

1. Introduction

Software Products, Product Management, and Product Business with Examples, Scenarios, and Diagrams

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1. Software Products Scenario

Software products have revolutionized industries, driving innovation and technological advancement. The rise of Silicon Valley played a pivotal role in shaping the software industry. Companies like HP, Xerox, Apple, Oracle, and others led the transformation by creating a fertile ecosystem of academia, private sector investments, and government collaboration.

Silicon Valley Success Factors:

- Convergence of Academia (Stanford, UC Berkley), Private Sector, and Government.
- High density of wealthy investors and funding institutions.
- Cultural diversity (many startups are founded by Indians and Chinese).
- Tolerance for failure, which fosters a spirit of risk-taking and innovation.

Today, the product landscape has expanded globally, with over 1200+ unicorns (startups valued over \$1 billion) across various industries.

2. What is Spurring the Product Industry?

The product industry is driven by:

- **Global Market Reach:** Cloud resources from Amazon AWS, Microsoft Azure, Google Cloud make it easier for startups to scale globally.

- **Funding:** There are multiple angel investors, venture capitalists, and government support.
 - **Talent Pool:** The availability of a skilled workforce in technology, software development, and product management.
 - **Technology Innovations:** New breakthroughs in AI, machine learning, IoT, and advanced analytics have expanded opportunities for software products.
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3. Different Product Categories

Product categories can be defined in multiple ways, including by industry, technology, and use case. Key examples include:

- **By Industry:** Finance (Paytm), Health (Practo), Retail (Amazon), Travel (MakeMyTrip).
- **By Technology:** AI/ML (CogniAble), Analytics (Postman), Robotics (Boston Dynamics).
- **B2B vs. B2C:** Products catering to businesses (B2B) vs. end-users (B2C).
- **SaaS vs. On-premise:** Products delivered via the cloud (Salesforce) vs. installed locally (Oracle).
- **Mobile vs. Web:** Products optimized for mobile apps (Swiggy) vs. web platforms (Flipkart).
- **Regular vs. API Products:** Payment gateways (Razorpay), Maps API (Google Maps).

Other categories include product-cum-service models like **Ola** or **Uber** where a service is enabled through a product platform.

4. Project Business vs Product Business

Dimension	Product Business	Project Business
Risk	High	Low
Returns	High	Low
Duration	Ongoing	Fixed
Customers	Many	One
Objective	Discovered	Given
Funding	Internal	External
Management	Strategic	Pre-determined
Marketing Effort	Internal & External	Tactical/Operational

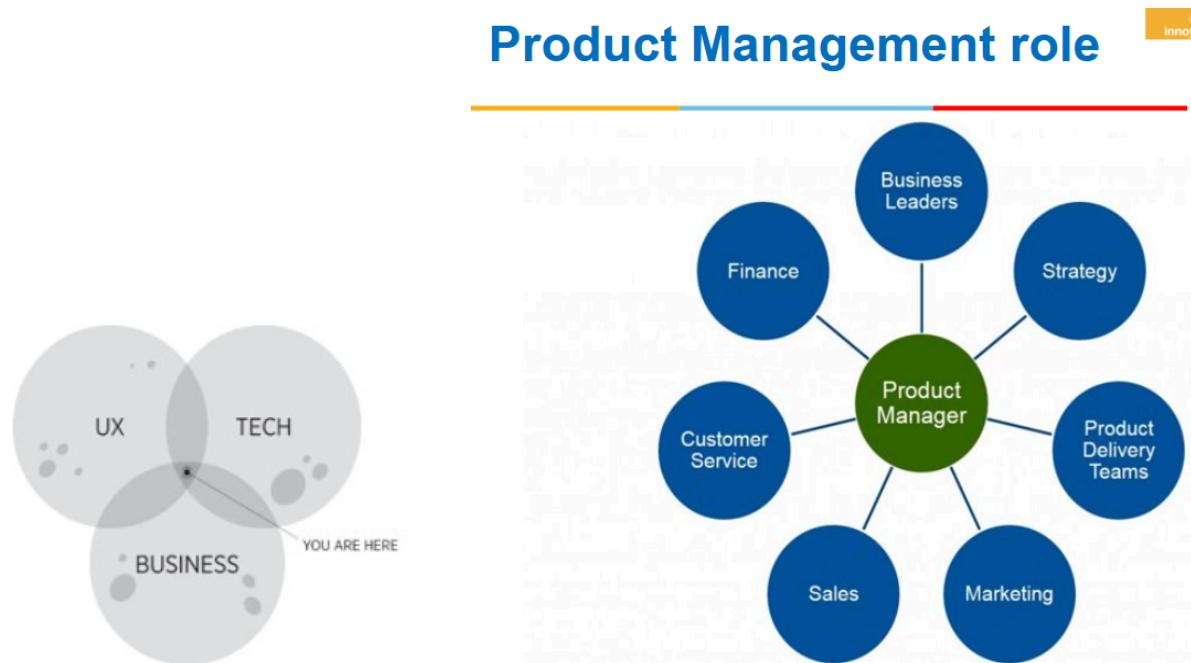
In **product business**, the focus is on creating scalable, repeatable solutions that serve many customers, often requiring high risk but offering substantial rewards. In contrast, **project business** involves delivering tailored solutions for specific customers, usually with lower risks and returns.

5. What is Product Management?

Product management is a strategic function that involves discovering, developing, and delivering products that are valuable, usable, and feasible. The role bridges business, user experience, and technology, ensuring the product aligns with market needs and company goals.

Key Responsibilities of Product Managers:

- **Setting a vision:** Defining the long-term objectives of the product.
- **Creating a roadmap:** Planning the timeline and milestones for product development.
- **Building the product:** Collaborating with engineering, design, and marketing teams to deliver the product.
- **Talking to customers:** Understanding customer needs and feedback.
- **Soft skills:** Persuasion, negotiation, storytelling, vision setting, and communication.



6. About This Course

This course aims to provide a comprehensive understanding of product management, the software product industry, and the differences between product and project businesses. It covers various aspects like market trends, product categories, business models, and strategies for managing products effectively.

7. Name One Product Company You Admire and Why

One product company I admire is **Apple**. The reason I admire Apple is its consistent focus on user experience and design innovation. Apple has transformed industries like personal computing, mobile phones, and tablets with a keen understanding of what users want, even before they know it. The seamless integration of hardware, software, and services, along with their meticulous attention to design, has set Apple apart as a leader in delivering products that are both highly functional and aesthetically pleasing.

Their ability to simplify complex technology for the everyday user while maintaining high performance and security standards is something that consistently drives their success. Additionally, Apple's ecosystem approach, where devices work together in a unified and user-friendly way, is another aspect that makes the company admirable. This approach fosters brand loyalty and has set a standard for modern product design and customer experience.

Conclusion

The software product industry continues to evolve, driven by innovation, global market access, and technological advancements. Understanding the differences between product and project business models, as well as the role of product management, is critical for navigating this complex landscape. By learning from industry leaders like Apple and embracing the dynamics of product development, businesses can better position themselves for success in the competitive market.

2. Overview product management

Product Management: Comprehensive Overview

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1. Evolution of Product Organizations
 - Startup Stage
 - Growth Stage
 - Enterprise Stage
 2. Why Products Fail
 3. What Do Best Product Teams Do?
 - Tackle Risks Early
 - Collaborative Design
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 5. Product Lifecycle
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 7. Journey of Some Product Companies
 8. Multi-Faceted Role of a Product Manager
 9. Exercises
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1. Evolution of Product Organizations

Startup Stage

- **Focus:** Achieving **product-market fit** (making sure the product meets customer needs).
- **Key Traits:** Quick learning, limited funding, and minimal bureaucracy. Many startups fail, but those that succeed do so by rapidly discovering what works for their market.

Examples:

- **WhiteHat Jr:** Launched in 2018, offering coding lessons for kids, later acquired by BYJU's.
- **Simpl:** Provides "buy now, pay later" services in India.

Growth Stage

- **Focus:** Scaling up and attracting more customers.
- **Challenges:** **Technical debt** from early stages and infrastructure limitations.

Examples:

- **KissFlow:** Business Process Management software with more than 10,000 clients like Airbus and Pepsi.

Enterprise Stage

- **Focus:** Consistent product innovation while maintaining leadership.
- **Challenges:** Risk of becoming complacent, like **Kodak**, which failed to innovate.

Examples:

- **Amazon:** Grew from a bookstore to a multi-service company, offering AWS, Alexa, Kindle, etc.
- **Netflix:** Transitioned from DVD rentals to a leading streaming service and content producer.



Product-Market fit concept



2. Why Products Fail

- Products fail when they lack **customer value**, are **difficult to use**, or are **not financially sustainable**.

Examples of Failed Products:

- **Google+**: Failed to compete with Facebook.
- **Apple Watch Gold Edition**: Overpriced without delivering enough value.

How to Prevent Failure:

- Ensure products solve real problems, are easy to use, and can generate sustainable revenue.
-

3. What Do Best Product Teams Do?

Tackle Risks Early

The best teams address the following risks early:

1. **Value Risk**: Does it solve a customer problem?
2. **Usability Risk**: Is it easy for customers to use?
3. **Feasibility Risk**: Can it be built with available resources?
4. **Viability Risk**: Can it make money?

Example:

- **Airbnb**: Tested their service by renting their own apartment to see if there was a market for renting short-term accommodations.

Collaborative Design

Successful teams collaborate across departments, combining efforts from product, design, and engineering early in the process.

Example:

- **Amplitude**: Engineers actively engage with customers to ensure the product addresses real user needs.
-

4. Product Management: Relationship with the Rest of the Company

Development Team: Product management provides requirements and user stories.

Marketing Team: Product management helps define the product's value proposition for effective marketing.

Sales Team: Product management offers technical support and guidance to help close deals.

Finance Team: Collaborates with product management on pricing, margins, and financial planning.

5. Product Lifecycle

1. **Identify Target Customers:** Define who your product will serve.
 2. **Assess Needs:** Discover which customer needs are underserved.
 3. **Define Value Proposition:** Clearly state the product's value.
 4. **Build an MVP (Minimum Viable Product):** Develop a simple version of the product that solves core problems.
 5. **Test with Customers:** Validate the product with real users.
 6. **Iterate:** Improve based on feedback.
 7. **Launch the Product:** Release the full product.
 8. **Expand:** Develop adjacent products or features.
-

6. Technology Adoption Lifecycle

Products using new technology (e.g., AI, Blockchain) go through stages of adoption:

1. **Innovators:** First to try new technologies, even if they are incomplete.
2. **Early Adopters:** See potential and take calculated risks.
3. **Early Majority:** Adopt when there are proven benefits.
4. **Late Majority:** Adopt after the price has dropped or the technology has become standard.
5. **Laggards:** Only adopt when there are no other options available.

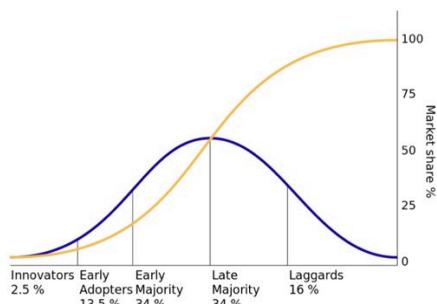
Example:

- **IBM Watson** was initially adopted by hospitals like Memorial Sloan Kettering for cancer diagnosis.

Technology adoption lifecycle...



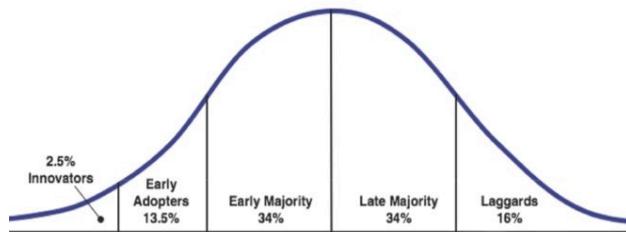
S-curve: By calculating the integral (who remembers the calculus classes?) we can obtain the famous S-shaped technology adoption curve.



Technology adoption lifecycle



Products using new technology such as AI, NLP, Blockchain, Robotics are adopted gradually



7. Journey of Some Product Companies

Netflix

- **Key Milestones:**
 - Started with DVD rentals, transitioned to online streaming, and then began producing original content.
- **Challenges:** Competing with traditional television networks and managing content costs.
- **What They Did Right:** Pivoted quickly to online streaming and invested heavily in original programming.

Learning: Constantly innovate and adapt to new market trends.

8. Multi-Faceted Role of a Product Manager

1. **Customer Understanding:** Engage directly with customers to understand their pain points.
2. **Prioritization:** Focus on delivering high-impact features.
3. **Cross-Department Collaboration:** Work with engineering, marketing, and finance.
4. **Storytelling:** Clearly communicate the product's vision to stakeholders.

Example:

- **Slack:** Focused on team communication needs and created a product that integrated messaging, file sharing, and search.
-

9. Exercises

Exercise 1: Analyzing Netflix's Journey+

Objective: Study the key milestones of Netflix's evolution and identify the challenges they faced and the decisions that helped them succeed.

Key Questions:

- 1. What were the key milestones in Netflix's journey?**
 - Transition from DVD rental to streaming.
 - Investment in original content.
 - Expansion into international markets.
 - 2. What challenges did they face?**
 - Competing with established TV networks.
 - Managing content licensing and production costs.
 - 3. What did Netflix do right?**
 - Pivoted early to streaming.
 - Invested in high-quality original programming.
 - 4. What product management lessons can be learned from Netflix?**
 - Be flexible and willing to pivot.
 - Understand customer behavior and leverage data to offer personalized experiences.
-

Exercise 2: Technology Adoption Case Study

Objective: Apply the technology adoption lifecycle to IBM Watson's journey.

Key Questions:

- 1. Who were the innovators in adopting IBM Watson?**
 - Hospitals like Memorial Sloan Kettering and Cleveland Clinic.
 - 2. When did the early majority adopt IBM Watson?**
 - Adoption grew as startups and institutions used Watson for developing cognitive applications and decision-making tools.
 - 3. How did the late majority benefit?**
 - They waited for mature, lower-cost applications of Watson technology in areas like tax preparation and customer support.
-

Conclusion

This document simplifies the key concepts of product management, including the stages of evolution for product organizations, reasons products fail, how successful product teams work, and the role of a product manager. Exercises and case studies like Netflix's journey and IBM Watson's technology adoption provide practical insights to apply these concepts effectively in real-world scenarios

3. Product Management Principles

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 3. Product-Market Fit
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 6. Continuous Discovery and Delivery
 7. Product Ecosystem
 8. Critical Success Factors
 9. Case Studies: Bounce, Rivigo, Slack
 10. Exercise: Journey of Product Companies (Netflix and Twilio)
-

Principles of Product Management

Principles of product management are grounded in establishing value, iterating on ideas, and validating those ideas with real users. These core tenets ensure that the product continuously evolves to meet market demands.

Examples:

- **MakeMyTrip** created a one-stop shop for travel-related bookings.
 - **Postman** simplified API testing for developers.
 - **Bounce** tested their bike rental service in Bangalore by first investing in just a few scooters to gauge market demand.
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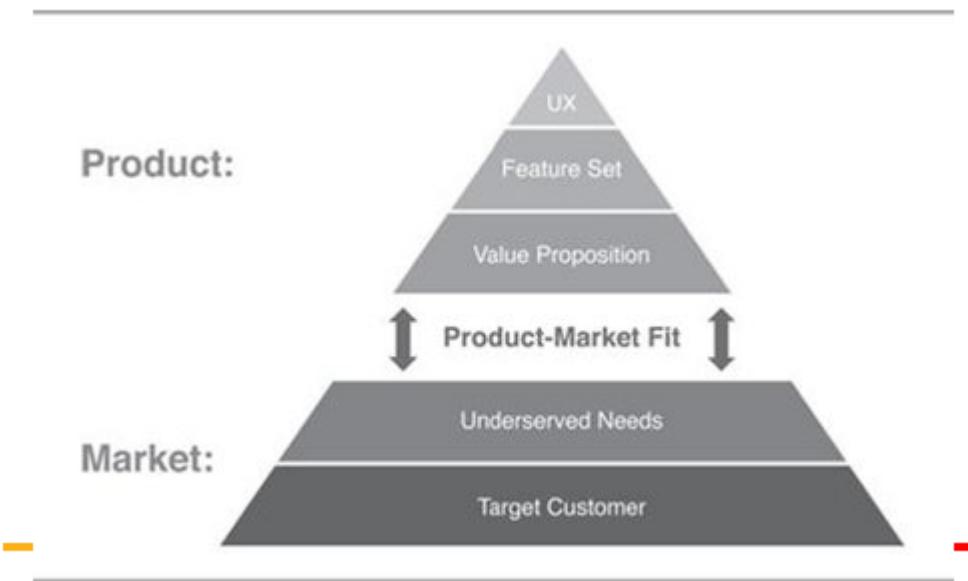
Characteristics of a Holistic Product

A product is successful when it addresses multiple dimensions:

- **Functionality:** Example - **MakeMyTrip** enables booking tickets seamlessly.
 - **Technology:** Example - **Amazon** uses microservices architecture; **WhatsApp** applies encryption for security.
 - **User Experience:** Example - **Tally** is known for its ease of use for non-finance users.
-

Product-Market Fit

Product-Market Fit is crucial for a product's success. It refers to how well a product satisfies the needs of the market. If customers aren't excited or willing to pay, then there is likely no product-market fit.



- **Examples:**
 - **Slack:** Initially a gaming company, Slack pivoted after discovering their internal messaging tool had significant market potential.
 - **Bounce:** Conducted real-world testing with scooters to validate demand for their "Rent-a-Bike" service.
 - **Airbnb:** The founders rented out their own apartment during a conference to test demand.

Problem Space vs. Solution Space

- **Problem space:** Consists of customer needs and pain points. These are not always clear since customers tend to express their needs in terms of existing solutions. For example, "I need a cab in 5 minutes" could be reframed as "I need to get from A to B."
- **Solution space:** Refers to the possible solutions for addressing the problem. Understanding the real need first is crucial before deciding on the solution.

Case Study: Rivigo

- **Problem:** Long-haul truck drivers in India face severe fatigue and unsafe driving conditions.
- **Solution:** Instead of simply improving existing processes, Rivigo introduced a **relay trucking model** where drivers switch at intervals, allowing them to return home daily. This tackled the core issue of driver fatigue and enhanced the efficiency of logistics operations.

Key Learnings: Rivigo succeeded by redefining the problem and implementing a novel solution to a deep-rooted challenge.

User vs. Buyer

Products are often used by a different group than those who purchase them.

- Example:
 - **Lotus Notes** was a secure email and team collaboration platform, but its poor user experience meant it was not preferred by end-users despite being adopted by corporate buyers for its security features.
 - **Cisco WebEx** is reliable but lacks user-friendliness, yet enterprises use it due to its strong security and functionality.
-

Continuous Discovery and Delivery

Product teams must work on discovery and delivery in parallel. While product managers and designers focus on discovery, engineers work on delivery but also participate in the discovery process.

Case Study: Slack

- **Scenario:** Initially, Slack was a gaming company that built an internal messaging tool to aid their game development.
- **Discovery:** After the game failed, they discovered that the messaging tool had potential as a standalone product.
- **Delivery:** Slack pivoted to focus on the messaging tool, iterating continuously based on user feedback, and eventually became a leading communication tool.

Key Learnings: Continuous feedback loops and delivery allowed Slack to build a product that met real customer needs.

Product Ecosystem

Products are most effective when they address the entire customer experience and build a surrounding ecosystem:

- **Examples:**
 - **Kaagaz & MS Office Lens** are document scanning apps that allow users to share scanned documents across platforms like email and WhatsApp.
 - **NoBroker.com** offers services like finding houses, paying rent, and hiring packers/movers, ensuring a holistic experience for users.

Critical Success Factors

Products often succeed due to a combination of factors, including differentiation, entry barriers, and partnerships.

- **Examples:**

- **Apple** differentiates its products through design and user experience.
 - **Google Earth** created an entry barrier by using advanced technology that competitors struggled to replicate.
-

Case Studies

Case Study 1: Bounce - Tackle Risks Early

Scenario:

Bounce, a bike rental company, identified a gap in last-mile connectivity in Bangalore.

Problem:

There was a need for quick, short-distance transportation, but Bounce was unsure if people would rent bikes for this.

Solution:

Bounce initially tested the idea by renting out a few scooters, gathering user feedback to assess demand.

Outcome:

Once they confirmed market demand, Bounce scaled operations, becoming a significant player in urban transport.

Key Learnings:

- **Start small** to validate demand before large-scale investment.
 - **Tackle risks** early to minimize financial exposure and maximize learning.
-

Case Study 2: Rivigo - Problem Space vs. Solution Space

Scenario:

Rivigo faced the issue of driver fatigue in long-haul trucking.

Problem:

Drivers spent too long on the road, leading to health problems and inefficient delivery.

Solution:

Rivigo introduced a **relay trucking model**, enabling drivers to hand off trucks at relay points, reducing fatigue and improving efficiency.

Outcome:

Rivigo's solution reduced driver turnover, increased efficiency, and optimized logistics operations.

Key Learnings:

- **Redefine the problem** to find an innovative solution.
 - **Tackle the core issue**, not just the symptoms.
-

Case Study 3: Slack - Continuous Discovery and Delivery

Scenario:

Slack began as a game development company but realized their internal messaging tool had more potential than the game itself.

Problem:

Their game failed, but the internal communication tool was highly valued by the team.

Solution:

Slack pivoted to focus on the messaging tool, continuously iterating based on user feedback.

Outcome:

Today, Slack is one of the leading workplace communication platforms.

Key Learnings:

- **Continuously discover and iterate** to ensure the product meets user needs.
 - **Pivot** based on insights gathered from real users.
-

Exercise: Journey of Product Companies (Netflix and Twilio)

Netflix:

- **Key Milestones:** From DVD rentals to streaming, to producing original content.
- **Challenges:** Adapting to the digital age and maintaining user engagement.
- **Key Learnings:** Netflix's continuous innovation, from DVD sales to streaming, demonstrates how important it is to **pivot** and evolve based on market changes.

Twilio:

- **Concepts Illustrated:**
 - **User vs. Buyer:** Twilio catered to developers (users) while selling to businesses (buyers).
 - **Continuous Discovery:** From SMS to email and voice, Twilio continually iterates its communication products.
 - **Critical Success Factors:** Twilio's ease of use and developer-friendly platform helped it scale quickly.

4.1 Identify opportunity

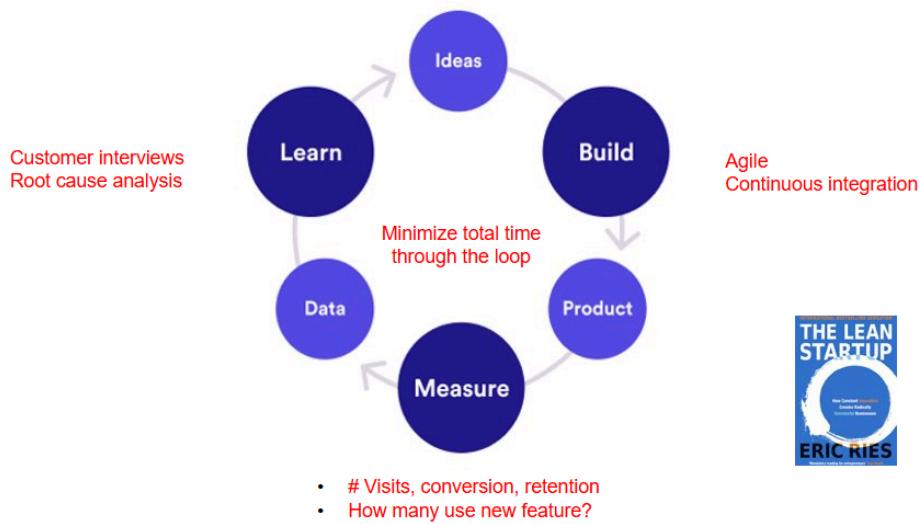
Product Process and Innovation

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1. Overview of Product Process
 2. Identifying Opportunity
 3. Assessing the Opportunity
 4. Case Studies: DBS Bank & ID Fresh Foods
 5. Sources of Innovation (Peter Drucker)
 6. Principles of Innovation
 7. Exercise: Identifying Customer Needs
 8. Conclusion
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Overview of Product Process

The product development process involves several key stages aimed at creating and improving products that solve customer problems. The process is iterative, allowing teams to refine products based on customer feedback.



Key Steps in the Process:

1. **Identify Opportunity:** Determine the needs of the market that are currently underserved.
2. **Assess the Opportunity:** Evaluate if the opportunity is viable and worth pursuing.
3. **Create a Business Plan:** Outline how the product will be profitable.
4. **Specify Product Features:** Define the product's features and value.
5. **Specify Minimum Viable Product (MVP):** Identify the core features that can

be launched first.

6. **Test MVP:** Collect feedback from initial users and adjust based on insights.
7. **Iterate & Pivot:** Make adjustments to improve product-market fit.

Identifying Opportunity

The first and most crucial step in product creation is identifying an opportunity, typically found in underserved customer needs. This can be done through:

- **Observation:** Watch how customers use products.
- **Experience:** Personal experiences often lead to identifying needs.
- **Desire for Social Good:** Opportunities for social impact often lead to innovation.

