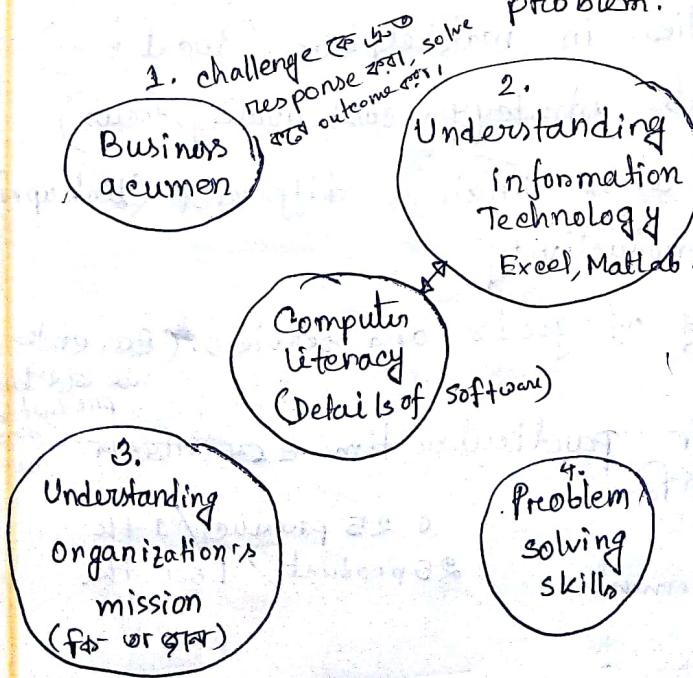


Computer literacy :- Working knowledge of computers, their components and their functions.

CAD → Solidworks

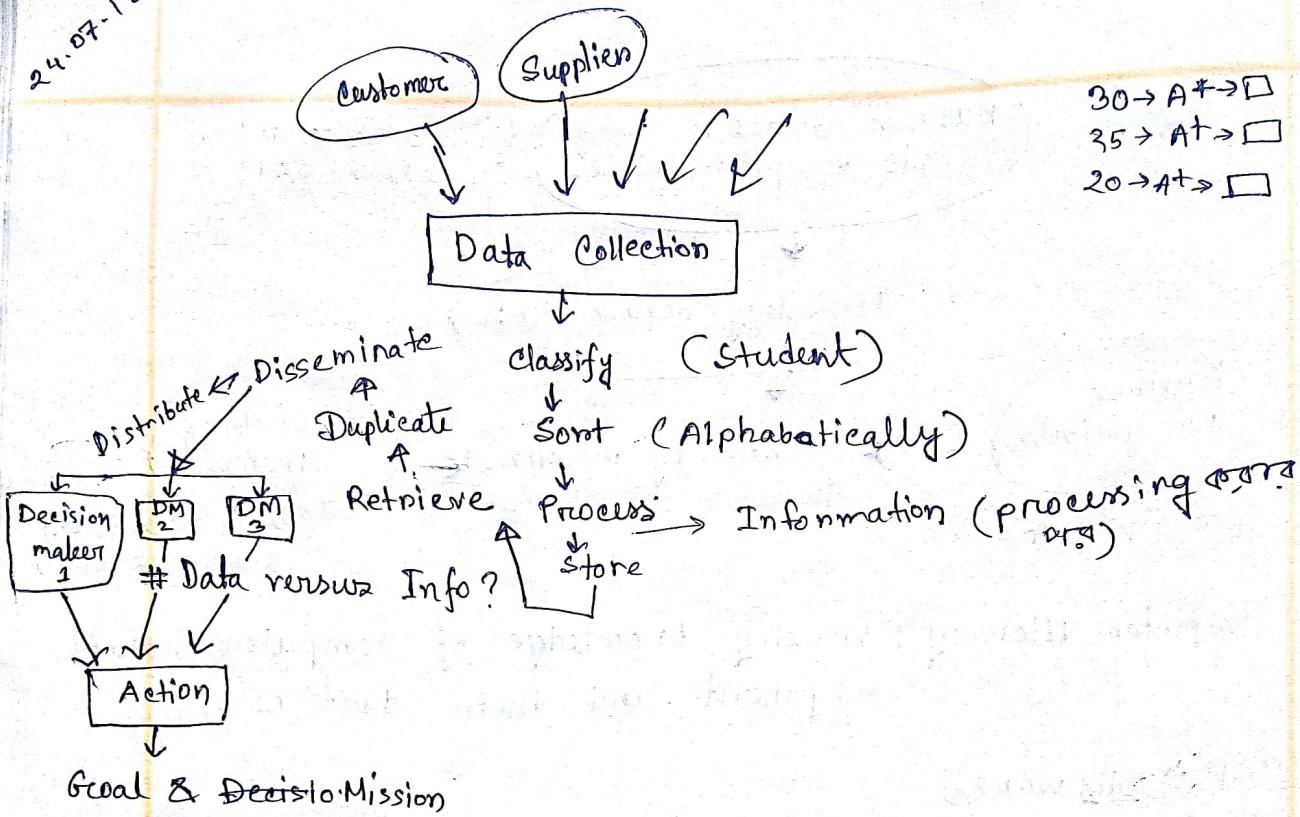
↓
Software का application Info. literacy.

