



**CHANDIGARH  
UNIVERSITY**

Discover. Learn. Empower.

# APEX INSTITUTE OF TECHNOLOGY

## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

### Agile Practices (22CSH-292)

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#### Lecture1.1: Agile Development

DISCOVER . **LEARN** . EMPOWER

# Learning Outcome of this lecture

CO1	Understand the Agile Methodology and comparing various other software development models with agile.
CO2	Examine Scrum and test driven development
CO3	Apply the various tools available to agile teams to facilitate the project
CO4	Analyze the method to improve results for a specific circumstance
CO5	Evaluate likely successes and formulate plans to manage likely risks or problems

# Learning Outcome of this lecture

Unit	Name	Outcome
I	<b>Understanding common Agile Practices in DevOps</b>	<ul style="list-style-type: none"> <li>• Introduction to Product Management, Product Design and Requirement gathering, Product Design Challenges, UX Design, Product Development Methodologies, Product Marketing and Presentation, Traditional Software Development Methodologies, Problem/issues with traditional approach, Agile Development, Agile Manifesto, Scrum Model, Agile Estimations and Planning, Soft skills in agile</li> <li>•</li> </ul>
CO 1 Apply the Agile Methodology and comparing various other software development models with agile		

# Product Management

- **Product**: anything a firm produce & sell to customers for profit.
- **Product Management**: Product management is the process of research & development of new products, prototyping, testing, launching, marketing, pricing, positioning, and continuous improvement of company's product(s) to achieve customer demands and business objectives.



# Importance of Product Management

- It helps to understand customer needs and try fulfill in best possible way.
- It provides feedback of changing market conditions and customer demands.
- It helps to set product price.
- It helps to deliver products and communicate value to the customer.
- It helps to align product roadmap with customer's requirement.

# Importance of Production Management

- ❖ Efficient use of organizational resources (material resources, human resources, financial resources).
- ❖ It ensure better decision making.
- ❖ Increase product quality.
- ❖ Decrease chances of product failure.
- ❖ To achieve competitive advantage.
- ❖ Decrease production cost (minimize inventory costs i.e. ordering cost, carrying/holding cost, shortage/stockout cost through effective inventory control)
- ❖ Produce less wastage.



# Role of Product Manager

Product manager has different roles, some of them are to be performed inside the organization and some of them outside the organization.

**Inbound Effort Activities (inside the organization):**

- Setting the Vision
- Product Planning
- Product Strategy
- Product Development
- Product Testing



# Scope of Production Management

- ❖ Product Selection and Design
- ❖ Process Selection and Planning
- ❖ Facilities Location
- ❖ Facilities Layout and Material Handling
- ❖ Capacity Planning
- ❖ Production planning
- ❖ Production control
- ❖ Inventory control
- ❖ Quality Control
- ❖ Maintenance and Replacement





## Product

- Anything a firm produce to sell to the customers for profit is called product.
- Product making is repetitious (day to day) activity.

बनाती है प्रॉफिट अरुण करने के लिए वह चीज को यह उस आइटम को प्रोडक्ट का नाम देते

## Project

- A project is a temporary endeavour to create unique products, services or result. (PMI-PMBOK)
- Project is one time activity with specific start and end date.

## Product Manager

- Product Research/  
Market Research
- Set product vision
- Communicate vision  
with all stakeholders
- Develop Strategic Plan
- Create & Maintain  
Product Roadmap

प्रोडक्ट  
प्रोडक्ट है कि स्पेसिफिकेशन

## Project Manager

- Taking requirements  
from customers,  
divide requirements  
into tasks.
- Plan project activities
- Allocate required  
resources.
- Monitor & Control  
project activities.



### Product Manager

- Product manager usually works in manufacturing industry.

### Project Manager

- Construction, software development, telecommunication or upgradation in existing facilitates etc.

### Product Manager

- Testing of product against agreed specifications
- Launch Product
- Feedback from customers
- Repetitious work

### Project Manager

- Verify customer requirements are fulfilled or not.
- Turn project into operations.
- Document Lessons learned

# What is Agile Product Management?

- Agile product management is about guiding software development, product management through multiple iterations. As agile programs are more fluid than traditional approaches so that agile product management is a more flexible approach.
- Agile product managers are more integrated towards technology team than business teams. The product management is supported by the management team and Product Marketing Managers to round out the product discipline. The product manager work over marketing data and business objective.