Examples:

- **Toyota Sienna:** The car was successful in Japan, but by observing U.S. families, Toyota learned that back seats needed to be more comfortable for children. This led to modifications that made the car highly successful in the U.S.
- **Oyo:** Recognized that budget hotels were often dirty and lacked basic amenities, leading to the creation of a standardized economy hotel chain.
- **Dropbox:** The founder forgot his USB drive and realized the need for cloud storage.

Assessing the Opportunity

After identifying an opportunity, assessing its potential involves examining the market's needs, the competition, and the feasibility of creating a solution.

Example:

- **Qalara** identified the opportunity to help small artisans and manufacturers access global markets. They did this by studying the barriers these businesses face in exporting goods.

Case Studies: DBS Bank & ID Fresh Foods

Case Study: DBS Bank

DBS Bank identified a need to improve customer experience by streamlining digital banking services. Through innovation and focusing on customer needs, DBS created digital banking solutions that simplified processes and made banking more accessible.

What was the assumed need and real need?

- Assumed need: Convenience in banking transactions.
- Real need: A seamless, intuitive digital experience that makes banking effortless.

Case Study: ID Fresh Foods

Innovation Lessons from ID Fresh Foods:

- **Fresh & Preservative-Free Products:** ID Fresh Foods addressed the need for fresh, preservative-free food by producing fresh, ready-to-eat items like idli and dosa batter.
- **Packaging Innovation:** Created an innovative packaging for their vada product that allowed customers to easily make vadas at home.
- **Trust Shops:** Introduced unmanned "trust shops" where customers can purchase products and leave money in a box, relying on trust rather than a cashier.

Sources of Innovation (Peter Drucker)

Peter Drucker, the father of modern management, identified **seven areas of opportunity** for innovation:

1. **Unexpected Occurrences:** Innovations triggered by unexpected events.
 - Example: IBM's machines, designed for accounting, were unexpectedly bought by libraries.
2. **Incongruities:** When something does not match customer expectations.
 - Example: The shipping industry reduced wasted time at ports by adopting container shipping methods.
3. **Process Needs:** Innovations that improve existing processes.
 - Example: The invention of advertisements allowed newspapers to offer low prices to customers.
4. **Industry and Market Changes:** Changes in industries or markets open new opportunities.
 - Example: The rise of e-commerce.
5. **Demographic Changes:** Shifts in population demographics create new needs.
 - Example: Japan's creation of robots due to a shortage of workers in the 1970s.
6. **Change in Perception:** When societal views change, new needs arise.
 - Example: Increased concern about health led to the rise of fitness magazines and gyms.
7. **New Knowledge:** Scientific discoveries and new knowledge drive innovation.
 - Example: The rise of computer technology.

Principles of Innovation

Drucker emphasized these key principles to guide successful innovation:

1. **Start Small:** Focus on a simple solution before expanding.
 - Example: Swedish matchbox companies standardized the number of matches in a box and dominated the global market.
2. **Aim for Leadership:** Set the goal of leading the market from the beginning.
3. **Focus and Diligence:** Innovation requires both creativity and persistence. Talent alone is not enough.

Exercise: Identifying Customer Needs

Task: In your current job or company, think about unmet or underserved customer needs. Identify one such need and explain how addressing it could bring compelling value or benefit to the customer.

Solution Example:

- **Scenario:** You work in a software development company that creates tools for small businesses. You notice that many of your customers struggle with creating professional marketing materials because they lack design experience.
 - **Underserved Need:** Small businesses need an easy-to-use tool that allows them to create professional marketing content without hiring a designer.
 - **Compelling Value:** By addressing this need, your company could help small businesses save money and time, allowing them to create high-quality marketing materials in-house.
-

Conclusion

Innovation often stems from identifying an unmet need in the market and offering a solution that resonates with customers. By following a structured product development process, assessing opportunities thoroughly, and adhering to Drucker's principles of innovation, businesses can create products that meet market demands and generate long-term value.

Simple and Understandable Document on Product Development and Customer Interviews

Contents

1. Define Value Proposition
 2. Assess Value of the Product
 3. Assess the Risks
 4. Case Studies
 - Bounce
 - Rivigo
 5. Customer Interview: The Mom Test
 6. Tips for Customer Interviews
 7. Designing Interview Questions
 8. Exercises
-

Define Value Proposition

A **value proposition** is a clear statement that explains how your product solves customers' problems, delivers specific benefits, and why they should choose your product over the competition.

Steps to Define Value Proposition:

1. **Identify the Customer Problem** (Pain Point)
 - **Example:** Bounce addressed the problem of **difficult access to Metro stations**.
2. **Explain How the Product Solves the Problem**
 - **Example:** Bounce offered **rental bikes** with pickup and drop options near homes and Metro stations.
3. **Describe the Benefits/Value**
 - **Example:** Bounce saved **30 minutes** for commuters, making it easy to reach the Metro station.
4. **Explain Why It Is Better than the Competition**
 - **Example:** Bounce was **more convenient** than taking a bus or walking long distances.

Examples of Value Propositions:

Product	Pain Point	Solution	Benefit	Differentiation
Bounce	Difficult to reach Metro stations	Bike rental with pick-up and drop-off	Easy to access transportation	More convenient than walking or taking a bus
Airbnb	No feel of local culture in hotels	Renting rooms in local homes	Unique cultural experience	Hotels don't provide this local experience
Zoom	Poor video quality in meetings	High-quality video conferencing	Better communication for meetings	Superior quality compared to WebEx

Assess Value of the Product

To assess whether your product delivers value, it's essential to talk to potential customers and validate if the solution you're offering addresses their real pain points.

Customer Interview Steps:

1. **Understand the Customer**
 - Confirm whether customers have the problem you think they do.
 2. **Assess How They Solve the Problem Today**
 - Ask what solutions they are currently using.
 3. **Determine Willingness to Switch**
 - Find out what would make them switch to your product.
-

Assess the Risks

Before launching a product, it's important to assess potential risks in four key areas:

1. **Value:** Does the customer find value in the product?
2. **Usability:** Is the product easy to use?

3. **Feasibility:** Can the product be built within the available resources?
 4. **Viability:** Can the business break even or profit?
-

Case Studies

Case Study: Bounce

- **Problem:** People found it hard to reach Metro stations conveniently.
- **Solution:** Bounce offered rental bikes that could be picked up and dropped off at different locations.
- **Value:** Commuters saved time and had a more convenient solution than using buses or walking.
- **Differentiation:** It provided greater convenience than other modes of transportation, like buses.

Case Study: Rivigo

- **Problem:** Long-distance truck drivers often face long working hours and harsh working conditions.
 - **Solution:** Rivigo introduced relay-based trucking, allowing drivers to return home each day.
 - **Value:** Improved quality of life for drivers and increased efficiency in logistics.
 - **Differentiation:** Rivigo's relay model was unique in the trucking industry, solving a critical labor issue.
-

Customer Interview: The Mom Test

The Mom Test is a set of rules for asking better questions to assess product ideas without leading the interviewee or making assumptions.

Examples of Poor Questions:

- “**You like your iPad, right?**”
 - This is a closed-ended question and leads the interviewee to a specific answer.

Good Questions:

- “**What do you use your iPad for?**”
 - This is an open-ended question that gives the customer the opportunity to explain their needs.
- “**What’s the last cookbook you bought for yourself?**”
 - This question gets real insights into the customer’s behavior and preferences.

Tips for Customer Interviews

1. **Go with the Intention to Learn:**
 - Ask about their day-to-day tasks and how they manage them.
 2. **Meet Customers in Their Natural Setting:**
 - Interview customers in their work or home environments to make them comfortable.
 3. **Bring Key Team Members:**
 - Have the product manager, UX designer, and engineer in the interview to brainstorm later.
 4. **Try Doing Their Job:**
 - Attempt to perform the tasks the customer does, to better understand the pain points.
-

Designing Interview Questions

For each product idea, you should design specific questions to assess the opportunity and gather valuable insights.

Example: Online Book Library for Students

- **Pain Point:** Students often need to refer to multiple books but only use parts of each book. Buying entire books is expensive.
- **Solution:** Offer a subscription-based digital book library where students can borrow and read books online.

Sample Interview Questions:

1. What subjects are you currently studying?
2. How many books do you typically need for each course?
3. How often do you use each book?
4. Would you be interested in borrowing digital versions of books rather than buying them?
5. How much would you be willing to pay for a service that offers access to digital books?

Example: Software Product Selection Website

- **Pain Point:** Companies find it difficult to choose the right software due to many options in categories like logistics, payroll, or CRM.
- **Solution:** A website that provides detailed product comparisons and phone consultancy to help clients choose the right software.

Sample Interview Questions:

1. How does your company currently choose software products?
 2. What is the biggest challenge you face in selecting the right software?
 3. Would you find it helpful to have a directory that compares different software options?
 4. How much time do you spend researching software before purchasing?
 5. Would a phone consultancy service be helpful to you during the software selection process?
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Exercises

Exercise 1: Define Value Proposition

- **Product:** OYO Rooms
- **Pain Point:** Budget travelers often find hotels that are unclean and lack basic amenities.
- **Solution:** OYO standardizes budget hotels, ensuring cleanliness and quality.
- **Benefit:** Travelers have access to affordable, clean, and standardized accommodation.
- **Differentiation:** OYO offers a more reliable and consistent experience than unregulated budget hotels.

Exercise 2: Assess Opportunity for an Online Book Library

- **Scenario:** You are interviewing students to assess whether an online book library is a viable business idea.
- **Questions:**
 - What courses are you currently studying?
 - How do you access study materials now?
 - Would you find a digital book borrowing service useful?
 - How many books do you refer to in a typical semester?
 - What would you pay for a subscription to access multiple digital books?

Exercise 3: Interview Role Play

- **Role Play Scenario:** Two volunteers take turns as interviewer and interviewee. The goal is to simulate a customer interview for the online book library idea and practice asking the right questions to gather meaningful insights.
-

Conclusion

Understanding customer pain points and creating a value proposition that clearly addresses their needs is crucial for product success. Through customer interviews and careful opportunity assessment, product teams can validate their ideas and ensure they are on the right track. By

using tools like the "Mom Test" and designing thoughtful interview questions, teams can gather real insights and refine their products accordingly.

4.3 Lean Canavas

A **Lean Canvas** is a simple, one-page business plan template designed to help entrepreneurs quickly and effectively map out the key elements of their business model. It focuses on identifying problems, solutions, key metrics, customer segments, and unique value propositions. The Lean Canvas is designed to be easy to understand and allows for quick adjustments based on feedback, making it a valuable tool for startups and innovators.

Rivigo Lean Canvas

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
- Inefficient logistics and delays in freight	- Relay trucking model to reduce driver fatigue and increase efficiency	- Reduced delivery time by 50% compared to traditional models	- Proprietary relay trucking model with patented technology	- E-commerce businesses, FMCG, retail
- Driver shortages and fatigue	- Use of technology to track and optimize routes	- Better driver welfare with more consistent driving schedules	- Network of highly trained relay drivers	- Manufacturers needing efficient logistics
Existing Alternatives	Key Metrics	High-Level Concept	Channels	Early Adopters
- Traditional trucking companies	- Reduced delivery times	Efficient and reliable logistics solutions	- Direct sales, partner channels	- Logistics-heavy sectors like FMCG
- Unorganized logistics providers	- Increased driver retention rates		- Online logistics platform	- Retail companies, e-commerce firms
Cost Structure		Revenue Streams		
- Vehicle maintenance, fuel		- Freight and delivery fees		
- Driver payroll and welfare		- Subscription or per-use technology access		
- Technology platform maintenance		- Value-added services for premium logistics		

Qalara Lean Canvas

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
- Difficulty for artisans and small manufacturers to access global markets	- Online B2B platform connecting buyers with sellers globally	- Global marketplace focused on artisanal and sustainable products	- Large network of verified, ethically-sourced suppliers	- Small to medium enterprises, retail stores
- Lack of transparency in sourcing	- Transparent supply chains with ethical sourcing	- Customizable and curated product collections	- Early entry into the ethical and sustainable product space	- Wholesale buyers, boutique retailers
Existing Alternatives	Key Metrics	High-Level Concept	Channels	Early Adopters
- Etsy Wholesale	- Number of transactions, order volume	One-stop platform for artisanal goods	- Online marketplace, direct sales	- Sustainability-focused buyers
- Trade shows, traditional suppliers	- Supplier retention and satisfaction rates		- Trade shows, partnerships with artisan groups	- E-commerce retailers, boutique stores
Cost Structure		Revenue Streams		
- Platform development and maintenance		- Commission on transactions		
- Supplier acquisition		- Subscription fees for premium services		
- Marketing and customer acquisition		- Fees from sourcing and logistical services		

Airbnb Lean Canvas

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
- Expensive hotel stays for travelers	- Platform allowing people to rent out their homes or rooms	- Affordable, unique accommodations from locals	- First-mover advantage in peer-to-peer accommodation	- Travelers seeking affordable stays
- Difficulty finding unique, local experiences	- Easy-to-use platform for hosts and guests	- Access to local experiences and homes	- Large network of hosts globally	- Individuals looking for short-term rentals
Existing Alternatives	Key Metrics	High-Level Concept	Channels	Early Adopters
- Hotels, hostels, traditional rentals	- Number of listings, bookings	Marketplace for unique, local stays	- Website, mobile app, partnerships with tourism websites	- Young professionals, budget travelers
- Couchsurfing, vacation rental companies	- Customer satisfaction, host reviews		- Word of mouth, social media, referrals	- Early adopters in urban cities
Cost Structure		Revenue Streams		
- Platform maintenance and development		- Commission on each booking (guest and host fees)		
- Customer support, host acquisition		- Service fees for premium services		
- Marketing and operations		- Experiences and activities commissions		

Amazon (modern-day) Lean Canvas

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
- Limited access to a wide variety of products	- An online marketplace with a vast selection of products	- Largest online selection with fast delivery options	- Massive fulfillment infrastructure and logistics network	- Consumers looking for convenience and variety
- Time-consuming shopping experience	- Fast and convenient delivery through Amazon Prime	- Reliable customer reviews, Prime two-day shipping	- Deep integration with suppliers and advanced technology	- Small and medium businesses selling online
Existing Alternatives	Key Metrics	High-Level Concept	Channels	Early Adopters
- Physical retail stores, eBay, Walmart	- Website traffic, number of Prime members	World's largest online retailer	- Website, mobile app, Alexa integration	- Early adopters in tech-savvy cities
- Other e-commerce platforms	- Customer lifetime value, cart abandonment rates		- Amazon Prime, affiliate programs	- Busy professionals, families
Cost Structure	Revenue Streams			
- Fulfillment and logistics, shipping costs	- Direct sales of products			
- Technology platform development and maintenance	- Subscription fees (Amazon Prime)			
- Marketing, customer support	- Third-party seller fees, advertising services			

4.4 story map

Contents

- Story Map
 - Classification of Features: Kano Model
 - Exercise
-

Story Map

Introduction: A **Story Map** is a visual representation of user tasks and activities to help capture and organize product features. It is useful in prioritizing tasks and planning releases. The concept was introduced by Jeff Patton and is commonly used in Agile development.

Job Portal Story Map

User Activities	User Management	Job Search	Job Applications	Employer Management	Notifications
User Tasks	Register, Login, Create Profile	Search for Jobs	Job Application Process	Employer Tasks	Notification Features
Release 1	- Register, Login, Create Profile	- Search Jobs by Title and Location	- Apply for Jobs - Upload Resume	- Employer Registration - Post Jobs	- Job Application Confirmation
Release 2	- Update Profile (Skills, Experience)	- Filter by Industry, Salary	- Save Jobs - View Job Application History	- Employer Dashboard - View Applicants	- Job Alerts via Email or SMS
Release 3	- Social Media Login (LinkedIn, Google)	- Advanced Search by Company, Skills	- Track Application Status	- Schedule Interviews via Platform	- Notifications on Job Matches
Backlog	- Profile Verification	- Predict Job Matches	- Resume Builder	- Employer Ratings and Reviews	- Push Notifications on App

Explanation:

- **User Activities (Backbone):** Major user activities like "Find Job," "Manage Vacancy," "Recruit Candidate," etc.
- **User Tasks (Skeleton):** Specific tasks that users perform under each activity, such as browsing jobs, posting resumes, etc.

- **User Stories:** Detailed descriptions of the features under each task, such as "Search jobs by location" or "Upload resume."
- **Releases:** Different user stories are assigned to specific releases (e.g., Release 1, Release 2) for incremental product development.

Hotel Booking Software Story Map

User Activities	User Management	Room Search	Room Booking	Payments	Reservation Management
User Tasks	Register, Login, Profile Management	Search for Rooms	Book a Room	Payment Methods	Manage Reservations
Release 1	- Register, Login, Create Profile	- Search Rooms by Type, Location	- Book Room - View Room Details	- Pay via Credit Card	- View Reservation - Cancel Reservation
Release 2	- Update Profile (Name, Email, Payment Info)	- Filter by Availability, Price	- Add Room Preferences - Save Booking	- Pay via PayPal	- Change Reservation Date - Modify Room
Release 3	- Social Media Login (Google, Facebook)	- Search by Nearby Attractions - Recommendations	- Compare Rooms - View Special Offers	- Pay via Google Wallet	- Request Refunds
Backlog	- Two-Factor Authentication - Guest Checkout	- Predict Room Prices	- Auto-Apply Discounts	- Cryptocurrency Payments	- Reservation Reminders via App Notifications

Classification of Features: Kano Model

The **Kano Model** helps classify product features into three categories:

1. **Must Have:** These are essential features that users expect.
2. **Wants:** These are features that users desire but are not essential.
3. **Delighters:** These are unexpected features that bring extra satisfaction.

Classification Example: Job Portal Software

Must Have	Wants	Delighters
Post Vacancy	Hot job indicator	Resume builder
Apply for Jobs	Job alert	Interview preparation videos
View Applicants	Search candidates by skills	Salary negotiation tips
Get Job Alert	Save favorite jobs	Psychometric tests

- **Must Have:** Features that users expect, such as posting a vacancy or applying for jobs.
- **Wants:** Nice-to-have features like job alerts or hot job indicators.
- **Delighters:** Extra features that surprise users, such as salary negotiation tips or psychometric tests.

Exercise

Online Banking Story Map

User Activities	User Management	Account Access	Fund Transfers	Payments	Customer Support
User Tasks	Register, Login, Profile Management	View Account Info	Transfer Funds	Bill Payments	Support & FAQs
Release 1	- Register, Login, Create Profile	- View Account Balance - View Transaction History	- Transfer Between Own Accounts	- Pay Bills via Credit Card	- Access FAQs - Contact via Chat
Release 2	- Update Profile (Contact Info, Address)	- Download Statements - View Mini-Statement	- Transfer to External Accounts	- Schedule Recurring Payments	- Support via Email
Release 3	- Social Media Login - Two-Factor Authentication	- View Account Analytics - Investment Account Details	- International Transfers	- Auto Pay Setup	- Video Call Support
Backlog	- Profile Verification - Guest Access	- Predict Spending Patterns	- Set Transfer Limits - Currency Exchange	- Integration with Digital Wallets	- AI Chatbot for Immediate Support

Must Haves, Wants, and Delighters for Online Banking:

Category	Must Haves	Wants	Delighters
User Management	Register, Login	Update Profile Information	Social Media Login
Account Access	View Balance, Transaction History	View Account Analytics	Predict Spending Patterns
Fund Transfers	Transfer Between Own Accounts	Transfer to External Accounts	International Transfers
Payments	Pay Bills via Credit Card	Schedule Recurring Payments	Integration with Digital Wallets
Customer Support	Contact Support via Chat	Email Support	Video Call Support

Airline Reservation Story Map

User Activities	User Management	Flight Search	Booking Flights	Payments	Reservation Management
User Tasks	Register, Login, Profile Management	Search for Flights	Flight Booking	Payment Methods	Manage Bookings
Release 1	- Register, Login, Create Profile	- Search Flights by Date, Destination	- Select Flight - Enter Passenger Details	- Pay via Credit Card	- View and Cancel Reservations
Release 2	- Update Profile Info (Passport, Frequent Flyer)	- Filter by Airlines, Class, Stops	- Add Additional Services (Baggage, Meals)	- Pay via PayPal	- Change Flight Date
Release 3	- Social Media Login	- Search by Nearby Airports	- Upgrade Class (Business/First)	- Pay via Google Pay	- Modify Passenger Details
Backlog	- Two-Factor Authentication - Guest Checkout	- Predict Fare Prices	- Save Payment Methods for Future Use	- Cryptocurrency Payments	- Request Refunds

Must Haves, Wants, and Delighters for Airline Reservation:

Category	Must Haves	Wants	Delighters
User Management	Register, Login	Update Profile (Passport, Frequent Flyer)	Social Media Login
Flight Search	Search by Date, Destination	Filter by Airlines, Class, Stops	Predict Fare Prices
Booking Flights	Select Flight, Enter Passenger Details	Add Additional Services (Baggage, Meals)	Upgrade to Business/First Class
Payments	Pay via Credit Card	Pay via PayPal	Pay via Cryptocurrency
Reservation Mgmt	View and Cancel Reservations	Change Flight Date	Request Refunds

ECommerce Story Map

User Activities	User Management	Product Search	Shopping Cart	Payments	Order Tracking
User Tasks	Register, Login, Profile Management	Search for Products	Manage Cart	Payment Methods	Order Management
Release 1	- Register, Login, Create Profile	- Search by Product Name	- Add to Cart - View Cart	- Pay via Credit Card	- View Order Status
Release 2	- Update Profile (Address, Payment Info)	- Filter by Price, Category	- Save Cart for Later	- Pay via PayPal	- Cancel Orders
Release 3	- Social Media Login (Google, Facebook)	- Search by Recommendations	- Compare Products	- Pay via Google Pay	- Modify Shipping Details
Backlog	- Two-Factor Authentication	- Predict Customer Interests	- Auto-apply Discounts	- Cryptocurrency Payments	- Split Orders

Must Haves, Wants, and Delighters for ECommerce:

Category	Must Haves	Wants	Delighters
User Management	Register, Login	Update Profile (Address, Payment Info)	Social Media Login
Product Search	Search by Product Name	Filter by Price, Category	Predict Customer Interests
Shopping Cart	Add to Cart	Save Cart for Later	Auto-apply Discounts
Payments	Pay via Credit Card	Pay via PayPal	Pay via Cryptocurrency
Order Tracking	View Order Status	Cancel Orders	Modify Shipping Details

Conclusion

This document explains the use of **Story Maps** and the **Kano Model** for prioritizing features in product development. Story maps help visualize user activities and tasks, while the Kano Model provides a framework for categorizing features into "Must Haves," "Wants," and "Delighters." Using these tools can greatly enhance product planning and ensure the development of user-centric features.

MVP

Contents

- What is MVP?
 - Types of MVP
 - When to Use Which MVP?
 - Case Studies
 - Exercise: MVP Types for Various Products
 - Possible Solutions for Exercises
 - Experience Sharing
-

What is MVP?

A **Minimum Viable Product (MVP)** is a concept in product development that allows you to validate your product idea with the least effort. It provides the minimum set of features that can be released to test hypotheses and gather feedback from users.

Rather than waiting to develop the entire product with all features, the goal is to release an early version of the product that provides meaningful value and helps learn from user feedback.

Key Definitions:

- **Frank Robinson:** "The MVP is the right-sized product for your company and your customer. It is big enough to cause adoption, satisfaction, and sales, but not so big as to be bloated and risky."
- **Eric Ries:** "The MVP is that version of a new product that allows a team to collect the maximum amount of validated learning about customers with the least effort."

Why Use MVP?

- **Test hypotheses:** Is there a need for the product?
- **Check value:** Does it provide enough value for the target audience?
- **Assess business sense:** Does the product make business sense?

MVPs Can Be More Than Just Products:

- Prototype
 - Video
 - Any method that allows you to test the core value of the idea
-

Types of MVP

1. **Facebook MVP**
Facebook started as a simple platform that connected students from the same classes. This basic model allowed them to validate their idea of connecting people.
2. **Uber MVP**
Uber's MVP allowed people to book a ride via iPhones or SMS, but it was only available in San Francisco. This simple version helped prove the demand for ride-sharing.
3. **Dropbox MVP (Video)**
Dropbox used a video to explain its concept and gauge interest. The video led to 75,000 beta signups, proving that there was demand.
4. **AngelList MVP (Concierge)**
AngelList founders manually connected startups and investors before building any software. They only moved forward once the demand was validated.
5. **Buffer MVP (Landing Page)**
Buffer founder Joel Gascoigne created a simple landing page to validate interest in a social media scheduling tool before building the product.
6. **Airbnb MVP**
The founders rented out their apartment during an event to test if people would pay to stay at someone's house instead of a hotel. This validated the need for a home rental platform.
7. **Aardvark MVP (Wizard of Oz)**
Aardvark's front-end asked questions, but humans manually answered them behind the scenes. Once demand was proven, they automated the process.
8. **Oculus VR MVP (Crowdfunding)**
Oculus Rift used Kickstarter to raise funds and validate the demand for VR gaming. The overwhelming response provided both financial backing and market validation.
9. **PopSocket MVP (Crowdfunding)**
PopSocket started with a crowdfunding campaign, raising initial capital to validate their product idea of a phone grip.

When to Use Which MVP?