Information literacy : To use computers in innovative and meaningful ways to solve business problem.



=o=

24.07.18



Why organization need information system?

1. Meeting global challenge (globally compete करना)
2. Capturing opportunities in marketplace (local " ")
3. Supporting corporate strategy (cost, quality, focus)
4. Linking departments whose functions different (link up करना)
5. Enhancing worker productivity.
6. Increasing the quality of goods and services. (Bar code use करने 1 hour product sell करने 10 min)

productivity : एक एकत्र particular time में कितने उत्पादों को produce करती है।

0.25 product / 1 hr
25 product / 1000 hr

MRP : Materials Requirements Planning.

Info. System & org. structure : 2 types of organizational structure.

- I) Pyramid or hierarchical structure.
- II) Task based

Structured task :- lower level manager. (यांत्रिक गर्मेंट्स)
intuition → असाधारण विचार नहीं। प्रशिक्षणके
easily understood, routine

Unstructured " : Top and middle manager.

intuition, judgement and experience ".

Semistructured " : Middle manager. partly structured / or
" un "

Task based unstructured :- यांत्रिक skill के लिए तात्पुरता
level तक प्राप्त कर सकते हैं, और group
जैविक विकास कर सकते हैं।

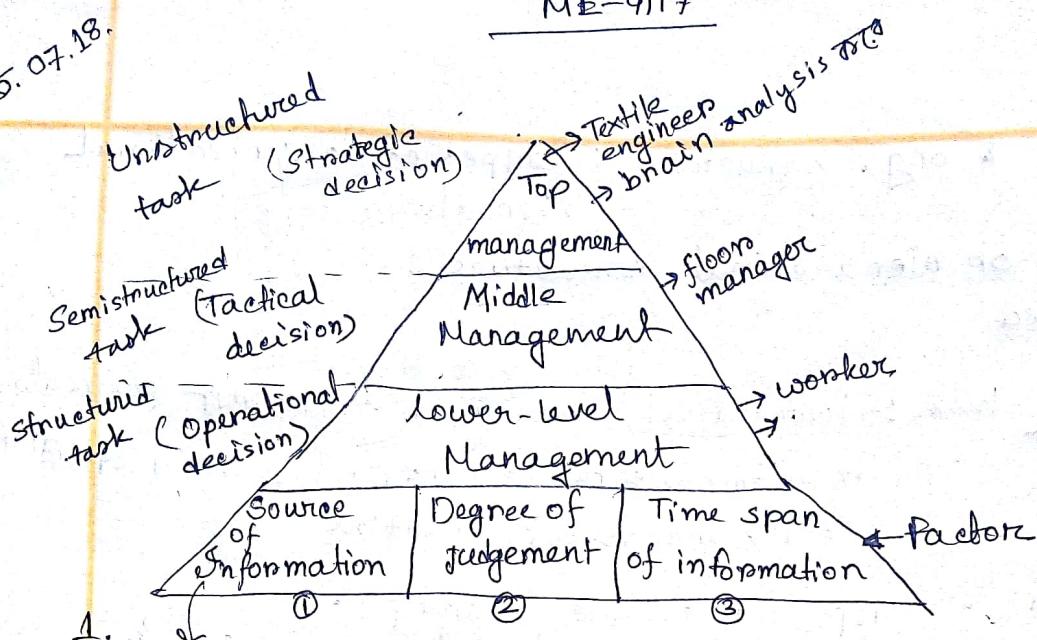
Ex - ~~the~~ Surgery या यह level तक
प्राप्त कर सकते हैं।



task based structure

25.07.18.

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2. Degree of judgement:-

2.1. Intuition :- Top management.

2.2. Intuition x structured lower level

3. Time span of information:

3.1. Long term planning : After পরিকল্পনা Top management

3.2. Short "n" : departmental "n" Lower level n

3 factors: influence → Info handling → which level of management will do the task.

Personal Info System

Forecasting of sales for the next 10 years.

