

Product Development

Gist → What is a product?

Types of product? How are they categorised?

Product Development? Content?

Product cycle.

Quality

Evaluation

2 Quiz - mid

end

Attendance - X%

mid + end → Y%

Product

→ Any good/item - Customers - need requirement.

categorization

various factors

product - perform well

Bad

food | automobiles

Board

Tangible - good we can touch (feel) - physical existen.

Product types

intangible - Services

↳ Healthcare | police Service | Government.

Qualitative - measurable of tangible

measurable

↳ measurable on qualitative.

intangible

User based

consumers - individual purchase.

Industrial - bulk amount →

↳ Fined rice

Rice bag (P.S.G)

Rice

bags

tons from

farmers

Basmati

rice

→ There is vast var. in profit margins, as the quantity of good PCs.

* logistics (supply chain - additional stages add in)

- ↳ marketing
- ↳ transport

~~Product Development~~ - market opportunity arise
↓
No market, no products no

Exception - innovation - market produced development
later on, as use is discovered

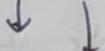
Service - faults will be discovered - process is repeated.

PDCA cycle -

↳ lean & agile approach for PD

PD - starts - market opportunity.

end - sales/delivery - Production



market (customers)

↳ research oriented.

Research & Development

Quantum physics
quantum mechanics
mobil shell

↳ discovery power

No set timing

R - Basic research - expensive. (No time period)

(all the project - no guaranteed results.)

→ Healthcare - pharmaceutical - large market for Research.

* Demand is Bio/ Nanotechnology (medical research).

(T) Technology development - loosely structured.

Ex: Automobile - difficult to plan

I(s) - ? ↓ tend to perform it.

(D) - product development - structured method.

Emphasis on failure / success of product

* followed in a rigorous way

* kicks out competition - 99% compy follows it

* creates a tough competition → Short term (1-3 yrs) (max)

* The market may be not available after a certain period. → planned we need a output product

* compy uses to beat up and makes the profits.

→ The dimension of market strength from - competition

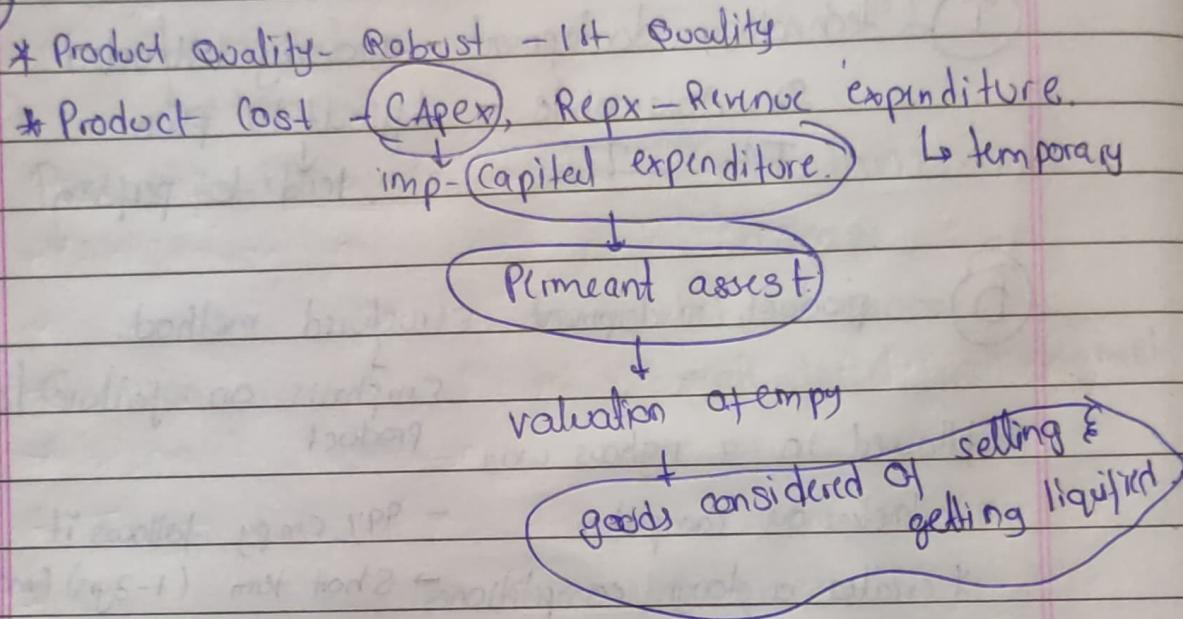
cost / quality v/s. Product Dev - features +
(quality included) functions.