MVP Type	When to Use
Video (Dropbox)	Use when the product is simple and can easily be explained visually.
Simple Product (Facebook)	When the concept is easy to implement and demonstrate in its simplest form.
Concierge (AngelList, Airbnb)	When you can manually perform tasks to validate the demand before automating them.
Landing Page (Buffer)	Use when you want to test interest without building the full product.
Crowdfunding (Oculus, PopSocket)	When investment is needed and experiencing the product is important to get a feel for it.
Wizard of Oz (Aardvark)	When developing the product takes time and money, and you want to manually perform tasks behind the scenes.

Case Studies

Facebook MVP:

Scenario: Facebook started by connecting college students through a simple platform.

Solution: Narrow target (Harvard students), simple product.

Outcome: Facebook expanded into a global platform after validating its value in a narrow market.

Uber MVP:

Scenario: Uber launched with a simple SMS-based cab booking system, only available in San Francisco.

Solution: Limited target audience, simple booking functionality.

Outcome: Uber scaled its ride-sharing service based on positive feedback, and it's now a global brand.

Dropbox MVP (Video):

Scenario: Dropbox founders wanted to test the demand for cloud storage.

Solution: They created a simple explanatory video showing how Dropbox would work.

Outcome: The video led to over 75,000 signups, proving strong interest before the actual product was built.

Buffer MVP:

Scenario: Buffer founder created a landing page to explain the idea of scheduling social media posts.

Solution: The landing page tested interest before any code was written.

Outcome: Based on interest, Buffer was developed into a full product.

Oculus VR:

Scenario: Oculus Rift wanted to bring VR to gamers.

Solution: They used Kickstarter to raise funds and validate the idea.

Outcome: The crowdfunding campaign raised \$2.4 million, showing a strong market interest.

Exercise

For each product, identify which type of MVP would be suitable:

1. Online Library:

Solution: Video or Prototype.

Justification: A prototype or a demo video can explain how users can access books online.

2. Software Product

Finder/Advisor: Solution:

Concierge (manual).

Justification: Since building the product involves complex storage and data, starting with a manual service to gauge interest would be ideal.

3. **Apna (Job Finder for Blue-Collar**

Workers): Solution: Landing Page or Prototype.

Justification: A simple landing page or a prototype that shows how job-seekers can connect with employers could help validate the demand.

Possible Solutions for Exercises

Product	Justification	MVP Type
Online Library	New concept, so testing demand with minimal development is key.	Video, Prototype
Software Product Finder	Expensive to build; test value through consulting or manual processes.	Concierge
Apna (Job Finder)	Blue-collar workers need to experience the product to assess usability.	Landing Page or Prototype

Experience Sharing

- **What was the MVP of your product?**
 - Reflect on your own product's MVP. How did you validate your idea? Did you use a landing page, a video, or manual testing?
-

4.6 build measure lean pivot

Build, Measure, Lean, Pivot

Contents

1. Introduction
 2. Build-Measure-Learn Cycle
 3. Case Studies and Examples
 - o Growkit Case
 - o Votizen Case
 - o Netflix Case
 - o Slack Case
 4. Types of Pivots
 5. Exercise Solutions
 6. Conclusion
 7. Appendix
-

1. Introduction

Building a successful product requires continuous learning and improvement based on customer feedback. The **Build-Measure-Learn** cycle is a core principle of the Lean Startup methodology, where product teams build minimum viable products (MVP), measure customer reactions, and learn whether to pivot or persevere.

As **Eric Ries** states, "Growth should be measured by the value created for customers, not just by financial metrics or funding." Real growth is about continuously providing more value to the customers.

Example:

- An e-commerce platform needs to measure if users can find the products they want easily, if products are delivered on time, and if shopping is convenient.
-

2. Build-Measure-Learn Cycle

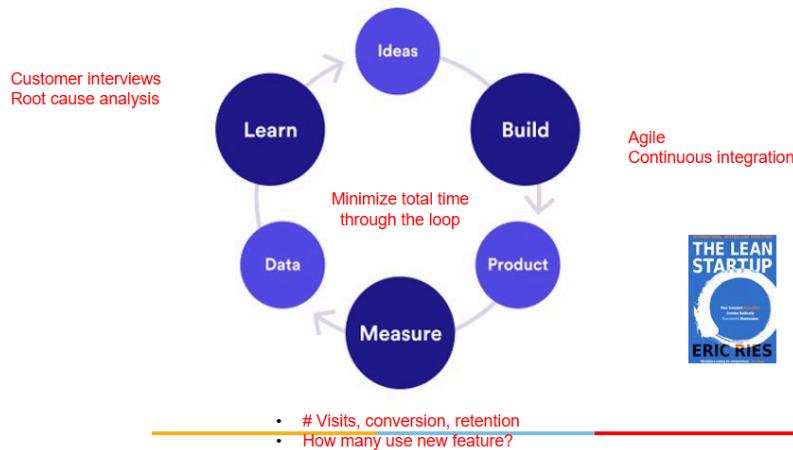
The **Build-Measure-Learn** cycle helps teams reduce risk and uncertainty by validating assumptions about their product ideas.

1. **Build:** Develop an MVP with core features that bring value.
 - o **Example:** For a bike rental service like Bounce, the initial MVP may include just three features:

- Booking a bike
 - Unlocking it
 - Ending the ride
2. **Measure:** Measure whether customers are finding value in the product by tracking key metrics.
 - **Example:** In the case of Bounce, tracking the number of rides per day is a good measure of success.
 3. **Learn:** Analyze the data and determine if any changes (pivots) need to be made to meet customer needs.
 - **Example:** If the number of rides doesn't increase, Bounce may consider changing the target audience (e.g., targeting delivery personnel instead of metro riders).

Build-Measure-Learn cycle

So we need to constantly learn what is valuable to customers



3. Case Studies and Examples

Growkit Case

- **Problem:** Farbood Nivi, a teacher, used WebEx to teach students but noticed limited customer engagement.
- **Solution:** He introduced various methods for students to interact (e.g., group learning, peer-driven learning) and conducted A/B testing to improve the product. Eventually, he identified that allowing solo learning alongside group learning significantly increased customer behavior.

Key Learning: It's essential to test different hypotheses (e.g., solo learning) and measure the impact through A/B testing.

Votizen Case

1. **Initial Hypothesis:** Verified voters would want to engage in civic matters on a social networking platform.
 - **Result:** Only 5% signed up, leading to a pivot.
2. **Pivot:** Votizen pivoted to a social lobbying platform (@2gov), which allowed citizens to message their representatives using social media.
 - **Result:** Signups increased to 42%, but revenue remained low.
3. **Final Pivot:** Votizen shifted to a self-service platform for political messaging, charging 20 cents per message, resulting in an 11% increase in revenue.

Key Learning: Constantly measure outcomes, validate assumptions, and make rapid iterations when necessary.

Netflix Case Study

1. **Problem:** Customers were not returning DVDs, and popular DVDs were too costly to stock in large quantities.
 2. **Solution:** Netflix introduced a subscription model, allowing customers to rent DVDs without worrying about late fees. They also transitioned to streaming as technology evolved.
 3. **Lesson:** Product managers must be flexible, innovative, and ready to pivot based on customer needs and market changes.
-

Slack Case Study

1. **MVP:** Slack started as an internal communication tool used during the development of a failed online game.
2. **Pivot:** The team pivoted to focus entirely on Slack's messaging feature after recognizing its potential.
3. **User vs. Buyer:** The end-users were employees, but the buyers were company executives. Slack catered to both by ensuring ease of use for employees and productivity benefits for executives.
4. **Growth:** Slack grew through word of mouth, offering free trials and focusing on customer support to retain users.

Key Learning: Focus on solving a real pain point, build a simple MVP, and iterate quickly.

4. Types of Pivots

Pivots are necessary when the current product isn't meeting customer needs. Some common types include:

1. **Zoom-In Pivot:** A single feature becomes the whole product.
 - **Example:** Slack focused solely on its messaging feature.
2. **Customer Segment Pivot:** Targeting a different customer base.
 - **Example:** Bounce might shift its focus from metro riders to delivery personnel.

3. **Platform Pivot:** Transforming a specific use case into a platform.
 - **Example:** Airbnb expanded from home rentals to offering a broad range of travel services.
4. **Channel Pivot:** Changing the method of reaching customers.
 - **Example:** A company may shift from selling through partners to a direct SaaS model.

5. Exercise Solutions

1. **What was the solution used by Kate to address the problem of customers not returning DVDs?**
 - Netflix introduced a subscription model that allowed customers to rent DVDs without late fees.
 2. **What lessons can we learn from Slack?**
 - **MVP:** Start small and focus on solving a real problem.
 - **Pivot:** Be ready to shift focus when one feature outshines others.
 - **User vs Buyer:** Ensure both the end-users and decision-makers see value in the product.
 - **Metrics & Analytics:** Continuously measure user engagement and improve the product based on feedback.
-

6. Conclusion

Building successful products requires a disciplined approach of continuously learning and adapting. The **Build-Measure-Learn** cycle allows companies to reduce risks, validate assumptions, and iterate quickly based on customer feedback. Case studies like Slack, Netflix, and Votizen demonstrate the importance of MVPs, rapid iteration, and knowing when to pivot.

Simple Understandable Document: Product Sprint

Contents

1. **Map the Problem**
 2. **Sketch the Solution**
 3. **Choose the Best Solution**
 4. **Storyboard**
 5. **Prototype**
 6. **Test**
 7. **Exercises & Case Studies**
 8. **Key Learnings**
-

1. Introduction

Sprint is a process created by Jake Knapp at Google, designed to solve problems and build prototypes quickly. Unlike traditional brainstorming, which often gets bogged down by long discussions of pros and cons, Sprint emphasizes action, testing, and learning from customer feedback. This method can be applied to any industry, not just software.

2. Sprint Process Overview

1. **Map the Problem:** Understand the problem and create a high-level process map to identify key challenges.
 2. **Sketch the Solution:** Each team member creates a rough solution to the identified challenges.
 3. **Choose the Best Solution:** Standout ideas are identified through team voting, and the best ones are chosen.
 4. **Storyboard:** Put together a storyboard of the best solution.
 5. **Prototype:** Build a quick prototype using tools like wireframes, mockups, or videos.
 6. **Test:** Present the prototype to potential users and gather feedback.
-

3. Map the Problem

Example: Flatiron Case Study (Healthcare)

Flatiron, a healthcare company, aimed to increase cancer patient enrollment in clinical trials. The problem was that only 4% of patients enrolled. The process of matching patients to the correct trials was complex, involving many data points such as medical history and DNA mutations. By mapping the problem, they could identify key challenges and find potential solutions.

Visual Representation:

- A simple swimlane diagram could be used to visualize the process of patient enrollment and trial matching.
-

4. Sketch the Solution

Scenario: Online Coffee Sales

In this stage, team members create rough sketches of solutions to identified problems, such as how to make it easier for customers to reorder their favorite coffee products.

5. Choose the Best Solution

Example: Slack Case Study

Slack wanted to expand its user base to non-technical companies. Two prototype solutions were created: a "Tenacious Tour" that explained Slack step by step and a "Bot" that simulated interactions. After presenting these to test groups, the Tenacious Tour was chosen based on user feedback. This allowed Slack to focus on developing the more effective solution and avoid the costly development of the Bot.

6. Storyboard

After voting, the standout ideas from each solution are combined into a single storyboard. This helps visualize the final product flow before creating a prototype.

7. Prototype

A prototype can be created using various methods like a PowerPoint presentation, a mockup, or a clickable wireframe. The goal is to quickly and cheaply create something tangible for users to interact with.

Tip: Involving team members in the prototyping process makes this phase quicker and more efficient.

8. Test

Present the prototype to 5 potential users (this number is sufficient to gather 80-90% of the feedback you need).

- **Example: Digital Music Player for Senior Citizens**
 - Key questions for the user: How easy is it to search, download, and play a song?
 - Feedback: What did the users like and dislike about the interface? Were there any confusing elements?
-

Exercises & Case Studies

1. Exercise: Digital Music Player for Senior Citizens

- **Problem:** How can we make downloading and playing songs easier for senior citizens?
- **Map:** Identify key challenges such as finding songs, downloading, and playing them.
- **Sketch:** Create a simple interface where users can search for songs by name or artist and easily download and play them.
- **Vote:** Select the best solution that addresses user needs.

2. Case Study: Slack

- **What was the MVP?** Slack started with messaging as its core feature.
 - **Pivot:** Slack initially focused on technical teams but later expanded to non-technical teams.
 - **Key Features:** Slack grew by adding integrations with other tools to make it the hub for team communication.
-

Key Learnings

1. **Iterate Quickly:** Test small, incremental solutions before committing resources to full-scale development.
2. **Customer Feedback is Key:** Rapid user testing helps identify valuable features and avoid costly mistakes.
3. **Focus on the Problem:** Clearly define the problem before jumping into solutions.

4. **Test and Validate Assumptions:** Use A/B testing and data to validate whether solutions are providing real value.

5.2 Usability and UX Design

Understandable Document on Usability and UX Design

Contents

1. Introduction
 2. Dimensions of Usability (Jakob Nielsen)
 3. Steps for UI Design
 4. Different Aspects of UX Design
 5. Evaluating UX – Nielsen's Heuristics
 6. Case Studies and Exercises
 7. Answers to Questions
-

1. Introduction

Have you ever used an app or website that was hard to navigate, where you couldn't find what you were looking for or weren't sure what to do next? These are examples of poor user interface (UI) and user experience (UX) design. A good UI/UX makes it easy and intuitive for users to accomplish their tasks.

One way to evaluate the effectiveness of a user interface is to consider how well it supports the product's value proposition—the benefits the customer expects from using the product. A well-designed UI/UX bridges the gap between functionality and value.

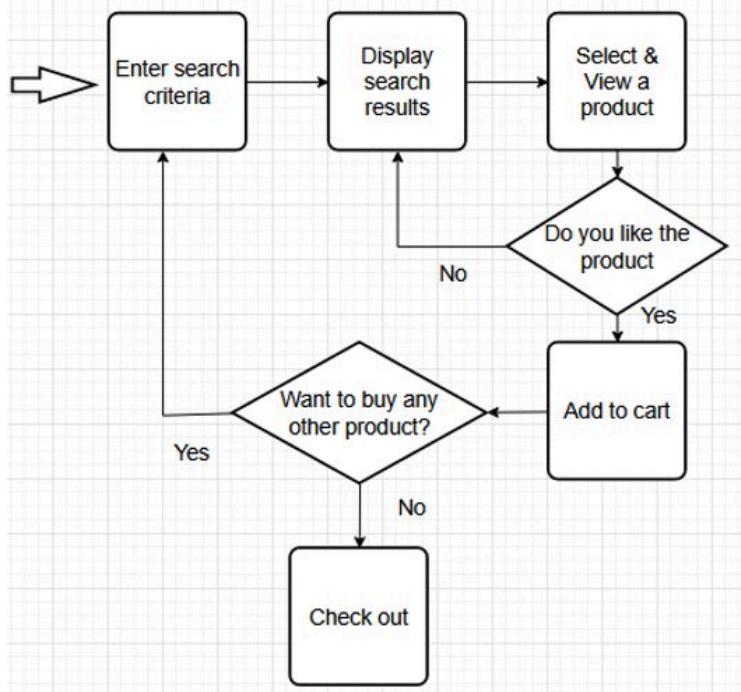


2. Dimensions of Usability (Jakob Nielsen)

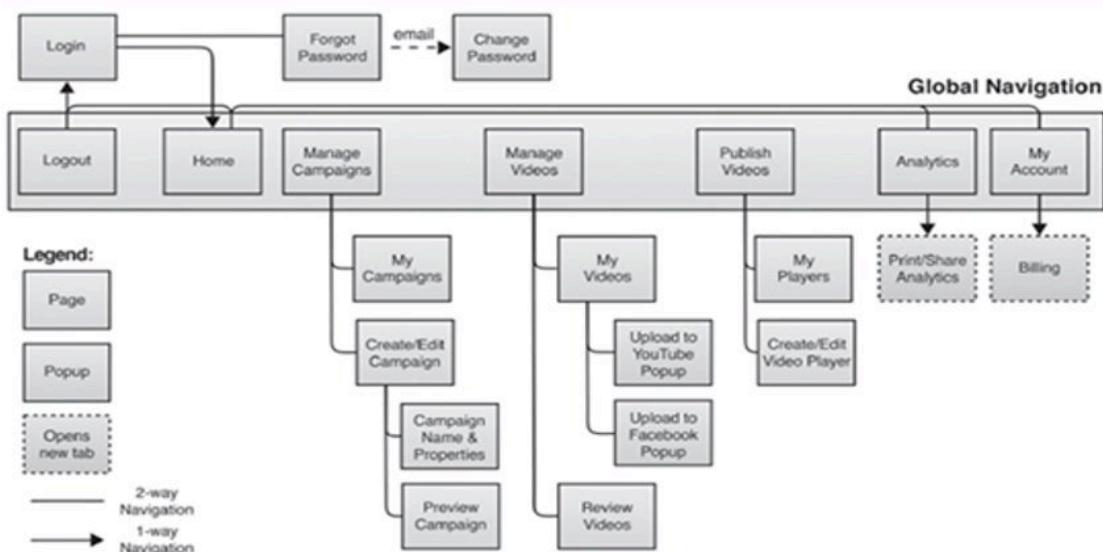
Jakob Nielsen, a renowned usability expert, defined five core dimensions of usability that every good user interface should address:

1. **Learnability:** How quickly can users accomplish basic tasks when using the design for the first time?
 - *Example:* How easy is it to learn how to use an online banking app for the first time?
2. **Efficiency:** Once users learn the design, how quickly can they perform tasks?
 - *Example:* Booking a flight on MakeMyTrip should take fewer steps for repeat users.
3. **Memorability:** After not using it for a while, how easily can users re-learn the interface?
 - *Example:* Can you quickly remember how to print your boarding pass from an airport kiosk?
4. **Errors:** How many mistakes do users make, how serious are these mistakes, and how easily can they recover?
 - *Example:* Buying a product on Flipkart—are the error messages clear when something goes wrong?
5. **Satisfaction:** How pleasant is it to use the design?
 - *Example:* Using MakeMyTrip—does the design feel smooth and enjoyable?

Example: Scenario: Searching & selecting products to buy



Example: Navigation



3. Steps for UI Design

Designing a user interface involves multiple steps, each requiring thought and planning:

1. **Design the Overall Structure:** Think about the high-level process flow and structure of the UI.
 - *Example:* Mapping the process of booking a flight—search, select, book, and pay.
2. **Consider Different Scenarios (Use Cases):** Identify various user scenarios and needs.
 - *Example:* A scenario could be searching for a specific product in an e-commerce app.
3. **Design Navigation and Screens for Each Scenario:** For each user scenario, design clear and intuitive navigation.
 - *Example:* Ensure users can easily navigate through product categories, cart, and checkout.
4. **Refinement:** From sketch to wireframe, to low-fidelity prototype, to high-fidelity prototype, and finally code.

4. Different Aspects of UX Design

UX design includes several elements:

1. Conceptual Design

- Should align with how users think and act (mental models).
- *Example:* Tally software uses non-accountant language, making it easier for regular users to navigate.

2. Information Architecture

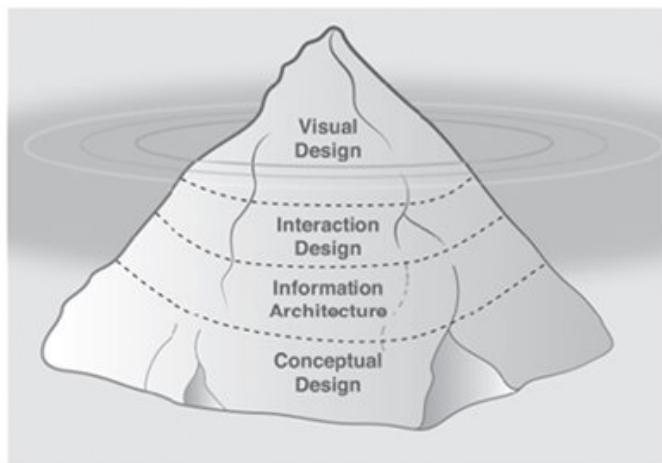
- Focuses on how information is structured on the screen for easy navigation.
- *Example:* Features and options in an online banking platform should be easy to find, like ordering a checkbook or blocking a debit card.

3. Interaction Design

- Defines how users interact with the UI, what actions they can take, and how the product responds.
- *Example:* A travel app should provide clear feedback during the checkout process, such as loading indicators, confirmation messages, or error handling.

4. Visual Design

- This includes elements like colors, fonts, icons, and hierarchy.
- *Example:* Airbnb's clean design makes it easy to find homes, with its branding and style maintained throughout the interface.



5. Evaluating UX – Nielsen's Heuristics

Nielsen's Heuristics are widely used for evaluating the effectiveness of a design. They include:

1. **Match between system and real world:** Use familiar concepts, avoid technical jargon.
 - *Example:* Use plain language rather than technical codes like "Error 404."
2. **User control and freedom:** Provide an easy way to undo actions.
 - *Example:* A "Back" or "Cancel" button helps users feel in control.
3. **Consistency and standards:** Ensure consistency in design across pages.
 - *Example:* Keep buttons and menu options in the same places across screens in the app.
4. **Error prevention:** Prevent errors by offering options, like drop-down menus or guided inputs.

- *Example:* A date selector for choosing travel dates minimizes the chance of formatting errors.
 - 5. **Recognition rather than recall:** Make options visible so users don't have to remember details from one page to another.
 - *Example:* When booking tickets, users should see their selected dates and destinations displayed on every relevant page.
-

6. Case Studies and Exercises

1. Exercise: Evaluate "Efficiency" in Flight Booking (MakeMyTrip)

- How quickly can a user book a flight on MakeMyTrip?
- *Solution:* Efficiency in MakeMyTrip is achieved through a streamlined booking process that remembers user preferences and past bookings, reducing time spent during repeat visits.

2. Exercise: Information Architecture of Your Bank's Online Banking

- Comment on how easy it is to find features like ordering a checkbook or blocking a debit card.
- *Solution:* A well-designed bank app should organize services logically—e.g., placing frequently used services like fund transfers, bill payments, and check requests in easy-to-access menus.

3. Exercise: Customer Journey Mapping for Lost Credit Card

- Map a customer's journey when they lose their credit card and need to block it.
- *Solution:* The user might log into the mobile app, navigate to card services, block the card, and receive confirmation via SMS—all of which should be seamless across multiple touchpoints (app, web, phone).

4. Case Study: Slack's UX Design

- **Scenario:** Slack wanted to simplify its user interface to attract non-technical users.
 - **Solution:** Slack used its conceptual design to make the product feel intuitive and easy to use for teams, integrating with apps that non-technical users often use, like Google Drive and Calendar.
-

7. Answers to Questions

1. What aspects of UX are most important in your product?

- The most important aspects of UX in a product depend on its target users and goals. For a banking app, security, ease of navigation, and clear feedback mechanisms are critical. For an e-commerce site, usability, speed, and error-free navigation matter most.

2. Can you identify key usability issues in a product you've used recently?

- A recent example could be an online payment gateway with poor feedback mechanisms. Users often encounter errors during payment, but the error messages are vague and don't help users understand what went wrong or what to do next.

3. How would you approach improving a product's information architecture?

- First, understand the key tasks users want to perform. Use card sorting techniques to categorize the tasks logically. Once organized, test it with real users to ensure they can find what they're looking for without difficulty.

Understandable Document on Design Thinking

Contents

1. Introduction
 2. Steps in Design Thinking
 3. Examples
 4. Case Studies
 5. Solutions to Exercises and Case Study Analysis
-

1. Introduction

Design Thinking is a human-centered approach to innovation. It focuses on understanding customer needs through observation and interaction. This method encourages innovation by focusing on the real-world challenges users face, making it particularly effective for developing user-friendly products and services. The goal is to use this understanding to create practical and impactful solutions.

2. Steps in Design Thinking

Design thinking is divided into five key steps:

1. **Empathize:** Understanding the user's problems through direct interaction, such as user interviews and empathy mapping. The goal is to understand the customer's needs and feelings.
 - *Example:* Observing how elderly customers struggle with navigating an airport.
2. **Define:** Organizing research insights to create a concise problem statement. This step helps to clearly outline the issue and its root causes.
 - *Example:* Nurses at Kaiser hospitals faced difficulties in sharing critical information during shift changes.
3. **Ideate:** Brainstorming multiple solutions to address the defined problem. This phase encourages out-of-the-box thinking.
 - *Example:* Brainstorming ways to improve how nurses exchange information with each other.
4. **Prototype:** Building tangible representations (prototypes) of the ideas to test their feasibility. Prototypes can be low-fidelity mock-ups to test core functionality.
 - *Example:* Creating software that allows nurses to input patient data in real-time and transfer it easily between shifts.

5. **Test:** Testing the prototypes with real users to gather feedback and identify areas for improvement. Testing is followed by iterations until the final solution is optimized.
 - *Example:* Testing the new nursing system at Kaiser hospitals and refining it based on patient and nurse feedback.

3. Examples of Design Thinking in Action

Example 1: Kaiser Hospital Shift Change

Problem: Nurses spent too much time at the nurse station during shift changes, missing out on critical patient information.

Solution: They redesigned the shift change process to happen in front of the patient, allowing nurses to transfer information more efficiently and interact with patients sooner. A prototype software system allowed for real-time input of patient data.

Outcome: This improved patient care and saved nurses valuable time, allowing them to attend to patients faster.