Personal computer (exm)

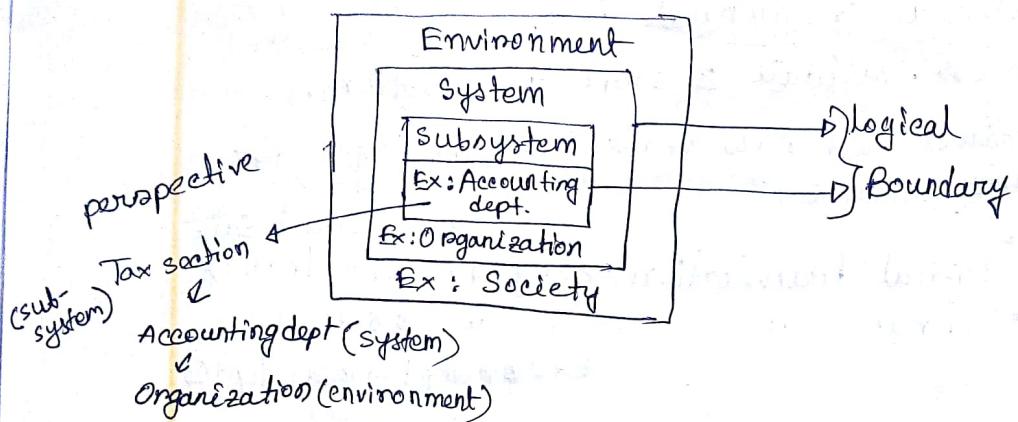
Work-group Info. System

Launching a product
R & D, finance
Manufacturing Dept.
design \rightarrow costly
Infeasible.

Organization-wide Info System

product details
Raw material \rightarrow After sales service.

General System Theory



Environment → imposes different constraints on the system.

29.07.18.

Information System for managerial decision making.

Managers at different level take different kind of decision.

↓
(strategical,
tactical,
operational)

Need different kinds of information.

↓
To provide info. this info. there are diff types of info.
↓
system .

4 types

1. Transaction processing system (TPS)
2. Management Information " (MIS)
3. Intelligent Support " (ISS)
 - DSS
 - EIS
 - ES
4. Office Automation " (OAS)

29.07.18

TPS

- Record external & internal info
- Record process, validate & store transaction.
- Example: Product w.r.t raw material ~~বিক্রি পর~~ বিক্রি পর
কার্যকর ফর্ম।
- Em.: Product sale
- 2 types:
 - ① External transaction → org. w.r.t. tran. →
Ex- dept → w.r.t. dept → transaction.
 - ② Internal " → " " " " " " " " " " " "
- TPS performs routine, repetitive task, used by lower level manager.

Six steps in processing a transaction.

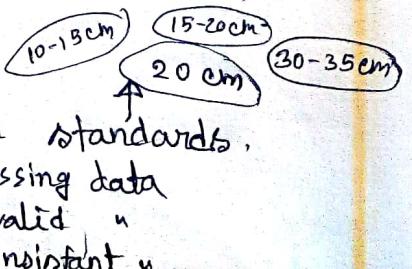
1. Data entry
2. " Validation (data)
3. Processing & revalidation. (info validation)
4. Storage \leftarrow Info Decision Maker
5. Output generation \leftarrow processed info
6. Query support.

1. Data entry

- Create & source document (তৈরি পদ পর করে বিক্রি করা হবে
document করা হবে)
- Ex: automation

2. Data validation:

- Checking accuracy comparing with standards.
- 2 steps
 - Error detection
 - " correction



Missing data: কোন ~~দাটা~~ data miss হলে extra.
Invalid data: (25) " invalid 20 hour 50 hr "

Inconsistency: একই data এবং দুটি data তে 'অসম্ভব'

Mr. X একই সপ্তাহে 40 hr 'অসম্ভব'
Mr. X , " 50 hr "

3. Processing and revalidation :-

2 ways

(standard info
processing)

এবং মানব করা
করা)

Transaction file
Master

" compare)

extra
" 6 month
" 2008
file
2006 " 2005
file

• Online Transaction Processing(OLTP) Batch Processing

* No time lag between data creation & data processing.

* Exm:- টিকেট কেনে কোড দেওয়া



* Transactions are accumulated over certain period of time before they are processed.

Exm: ATM মোড়ে ফের্নে রেজিস্টার
মেশিনে পণ্য বিক্রি করা

* Update continually.

* Detect errors as it appears.

* Update periodically. (update
আবাস
করা)

* Error detected while processing.

5. Output Generation

Hardcopy

(single transaction info)

1. Documents

& Reports (summary of several tran.)