Markets are determined by proper planning of PDS

Assessment of PD

- * ROI → Investors (stakeholders of cmpy) satisfied
 - * they tend to invest more, more product launch PDS - more profit.

standard feature



* Development Time -

Ex: If product outdates - launch in market delay → other competitors will beat you.

* Development cost -

- Revenue - revenue expenditure
- acquiring external Human Resource
- necessary for product.

* Development Capability - Sustainable product.

* Influence on Investors.

Screwdriver

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Structured complexity.

(S)

PD with simple function.

S complexity.

S+F compx.

Automobile / aeroplanes

Structurally simple
Simple + n
light bulbs

Structural simple.

with compx +
Fashion Industry.

Functional complexity.

(F) ↳ market compx.

Company perspective

* New to world product

* New product lines.

* Add to product lines

* Improvement & revision product (New competitor)

↳ upgrade = iPhone 8, 10 - names variation.

* Reposition product → categorize. (minor changes) in same product, introduce to other group.

* Lower priced

company - Start introduce low cost range for products.

They want cover the poor ppl

→ Google chrome - browsing webpage

services.

Drive (photos) cloud computing.

later design to

launch product.

12 Aug

Design & Development of Products (Product Creation Process)

+ Re-positioning
↳ ad's RANKA
the market
PAGE reach

* Marketing

* Design

* Manufacturing

* Roles of Marketing (direct interaction with consumer)

* Identification of product opportunities.

* ... of consumer needs.

* ... Market Segments (definition)

* Product Promotion

* Target Price. (on the current demand of market)

*

Roles of Design team

* Define the physical form of product to best suit the customer needs.

* Engineering Design- Mechanical (electrical, software etc.)

* Industrial Design- Ergonomics, user interface

Notions of design-develops.

Roles of Manufacturing

* Process Design

* Operation

* Co-ordination of product

- * Purchasing.
 - * Installation
 - * Distribution
- ↑ Supply chain Management ↓

Qualitative terms

External Meaning

- * Expectation - satisfying a customer
Input - what a customer exp want in a product
(comparing with similar products used in past).
- * Commercial structure - define for low-cost product.
(price deciding fact).
- * Customer feedback - after sales.

Can we club customer - inputs, expectation, commercial structure. Range of product price.

- * Product Design - Transforming the market into.
quantitative terms (number) - difficult job

↳ Maintaining - hardest part of Product design.

↳ PIMS - Process Instruction

TSO - Certified — ?

Failure Mode Effect Analysis. - after introduction of product.

Mistake in assembly line

↳ Reason - Core (identification).

XMP

* Extended blatantly - one way increasing market for our product

Pro-data-warrant - available - example

NPr - net present value - changes with time?

Why product fail, beyond defined time period?

Risk management 1) safety risk.

2) Product risk - (tendency to fail in market)

(loss to cmpy)

Any product - New to market - initial price are high.

20th Aug.

5 fronts & elements of PD

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1) Identification of opportunity →

- * Large or large (increment) business & technological chances are identified in a more or less structured way.
- * Using the guidelines, resources will eventually be allocated, to new projects.
- * Which then lead to a structured new PD S NPD (New Product Development strategy).

2) Opportunity Analysis

Analysis the opportunity, market available, or implementation competition, threat or anything which can be a challenge for opportunity.

→ Translated into

→ Translated into implication for the Business & technology specific context of the company.

→ Extensive efforts are made to align the idea to target customers or customer groups and do market studies, technical trials, research etc.

3) Ideation - described as evolutionary & iterative process progressing from Birth - maturation of the opportunity into a tangible idea.

→ The source of idea can be made internally or come from outside the inputs.

u) idea selection:

Selecting by analysing it's potential business &

④ 5) Business case

* Developed based on estimates on of total available market, customer needs, investment required, competitor analysis, degree of uncertainty

Generation of idea — personal experience

→ External adversity.

* 9 included in slides.

Employees - good source - suffice knowledge of quality of product and risk factor (fail)

Trade shows - product exhibition

→ insights to improve & introducing new products.

Fuzzy-front end - Strategic planning

concept generation.