4. Case Studies

Case Study 1: ANA Tomo

Challenge: Japan's aging population required ANA (All Nippon Airways) to adapt their services for elderly travelers. ANA wanted to ensure that retired businessmen, who had been loyal customers, would continue to enjoy a stress-free travel experience.

Solution: ANA created ANA Tomo, a portable travel companion designed for elderly passengers. ANA Tomo provides live navigation in the airport, helping older travelers find their gates while giving them helpful, real-time information throughout their journey.

Impact: The device helped elderly passengers navigate the airport more easily and reduced the stress of finding their gate. It also improved the boarding process by allowing ANA staff to locate passengers more quickly. Future expansions of the device could include use during the flight or the entire trip, making ANA Tomo an all-encompassing travel companion.

Case Study 2: UberEats

Challenge: UberEats wanted to streamline the food delivery experience and reduce delivery time while maintaining customer satisfaction.

Solution: They used design thinking to immerse themselves in the customer experience, observing how customers interacted with their app and how delivery drivers managed food pickups. Based on user feedback, they iterated on the design to improve navigation, order tracking, and communication between restaurants, customers, and delivery partners.

Impact: The continuous customer-centric design process allowed UberEats to build an intuitive platform that addressed key pain points like food freshness, delivery time, and communication between stakeholders.

5. Solutions to Exercises and Case Study Analysis

Exercise 1: Problem Statement and Ideation for AirBnB

Problem: How can AirBnB create trust between two complete strangers (hosts and guests)?

HMW (How Might We) Questions:

- **How might we create a secure platform for users to book a place to stay with confidence?**
- **How might we make the booking process transparent and easy to use?**
- **How might we provide assurance of safety and trust for both hosts and guests?**

Possible Solution: Develop a review system where both hosts and guests rate each other after each stay, combined with a verification system (government IDs) for both parties to ensure a trustworthy platform.

Exercise 2: Empathy Mapping for Senior Citizens

Product: Digital music player for senior citizens.

Empathy Map Insights:

- **What they say:** "I want a simple device that doesn't confuse me."
- **What they think:** "I need something that works without asking my children for help."
- **What they do:** They find it difficult to navigate modern music players.
- **What they feel:** They feel frustrated when technology feels overwhelming or complicated.

Solution Ideation: Create a music player with a large, easy-to-read display and voice commands to simplify the process of searching, downloading, and playing songs.

Case Study Briefing: Kaiser Hospital

- **Problem Statement:** The shift change process at Kaiser hospitals was ineffective, resulting in poor communication between nurses and delayed patient care.
 - **Solution:** Shift the information transfer process to happen at the patient's bedside, using simple software that allows nurses to update and access patient records in real time.
 - **Key Takeaways:** This case illustrates the importance of focusing on the end user—in this case, both nurses and patients—and testing ideas through prototyping and feedback loops to ensure the best solution is implemented.
-

6. Key Takeaways and Conclusion

The core learning from these case studies and exercises is the importance of centering the design process around the user. Whether it's a healthcare system, a portable travel companion, or an app for food delivery, understanding the needs, challenges, and desires of your user is key to creating a successful solution.

The five steps of design thinking—empathize, define, ideate, prototype, and test—help ensure that the product is not only functional but also user-friendly and addresses real-world challenges.

Agile Methodology Overview

Introduction

Traditional software development models like the Waterfall model often suffer from late detection of defects, leading to inefficiencies. Agile addresses this by breaking the development process into short iterations, enabling early error detection and continuous improvement.

Key Benefits:

- **Improved Quality:** Faster feedback cycles allow for rapid issue resolution.
- **Business Value Focus:** Prioritizes high-value features.
- **Progress Transparency:** Clear visibility of project status.

Agile Manifesto: Core Values

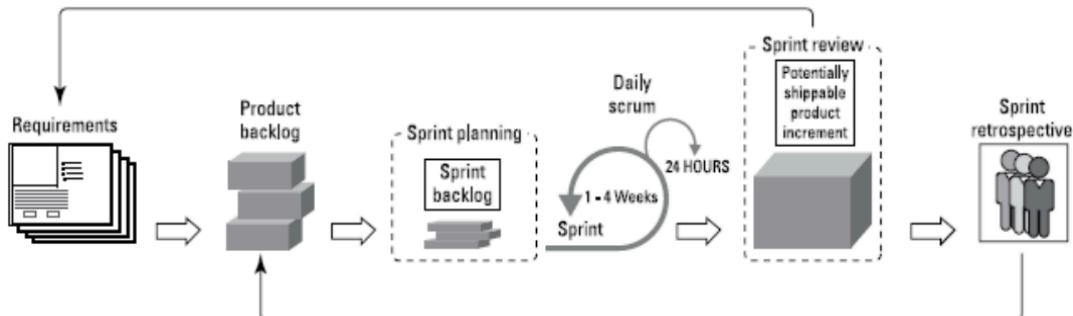
1. **Individuals & Interactions** over processes & tools.
2. **Working Software** over comprehensive documentation.
3. **Customer Collaboration** over contract negotiation.
4. **Responding to Change** over following a plan.

Agile Framework

Overview

The Agile framework emphasizes iterative development, divided into several sprint phases:

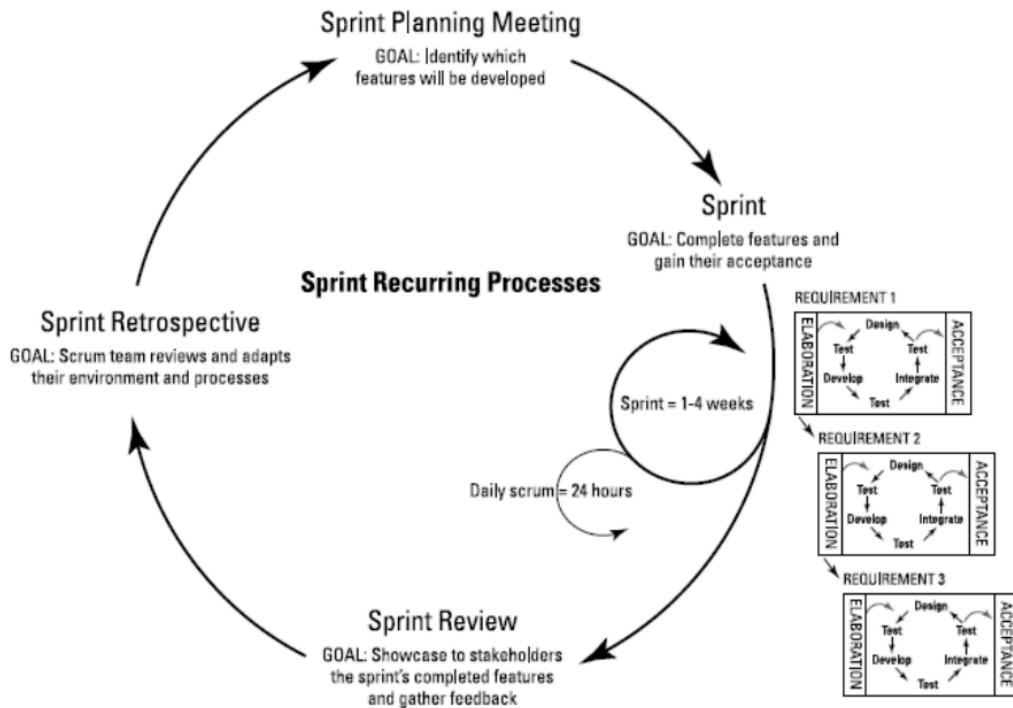
1. **Planning**
2. **Execution**
3. **Review**
4. **Retrospective**



Sprint Phases

Each sprint cycle includes the following phases:

1. **Planning:** Set goals, define user stories, and assign tasks.
2. **Execution:** Develop and test features.
3. **Review:** Demonstrate completed work.
4. **Retrospective:** Reflect and improve.

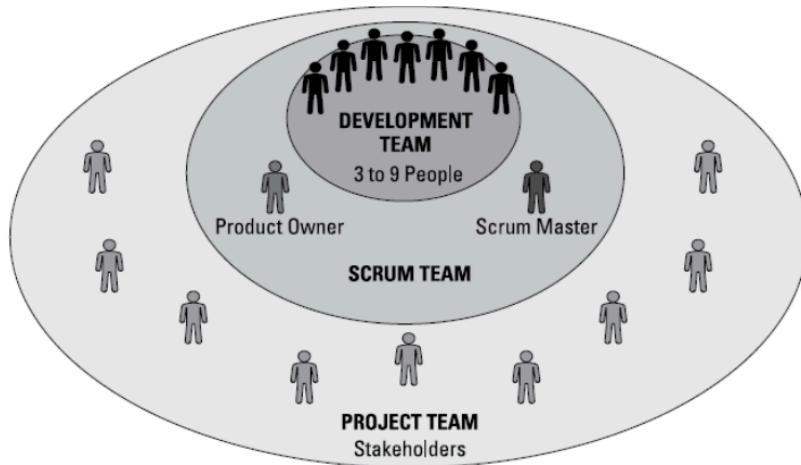


Agile Team Structure

Roles & Responsibilities

1. **Product Owner:**
 - Understands customer needs.
 - Prioritizes requirements.
 - Manages acceptance criteria.
2. **Scrum Master / Agile Coach:**
 - Facilitates the Agile process.
 - Communicates with stakeholders.
 - Removes roadblocks for the team.
3. **Development Team:**

- Multi-skilled members handling development, automation, continuous integration, and refactoring.



Product Release Planning

Steps for Release Planning

- Identify Stakeholders.**
- Establish Product Requirements** and add them to the roadmap.
- Prioritize Requirements** based on value, risk, and dependencies.
- Estimate Development Effort.**
- Define High-Level Time Frames** for releases.

ID	Story	Estimation	Priority	
7	As an unauthorized User I want to create a new account	3	1	
1	As an unauthorized User I want to login	1	2	
10	As an authorized User I want to logout	1	3	
9	Create script to purge database	1	4	
2	As an authorized User I want to see the list of items so that I can select one	2	5	<i>Release</i>
4	As an authorized User I want to add a new item so that it appears in the list	5	6	
3	As an authorized User I want to delete the selected item	2	7	<i>Release</i>
5	As an authorized User I want to edit the selected item	5	8	<i>Release</i>
6	As an authorized User I want to set a reminder for a selected item so that I am reminded when item is due	8	9	<i>Release</i>
8	As an administrator I want to see the list of accounts on login	2	10	
Total		30		
Velocity: 3 Points / Sprint		Sprint length 2 weeks		

Example: Home Loan Application

This application helps users check room availability, make bookings, and provide feedback.

User Stories:

- Room booking
- Feedback
- Messaging from the hotel
- Booking history
- Loyalty points check
- Registration, login, logout

Features →	Apply	Evaluate	Approve	Pay EMI	Close loan
Release 1	Apply for loan - Single applicant	Check credit history	Verify repayment capacity	Pay EMI - Normal	Close after paying all EMIs
		Determine ability to pay			
		Calculate max loan			
Release 2	Apply for loan - Husband & wife jointly			Pay EMI - after skipping one	
Release 3	Apply for loan - Multiple people				Close by paying remaining amount (Foreclosure)

User stories

Estimation Techniques

Estimation Poker

- Each team member selects a card representing the effort for a user story.
- Cards use the Fibonacci sequence (e.g., 1, 2, 3, 5, 8, 13) for better accuracy.
- If estimates vary, discussions refine understanding, and the story may be broken down further.



Poker cards

Numbers represent relative effort of user stories

Example: Estimation of User Stories

- Register: 2
- Login: 2
- Logout: 1
- Room booking: 8
- Cancel booking: 5

ID	Story	Estimation	Priority	
7	As an unauthorized User I want to create a new account	3	1	
1	As an unauthorized User I want to login	1	2	
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8	As an administrator I want to see the list of accounts on login	2	10	
Total		30		
Velocity: 3 Points / Sprint		Sprint length 2 weeks		

T-Shirt Sizing

Categorizes user stories as Small, Medium, Large, or Extra Large based on effort.

When to Use:

- Effective for large projects with many similar user stories.
- Groups stories for quicker estimation.

Sprint Planning

Steps:

1. Set a **Sprint Goal**.
2. Select **User Stories** to develop.
3. Identify tasks for each story.
4. Estimate effort and assign responsibility.

Example: Sprint Plan for Hotel Room Reservation App

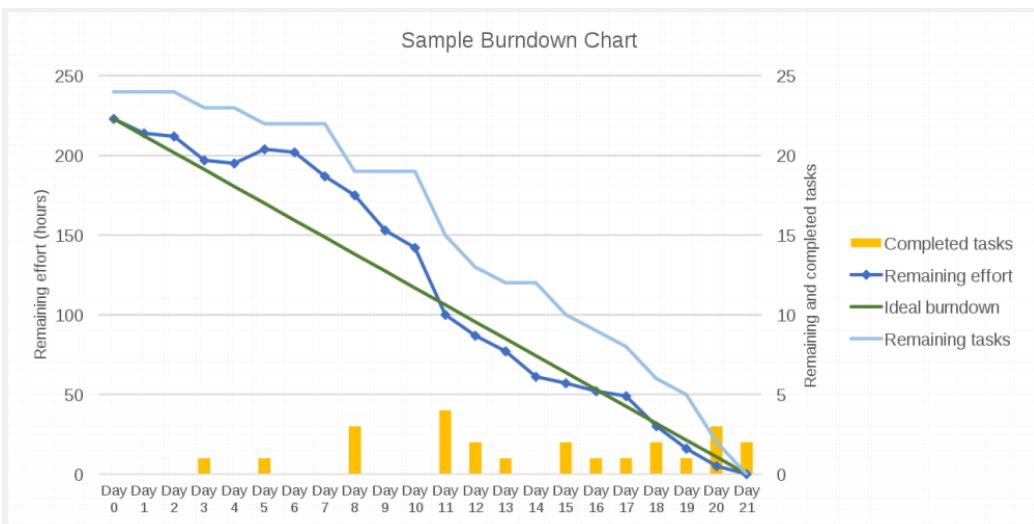
- **Goal:** Enable basic booking functionality.
- **Stories:** Register, login, room booking, cancel booking.

Feature	User story	Story point (Relative estimate)
Register	Enter user id and password: System registers the user	2
Login	Enter user id and password: System displays main page	2
Logout	System displays Login page	1
Room booking	Specify 'from' date & 'to' date: System displays rooms available and their price	3
	Pick a room category to book: System asks user to enter credit card #	1
	Enter credit card # and CVV: System makes the reservation and returns confirmation #	8
Cancel booking	System displays active bookings	2
	Select one of the bookings: System cancels the booking and credits money to your credit card account	8

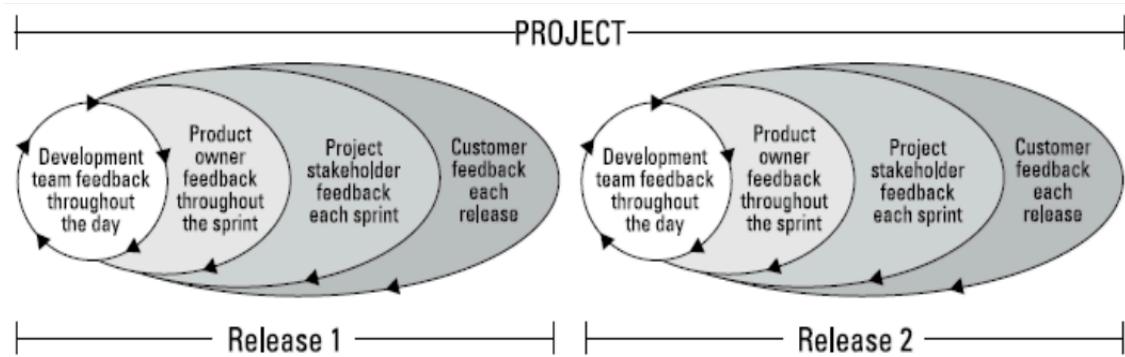
Progress Tracking

Tools & Techniques

- **Daily Scrum Meeting:** Discuss progress, challenges, and daily plans.
- **Burndown Chart:** Visualizes remaining work.

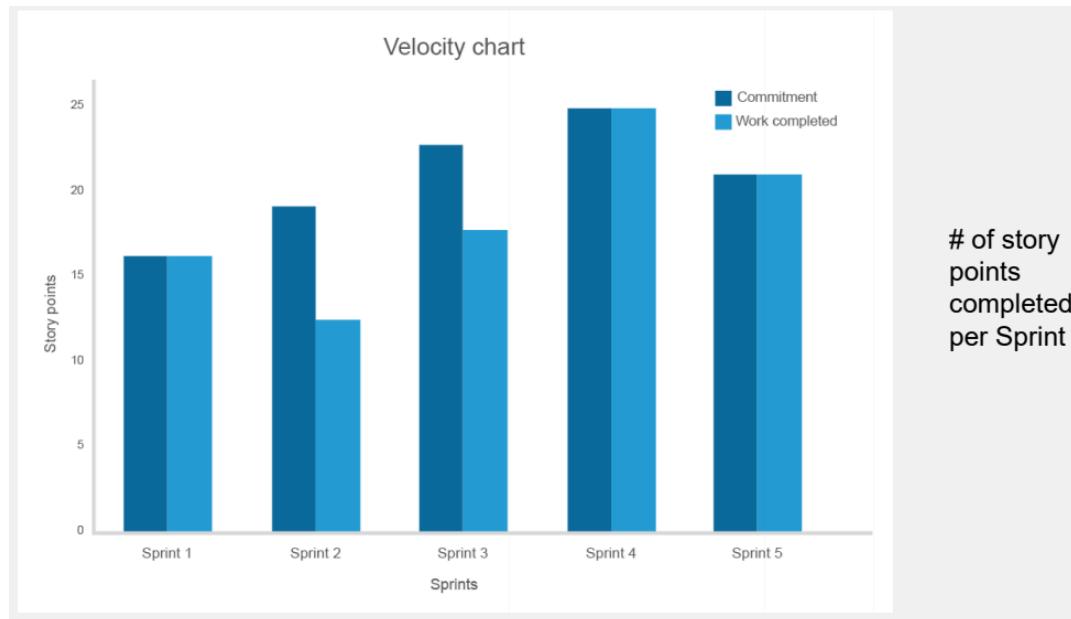


Feedback Cycle



Velocity Measurement

The number of story points completed per sprint.



Challenges in Agile

1. **Lack of skilled Product Owners.**
2. **Difficulty in fixed pricing and scheduling** due to evolving requirements.
3. **Frequent architectural changes.**

Case Study: Pharma Company - Inventory Management

Scenario

A Pharma company faced issues with outdated inventory data. Implementing Agile helped deliver functional increments in five sprints over 100 days, with notable improvements observed after the first month.

Solution

- Divided the project into short sprints.
- Delivered incremental features like stock alerts, order tracking, and performance reports.

Table 4 – Project XYZ Product Backlog.

Product Backlog – XYZ Project					
ID	User Case	Relevance	Estim.	How to Demonstrate	Remarks
1	Know the expiration date of the medicine batches in stock	200	5	Create specific screen for in stock materials, by batch expiration date.	Use, if possible, view by the inquire screen of current inventory, through customizing.
2	Correct inconsistencies in the expiration dates of the medicine batches in stock	180	3	Create manual update mechanism, with function segregation, to update inconsistent dates. Additionally, the possibility to block manual batch entry, at the end of the production line.	Review access profiles and add new functionality, only for Quality Manager.
3	Do not allow expiration date changes for medicine transferred among warehouses	160	2	Keep, during material transfer, expiration date of the original batch.	Review stock transfer transactions, and check associated profiles.
4	Validate the expiration date of medicine batches in stock	140	5	Complementary to ID #2. There must be a process of “auditing” of in stock materials, with a record of changes in the validity of the materials dates.	New program to be created, with restricted and controlled access execution.
5	Enable full inquire of	120	5	Develop new query	Verify users who will

Table 5 – Project's main results.

Consideration	Explanation	Participant's Quote
Project Team	In the team's point of view, the fact that the results are being frequently delivered was motivating, providing greater satisfaction in seeing what was done and deployed. In addition, another important factor was the constant and real-time communication, which made a pleasant work environment (even in the early stages of the project).	According to the developer, "seeing what was done delivered generates greater satisfaction. In addition, constant communication and in real-time makes the working environment more pleasant."
Results (Deliverables)	With the project, the project team reported that changes in the scope were quickly addressed. For example, in agile management, customer reviews were made at the end of each Sprint, and any customer requirement non-compliance could be immediately addressed, not waiting until the end of the project, as it often happens in traditional approach.	In the Scrum Master view, "any change in the project scope is quickly addressed, and I consider this as a strength of the agile."
Customer	From the customers' point of view, they already receive something to use at the end of the first month. In addition, the Scrum approach helps to	As a customer mentioned, "within a month, you already have something and can start

Exercises & Solutions

Exercise 1: Hotel Room Reservation App

User Stories

- Register, Login, Logout, Room Booking, Cancel Booking, Feedback, etc.

Prioritized User Stories

1. Register
2. Login
3. Logout
4. Room booking
5. Cancel booking

Create a release plan grouping user stories into releases. Estimate the effort using Estimation Poker or T-Shirt Sizing.

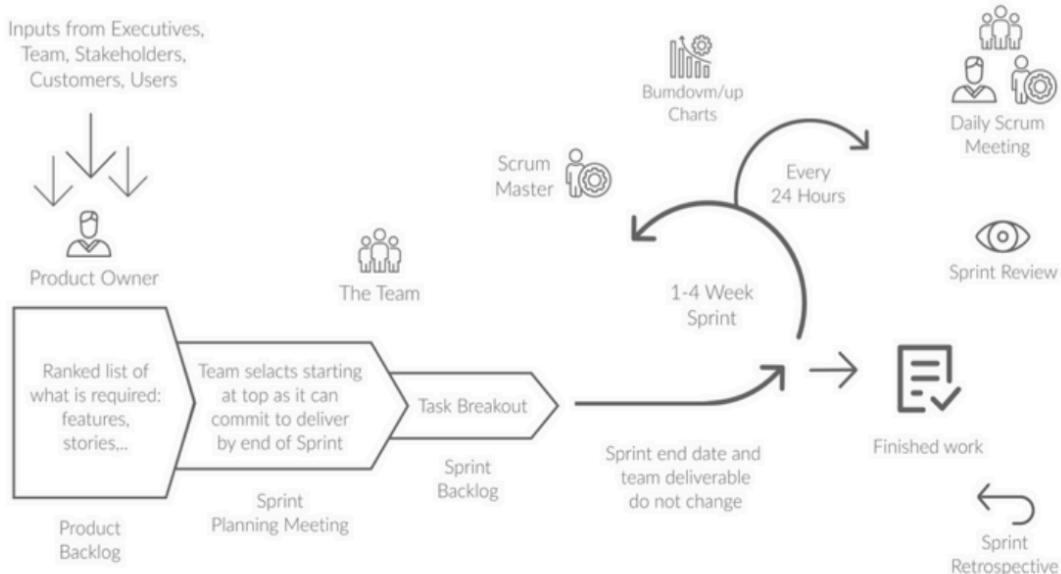
Exercise 2: Sprint Planning

- Define sprint goals, select user stories, and create a plan for execution.