# Product Roadmap:

- **Definition:** A strategic, high-level visual document that outlines the vision, direction, and priorities for a product over time. It communicates the product's intended evolution and aligns stakeholders on the path forward.
- It is visual communication tools that's map the direction of product life cycle
- Its is highlight what the product is going to be like in long term future
- <https://www.youtube.com/watch?v=6U6ghXhB-W4>
- Product roadmaps provide the overarching vision and strategy, while product routemaps guide the day-to-day execution.
- Product managers typically create and maintain roadmaps, while product teams use routemaps to guide their development efforts.





# Examples : Product route map

- Tasks: Break down features into actionable steps for development teams.
- Timelines and Deadlines: Assign specific completion dates to tasks and milestones.
- Resource Allocation: Identify the team members, skills, and tools required for each task.
- Dependencies: Map out task relationships and potential bottlenecks.
- Risks and Mitigation Strategies: Acknowledge potential challenges and outline plans to address them.



# Developing product roadmaps for your business

**What is a Product Roadmap** - A roadmap communicates the "why" behind what you're building. It's a plan for your strategy. A roadmap is a high-level visual summary that maps out the vision and direction of your product, often over time.

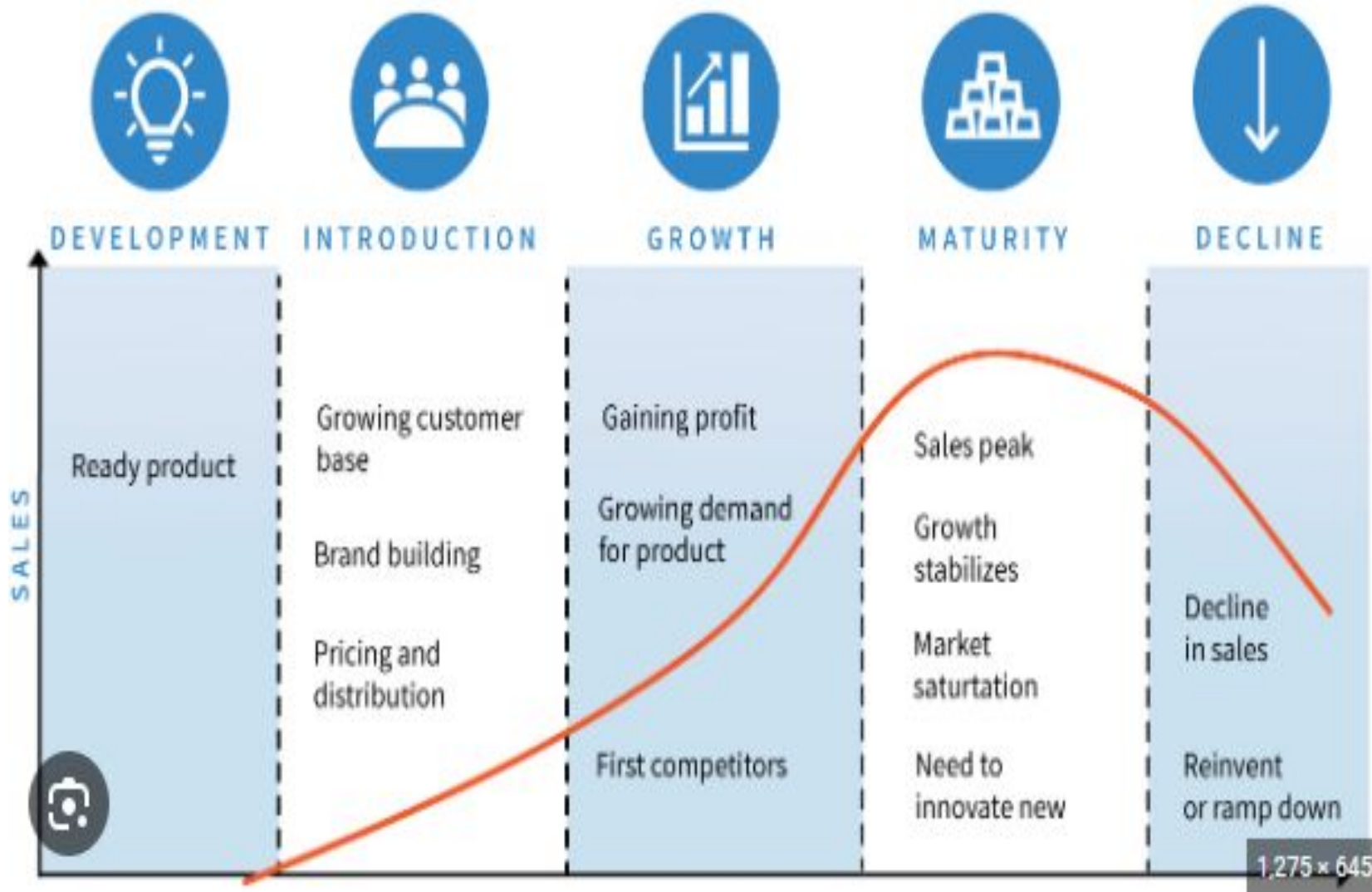
Its just not a list of features arranged in a prioritised manner