Idea - Research - most common SWOT Analysis.

Weer

S

W

internal factors

T

O

- external factors.

Launch a similar product, that product should kill the weakness of similar product existing in market.

Ethnographics - Range of products based on groups.

(age, interests)

Patter identification & habit of customers.

Nike - destined to work Sports varieties.

Mom's & co → Baby care & Skin care.

Idea Screening phase - followed by idea opportunity analysis.

Ideas - coffee Joule - 2

Use of knowledge - Opportunity - Idea

Case Study - TATA Circuit

Oyi market - all company
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equiment
of car

Distress sale - selling product at lower price, there
is no sales of product, product may be
spoiled in near future.

25th Aug

Idea Screening

definition

factors effecting it.

most imp 16
exam

Decoding idea statement

1) Marketing factors.

* Potential market size.

* Pre-existing market image by company
(product lines).

* Competition with existing compy. products

* Compatibility with existing market channels.

* Physical distribution systems.

* Need to fall in pricing Range.

Generally these are very risky and challenging for every new startup.

2)

Development factors:-

* All the knowledge required for development.

3)

Production factors

Does acquiring / acquiring mean company - killing competition.

* Pre-existing product lines - so it is advantageous to big company.

Choosing a right processing equipment is critical. It will be long term asset for company.

* Having right team - technical skill - who are capable of producing product.

ii) financial factors

Product Idea Description (PID)

* single statement.

→ PID - consists of i) clear description of product.

Product
description

2) use of market

3) target market of product.

4) relationship of new product to the existing products.

5) relationship with competitors.

Example

→ A plain-based icecream with jelly containing conc. liquors aimed as gift to be taken to occasion sold to existing outlet at ₹ 1 kg p campus with no other existing competitor

26th AugDevelopment Process In org.

1) Standard dev process.

Roles

Milestones

How to organise.

These are the thing
need to consider.

Process of prod dev -

Sequence of steps - transform set of inputs to outputs

PD Process - refer slides

Enterprise - including.

keeping a well defined -
process identification, to ensure and minimise resources.

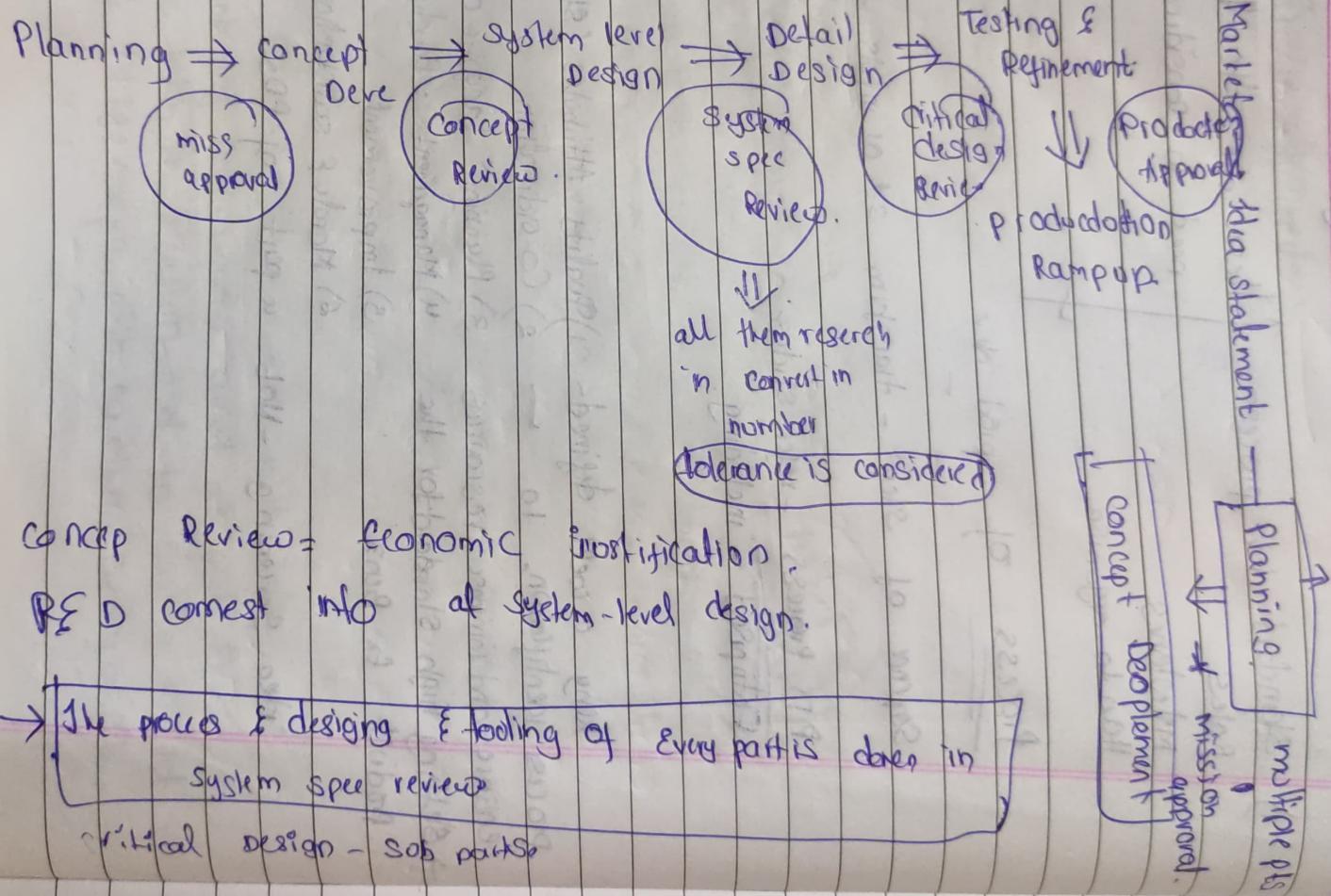
→ Getting high standard for the product ex: Benz