Appendix

- Agile Framework Diagram:

THE AGILE: SCRUM FRAMEWORK AT A GLANCE



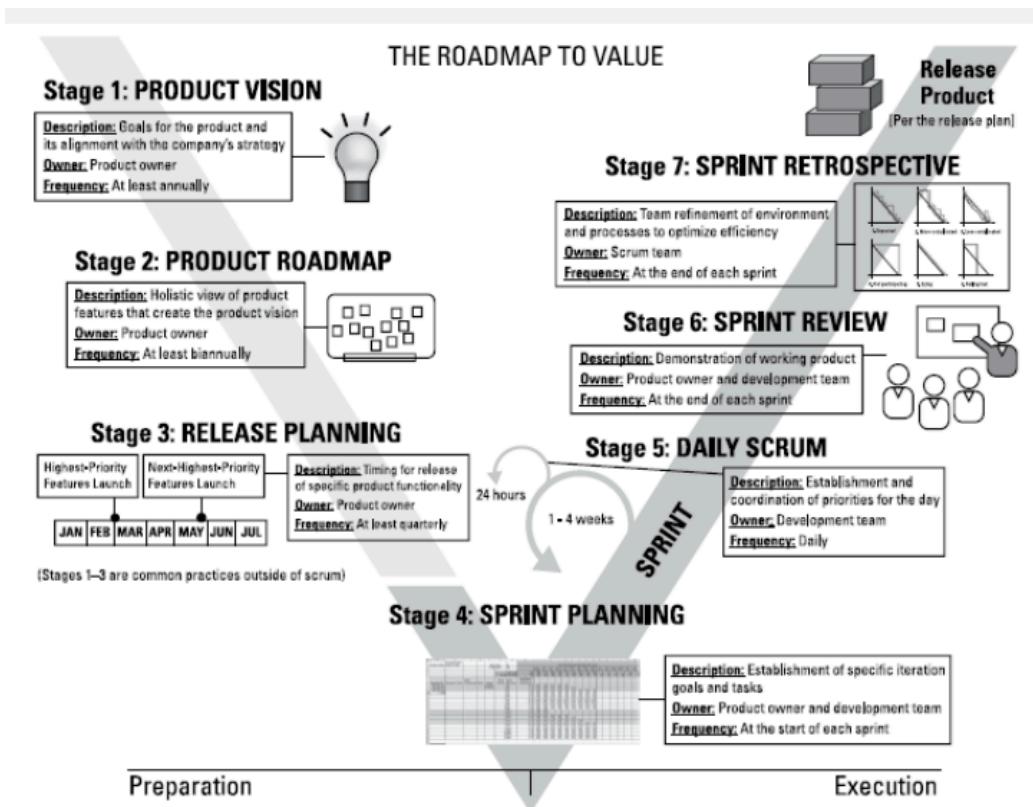
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		Determine ability to pay			
		Calculate max loan			
Release 2	Apply for loan - Husband & wife jointly			Pay EMI - after skipping one	
Release 3	Apply for loan - Multiple people				Close by paying remaining amount (Foreclosure)

User stories

Search Email	File Emails	Compose Email	Read Email	Delete Email	View Calendar	Create Appt	Update Appt	View Appt	Create Contact	Update Contact	Delete Contact
Search by Keyword WIP	Move Emails Done	Create basic email Done	Open basic email Done	Delete email Done	View list of appts Done	Create basic appt Done	Update contents /location Done	View Appt Done	Create basic contact Done	Update contact info WIP	
Create sub folders Done	Send RTF e-mail Done	Open RTF e-mail Done			View WIP Monthly formats WIP	Create RTF appt Done		Accept/Reject/Tentative Done			
Limit Search to one field Done	Send HTML e-mail Done	Open HTML e-mail Done	Empty Deleted Items Done	View Daily Format Done	Create HTML appt Done	Propose new time Done			Add address data Done	Update Address Info Done	Delete Contact Done
Limit Search to 1+ fields Done	Set email priority Done	Open Attachments Done			Mandatory/Optional Done						
Search attachments Done	Get address from contacts Done			View Weekly Formats Done	Get address from contacts Done			View Attachments Done	Import Contacts Done		
Search sub-folders Done	Send Attachments Done			Search Calendar Done	Add Attachments Done				Export Contacts Done		

- Roadmap to Value



- Product Vision

Vision Statement for Product

For _____ (target customer)
who _____ (needs)
the _____ (product name)
is a _____ (product category)
that _____ (product benefit, reason to buy)
Unlike _____ (competitors)
our product _____ (differentiation/value proposition)

- **Virtual progress Tracking**

RELEASE GOAL:

SPRINT GOAL:

RELEASE DATE:

SPRINT REVIEW:

US = User Story
Task = Task

TO DO	IN PROGRESS	ACCEPT	DONE
			<div style="text-align: center;"> US Task Task Task </div>
		US	<div style="text-align: center;"> Task Task Task </div>
<div style="display: flex; flex-wrap: wrap;"> Task Task Task Task Task Task Task Task </div>	US Task Task Task Task Task		
US <div style="display: flex; flex-wrap: wrap;"> Task Task Task Task Task Task Task Task </div>			

Software Design & Integration

Continuous Integration (CI)

Overview: Continuous Integration (CI) is a practice where developers frequently integrate code into a shared repository. Each integration triggers automated builds and tests, allowing for the quick detection and easier location of errors.

Key Benefits:

- **Quick Error Detection:** Immediate feedback helps address issues early.
- **Faster Development Cycles:** Frequent testing reduces integration risks.
- **Improved Code Quality:** Automated testing ensures stability with each code change.

Experience Sharing: Have you experienced improvements in error detection, faster releases, or better code quality using CI/CD?

Single Code Base

Challenges of Maintaining Multiple Software Versions:

- Multiple software versions can be difficult to manage.
- A core product should include common features needed by all target customers.
- Maintaining a **single code base** ensures that all customers use a consistent code version.
 - Branching strategies can be used for different customers, but all branches should merge into a common main trunk.

[Insert Single Code Base Diagram here]

Product Configuration Capability

Overview:

Products often require customization to cater to different customer needs.

Configuration Options:

- **Choice of Modules** (e.g., SAP)
- **Configurable Workflows** (e.g., Salesforce)
- **Configurable Fields** (e.g., SAP)
- **Configurable Rules** (e.g., Navitair Airline Reservation)
- **Configurable UI** (e.g., Yahoo! Mail)
- **Choice of Language**
- **Configurable Error Messages**

Additional Configurations: Can you think of any other areas for customization?

API for Integration

APIs Overview:

APIs (Application Programming Interfaces) allow external systems to interact with your product.

Examples of Integration APIs:

- Facebook
- SAP
- Open API of Banks
- Google Maps
- GitHub

Exercise: Identify other API examples you have used or encountered in projects.

Component-Based Design

Overview:

Component-based design divides a system into smaller, independent modules that can be developed and tested individually.

Benefits:

- **Ease of Understanding, Building, and Maintenance:** Simplified code structure.
- **Reuse:** Components can be reused across different projects.
- **Scaling & Fault Detection:** Easier to scale and troubleshoot issues.

Examples include **Web Services** and **Microservices**.

[Insert Component-Based Design Diagram here]

Prove Value, Scale Later

Strategy:

Rather than designing for scale from day one, focus on proving the product's value first. Once validated, optimize and scale the product.

Example: Zendrive

- **Zendrive** captures driving behavior data from drivers' phones for analysis.
- Initially, raw data was collected and sent to servers.
- After proving product value, optimization was introduced by summarizing data on the phone before sending it to servers, reducing data transfer and server load.

Exercise: Can you think of another example where a product was optimized after proving its value?

Re-architecting Products

As a business grows, products may require re-architecture to adapt to new needs and expectations.

Examples:

- **Amazon**: Shifted from monolithic software to a microservices architecture (using "2-pizza teams").
- **Adobe Creative Suite**: Transitioned from desktop-based to cloud-based software.
- **Oracle Apps**: Moved from on-premise to cloud solutions.

[Insert Re-architecting Diagram here]

Exercise: List other companies you know that have re-architected their products.

Platform as a Product

Overview:

A platform acts as a base for building new services or features. It supports diverse plug-in modules and capabilities.

Examples:

- **Apple iOS & Android:** Serve as mobile application platforms.
- **AWS & Azure:** Provide cloud services like databases, messaging, and serverless functions.
- **Uber & Airbnb:** Adapted to offer virtual experiences during the COVID-19 pandemic.

Benefits:

- Facilitates scalability, modularity, and flexibility.
- Supports a broad range of functionalities via plug-ins.

[Insert Platform as a Product Diagram here]

Exercise: Identify another platform-based product and describe its core features.

Case Study: Visio Graphics-Charting Software

Overview:

Visio is a graphics-charting software that allows users to create diagrams using smart shapes and custom scripting. It has plug-in modules tailored to various industries (e.g., biotechnology, engineering, insurance).

Key Components:

- **Core Graphics Engine**
- **SmartShape Management:** Allows for the incorporation and manipulation of graphic objects.
- **API for Scripting:** Enables developers to create and integrate plug-ins.

[Insert Case Study Diagram here]

Scenario: Discuss how you would use Visio's capabilities to solve a complex diagramming challenge in your organization.

Exercises & Solutions

Exercise 1: API Integration

- **Task:** Identify three APIs you could integrate into a hotel reservation system to enhance functionality.

Solution:

- **Google Maps API:** For location-based search and navigation.
- **Payment Gateway API:** For handling secure transactions.
- **SMS Gateway API:** For sending booking confirmations.

Exercise 2: Configuring a Product

- **Scenario:** You are tasked with customizing a CRM application for a client. Define configurable options needed to meet the client's requirements.

Solution:

- Configurable fields for customer data.
- Choice of modules based on specific business processes.
- Customizable UI to match the client's branding.

Understanding Metrics for Business Improvement

Introduction

Product teams use analytics to:

- Understand users and target appropriate segments.
- Improve user experience (UX) by analyzing customer behavior.
- Measure product adoption and increase its value.
- Evaluate the effectiveness of marketing campaigns.

Types of Analytics

1. **User Behavior Analytics** (e.g., click paths, engagement)
2. **Business Analytics** (e.g., active users, conversion rate, lifetime value)
3. **Financial Analytics** (e.g., average selling price, billings)
4. **Performance Metrics** (e.g., load time, uptime)
5. **Operational Costs** (e.g., storage, hosting)
6. **Go-to-Market Costs** (e.g., acquisition costs, sales costs)
7. **Sentiment Analysis** (e.g., NPS, customer satisfaction)
8. **A/B Testing** (e.g., testing new features or UI changes)

[Insert Types of Analytics Diagram here]

User Behavior Analytics

Key Metrics to Analyze:

- **Popular and Unpopular Features:** Which features are frequently used and which are ignored.
- **Friction Points:** Identify where users face issues in workflows.
- **User Engagement:** Analyze frequency and duration of user interactions.
- **User Segmentation:** Categorize users as heavy users, occasional users, or freeloaders.
- **User Workflow:** Map the user journey for specific tasks.



Exercise: Based on user behavior analytics, identify one popular feature and one friction point in your product.

Solution:

- **Popular Feature:** Quick booking in an app.
- **Friction Point:** Complicated checkout process leading to user drop-off.

Business Analytics

Dave McClure's AARRR Framework

- **Acquisition:** Number of new prospects visiting the site.
- **Activation/Conversion:** Percentage of prospects signing up as customers.
- **Retention:** Percentage of customers remaining active over time.
- **Revenue:** Average revenue generated per customer.
- **Referral:** Number of customers referring the product to friends.



Order of Optimization

1. **Retention:** Focus first on retaining users, as it indicates product value.
2. **Conversion:** Improve sign-up rates to grow the user base.
3. **Acquisition:** Attract more users once the product shows high retention and conversion.

Exercise: Identify which metric you would prioritize and why.

Solution:

- **Metric to Prioritize:** Retention.
 - **Reason:** Retention demonstrates product value and user satisfaction.
-

Financial Analytics

Key Metrics

- **Average Revenue Per User (ARPU)**
 - Example: Amazon, Ola, Slack
 - Formula: $ARPU = \text{Total Revenue} / \text{Number of Users}$
- **Customer Lifetime Value (CLV)**
 - Formula: $CLV = ARPU * \text{Avg. Customer Lifetime} * \text{Gross Margin}$
 - Helps in product pricing and customer acquisition strategies.

Exercise: Calculate ARPU and CLV for a product with total revenue of \$100,000, 500 users, an average customer lifetime of 2 years, and a gross margin of 30%.

Solution:

- **ARPU** = $\$100,000 / 500 = \200
 - **CLV** = $200 * 2 * 0.30 = \$120$
-

Sentiment Analysis: Net Promoter Score (NPS)

Overview

NPS is used to measure customer sentiment by asking: “*How likely are you to recommend the product to a friend?*”

- **Promoters** (scores 9 or 10)
- **Passives** (scores 7 or 8)
- **Detractors** (scores 0 to 6)

Formula: $NPS = \% \text{ of Promoters} - \% \text{ of Detractors}$

Exercise: Based on survey results, if 60% of respondents are promoters and 20% are detractors, calculate NPS.

Solution:

- **NPS** = $60\% - 20\% = 40$
-

A/B Testing

Overview

A/B testing is used when the impact of a change is uncertain or high-risk. It involves testing different versions (A vs. B) of a product element to see which performs better.

Example:

- A company notices a low conversion rate of 5% on its landing page. A new design is tested on a small percentage of users.

- If conversion increases to 6%, statistical analysis determines the reliability of the improvement.

Exercise: What feature in your product would you like to A/B test, and what outcome would you expect?

Solution:

- **Feature:** Call-to-action button color.
 - **Expected Outcome:** Increased click-through rate by 1-2%.
-

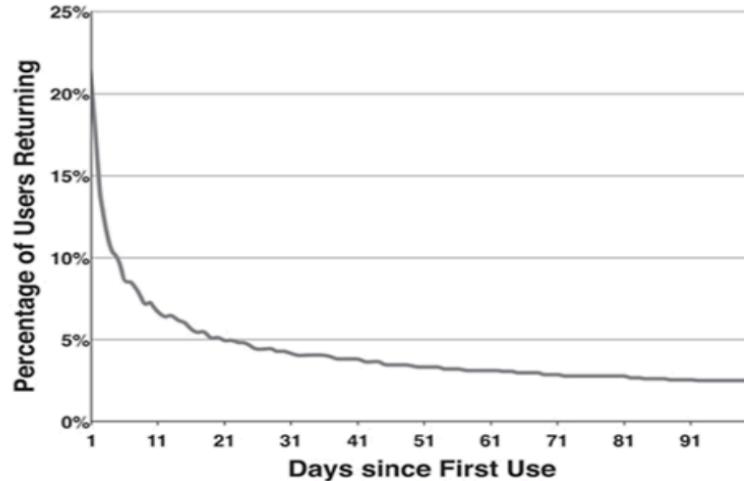
Case Studies

Case Study 1: Intuit - Improving Conversion

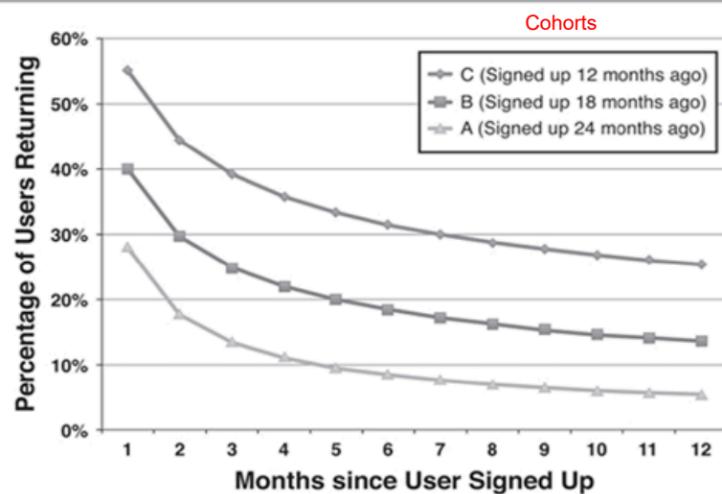
- **Problem:** Low conversion rate during sign-up.
- **Solution:** Analyzed the sign-up process, conducted usability testing, and identified UX issues. Made quick improvements to the UX design.
- **Result:** Conversion rate improved by 40%.

Measuring retention rate

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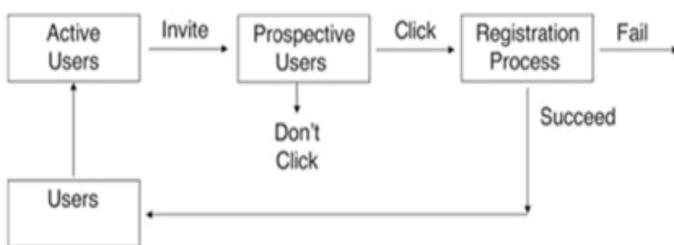
Measuring improvement in retention rate

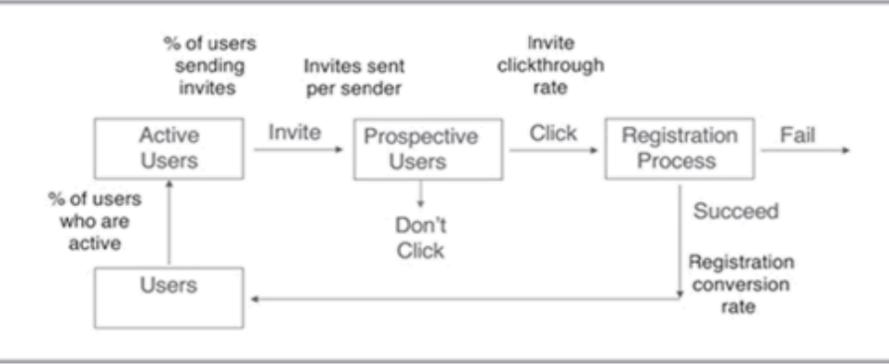


Retention rate of different cohorts, as the product-market fit is improved

Case Study 2: Friendster's Viral Loop

- **Metrics:**
 - **Baseline:** 15% of users send invites, each sending 2.3 invites on average, with an 85% registration conversion rate.
- **Action:** Introduced an address book import feature.
- **Outcome:** Average invites increased from 2.3 to 5, leading to better user growth.



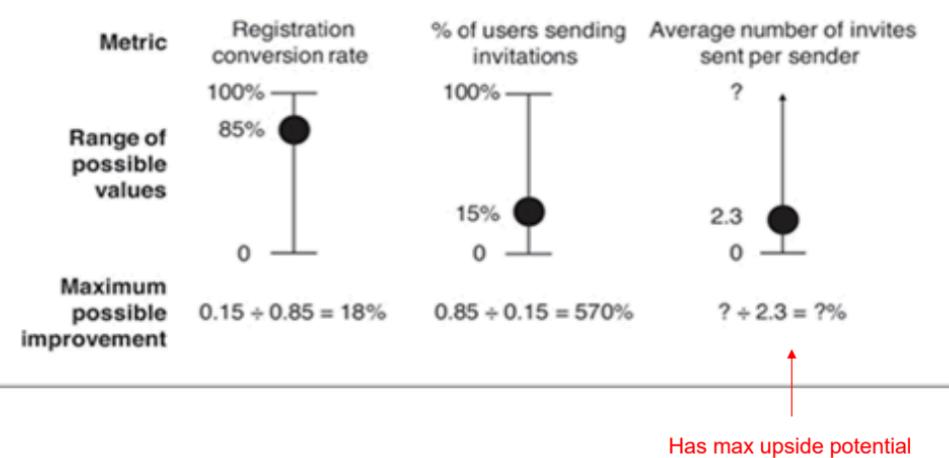


Exercise: Identify a viral loop in your product and suggest an improvement.

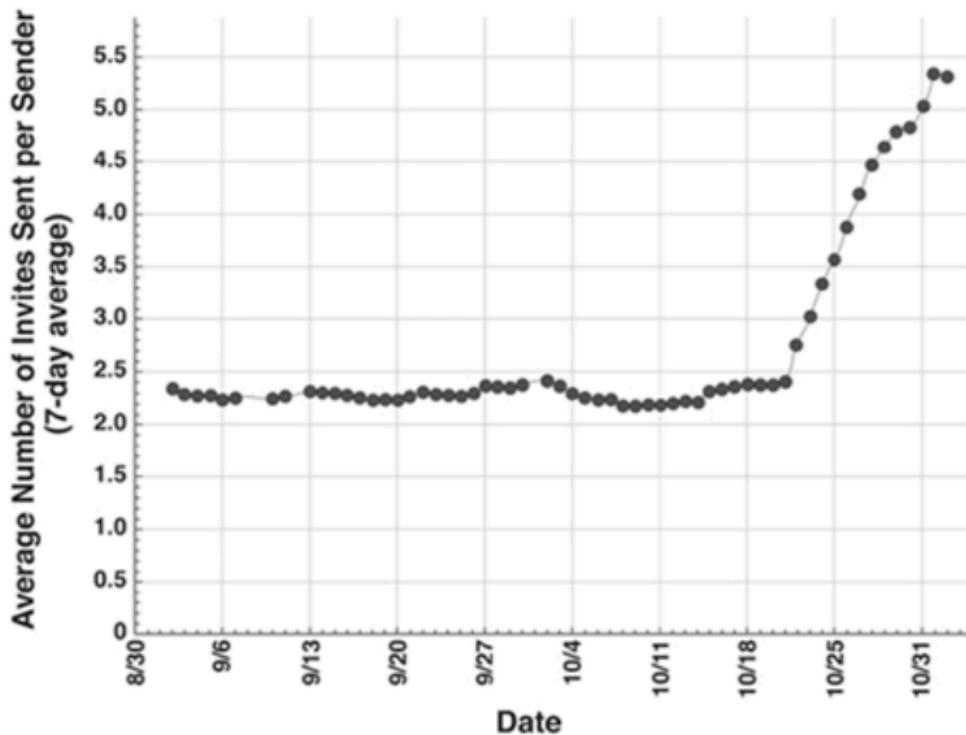
Solution:

- **Current Viral Loop:** Social media sharing of product updates.
- **Suggested Improvement:** Incentivize sharing with rewards for referrals.

Upside potential of Metrics



Outcome



Product Management & Continuous Innovation

Introduction

After the product release, a new set of activities begins to maintain, improve, and adapt the product. Key activities include:

- Resolving customer issues.
 - Enhancing product features (e.g., UX, performance, security).
 - Continuously adding value with relevant features.
 - Adapting to changes in user needs, technology, and competition.
 - Expanding the product through open-source contributions, product lines, and targeting new segments.
-

Customer Support

Key Principles for Effective Support:

- Make the product intuitive and high-quality to minimize support needs.
- Employ knowledgeable and empathetic staff to ensure customer satisfaction.
- Empower the support team to make decisions, such as issuing refunds.

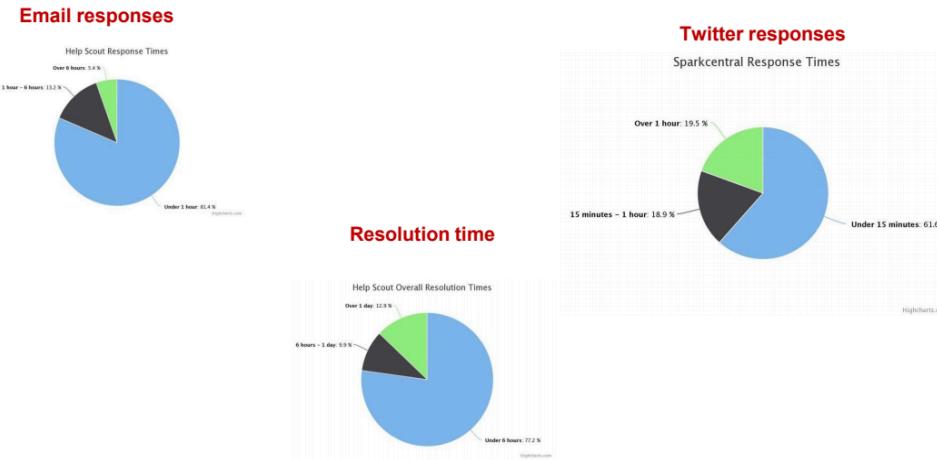
Examples of Excellent Customer Support:

- **IBM:** Sent engineers on-site to resolve critical customer issues.
- **Buffer Inc.:** Achieved customer satisfaction through superior support, helping it market itself.

Exercise: Share an example of great customer service from your experience.

Solution:

- **Example:** A telecom provider offering 24/7 support with rapid response times and issue resolution.



Support Channels

Support can be provided through:

- **Email, Twitter, Facebook, Phone, Remote Desktop, FAQ, Ticketing System, Bot.**
- High-touch support involves human interaction, suitable for mission-critical products like SAP, Navitaire, and Shopify.

Optimizing Support:

- Choose the right channel based on customer needs.
- **Example:** Wistia optimized support by focusing on educational content and FAQs; StudioPress offered extensive knowledge base articles.

Service Quality (SERVQUAL Model)

SERVQUAL Characteristics

1. **Reliability:** Accuracy and dependability of service.
2. **Responsiveness:** Promptness in service delivery.
3. **Assurance:** Knowledge and courtesy of staff that builds trust.
4. **Empathy:** Personalized care for customers.
5. **Tangibles:** Physical facilities, equipment, and staff appearance.



Exercise: Match the service quality characteristic to the scenario:

- **Pleasing hotel room colors:** Tangibles.
 - **Fixing one problem leads to another:** Reliability.
 - **Network fixed within an hour:** Responsiveness.
 - **Engineer clears all customer doubts:** Assurance.
 - **Engineer goes the extra mile:** Empathy.
-

Product Improvements & Enhancements

Enhancing Products

- Improve based on customer feedback, market trends, and competition.
- **Examples:**
 - **Slack:** Added email integrations and group chat functionalities.
 - **Postman:** Introduced API documentation and mocking features.

Case Study: Salesforce

- Salesforce conducted extensive customer interviews to understand feedback before implementing improvements.
- Lessons learned: Analyze feedback effectively to ensure meaningful updates.

Exercise: Describe how customer feedback is analyzed in your organization.

Solution:

- **Process:** Collect feedback, prioritize based on impact, and evaluate technical feasibility.
-

Situations Triggering Product Change

Types of Changes

- **User Needs:** Adaptations like Amazon's Pay-on-Delivery or Ola's SOS button.
- **Regulations:** Compliance with laws like SOX or GST.
- **Technology:** Shifts like Amazon's move from monolithic to microservices architecture.

Case Study: Adobe Creative Cloud

- Adobe transitioned from desktop software to cloud services to meet evolving customer demands.
 - **Challenges:** Data migration, new subscription models.
 - **Solutions:** Phased implementation and customer education.

[Insert Product Change Diagram here]

Exercise: What challenges have you faced in making major product changes?

Continuous Product Innovations

Value-Driven Innovations

Continuous innovation adds value to clients and ensures the product remains relevant.

Examples:

- **Netflix:** From DVD rental to streaming and original content.
- **Airbnb:** Launched virtual experiences during COVID-19.
- **BigBasket:** Introduced vending machines and delivery slot bookings.
- **Paytm:** Implemented Video KYC for onboarding.

[Insert Innovation Examples Diagram here]

Exercise: Identify an example of continuous innovation in your product.

Solution:

- **Example:** Implementing AI-driven recommendations in an e-commerce app.
-

Software Product Lines

Overview

A software product line involves creating a base product that can be tailored for different customer segments, improving time-to-market, cost efficiency, and quality.