2. forms (softcopy)

(easily change এবং সংযোগ)

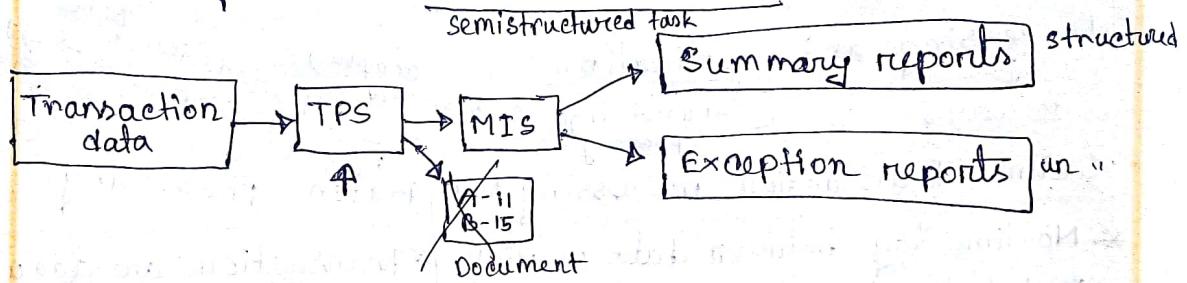
6. Query Support & feedback

=0=

21.07.18

2. MIS

- Monitor and control the internal operation of an organization.
- Provide middle managers with vital information necessary to make tactical decision.



TPS output = input of MIS.

Expected sell
A → 100 (sell 20)
150* (" 2012) } deviation find out \rightarrow exception.
Actual sell

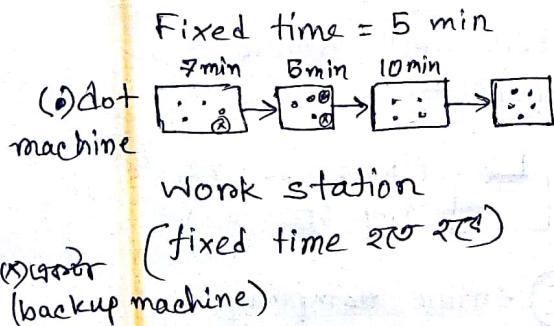
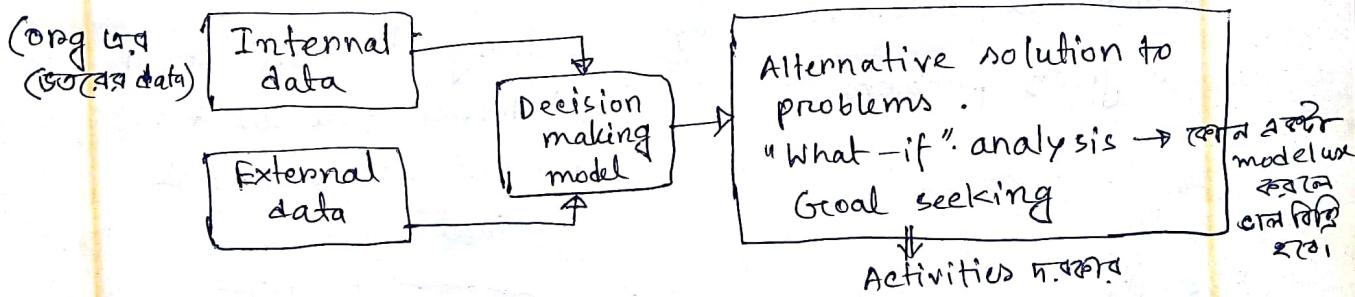
Semistructured / tactical decision.

TPS	MIS
<ol style="list-style-type: none">1. Record & process transaction.2. Input - Transaction data.3. For operational decision (structured) making.	<ol style="list-style-type: none">1. Produce summary & exception reports.2. Input - TPS.3. For tactical decision making.

3. Intelligent Support System (ISS)

- Facilitate decision making using knowledge, intuition, experience, expertise.
- Require application of theoretical knowledge & practical experience.
- 3 category
 - 1. DSS (Distribution Support System) →
 - 2. EIS (Executive Information ") →
 - 3. ES. (Expert ") →

DSS - provide managers with data, tools, models to facilitate semistructured decision making.
(tactical)



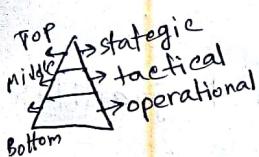
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28.08.18.

C T → 2nd slide of Marketing.

Information System

1. TPS
2. MIS
3. ISS
→ DSS
→ EIS
→ ES
4. OAS.



Executive Information System :-

- User-friendly and interactive computer-based systems, designed to meet the information needs of top managers.
- Required for long term planning & strategic decision making.