- 1) Quality Attributes. (Standard every step)
- 2) Co-ordination
- 3) Planning. (acquire certain milestones)
- 4) Management. := Benchmarking
- 5) Improvement
- 6) Morale & satisfaction.

Idea Screening - Not a part of PDs.

It's not approved by org officially
called as each phase.

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Testing - extensive testing ensure to meet standards.

- internal - parts (in the factory).

external testing - people working with it.
(externally tested)

α -prototype - Built product intend parts, i.e., with the factory - use intended geometry, intended material but of temporary not necessarily made from fabricated from tools.

production

β -prototype - Built with parts supply by the intended process, ~~for~~ but may not be assembled (externally tested) by with the intended final assembly process.

* Helps us to narrow down the whole process.

* Information processing system - inputs, processing, etc.

*

31st Aug

Phase 0 - planning

General Management.

Marketing

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Design

Manufacturing, Supply chain

R&D

Finance

Phase 1

Include the same attributes as Phase 0.

The process (use) of attributes changing.

Marketing team is responsible for finding the user for β-prototype testing.

* * Development of product begins at concept development (Phase 1). [Industrial design - final outcome of prod] Building & testing - theoretical testing, will it be success or not.

Phase 3
Detail design

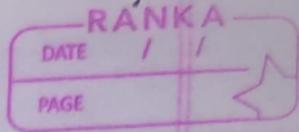
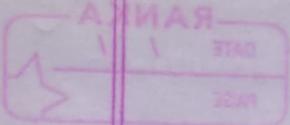
Control Plans - R MCP — Raw material.

BOM CP -

FP CP - finish part.
1 Piece part

Ensure to
main the
quality of
products

What is make-buy, analysis?
Economic analysis.
Benchmark competitiveness?



DCP - Design control

PCP - process control plan.

- Costing of product - phase 1 - concept development.
* Establishment of assembly line - system design.

* Manufacturing is responsible for the process & and parts/component - Proper working cdn.
With ppl from multiple disciplines to check & refine the product.

QA - Quality analysis.

Service issue - the part can be marked as Servicable.

ideation - fuzzy front end

Development Plan:

A Plan organised in a hierarchy order

diagrams

Fishbone model - used for quality checks.

→ failure of product can be determined by the above-

Target Specification by what will the market be
(features) satisfied?

Sept

Product Distinction

Market - dependent products

- * Generic (market - pull) — extensively used.
- * Technology - push products — market unaware of new emerging technologies
 - 1) Emergent (New tech - modified in future)
 - 2) Evolutionary (Tend to marketize tend to buy)
- * Requirement - need (high) — customers are unaware of what tech suits them.