Examples:

- **SAP:** Caters to manufacturing, insurance, telecom, and retail sectors.
- **Telelink:** Developed inter-office email systems that supported multiple communication protocols.

[Insert Product Lines Diagram here]

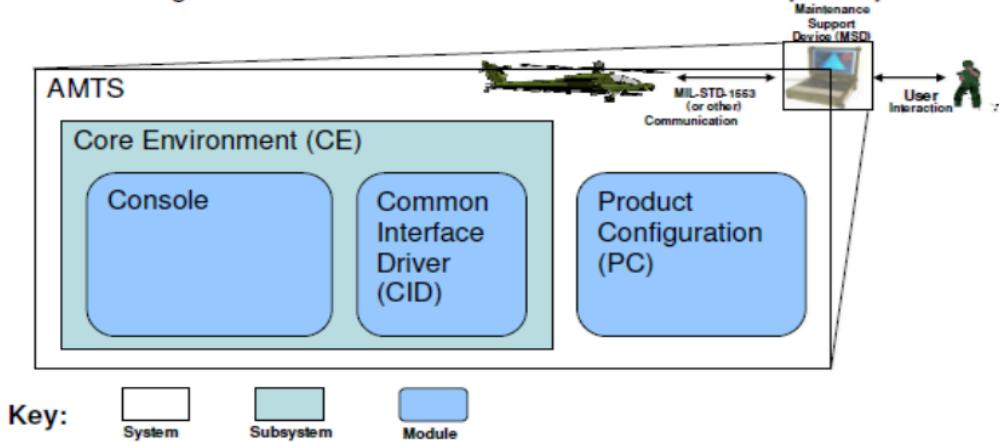
Case Study: Saturn Aviation Diagnostics

- **Problem:** Building a system that supports different helicopter models.
- **Solution:** Developed a flexible architecture with common components for diagnostics.
 - **Architecture:** Emphasized common elements and organizational structures to maintain consistency.

Platforms supported	Bus	Message handling
Helo	Type	Message analysis
Apache A	1553 (1553A, 1553B)	From text
Apache D	Ethernet	From XML
UH-60	1773	Message DB
Aircraft	ARINC (commercial aircraft)	XML translator
F-18	CAN? (automotive)	Read
C-17 (under discussion)		Write (for sim/stim tool)
Ground vehicles	Architecture	Test level
M1A1 Abrams	Single bus	Operational
Variations within each by tail # or other vehicle feature	Multiple bus	Intermediate
	Single type	Depot
	Mixed type	Development
	Nested (i.e., bus within bus; e.g., JTRS)	

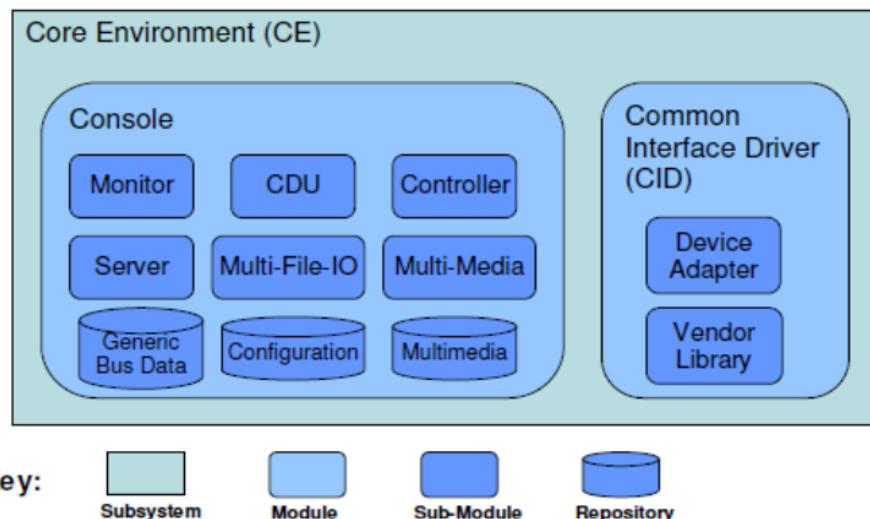
AMTS Decomposition View

Core Environment - common modules across the product line
Product Configuration - modules that tailor core environment for specific platforms

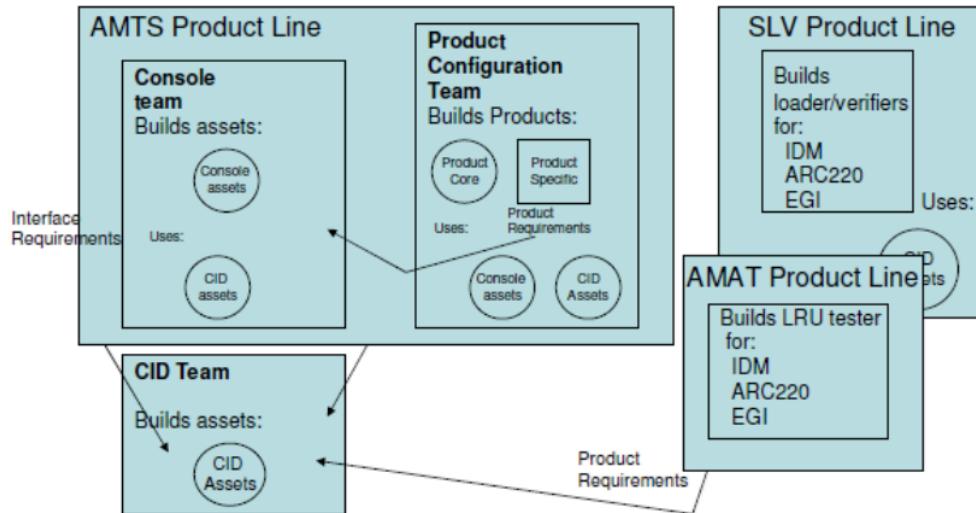


Core Environment Decomposition View

Common assets for building testing systems for specific aviation platforms, systems, and subsystems



Evolution – Product Line Growth



Exercise: Describe a challenge faced in developing a product using the product line concept.

Solution:

- **Challenge:** Balancing commonality with customization for different segments.
- **Approach:** Adopt a modular design with configurable elements.

Product Team Roles

Key Roles in Product Teams

1. **Product Manager (PM)**
 - Leads the product from concept to continuous evolution.
 - Works closely with UX designers and engineers.
 - **Skills and Knowledge:**
 - **Technology:** Current trends and applications.
 - **Customer Insights:** Understands user pain points, desires, and decision-making processes.
 - **Market and Industry Knowledge:** Competitor analysis, trends, and social media impact.
2. **Designer**
 - **Focus Areas:**
 - Understands user personas and customer journeys.
 - Designs the user experience (UX).
 - Conducts usability testing and ensures accessibility.
3. **Engineer**
 - **Responsibilities:**
 - Architecting the solution.
 - Developing proof-of-concepts.
 - Using Agile and DevOps methods.
 - Performing A/B testing.
4. **Product Marketing**
 - **Tasks:**
 - Understands customer segments and market positioning.
 - Develops go-to-market strategies.
 - Measures the impact of marketing campaigns.

Principles of Strong Product Teams

- **Mission-Driven:** Teams are committed to solving customer problems.
- **Empowered and Accountable:** Teams have the autonomy to decide how to achieve objectives and are responsible for results.
- **Optimal Team Size:** 8–12 members (two-pizza rule).
- **True Collaboration:** No strict hierarchy; team members work closely together.
- **Team Duration:** Teams should stay together long enough to develop synergy.
- **Defined Scope:** Each team focuses on a specific goal or problem area, such as fraud prevention at eBay.
- **Team Autonomy:** Teams have the freedom to solve problems as they see fit.

Stages of Team Development (Bruce Tuckman)

- **Forming, Storming, Norming, Performing, Adjourning**
 - Understanding these stages helps manage team dynamics effectively.

Case study – Stages in Team development

SNAPSHOT FROM PRACTICE

"Rat Fax" Galvanizes ELITE Team at Newspaper*



Knight-Ridder's *Tallahassee Democrat*, like many American newspapers in the late 1980s, was struggling to survive in the face of declining revenues. Fred Mott, the general manager of the *Democrat*, was convinced that the key to the newspaper's future was becoming more customer-focused. Despite his best efforts, little progress was being made toward becoming a customer-driven newspaper. One area that was particularly problematic was advertising, where lost revenues due to errors could be as high as \$10,000 a month.

Fred Mott decided to create a team of 12 of his best workers from all parts of the newspaper. They became known as the ELITE team because their mission was to "ELIminate The Errors." At first the team spent a lot of time pointing fingers at each other rather than coming to grips with the error problems at the newspaper. A key turning point came when one member produced what became known as "the rat tracks fax" and told the story behind it. It turns out a sloppily prepared ad arrived through a fax machine looking like "a rat had run across the page." Yet the ad passed through the hands of seven employees and probably would have been printed if it had not been totally unreadable. The introduction of this fax broke the ice, and the team started to admit that everyone—not everyone else—

was at fault. Then, recalls one member, "We had some pretty hard discussions. And there were tears at those meetings."

The emotional responses galvanized the group to the task at hand and bonded them to one another. The ELITE team looked carefully at the entire process by which an ad was sold, created, printed, and billed. When the process was examined, the team discovered patterns of errors, most of which could be attributed to bad communication, time pressures, and poor attitude. They made a series of recommendations that completely transformed the ad process at the *Democrat*. Under ELITE's leadership, advertising accuracy rose sharply and stayed above 99 percent. Lost revenues from errors dropped to near zero. Surveys showed a huge positive swing in advertiser satisfaction.

The impact of ELITE, however, went beyond numbers. The ELITE team's own brand of responsiveness to customer satisfaction spread to other parts of the newspaper. In effect this team of mostly frontline workers spearheaded a cultural transformation at the newspaper that emphasized a premium on customer service.

* Jon R. Katzenbach and Douglas K. Smith, *The Wisdom of Teams* (Boston: Harvard Business School Press, 1993), pp. 67–72. Copyright McKinsey & Co., Inc.

'Rat Fax' case study

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- What was the problem to be solved?
- How did the meetings go in the beginning?
- How did the team own up responsibility?
- What was the impact of the improvement achieved on other teams?
- What are your experiences in team formation and team maturing?

Different stages of a team

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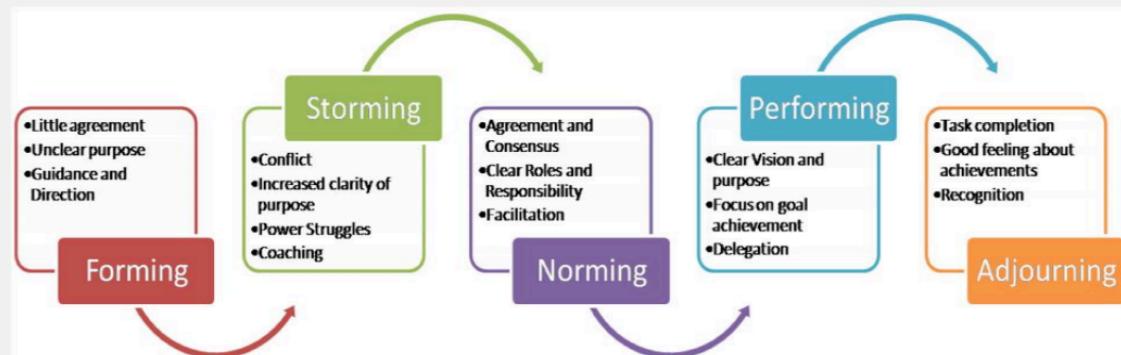


Fig 2: Team Development stages

Why teaming is important?

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- The difference in **productivity** between an average team and a turned-on, high-performing team is not 10 percent, 20 percent, or 30 percent, but **100 percent, 200 percent, even 500 percent!** —**Tom Peters, management consultant and writer**
- An organization succeeds when people **trust** each other and **cooperate** with each other

Case study in building a good team

SNAPSHOT FROM PRACTICE

A Good Man in a Storm*



Once upon a time, back in 1976, Data General Corporation needed to come up quickly with a fast, reasonably priced 32-bit mini-computer to compete with Digital Equipment Corporation's VAX. Data General CEO Edson de Castro launched the Fountainhead Project and gave it the best people and ample resources to complete the 32-bit initiative. As a back-up to the Fountainhead project, Data General created the Eagle project within the Eclipse group under the leadership of Tom West. Work on both projects began in 1978.

In 1980 Data General announced its new computer, featuring simplicity, power, and low cost. This computer was not the Fountainhead from the well-funded "best" DG group but the Eagle from Tom West's under-funded Eclipse team. Tracy Kidder saw all this happen and told the story in *The Soul of a New Machine*, which won a Pulitzer Prize in 1982. This book, which Kidder thought might be of interest to a handful of computer scientists, has become a project management classic.

In the beginning of his book, Kidder introduces the readers to the book's protagonist Tom West by telling the story of him sailing a yacht across rough seas off the coast of New England. Kidder's title for the prologue was "A Good Man in a Storm."

Twenty years after Kidder's book was published Tom West was interviewed by Lawrence Peters for the *Academy of Management Executive*. Below are some excerpts that capture Tom's views on managing innovative projects:

On selecting team members:

You explain to a guy what the challenge was, and then see if his eyes light up.

On motivating team members:

... Challenge was everything. People, especially creative technical people who really want to make a difference, will do whatever is possible or whatever is necessary. I've done this more than once, and I've repeated it over and over. It seems to work.

On the importance of having a vision:

... you've got to find a rallying cry. You need to have something that can be described very simply and has that sort of ring of truth to an engineer that says "yes that's the thing to be doing right now." Otherwise you're going to be rolling rocks up hill all the time.

On the role of being a project manager:

You have to act as a cheerleader. You have to act as the instructor. You have to constantly bring to mind what the purpose is and what's moving the ball towards the goal post, and what's running sideways, and you have to take up a lot of battles for them. I mean you really don't want your design engineer arguing with the guy in the drafting shop about why he ought to do it the designer's way. I can do that, and I can pull rank too, and sometimes I did just that.

* Tracy Kidder, *The Soul of a New Machine* (New York: Avon Books, 1981); Lawrence H. Peters, "'A Good Man in a Storm': An Interview with Tom West," *Academy of Management Executive*, Vol. 16, No. 4, 2002, pp. 53–60.

Data General case study

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- What lessons in team building can we learn from Tom West?

Lessons in team building from Tom West include:

1. **Motivate with Challenges:** Tom emphasized presenting clear challenges to inspire the team, particularly technical individuals eager to make a difference.
2. **Create a Clear Vision:** He believed in finding a strong, motivating vision that the team could rally around, ensuring that it resonated with their goals and values.
3. **Be a Supportive Leader:** Tom acted as both a coach and a cheerleader, advocating for his team, protecting them from external distractions, and focusing on moving toward project goals.

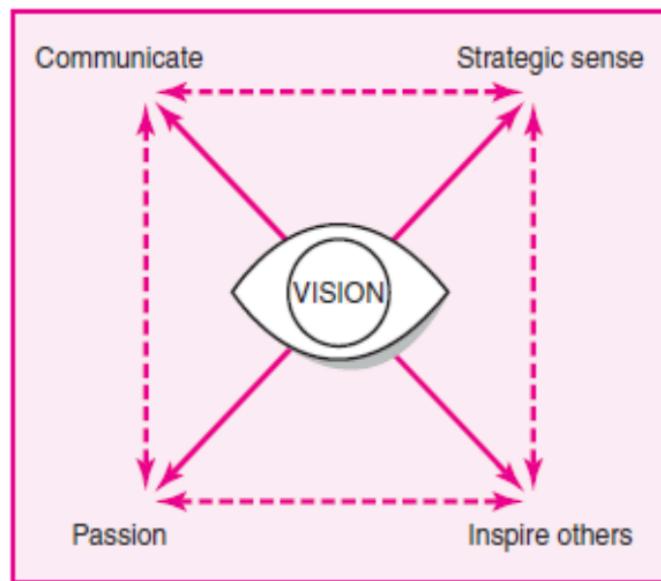
4. **Adaptability:** He demonstrated flexibility in managing both resources and team dynamics, pulling the team together despite limited funding and resources.
5. **Encourage Ownership:** By ensuring team members felt involved in shaping solutions, he fostered a sense of ownership and dedication.

Creating a good vision



Discuss with all

Something that excites the team



Something that aligns with the strategy of the org.

Vision should have a higher purpose

Ex. The CEO of a pharma company said – let us develop a drug that will eradicate Malaria from Africa. This inspired the whole org

Exercise: Defining a vision



- Design a vision / goal for your product / project that will truly inspire the entire team

Step 1: Define Purpose

- Ask: What fundamental problem is the product/project solving?
- Example: "We aim to empower users by giving them real-time insights for better financial decisions."

Step 2: Make It Aspirational

- Ask: What's the big, bold ambition?
- Example: "Build the most trusted AI assistant for mental well-being that's accessible to everyone, anytime."

Step 3: Focus on Impact

- Ask: How will the product/project change users' lives?
- Example: "Enable 1 million small businesses to go global with a seamless e-commerce experience by 2025."

Step 4: Keep It Clear & Simple

- Ask: Is it easy to understand and rally behind?
- Example: "Create a safer, greener city with the first zero-emission public transport app."

Example of an Inspiring Vision:

- "Create a world where learning is as easy as breathing, with personalized education for every student, anywhere."

Characteristics of Good Teams

1. **Compelling Vision:** Pursue goals with passion.
2. **Customer Insights:** Draw inspiration from observing customer struggles.
3. **Rapid Experimentation:** Use various techniques to quickly test ideas.
4. **Cross-Discipline Collaboration:** Regular brainstorming and discussion across functions.
5. **Co-location:** Product, design, and engineering teams sit side-by-side.
6. **Customer Engagement:** Regular interaction with customers for feedback.
7. **Iterative Mindset:** Understand that not all ideas will succeed, but rapid iteration leads to innovation.

Importance of Teaming

- **Common Vision:** Successful teams rally around a shared goal (e.g., Apollo 11 mission).
- **Examples of Teamwork:**

- **Geese Formation:** Geese's V-formation reduces air drag, symbolizing teamwork where everyone shares the load.
- **Lessons for Human Teams:** Clear communication, shared effort, and mutual support are key to high performance.

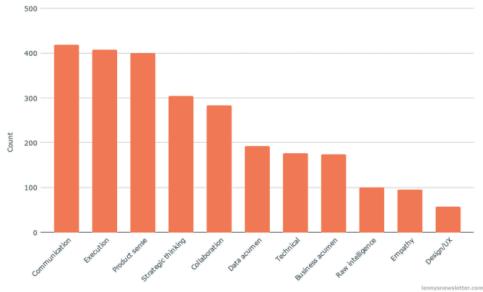
Role of the Product Manager (PM)

• Variations Across Companies:

- Companies differ in how they prioritize PM skills: communication, execution, product sense, design/UX, etc.
- PM influence varies by company culture (e.g., PMs have more influence at YouTube and Airbnb, less at Apple and Tesla).
- Leadership styles and technical requirements impact the PM role.

Survey results...

What skills are most valued when hiring a PM?

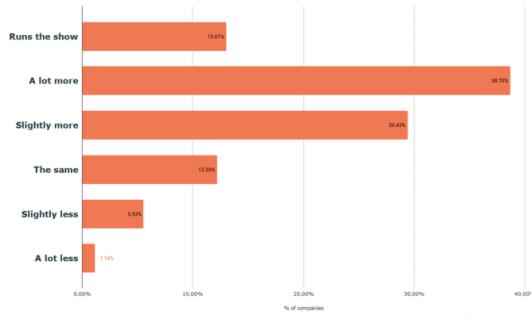


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- **Most frequently valued:** Communication, execution, product sense
- **Least frequently valued:** Design/UX, empathy, raw intelligence

Survey results...

How much influence do PMs have vs. other functions?



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- **Noteworthy companies where PMs have a lot more influence:** YouTube, LinkedIn, Twitter, Uber, Robinhood, Lyft, Coinbase, Asana, Airbnb
- **Noteworthy companies where PMs have relatively less influence:** Apple, Oracle, Stripe, Tesla

Survey results...

Heart vs. Hands vs. Head

It's often said that companies are defined by how they index on Heart (e.g. empathy, culture) vs. Hands (e.g. execution) vs. Head (e.g. intelligence).

Takeaways:

- Companies who spike on **Heart**: Asana, Spotify, WhatsApp
- Companies who spike on **Hands**: Flipkart, Okta, PayPal, Quora, Tesla, Wayfair, Yelp
- Companies who spike on **Head**: Coinbase, Uber, YouTube, Zynga

To which category does your company largely belong?

What It Takes to Be a Good PM

1. **Core Competencies:**
 - Customer interviews, design sprints, road mapping, resource allocation, market assessments, etc.
2. **Emotional Intelligence (EQ):**
 - Defined by Daniel Goleman as the ability to understand and manage emotions (both personal and others').
 - Crucial for leadership, EQ is often more important than IQ for PM success.

Emotional intelligence

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Emotional Intelligence Domains and Competencies

SELF-AWARENESS	SELF-MANAGEMENT	SOCIAL AWARENESS	RELATIONSHIP MANAGEMENT
Emotional self-awareness Emotions, strengths, weaknesses, drives, values and goals	Emotional self-control	Empathy	Influence
	Adaptability		Coach and mentor
	Achievement orientation	Organizational awareness	Conflict management
	Positive outlook		Teamwork
			Inspirational leadership

Leadership Styles

- **Democratic:** Best when employees are knowledgeable.
- **Authoritative:** Effective when the team is less skilled, and the PM is an expert.
- **Coercive:** Necessary in crises or with problematic employees.
- **Coaching:** Suited for long-term engagements, focusing on personal development.

Company Fit

- **Factors Influencing PM Roles:**
 - **Technical Requirements:** Some products require deep technical skills (e.g., AI).
 - **Company Philosophy:** Relationship with engineering varies—some companies let PMs drive engineering, others prioritize partnership.
 - **Company Stage:** Startups offer broad exposure, while mature companies have more focused roles.
 - **Leadership Relationship:** Level of PM autonomy is shaped by management style.

Case Study: Jane Manning of Google AdWords

Questions:

- What challenges of a PM are highlighted in this article?
- What qualities of Jane do you appreciate and why?

Challenges of a PM highlighted:

- Balancing customer needs with business goals.
- Managing rapid growth while ensuring product quality.
- Adapting to changing market dynamics and competition.

Qualities of Jane I appreciate and why:

- **Customer-Centric:** She prioritized user feedback, driving product improvements.
- **Adaptable:** Jane navigated changes and growth with resilience.
- **Collaborative Leader:** She fostered strong cross-team communication, ensuring alignment.

Final Thoughts on Team Dynamics

- **Power of a Common Goal:** Aligning teams towards a singular vision (e.g., Apollo 11 mission) leads to extraordinary results.
- **Examples from Nature:** Geese showcase effective teamwork and shared leadership, demonstrating the benefits of cooperation and communication.

PRODUCT MANAGEMENT FOR ENTREPRENEURS

Useful Tips & Tricks by Arnab Chanda

1. Doing Your Homework

Validation

Validating a product idea or feature ensures you're building something valuable and minimizes the risk of failure.

Key Questions to Ask:

- Are you solving the right problem?
- Is it the right problem at the right time?
- Is your solution the correct one?

Example:

Netbooks failed because they addressed the wrong solution. When the iPad debuted, it succeeded because people wanted fast, versatile devices for email, Internet, and gaming—not tiny PCs.

Positioning

Positioning defines how your product or service fits the market and meets user needs. A strong brand can increase revenue by up to 23%.

Positioning Statement

A concise internal tool to align marketing and brand efforts.

Questions to Answer:

1. Who is your target audience?
2. What value do you offer?
3. How do you deliver that value?
4. Why are you solving this problem?
5. How does your solution compare to others?

Example:

A positioning statement for Uber:

"For busy individuals who need reliable transportation, Uber provides on-demand rides that are convenient and safe, unlike traditional taxis."

2. Monetization Strategies

- Monetization requires a mindset shift toward commercial awareness.
- **Revenue:** The income from core business operations ("top line").
- **Profit:** Revenue minus all operating expenses ("bottom line").

Example Strategy:

A freemium model, where users access basic features for free but pay for premium services (e.g., Spotify, Canva).

Bootstrapping:

Starting a business with internal resources without external funding.

Benefits:

- Full control over the idea.
- Lower liability or debt risks.
- Creates a proven product/idea that attracts investors.

Why VCs Invest Later:

VCs prefer investing in businesses with:

- Validated ideas.
- MVPs (Minimum Viable Products).
- Paying customers and revenue.

Case Study:

- **Fred** had 12 customers before seeking funding.
 - **Christian** secured 200 customers before raising Series A.
 - **Greg** achieved \$6M in revenue before raising \$130M in Series A funding.
-

3. Product vs Funding

The value of your business grows with progress.

Key Milestones and Their Value:

- Just a concept: **0%**
- Need money for MVP: **0%**
- MVP + validation from 100 prospects: **0.2%**
- Paying customers: **0.4%**
- Large Total Addressable Market (TAM): **0.5%**

- Validated acquisition strategy: **0.6%**
- Fast growth rate: **0.7%**
- Complete team: **0.8%**
- Strong traction: **0.9%**
- Proven track record: **1.0%**

Key Insight:

“Don’t approach VCs as a beggar; go as a king.” – Sramana Mitra

Bootstrapping Tip: Use your resources (paycheck, services, validation) to build traction and attract investors.