DSS

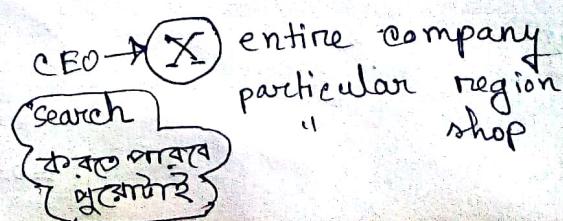
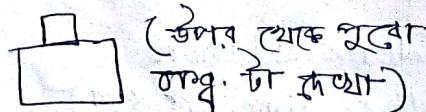
1. Generate alternatives of a given problem.

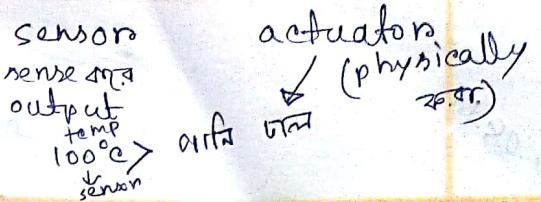
2. Hasn't drill down capability.

EIS

1. Integrate data from different sources & present it in a useful format.

2. Has drill down capability.

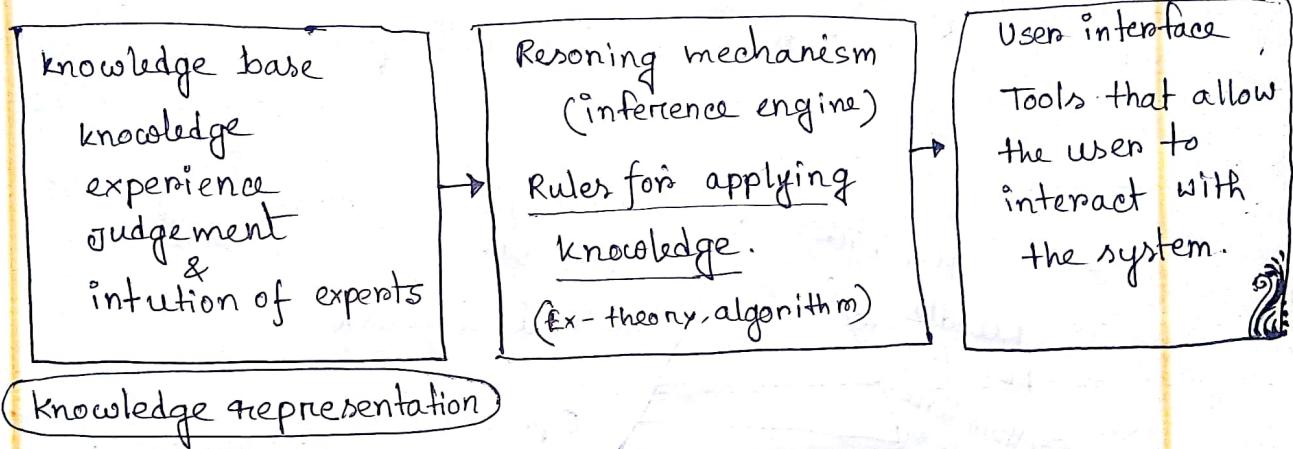




AI : A branch of computer science whose goal is to design & develop machines that emulate human intelligence.

Expert system : Software designed to capture the knowledge and problem solving skill of human expert.

Expert system has three main components :-



OAS : Office Automation System.

- Increase productivity.
- Increase communication.

Ex- company
(video conferencing)
(word file use edit 2020-21)

=0=

29.08.18.

chapter - 8

DSS

structured decision : 50% same decision (50%)

Ex: compound interest calculation.