8*

Where the sequence will change;

disruptive product - adverse disadvantage over market.

*

This prod build around existing Tech.

Starts - existing development

* Process - Intensive Product.

(Ex: Gore-Tex micellar technology - Tech push envelopes - platform products)

→ undergoes - manufacturing process (multiple)

* change in process design.

* Customised product - starts in the market

Ex: Samsung - depending on the demand, they customize the product (battery)

Customer involved in all the phase of prod dev.

* High Risk Product: follows same cycle.

Ex: Safety

Biochemistry

market.

(fx)

* * *

D) 1st time launching new gen of antibiotics?

* High risk product.

* Technology

* Platform - Antibiotic category.

* Process - extensive process

* Customized - according to Specific bacteria

*

* Quick-build product - Software - Easy testing.

No need for a, b testing.

* Complex system - Submerges (military products) aerospace

* Requires extensive budget/manufacturing - complex.

* Lots of Resources/parts/Sub system.

* Component level design / analysis

* Risk of failure.

- * keeping in mind - sector oriented then classify.
- * Super Computer?

Ex:- Quick-build process -

2nd Sept

- * What a mission statement should consist?

Product Plan

Innovation - falls in fundamentally new category

New platforms,

Derivates

Improvements

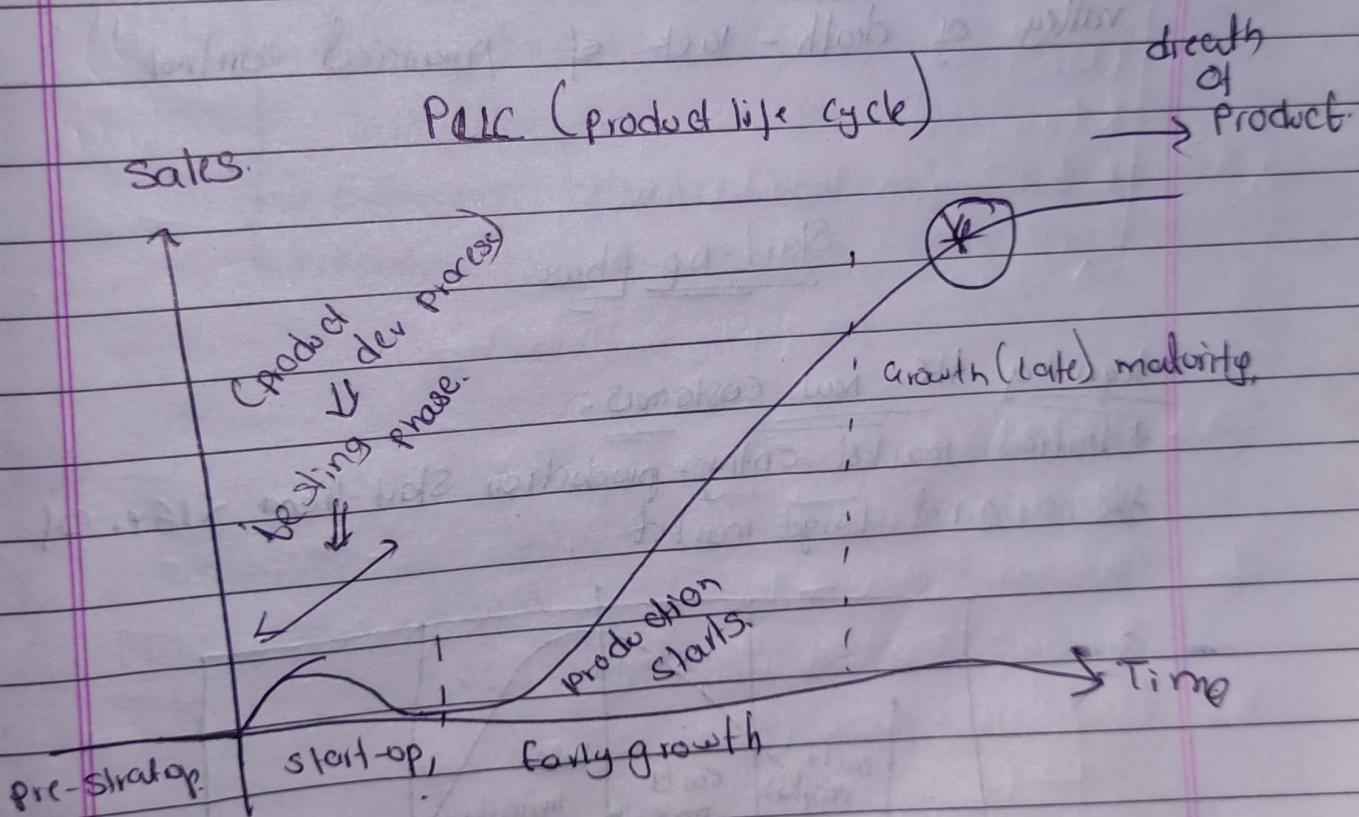
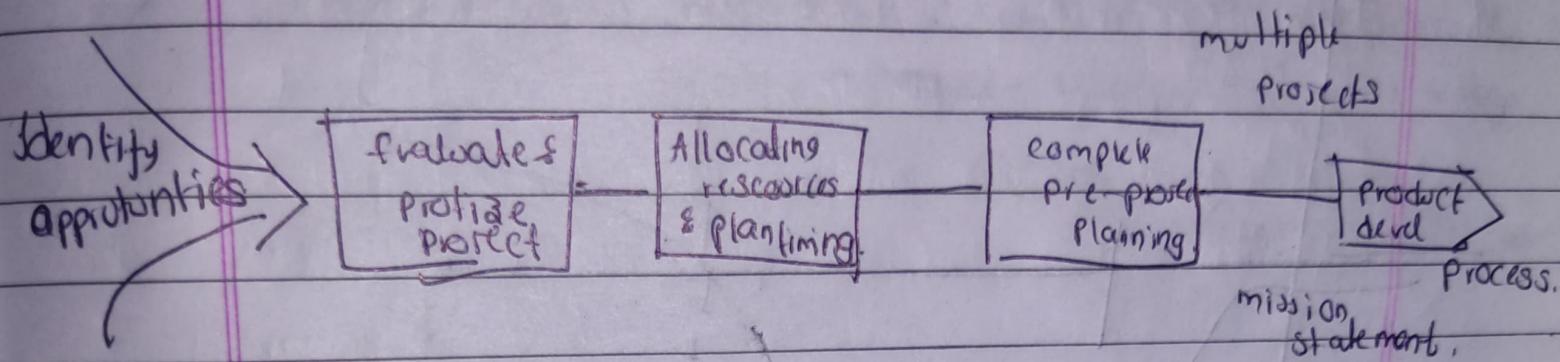
Fundamentally new.