4. Practical Scenarios and Tips

Validation Example:

Scenario: A startup wants to launch a meal-planning app.

Action: Interview 100 users to determine their pain points (e.g., lack of time, dietary restrictions) and test if your app addresses their needs effectively.

Positioning Example:

Scenario: A local bakery competes with large chains.

Positioning: "For health-conscious locals, we provide freshly baked, organic goods that offer unmatched flavor and quality, unlike mass-produced items."

Monetization Example:

Scenario: A fitness app uses a tiered pricing model:

- Free for basic features.
- \$10/month for personalized workout plans.
- \$20/month for live coaching sessions.

Bootstrapping Example:

Scenario: A graphic designer uses earnings from freelance projects to fund a design tool startup.

Result: They launch an MVP, attract customers, and later secure funding.

5. Key Insights from Case Studies

- **Fred:** Secured 12 customers before raising funding.
Tip: Start small; early customers validate your idea.
 - **Christian:** Grew to 200 customers before Series A.
Tip: Achieve traction before seeking significant investment.
 - **Greg:** Earned \$6M in revenue before raising \$130M.
Tip: Build a strong financial foundation to attract big investors.
-

Summary

Product management for entrepreneurs is a process of:

1. **Validation:** Solve the right problems at the right time.
2. **Positioning:** Stand out with clear, consistent messaging.
3. **Monetization:** Choose strategies that align with your product and audience.
4. **Bootstrapping:** Use internal resources to build traction and reduce risk.

Start small, validate your idea, and let the results attract investment. With the right approach, you can transform a concept into a scalable business.

11.1 Marketing v3

Software Product Management: Marketing Concepts for Product Managers

Contents

1. Concepts in Marketing
 2. 4Ps of Marketing
 3. Pricing Strategies
 4. Positioning & Messaging
 5. Product Marketing
 6. Content Marketing
 7. Go-to-Market Strategy
-

1. What is Marketing?

Definitions:

- **American Marketing Association:** Marketing is creating, communicating, and delivering offerings that have value for customers.
 - **Peter Drucker:** Marketing aims to make sales unnecessary by understanding customers so well that the product sells itself.
-

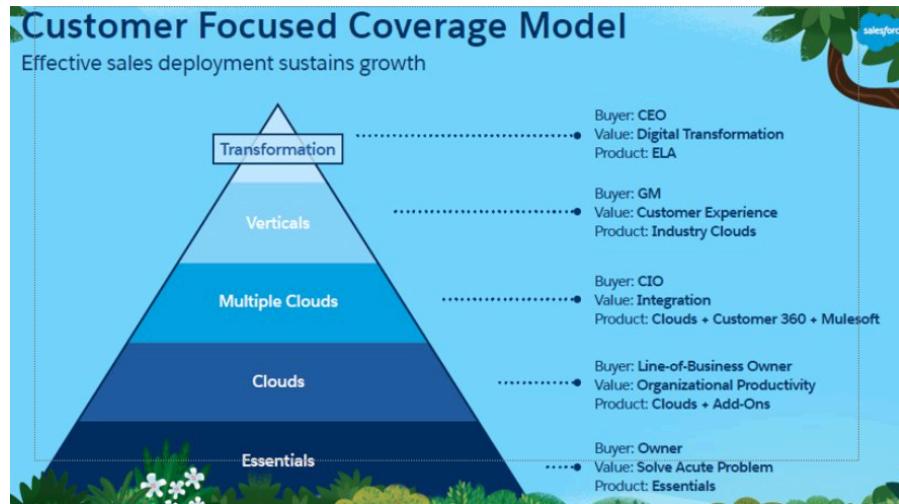
2. Concepts in Marketing

Customer Needs:

- **Stated Needs:** Explicitly expressed (e.g., inexpensive car).
- **Unstated Needs:** Implied (e.g., good service).
- **Delight Needs:** Unexpected features (e.g., onboard GPS).

Target Market & Segmentation:

- Segmentation by:
 - Industry (e.g., SaaS for healthcare).
 - Customer size (e.g., SMEs vs large enterprises).
 - Geography (e.g., North America vs Asia).



Examples of Positioning by Companies:

- **Volvo:** Safest car.
- **Apple:** Innovative and creative products.
- **Airbnb:** Local experiences.
- **Salesforce:** User-friendly and customizable.

Positioning Strategies:

1. **Be the First:**
 - Example: BigBasket dominated grocery delivery by being first to market.
2. **Find a Niche:**
 - Example: Apna focuses on job searches for blue-collar workers.
3. **Differentiate from Competition:**
 - Example: Sketch offers simplicity compared to Photoshop.

3. The 4Ps of Marketing

1. **Product:** Features, quality, and benefits.
2. **Price:** Competitive, affordable, or value-based pricing.
3. **Place:** Distribution channels (direct/online or indirect/distributors).
4. **Promotion:** Advertising, sales, events, social media, etc.



4. Pricing Strategies

Factors to Consider:

- **Affordability:** Ensure users can afford the product.
- **Competition:** Evaluate competitor pricing.
- **Value Generated:** Align pricing with the value delivered.

Examples:

- **Slack:** Priced based on its collaboration benefits.
- **Spotify:** Focused on affordability and user expectations.
- **Postman:** Priced to match other developer tools.

Case Study:

Bounce: Users wanted affordable transport to metro stations, so pricing was kept below existing options.

5. Positioning & Messaging

Positioning Statement:

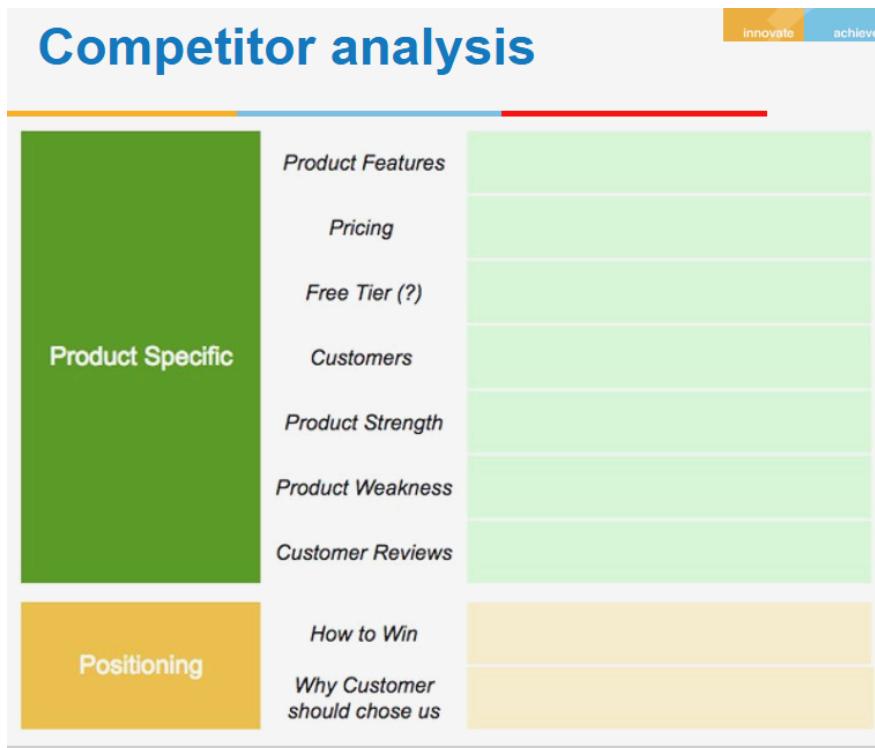
Clearly describes the product, its target market, and how it meets user needs.

Messaging:

Communicates the value proposition in simple, clear terms.

Examples:

- **Postman:** Simplifies API testing for developers.
 - **Airbnb:** Connects users with local experiences.
 - **iPad:** Portable, intuitive, and powerful for daily use.
-



6. Content Marketing

Definition:

Content marketing is creating and distributing valuable content to attract and retain customers.

Key Benefits:

- Improves SEO.
- Builds lasting customer relationships.
- Boosts brand credibility.

Examples:

- **Zendesk:** Focuses on educating audiences on customer engagement.
 - **Workday:** Uses engaging video marketing to showcase enterprise solutions.
-

7. Product Marketing

Pre-launch:

- Positioning and messaging.
- Gathering customer feedback.
- Creating a go-to-market strategy.

Post-launch:

- Sales enablement.
 - Driving demand and adoption.
 - Ensuring product success.
-

8. Go-to-Market Strategy

Components:

1. Define the target market.
2. Choose pricing strategy.
3. Decide distribution channels (direct or indirect).
4. Plan marketing and promotional campaigns.
5. Develop customer support strategies.

Examples:

- **Slack:** Used invite-only access to create FOMO.
 - **Dropbox:** Gained users via HackerNews.
 - **TikTok:** Leveraged app stores to reach mass audiences.
-

Case Studies

1. **Tally:**
 - Positioned as an accounting tool for SMEs.
 - Focused on ease of use and affordability.
 2. **BYJU's:**
 - High-quality coaching for students.
 - Differentiated through branding and content.
-

Key Marketing Channels

1. **Communication Channels:**

- Blogs, websites, emails, social media.
 - 2. **Distribution Channels:**
 - Direct (online) and indirect (retailers).
 - 3. **Paid Media:**
 - Google Ads, sponsored content.
 - 4. **Owned Media:**
 - Company website, blogs, social media pages.
 - 5. **Earned Media:**
 - Word of mouth, viral campaigns.
-

Consumer Adoption Funnel

1. Awareness: Users learn about the product.
 2. Interest: Users explore the features.
 3. Evaluation: Users compare it to competitors.
 4. Trial: Users test the product.
 5. Adoption: Users purchase and recommend.
-

Practical Scenarios

1. **Pricing:**
 - **Postman:** Priced competitively for developers, focusing on value.
 2. **Positioning:**
 - **Sketch:** Differentiated by simplicity compared to Photoshop.
 3. **Go-to-Market:**
 - **TikTok:** Used app stores to quickly reach millions of users.
-

Conclusion

Effective marketing in software product management involves:

1. **Understanding the market and customers.**
2. **Positioning and pricing the product effectively.**
3. **Using the right mix of marketing channels.**
4. **Creating value-driven content to engage users.**

By combining these strategies, product managers can build a strong presence, attract users, and drive adoption successfully.

11.2 Crossing the chasm

Software Product Management: Marketing High-Tech Products - Crossing the Chasm

Contents

1. Introduction to High-Tech Product Marketing
 2. Product Adoption Lifecycle
 3. Customer Categories in the Technology Adoption Lifecycle
 4. Crossing the Chasm
 5. Strategies for Bridging the Chasm
 6. Case Studies and Examples
-

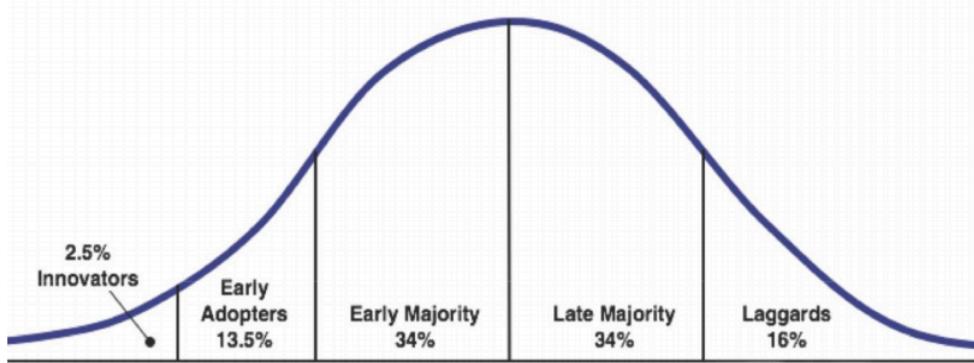
1. Introduction to High-Tech Product Marketing

High-tech products, like AI, NLP, blockchain, and robotics, follow a unique adoption process due to their advanced nature. Marketing these products involves addressing different customer types across the adoption lifecycle, tailoring strategies to each group's needs and expectations.

2. Product Adoption Lifecycle

The lifecycle of product adoption consists of five stages, each associated with a different type of customer:

1. **Innovators**
2. **Early Adopters**
3. **Early Majority**
4. **Late Majority**
5. **Laggards**



3. Customer Categories in the Technology Adoption Lifecycle

1. Innovators:

- **Who they are:** Technology enthusiasts who seek out new innovations before they are marketed.
- **Behavior:** They provide critical feedback and help refine the product.
- **Example:**
 - **Post-it Notes:** Secretaries who first tried the product became its early enthusiasts, providing valuable feedback.

2. Early Adopters:

- **Who they are:** Visionaries who understand the benefits of new technology and its potential strategic value.
- **Behavior:** They adopt products early to gain a competitive edge or solve critical problems.
- **Example:**
 - **VisiCalc Spreadsheet:** Early adopters loved its "What-if" analysis feature, which aligned with common business operations like budgeting and forecasting.
 - **e-Books for Pilots:** Used by Boeing 737 pilots for operational improvements.

3. Early Majority:

- **Who they are:** Pragmatic users who care about quality, reliability, and infrastructure support.

- **Behavior:** They wait for others to use the product first to ensure its effectiveness.
-

4. Late Majority:

- **Who they are:** Conservative users who adopt products only when they become industry standards.
 - **Behavior:** They need assurance of the product's widespread success and reliability.
-

5. Laggards:

- **Who they are:** Skeptics who avoid new technology unless it's deeply embedded in everyday products.
 - **Example:**
 - A chip in a car's braking system that operates in the background without the user's direct interaction.
-

4. Crossing the Chasm

The **Chasm** is the gap between Early Adopters and the Early Majority. This gap exists because:

- Early Adopters seek innovation and strategic leaps.
- Early Majority prioritize reliability, quality, and infrastructure.

Key Challenge:

Convincing the Early Majority to adopt a product when they are hesitant to take risks.

5. Strategies for Bridging the Chasm

1. **Focus on a Niche Market:**
 - Target a specific segment within an industry.
 - **Example:**
 - IBM Watson initially focused on lung cancer in the medical field at Memorial Sloan–Kettering Cancer Center before expanding to other cancer types.
2. **Offer a Whole Product Solution:**
 - Ensure the product integrates seamlessly into the customer's ecosystem.
 - **Example:**

- Salesforce provided not just a CRM but also customizable workflows and integration with existing IT systems.

3. Industry-Specific Focus:

- Understand and address issues specific to the customer's business.

- **Examples:**

- Attend industry-specific conferences.
- Publish articles in industry magazines.
- Develop partnerships with vendors serving the same industry.

4. Reputation for Quality and Service:

- Build a strong reputation for reliability and customer service to earn trust.

- **Example:**

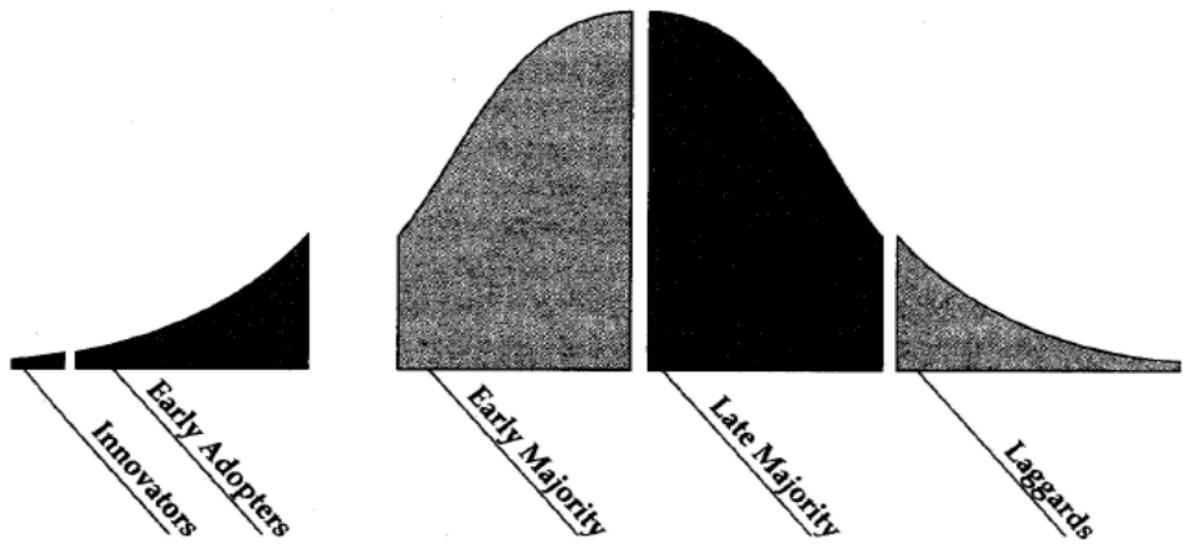
- Progressive Auto Insurance gained trust through fast claims settlement, differentiating itself from competitors.

The chasm (the big gap)

innovate achieve

The biggest gap is between Early adopters and Early majority

The Revised Technology Adoption Life Cycle



6. Case Studies and Examples

Case Study 1: Post-it Notes (Innovators)

- Secretaries used early samples of Post-it Notes, providing valuable feedback that refined the product for broader adoption.

Case Study 2: IBM Watson (Niche Market Focus)

- IBM targeted lung cancer diagnosis within the medical field before expanding its AI solution to other diseases and industries.

Case Study 3: Salesforce (Whole Product Solution)

- Salesforce didn't just provide a CRM but ensured it integrated with client systems and offered customizable workflows.

Scenario: Marketing an AI-based Financial Tool

Challenge: Convince the Early Majority of its reliability.

Approach:

- Partner with banks to demonstrate its effectiveness.
 - Publish case studies in financial industry magazines.
 - Attend fintech conferences to establish credibility.
-

7. Key Takeaways

1. **Each customer category requires a tailored marketing approach:**
 - Innovators and Early Adopters focus on innovation and breakthroughs.
 - The Early Majority requires proof of quality and reliability.
 2. **Strategies to bridge the Chasm:**
 - Focus on niche markets.
 - Offer complete product solutions.
 - Build a strong reputation in the target industry.
 3. **Case Studies Highlight the Path to Success:**
 - Post-it Notes leveraged feedback from Innovators.
 - IBM Watson used niche targeting to build credibility.
 - Salesforce focused on providing a complete product experience.
-

Conclusion

Marketing high-tech products is a gradual process that requires understanding and addressing the distinct needs of each customer category. By focusing on niche markets, offering complete solutions, and building a strong reputation, companies can successfully bridge the Chasm and achieve widespread adoption.

12. Product development in the enterprise

Software Product Management: Product Development in the Enterprise

Contents

1. Overview of Enterprise Product Development
 2. Key Differences in Enterprise Product Management
 3. Challenges and the Innovator's Dilemma
 4. Case Studies
 5. Strategies for Enterprise Innovation
 6. Examples of Product Development Processes
-

1. Overview of Enterprise Product Development

Enterprise products are highly specialized and focused on solving specific industry challenges.

Examples:

- **SAP**: Enterprise resource planning (ERP).
- **Shopify**: E-commerce platform.
- **AutoDesk**: CAD software for design and engineering.
- **Navitaire**: Airline reservation system.

User vs Buyer:

- **Buyers**: Focused on solving business problems.
 - **Users**: Interested in functionality and ease of use.
 - **Example**:
 - A business problem: "We face pricing pressure from competitors and need new ways to engage customers."
 - Users: Expect features that simplify daily workflows and enhance efficiency.
-

2. Key Differences in Enterprise Product Management

1. **Longer Release Cycles**:
 - Enterprise products often follow a more waterfall-like model rather than Agile.

- **Example:** PayPal has 2-month release cycles, emphasizing stability over rapid iteration.
 - 2. **Less Frequent A/B Testing:**
 - A/B testing is rarely used because changes can impact enterprise customers significantly.
 - 3. **Resistance to Disruptive Innovation:**
 - Enterprises prioritize steady revenue streams and often ignore disruptive technologies until too late.
 - 4. **Large Impact of Decisions:**
 - Enterprises focus on minimizing risks to their existing customer base.
 - **Example:** Kodak ignored digital camera technology to protect its film business.
-

3. Challenges and the Innovator's Dilemma

Concept: From Clayton Christensen's book, **The Innovator's Dilemma**, enterprises often fail to adopt disruptive innovations due to their initial small scale and unpolished nature.

Why Enterprises Struggle with Disruption:

- Focus on maintaining steady revenue.
- Disruptive innovations serve small markets initially.
- By the time an enterprise notices, the disruptor has gained significant momentum.

Examples:

1. **IBM and Cloud Services:**
 - IBM entered the cloud market late, losing significant market share to Amazon Web Services (AWS).
 2. **Salesforce and CRM Innovation:**
 - Salesforce introduced a cloud-based CRM while competitors focused on traditional software.
-

4. Case Studies

Case Study 1: Overcoming Opposition to New Ideas (BBC)

Scenario:

Alex Pressland at the BBC faced resistance when introducing new ideas in a bureaucratic environment.

Approach:

- Start with smaller, less risky projects to prove value.
- Gain buy-in from internal stakeholders through demonstrated success.

Outcome:

Gradual acceptance of innovation across departments.

Case Study 2: Developing Products in Enterprise (PayMe)

Scenario:

PayMe faced challenges in managing long release cycles while addressing customer needs.

Approach:

- Implemented clear communication channels with customers.
- Focused on stability and reliability rather than frequent updates.

Outcome:

Earned trust from enterprise clients, ensuring steady adoption and retention.

5. Strategies for Enterprise Innovation

3-Box Solution (Vijay Govindarajan)

A framework to balance current business needs with future innovation:

1. **Box 1:** Manage the present.
 - Focus on core products and current revenue streams.
2. **Box 2:** Forget the past.
 - Identify outdated practices and eliminate them.
3. **Box 3:** Create the future.
 - Invest in disruptive innovations and explore new markets.

Example:

Apple successfully manages its core products (iPhone, MacBook) while investing in future technologies (AR/VR and AI).

6. Examples of Product Development Processes

Apple's Product Development Process:

- Begins with small teams and brainstorms concepts.

- Iterates through multiple prototypes.
- Focuses on user experience and market trends.

Key Takeaway:

Apple excels at balancing innovation with reliability, ensuring a strong product-market fit.

Google's Product Management Approach:

- Focuses on data-driven decision-making.
- Teams prioritize rapid prototyping and user feedback.
- Encourages cross-functional collaboration.

Example: Gmail's beta launch lasted years, gathering real-world feedback before its official release.

7. The Innovation Value Chain

A process to foster innovation in enterprises:

1. **Idea Generation:**
 - Encourage open brainstorming across teams.
2. **Conversion:**
 - Evaluate ideas, develop prototypes, and test.
3. **Diffusion:**
 - Scale successful innovations across the organization.

Example:

Salesforce scaled its cloud CRM by targeting niche markets initially, later expanding to broader industries.

8. Conclusion

Key Challenges for Enterprises:

- Resistance to disruptive innovation.
- Balancing stability with the need for change.

How to Overcome Challenges:

- Use frameworks like the 3-Box Solution.

- Start with niche markets and gradually expand.
- Build a culture of experimentation and feedback.

By adopting these strategies, enterprises can innovate successfully while maintaining their existing customer base and revenue streams.



BITS Pilani
Pilani | Dubai | Goa | Hyderabad

SymptoScan

A Symptom Tracker with AI based Insights

Assignment-2 (SEZG685)

Submitted By:

Surya V (2024TM93020)
Kanumuri Sunita (2024TM93188)
Sanket S Lad (2024TM93043)
Ashim Khushboo (2024TM93079)



Table Of Contents

- Summary of Assignment-1
- MVP Features
- Hand Drawn Sketches (Low-Fidelity Prototypes)
- Wireframe Storyboard
- Customer Feedbacks
- Modified Wireframe Storyboard
- Key Learnings



Summary of Assignment 1

Product Idea: SymptoScan Pro is an AI-driven health management app that allows users to track symptoms, receive personalized health insights, and monitor environmental factors that could affect their health. It is designed for individuals with chronic conditions, health-conscious users, and caregivers, offering an integrated and user-friendly approach to health tracking.

Target Customers:

- Primary Market:** Adults with chronic conditions (e.g., asthma, diabetes), aged 25-50, who need consistent symptom tracking.
- Secondary Market:** Health-conscious individuals interested in preventive healthcare.
- Tertiary Market:** Caregivers needing a reliable tool for monitoring the health of family members with chronic conditions.



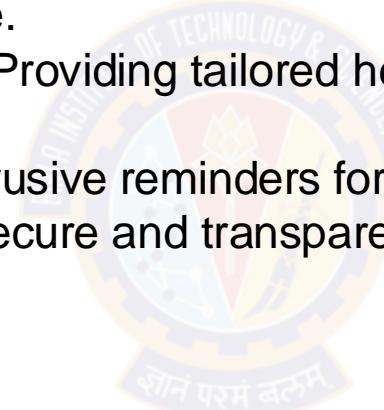
Summary of Assignment 1

Underserved Needs:

- 1. Simplified Symptom Tracking:** Reducing complexity in data entry to encourage consistent usage.
- 2. Personalized AI Insights:** Providing tailored health recommendations rather than just raw data.
- 3. Smart Reminders:** Non-intrusive reminders for regular logging.
- 4. Data Privacy & Control:** Secure and transparent handling of sensitive health data.