$$FV = PV (1+r)^n \rightarrow 5 \text{ years}$$

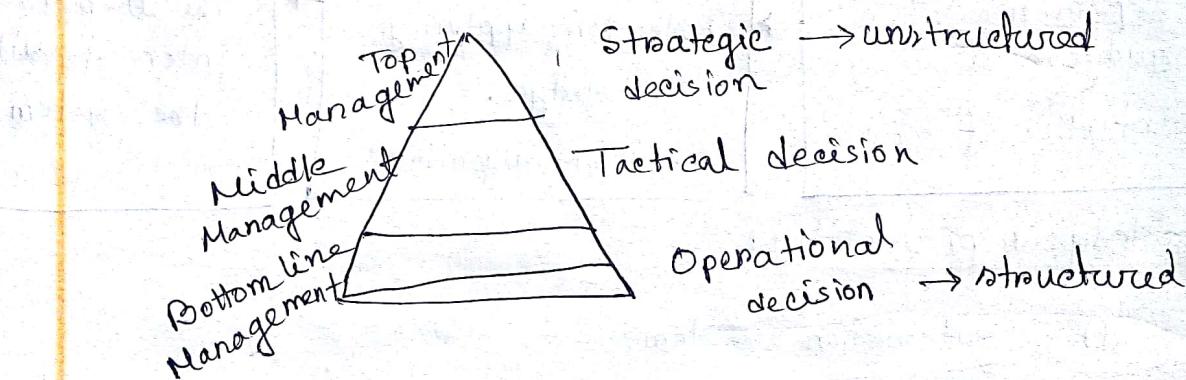
↓ ↓
10,000 10%

Unstructured decision : experience, intuition.

(50%) 50% ^{decision} Ex: Launching a product.

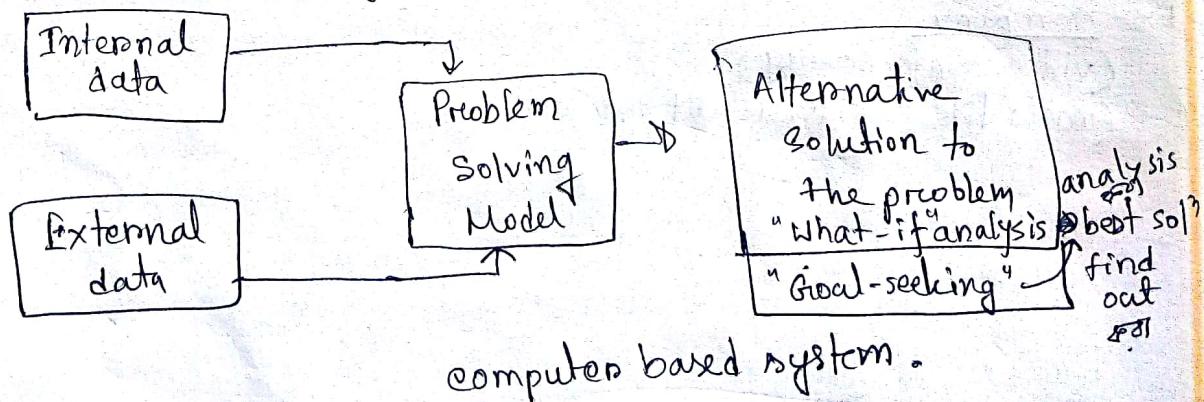
Semistructured :

Ex: Admission to a college.

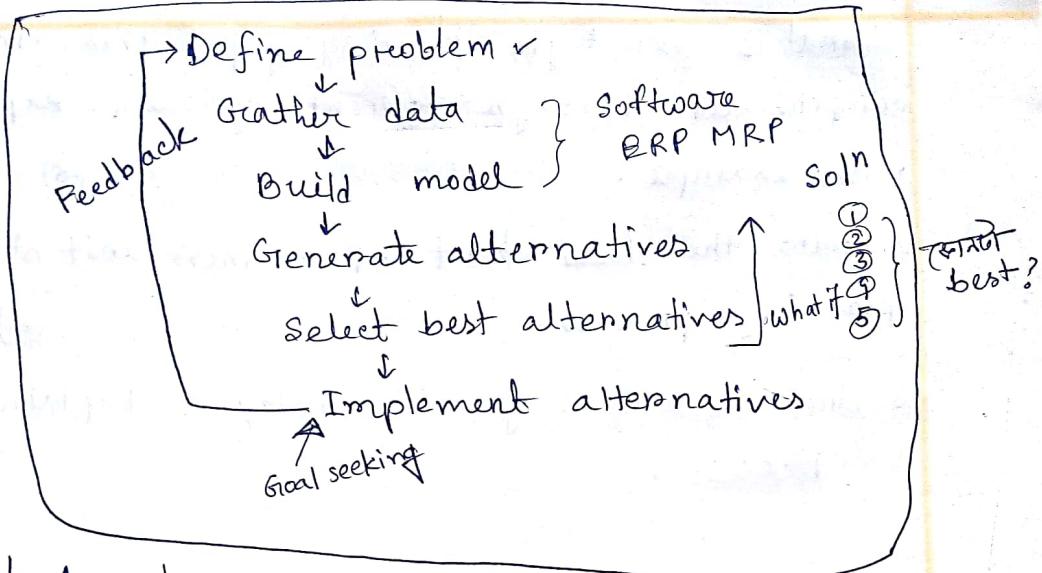


DSS steps in problem solving!