Time (only 5 year fine period)

Derivative - A product with slightly diff change compare to similar products in the company.

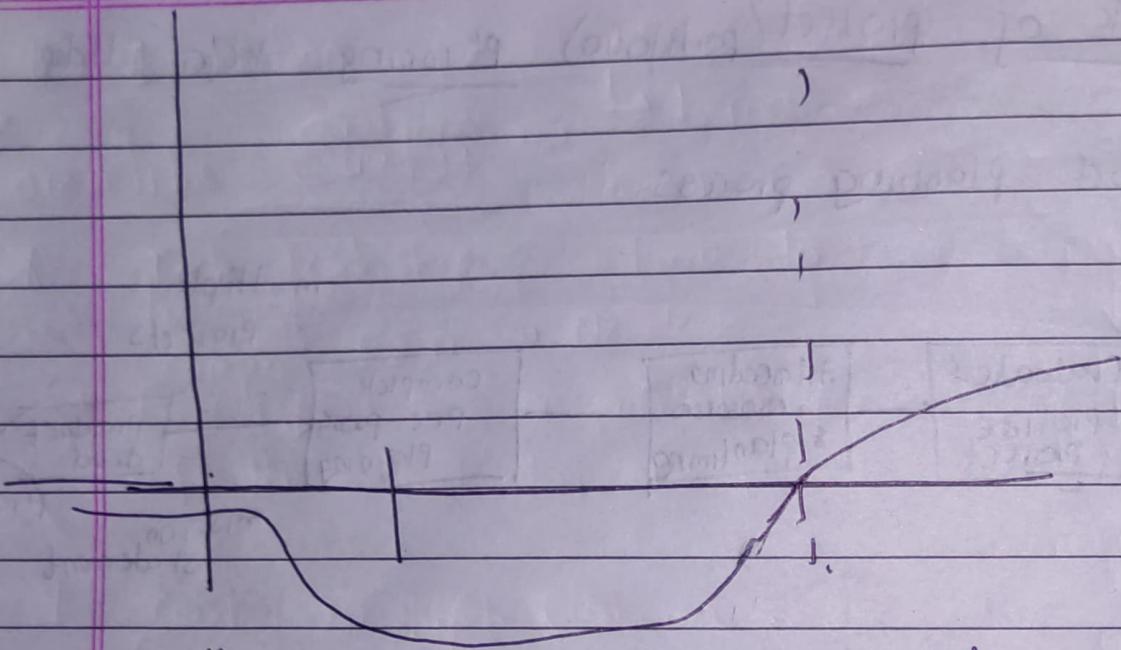
* lack of project (portfolio) planning - refer slides