**The roadmap has several ultimate goals:**

- Describe your vision and strategy
- Provide a guiding document for executing the strategy
- Get internal stakeholders in alignment
- Facilitate discussion of options and scenario planning
- Communicate progress and status of product development
- Help communicate your strategy to external stakeholders (including customers)

# Factor affecting product management

- Business: Product management helps teams to achieve their business objective by minimizing the communication gap between product developments, design, the customer, and the company.
- User Experience: Product management concentrate on the user experience (UX) that represents the customer within an organization. Better UX is focus manifests itself.
- Technology: Product management is a day to day activity in the engineering department. The accurate understanding of computer science is paramount.



# Product development

- the process of strategizing, brainstorming, planning, building, and releasing a product to market and then measuring its success. It encompasses taking a product idea from concept to delivery and beyond — so you can grow your business and make customers happy.





# Stages of new product development

1.) Idea generation

5.) Product development

2.) Idea screening

6.) Test marketing

3.) Concept testing

7.) Commercialization

4.) Business analysis

# Stages of product development

- **Idea Generation:**

**Significance:** This is the inception phase where product ideas are brainstormed. Ideas can come from various sources, including customer feedback, market trends, competitive analysis, or internal team discussions.

- **Idea Validation:**

**Significance:** Before committing resources, it's crucial to validate the feasibility and market demand for the proposed product. This stage helps in reducing the risk of investing in an unviable idea.



# Product design

**Design** is the conversion of knowledge and requirement into a form, convenient and suitable for use or manufacture.

**Product design** is concerned with the determination of what a product would look like, how it will be made, what function the product will perform and how it will perform.”

## Forms and Function

Product design deals with its **form** and **functions**.

- **Form** implies the shape and appearance of the product.
- **Function** is related to the working of the product.

Designing is essential before actual transformation of raw material into finished product.

# Product design characteristics and factors

## Factors determining the designing of product

- Customer's requirement and psychological effect
- Facility to operators
- Functionality
- Material requirements
- Work methods and equipments

Product design defines a product's characteristics of:

- Appearance
- Tolerance
- Material
- Dimensions
- Performance standard

# Roles of a Product Designer

- Making product sketches by hand or by using software
- Meeting clients and other employees to discuss the design
- To work with product developers, engineers, and marketing staff
- A designer also has to work with the finance team
- Modifying the design based on the feedback received during the development stages
- They also analyse designs of other companies and help in generating new ideas





# Why is product design concept used?

**Profit maximisation in long run**

**Upgrade desire product quality**

**Reduce development time and cost to minimum**

**Ensure producibility or manufacturability**

# AGILE MANIFESTO

## 12 agile principles in software development



Customer  
satisfactions



Changing  
requirements



Frequent  
delivery



Communicate  
regularly



Support  
team member



Face-to-face  
communication



Measure  
work progress



Development  
process



Good  
design



Measure  
progress



Continue  
seeking result



Reflect and  
adjust regularly



# COMPARISON OF ALL SDLC MODEL

## MODELS

FEATUR-ES	Water fall Model	Iterati-ve Model	V- Model	Protot-ype Model	Spiral Model
Require-ment specifica-tion	Initial level	Initial level	Initial level	Freque-ntly change s	Initial level
Cost	Low	Low	High	High	High
Risk factor	High	Low	High	Low	Low
Success rate	Low	High	High	High	High
User involve-ment	Low (at initial stage only)	High (after each cycle)	Avera-ge	Aver-age	Low (after each cycle)

# Text Books and Reference Books

T1 Agile Project Management with Kanban - Book by Eric Brechner

T2 Agile Foundations: Principles, Practices and Frameworks – Peter Measey

- Reference Books:

1 Agile Project Management with Kanban Eric Brechner 2nd  
Microsoft Press 2021

2 Agile Foundations Peter Measey(4th BCS,) The Chartered  
Institute for IT 2015

# References

- <https://www.mygreatlearning.com/blog/importance-of-design-thinking/>
- <https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process>
- [https://en.wikipedia.org/wiki/Design\\_thinking](https://en.wikipedia.org/wiki/Design_thinking)







# THANK YOU

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