Defⁿ: well-engineered



Steps in problem solving :-



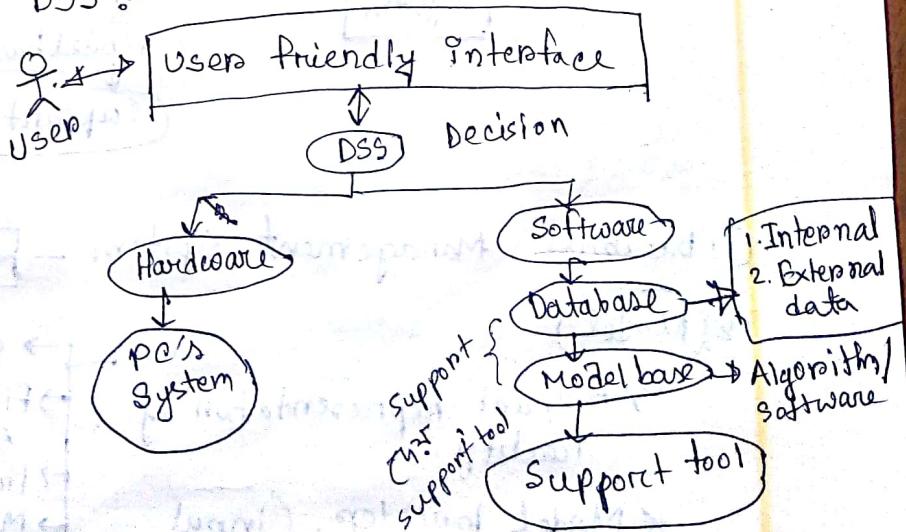
i. ✓ product A sale :-

- 1. Demand ↓
- 2. Market shrink
- 3. Price ↑

DSS { semistructured } alternative solution ORCF
 Unstructured }

characteristics DSS :-

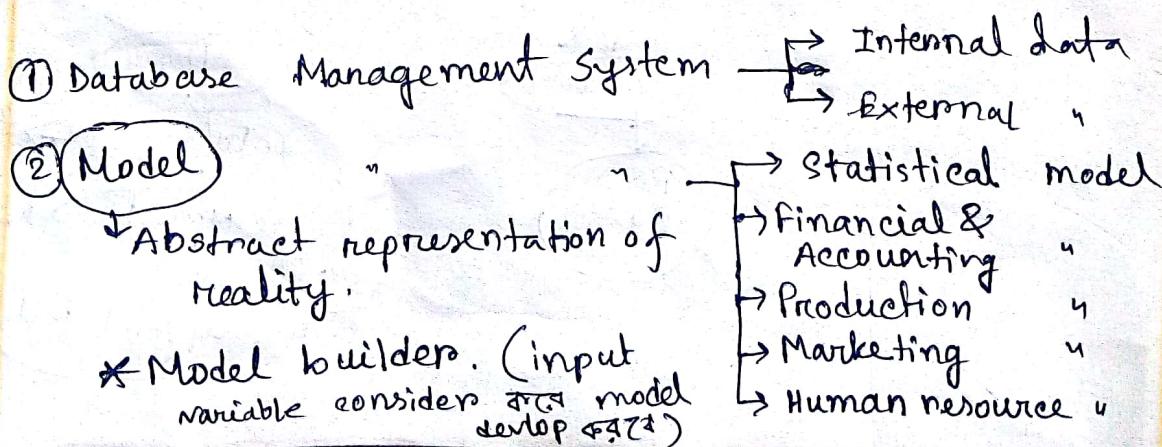
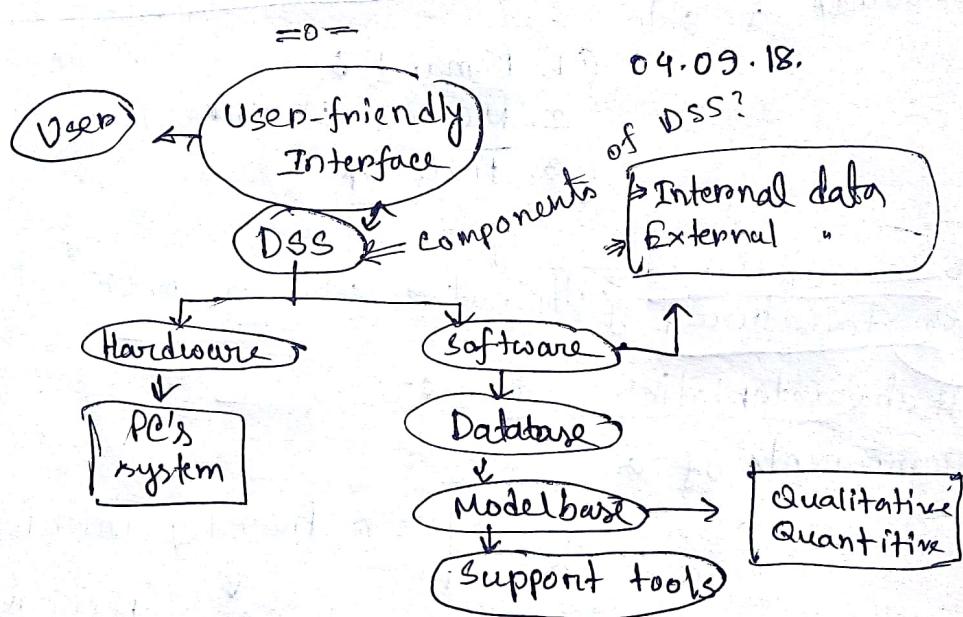
Components of a DSS :-