product planning process.



Introducing new products (tech) is possible when the PLC starts to saturation. (* from graph)

* If they don't follow the product will die, and huge loss to company.

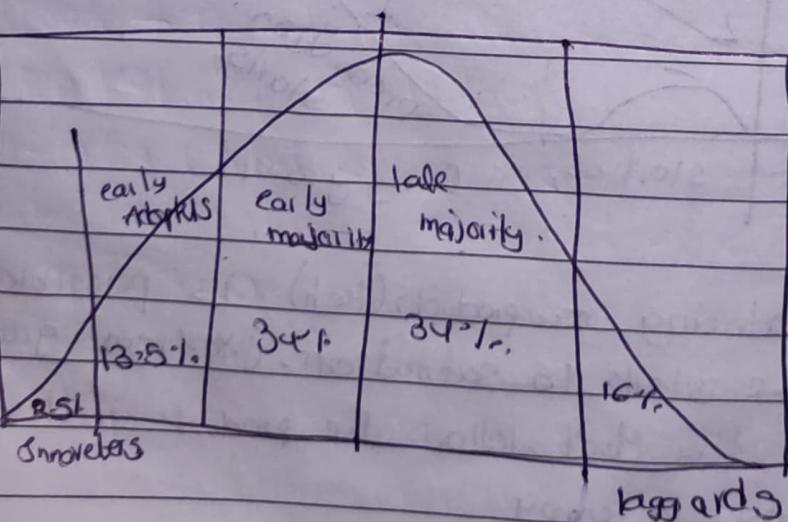


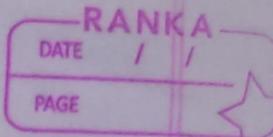
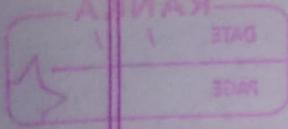
valley of death - lack of financial control

Start-up-phase

Acquiring the new customers:

Initial market entry - production shift from <16% of the original target market.





5 step Process

* Identify opportunities - refer slides.

→ Approach to identify PD opportunities.

→ Document frustration & complain - existing product.

→ Abusive proof - product - used for describe usage

(if it's been used for any
other purpose, rather than
original use)

Search Bright-Technology products

→ Trends in lifeStyle (fast-fashion)

demographics

→ Gathering suggestion (improvement) - existing products

→ Benchmarking our products (comparing competitors)

2) Evaluation & Priorities ProjectsCompetitive Strategy

↳ keeping in mind - present + having
choosing a right future scenario.

- * Tech leadership time to launch a product

↓
Competent R&D → New tech → That tech
↓
frontline adaptability.

↓
Normalized.

↓
huge market

↓
Profit

- * Cost leadership - Economic scale.

↓
labor cost

* Equipment

* investing on tangible assets

→ China - raw material

- Electronics → Industry.

- TATA ACE - cost leadership (ex)

Maruti-vehicles → technological - cost - Reduction.

- * Customer focus - present in all phase (init - launch)
most of the comp follow.

- * Imitative - trend product is launched

→ Production - extremely strategical approach

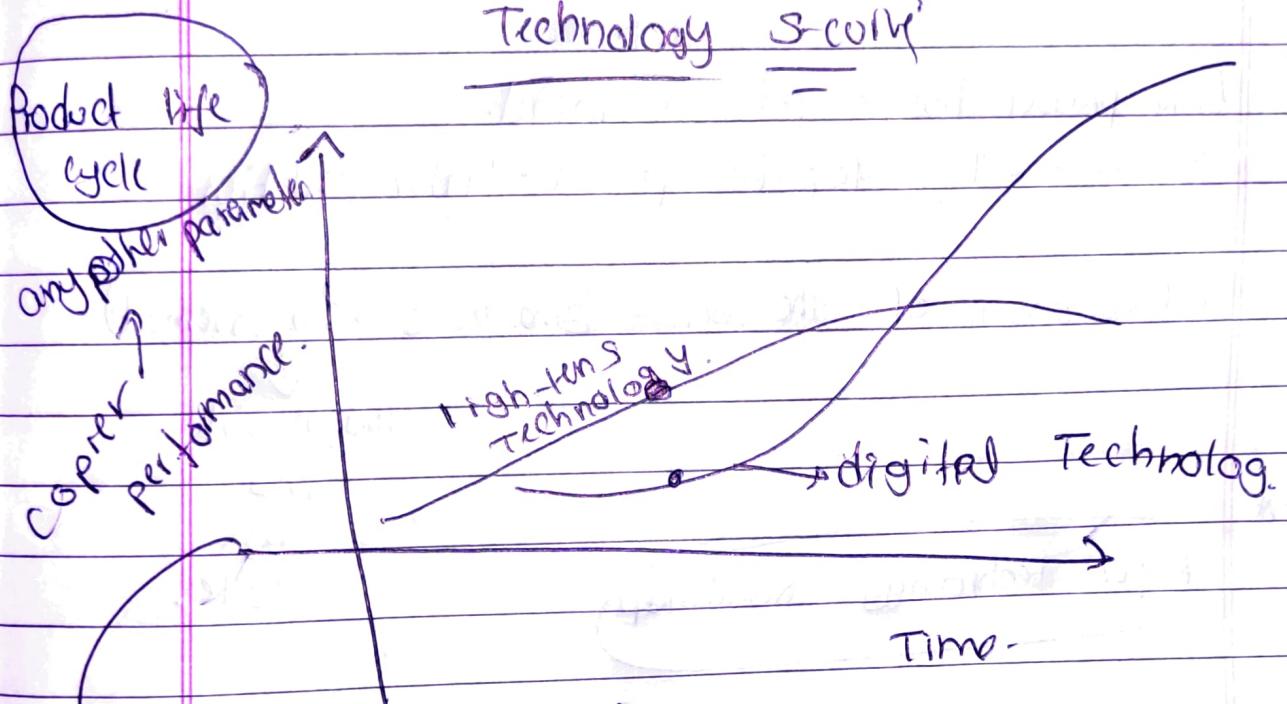
→ ex: Oppo, vivo

- This step helps in framing a better (than form)
mission statement

Market Segment Map → In sync with economy

→ Iyer → Nike

Technology Scouting



Management - maintainer

Emergence of tech / New similar product, so auto make difference (introduce) New product.

Profit margin - Saturation → time →

Some company - Stop product of whole product

↓
That particular product have

Ex. Quatz

↓
2000 — closed in 2010

Maruti omni - Same

Honda sancro -

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CEO - joined and he.

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- * Launching of product can be understood by Platform v/s Pervasive map (Refer Slides)

functional element comes in product design time.

- * Every product - has a pollution impact.
Sometimes - high top class product - higher pollution

- * Enhancement of the Service (Emergence - Improvement)

through out its

life cycle.

Ans

Refer Technology Roadmap

- On ground evaluation for new products
 - * market size
 - * market growth.
 - * Competitor intensity
 - * product fit

Open patents

~~Thsept~~

* Strategies & financial Strength

- 1) Last cost strategy - more process change/improvement
- 2) High prod variety strategy - large no. of derivatives
PV'S
- 3) Tech based strategy - Breakthrough [new prod platform.]

Both design changes &

mt's process

↓
down to manufacturing.

Product-based Process change matrix

↳ refer the slide

* Enables us to understand a position of project (portfolio) in a

* In terms of product classification and product life time.

3) Allocation Resources & Plan timing.

* Timing (launching) of product

Technology - quality of product (upgraded tech).

Market readiness - L&T of customers.

(competition - aware of similar product in market)

→ Aggregate Resources Planning

Planning division

u) complete pre-project planning

Mission statement

- * Brief sentence description of product
- * Benefit proposition.
- * Key business goals
- * Target markets.
- * Assumptions & constraints.