1. What is strategic planning gap? This gap is compensated through different growth - explain with example. (8)

2. Draw the flow chart of business unit strategic planning process. (6)

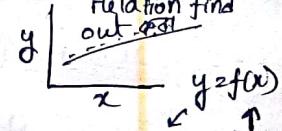
3. What are Porter's generic strategies? Explain with examples. (6)



Support tool: Which facilitates user's interaction with the system.

- * User Interface
- * Graphical analysis → numeric value \rightarrow present graphically
- * Error - Correction.

Statistical model: avg, standard deviation, Regression analysis.



Financial & Acc " : Cost - benefit analysis, Investment.

(\downarrow 100 prod. sell कराया थाएँ)

Production " : योग्य machine के लिए prod. की क्षमता बढ़ा देता है।

Marketing " : योग्य prod. place करना marketing के लिए।

Human res. " : Man power planning
Labor negotiation

Functions of a DSS : 5 functions.

1. Model building

(demand, cost, profit, price) ① Input variables & their relationships.

(price increase 5% over ② Model assumption. the forecasting period.)

(Production capacity is ③ Constraints. limited to 500 units.)

product A Profit = Selling price \times demand - Cost.
 \downarrow
5%

A \leq 500 unit.

= 0 =

05.09.18.

Functions of a DSS

1. Model building : Based on

- ① Input variables & their interrelationships.
- ② Assumption.
- ③ Constraints.

2. "What-if" analysis :-

* find impact of changes in

- ① Model variables

- ② Values of the variables

- ③ Interrelationships among variables.

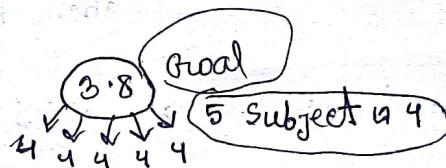
(किसी भी वार्षिक वर्ष में)

* Proactive than reactive decision making.

* For Unstructured & semi-structured problem.

* Bottom-up approach.

$$\text{Demand, } F = f(x, y, z) \xrightarrow{\text{Selling cost}}$$



3. Goal Seeking :-

* Determining **input variable** necessary to achieve a **certain goal**. (target) first identify

* Opposite to "What-if analysis"

* Top-down approach.

4. Risk analysis :-

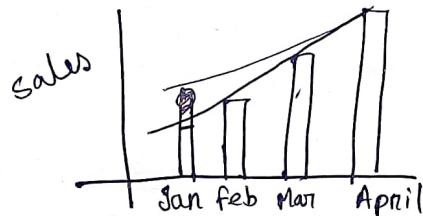
- * Evaluate risk and uncertainties associated with different decision.
- * Computed in probabilistic manner sudden change
- * Rate decision as high risk. → break through.
 - medium "
 - & low "

prod. sell zero
में नहीं बिकता

जोर नहीं बिकता

5. Graphical analysis

- * display of data in easy to understand format.
- * To quickly draw conclusion.



i) Marketing manager → sales एवं विक्री
ii) Production " → break down वर्तमान

\bar{x} -R chart

. 09.09.18

1. R chart $\rightarrow UCL_R = \bar{R} D_4$ $\rightarrow \frac{\sum_{i=1}^m R_i}{m} = \frac{\text{Total range}}{\text{No of day}}$

2. \bar{x} chart. $CL_R = \bar{R}$

\downarrow $LCL_R = \bar{R} D_3$

$UCL_{\bar{x}} = (\bar{x}) + A_2 \bar{R}$ $\rightarrow \frac{\sum_{i=1}^m \bar{x}_i}{m}$

$CL_{\bar{x}} = \bar{x}$

$LCL_{\bar{x}} = \bar{x} - A_2 \bar{R}$

$D_4 = 2.114$

$D_3 = 0$

$A_2 = 0.557$