Pain Points Addressed:

- Overly complex symptom tracking interfaces in existing apps.
- Lack of personalized insights, making it difficult to interpret data.
- Inconsistent data logging due to limited reminders and motivation.
- Concerns over data privacy, impacting user trust.



Summary of Assignment 1

Value Proposition:

- Tailored health recommendations based on user data
- Quick, easy-to-use symptom logging
- Custom reminders for consistent tracking
- Visual health trends for better understanding
- Links fitness, diet, and environmental factors
- Secure and transparent data handling
- Summarized health reports for doctor visits
- Connect with others facing similar health challenges



Summary of Assignment 1

Story Map:



MVP Features and its need

Quick Symptom Logging

- **Need:** Simplifies symptom tracking by enabling users to log their health data quickly and easily. This encourages consistency, even for users with busy schedules or limited technical skills, ensuring more accurate health records.

AI-Powered Insights and Recommendations

- **Need:** Provides users with personalized insights based on logged data, helping them understand symptom patterns and potential triggers. This feature goes beyond simple tracking by offering actionable health advice, empowering users to make informed decisions about their well-being.

Customizable Smart Reminders

- **Need:** Helps users maintain consistent logging without being intrusive. This feature addresses the challenge of inconsistent data entry by encouraging users to regularly input symptoms, improving data quality and accuracy.

Visual Health Trends

- **Need:** Allows users to easily see their health trends and patterns over time, making it easier to identify potential triggers and track progress. This visualization simplifies complex health data, enhancing user understanding and engagement.



MVP Features and its need

Integration with Fitness Trackers and Environmental Data

- **Need:** Adds value by linking symptom data with fitness, diet, and environmental factors (e.g., weather and air quality). This holistic view enables users to see how external elements impact their health, providing a more comprehensive health management experience.

Enhanced Privacy and Security

- **Need:** Ensures that users' sensitive health data is handled securely, addressing common concerns about data privacy. This feature builds trust, which is essential for user adoption and continued engagement with the app.

Doctor's Visit Reports

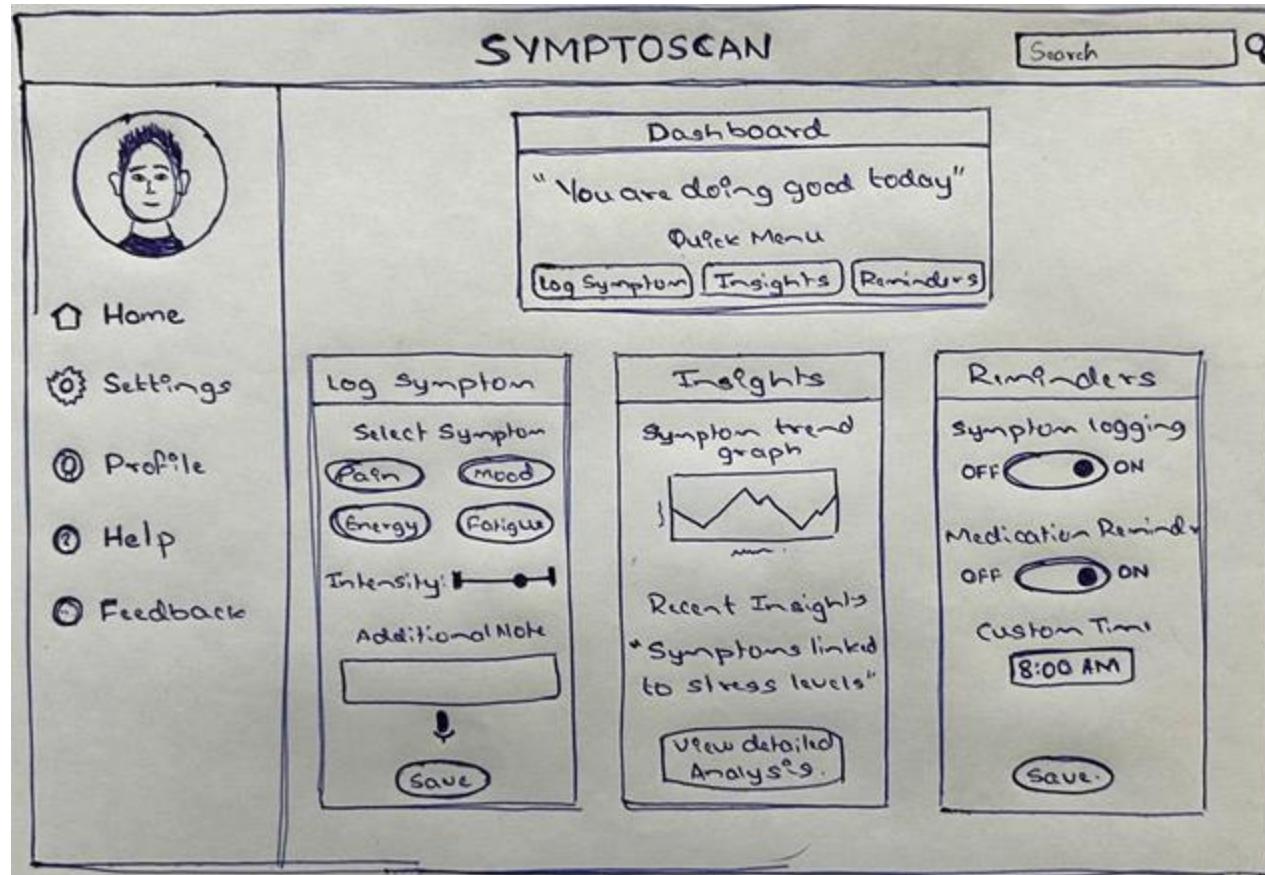
- **Need:** Generates organized summaries of health data that users can share with healthcare providers, making appointments more productive. This feature helps users communicate more effectively with their doctors and ensures that important health trends are highlighted.

Community Support Features

- **Need:** Provides users with access to support groups and forums, allowing them to connect with others facing similar health issues. This feature reduces isolation and fosters a supportive community within the app, enhancing user engagement.



Hand drawn sketch - Sanket Lad



Hand drawn sketch - Ashim Khushboo

 SYMPTOSCAN

Home About Us Your Daily Healthcare Symptom Tracker

Hi Jane. Here is your Health Trend

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
HeartRate	✓	✓	✓	✓	✓	✓	✓
B.P.	✓	↑	✓	✓	✓	✓	✓
Oxygen Level	✓	✓	✓	✓	✓	✓	✓
Timeline	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7

Scan your symptom Today

HeartRate BP
Oxygen level Mood

Submit

FLOWING ADVERTISEMENT

Last Symptom Report

Date	--/--/----
Factors	Data Description
F1	
F2	
F3	
F4	
F5	
F6	
F7	

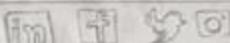
Connect with Community

Group1 9 liked this healthy shake today.....
Group2 Latest Comment in group2
Group3 Latest Comment in group3
Group4 Latest Comment in group4

Reminder Setup

Symptom Log OFF Custom Time
Medication Reminder OFF Custom Time
Sleep Reminder OFF Custom Time

Connect With Us - help@sympetoscan.com 08011223399



Hand drawn sketch - Kanumuri Sunitha

The sketch illustrates a mobile application interface for "SYMPTOSCAN".

Left Column (Navigation):

- Logo (Icon of a person's head)
- John Doe (User Profile)
- Home
- Settings
- Profile
- Help
- Feedback
- Community

Top Right Section:

SYMPTOSCAN

Quick Symptom Logging
Select symptom:
Pain
Intensity

Additional Notes:

Middle Left Section:

Customizable Smart Reminders

Symptom Logging Reminder Medication Reminder
Reminder Time:

Middle Right Section:

Visual Health Trends

Fitness & Environmental Data

Steps: 5,000 steps Air Quality: Good

Bottom Section:

Doctor's Visit Reports

Generate organized summaries of your health data for sharing with healthcare providers.

Community Support

Connect with others facing similar health issues and join support groups.



Hand drawn sketch - Surya V

SymptoScan

GOOD MORNING! John Doe

Dashboard

Calendar

Chat

Wiki

Community

Help

Settings

Log out

ACTIVITY Only ✓ 25%

SLEEP Weekly ✓ 79%

WELLNESS Weekly ✓ 52%

UPCOMING REMINDERS

NAME	TYPE	DATE
BIGGER VACCINE	VACCINE	10/10/2024
HEART CHECKUP	CHECKUP	11/01/2024
PERSONAL APPOINTMENT	APPOINTMENT	12/10/2024

HEALTH MONITORING Monthly ✓

Blood Level Heart Rate Temperature Calories

The graph shows a fluctuating line with data points at approximately 1.5, 2.0, 2.5, 3.0, 4.0, 4.5, 5.0, 6.0, 7.0, 8.0, 9.0, and 10.0. The x-axis is labeled with months: September, November, December, and January.

CHAT

Helen Brooks
LOREM IPSUM LOREM IPSUM 15:56

Kathryn Murphy
LOREM IPSUM Wed LOREM IPSUM

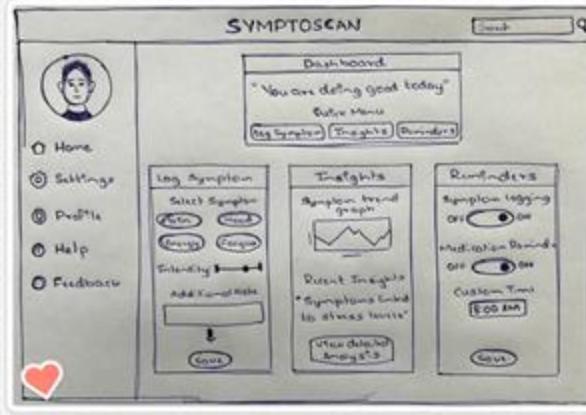
Jim Brown
LOREM IPSUM Tue LOREM IPSUM

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Hand drawn sketch - Voting



Hand drawn sketch - Voting Results and Selection

Description of Voting Process: (3 votes per person)

- **Criteria Used for Voting:**

- **Usability:** We evaluated each proposed solution based on how easily a user can navigate and interact with the interface. Simplicity and intuitive design were prioritized.
- **Customer Value:** We assessed the potential impact and usefulness of each solution in addressing the core pain points of our target audience, namely people with chronic illnesses. Solutions that provided better symptom tracking, actionable insights, and medication management received higher consideration.
- **Innovation:** We analyzed each solution for unique features and novel approaches to solving the chronic illness management problem, focusing on creative use of AI and integration of valuable functionalities.

Selected Solution: (Hand-drawn sketch 4)

- After voting and analysis, the solution that garnered the maximum standout ideas was selected. This solution emphasized an intuitive symptom and medication logging interface, a personalized AI insights dashboard, and easy-to-set medication reminders. The chosen design stood out due to:
 - **Ease of Use:** The user flow was straightforward, allowing users to log symptoms quickly and access insights without extensive learning curves.
 - **High Impact Value:** The AI-driven insights component directly tackled the need for identifying symptom triggers, providing real and actionable recommendations for users.
 - **Novelty in Functionality:** Integration of customizable reports and reminders demonstrated a practical way to engage with healthcare providers and ensure medication adherence.



Wireframe Storyboard

The wireframe storyboard illustrates the user interface of a health monitoring application named Symto Scan. The left sidebar contains navigation links for Dashboard, My profile, Analytics (Health monitoring and Reports), Schedule (Chat, Appointments with 2 notifications, and Settings). The main content area features a Notifications section stating "You have no new notifications." Below it is a Health Monitoring chart showing Stress level over time from September to January. To the right are two circular progress indicators: one for Wellness at 52% (Weekly) and one for Activity at 25% (Daily).

Symto Scan

MENU

Dashboard

My profile

ANALYTICS

Health monitoring

Reports

SCHEDULE

Chat

Appointments 2

Settings

NOTIFICATIONS

You have no new notifications.

HEALTH MONITORING

Stress level

Pulse

Temperature

Calories burned

Monthly

Month	Stress Level
September	1.5
October	2.0
November	1.8
December	5.5
January	2.5

WELLNESS

Weekly

52%

ACTIVITY

Daily

25%



SymtoScan®

Customer Feedback and Area of Improvement

- **Customer Feedback on Initial Wireframe (Version 1):**

1. Notifications might take up unnecessary space.
2. Desire for more data visualizations (graphs).
3. Would prefer easier access to schedules and chats directly from the dashboard.
4. Need for an integrated Wiki or documentation section.

- **Key Improvements - Reworked Wireframe (Version 2):**

1. **Notifications:** Moved to an icon in the top bar, minimizing dashboard clutter.
2. **Wiki/Docs:** Added a dedicated Wiki section to provide essential information easily.
3. **Graphs:** Expanded the number of graphs to give users more comprehensive insights at a glance.
4. **Schedules & Chats:** Integrated direct access to schedules and chat features from the main dashboard.
5. **Space Utilization:** Optimized layout, eliminating empty white spaces for a cleaner and more compact design.



Modified Wireframe Storyboard

Symto Scan 

MENU

- [Dashboard](#)
- [My profile](#)

ANALYTICS

- [Health monitoring](#)
- [Reports](#)

SCHEDULE

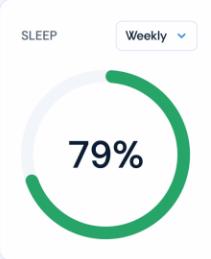
- [Chat](#)
- [Appointments](#) (2)

HELP

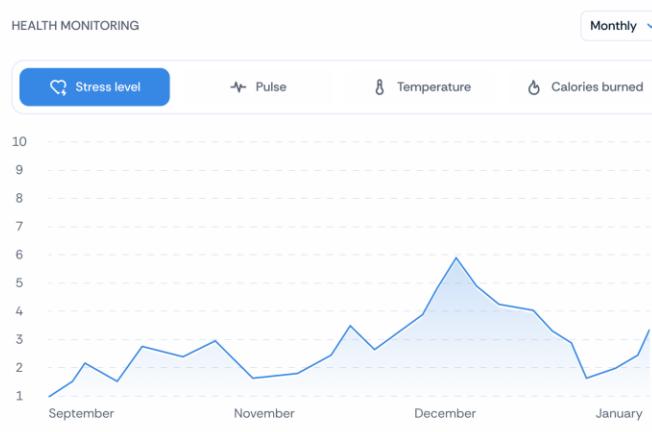
- [Settings](#)
- [Wiki](#)

[Log out](#)

ACTIVITY Daily  25%

SLEEP Weekly  79%

WELLNESS Weekly  52%

HEALTH MONITORING Monthly 
Stress level, Pulse, Temperature, Calories burned

MY SCHEDULE

Name	Type	Date	With
Wheezing	Appointment	01 Dec 2023	Kathryn Murphy
Heart	General Checkup	11 Dec 2024	James Grey
Stretches	Routine	27 Jun 2024	Self
Yoga	Routine	16 Sep 2024	Self

CHAT

- Helen Brooks 15:56 "It definitely is, especially if you make it a habit. Also, just talking ab... 1
- Kathryn Murphy Wed Wheezing is a high-pitched whistling or rattling sound that occurs du... 2
- James Grey Tue That's a good idea. Do you stick to a specific routine, or do you switch...
- Jim Brown Tue Hi, I have a question about my diet.



SymtoScan®

Key Learnings - Surya V

Market Gap Identification:

- Identified gaps in managing chronic illness symptoms and shaped the product to meet this underserved need.

Target Market Research:

- Gained insights into the specific needs and challenges faced by people with chronic illnesses through targeted research.

Customer Feedback Integration:

- Used customer feedback to validate and refine the product, ensuring alignment with user needs.

Prototyping and Iteration:

- Created sketches and wireframes, then iterated based on user input to enhance usability.

AI-Driven Solutions:

- Leveraged AI to provide personalized insights and symptom triggers, adding real value to users.

Collaboration:

- Collaborated effectively with team members to evaluate and select the best solutions.

End-to-End Product Management:

- Experienced the full cycle of product development, from ideation to customer validation and iteration.



Key Learnings - Kanumuri Sunitha

User-Centered Design

- Engaging users in the design process ensured the product met real needs and improved usability, making the features more intuitive and valuable.

Focused MVP

- Concentrating on essential features allowed us to address core pain points effectively, delivering a lean product that could easily be iterated on.

Iterative Improvement

- Repeated feedback and iterations helped us align the product closely with user expectations, emphasizing the importance of an agile approach.

Collaborative Development

- Teamwork brought in diverse ideas, enriching the final product and highlighting the strength of collaborative problem-solving.

Product-Market Fit

- Ensuring features aligned with target user needs reinforced the product's relevance and set a foundation for adoption and engagement.



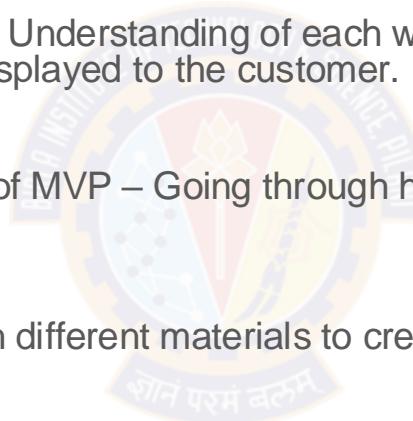
Key Learnings – Sanket S Lad

- 1. Minimalist Design:** Prioritizing simplicity ensures ease of use for users with chronic conditions, improving engagement.
- 2. Privacy vs. Analytics:** Balancing data privacy with personalized insights is critical for building user trust in health apps.
- 3. Environmental Integration:** Linking symptoms with environmental factors provides a holistic health view, adding real value.
- 4. Cross-Functional Feedback:** Iterative prototyping and diverse user feedback enhance product alignment with real-world needs.
- 5. Story Mapping:** Story maps clarified the user journey, helping prioritize features and align development with user goals.
- 6. MVP Focus:** Concentrating on essential features in the MVP streamlined development and addressed core use points effectively.



Key Learnings - Ashim Khushboo

- Understanding wireframe and outline – Better understanding of how each feature can be added in one wireframe for better readability and clarity.
- Collaboration with team members – Understanding of each wireframe created by individual users and find the best one to be displayed to the customer.
- Understanding the implementation of MVP – Going through how MVP works and Implementing for Symptoscan.
- Knowledge sharing – Going through different materials to create a better application.
- Accepting feedback and working on it to better the product. Satisfying the needs of the customer.



Thank you!





BITS Pilani
Pilani | Dubai | Goa | Hyderabad

SymptoScan

A Symptom Tracker with AI based Insights

Assignment-1 (SEZG685)

Submitted By:

Surya V (2024TM93020)
Kanumuri Sunitha (2024TM93188)
Sanket S Lad (2024TM93043)
Ashim Khushboo (2024TM93079)



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- Final product idea and value proposition
- Product-market fit pyramid

- **Story map for the product**

- **Business plan – Lean Canvas**



Product Opportunity

The under-served needs of the customer

Context and Problem Statement

Health Management Challenges: Individuals, especially with chronic conditions, struggle with consistent symptom tracking. Existing health apps are too complex, leading to poor data entry and ineffective health insights.

Unmet Needs in Current Solutions

Lack of Personalized Insights: Apps offer raw data without tailored recommendations.

Complex Interfaces: Overcomplicated logging and dashboards deter regular use.

Symptom Variability & Trigger Identification: Inconsistent tracking makes it hard to identify triggers like diet, stress, or weather, complicating effective symptom management.

Simplified Symptom Tracking: Users want an intuitive and streamlined way to log symptoms daily, without requiring excessive manual input.

AI-Driven Insights and Recommendations: There's a growing demand for AI that not only tracks symptoms but also analyzes them to provide personalized health tips and alerts.

Consistency Through Smart Reminders: Many users have expressed a need for intelligent reminders that encourage consistent tracking without being intrusive.

Peace of Mind and Empowerment: Users want to feel assured that their health data is being used effectively to provide them with reliable advice.

Better Control Over Health: There is a need for actionable insights that help users make informed decisions about their health, leading to better outcomes.



Product Opportunity

Product in brief

- **SymptoScan - A Symptom Tracker with AI-Based Insights**

- **Product Overview:**

- *SymptoScan* is a user-friendly mobile app designed to help individuals track and manage their health symptoms with minimal effort. The app leverages AI to provide personalized insights, helping users understand their health trends and make informed decisions.

- **Key Features:**

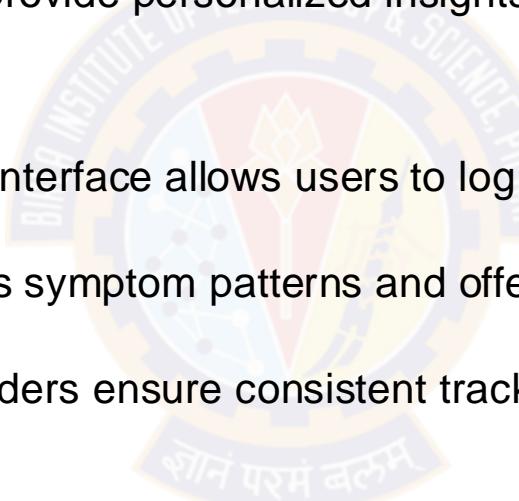
- **Quick Symptom Logging:** An intuitive interface allows users to log symptoms daily with just a few taps or via voice input.
 - **AI-Powered Insights:** The app analyzes symptom patterns and offers actionable health recommendations tailored to each user's unique profile.
 - **Smart Reminders:** Customizable reminders ensure consistent tracking without overwhelming the user.

- **Target Users:**

- Individuals with chronic conditions like diabetes or asthma, health-conscious individuals, and caregivers looking for easy health monitoring solutions.

- **Value Proposition:**

- Simplifies health management by combining effortless tracking with personalized insights, empowering users to take control of their health journey.



Product Opportunity

Target Market

Primary Market:

- **Individuals with Chronic Health Conditions:**

- Adults aged 25-50 managing chronic illnesses like diabetes, asthma, or arthritis.
- Users who require consistent monitoring of symptoms to manage their health effectively.

Secondary Market:

- **Health-Conscious Individuals:**

- Proactive individuals focused on preventive healthcare who regularly track their health and lifestyle patterns.
- Users who want personalized insights and data-driven recommendations for improved well-being.

Tertiary Market:

- **Caregivers and Family Members:**

- Caregivers who need to monitor the health of aging parents, children, or relatives with chronic conditions.
- Users who require a reliable and easy-to-use tool for keeping track of symptoms and trends for others.

Geographic Focus:

- Urban and suburban regions with access to smartphones and digital health services.

Market Size Potential:

- Growing demand for personalized health tracking apps, driven by the increasing awareness of preventive healthcare and chronic disease management.



Product Opportunity

Pain Points

Customer Pain Points Addressed by SymptoScan

- **Complex and Inconvenient Symptom Tracking:**

- Users find existing apps overwhelming, with cluttered interfaces and too many steps required to log symptoms consistently.

- **Lack of Personalized Insights:**

- Most symptom trackers offer basic tracking but fail to provide meaningful, tailored health recommendations based on the data.

- **Inconsistent Data Logging:**

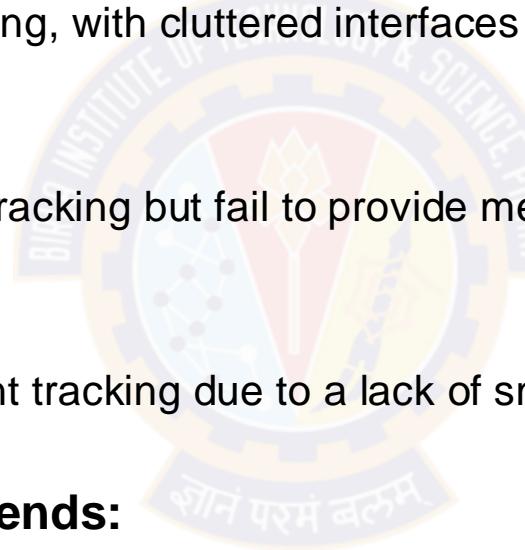
- Users struggle to maintain consistent tracking due to a lack of smart reminders and motivation from the current tools.

- **Difficulty in Understanding Health Trends:**

- Users are often presented with raw data without clear, actionable insights, making it hard to draw meaningful conclusions about their health.

- **Data Privacy Concerns:**

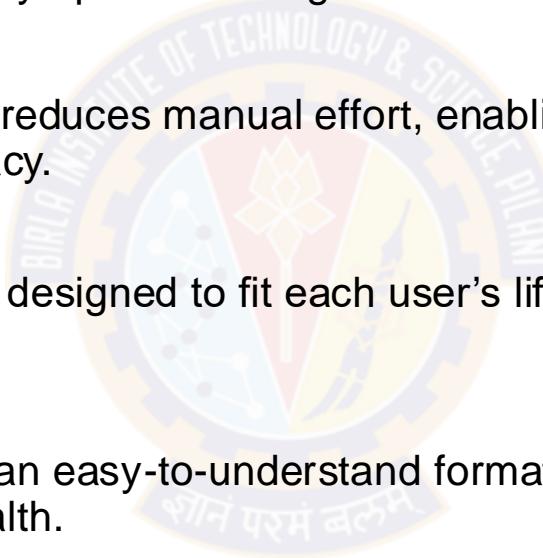
- Customers worry about how their sensitive health data is being used or shared, creating a trust barrier in adopting digital health solutions.



Product Opportunity

Value Proposition

- **Personalized AI-Driven Insights:**
 - *SymptoScan* analyzes logged symptoms and health patterns using AI, providing users with actionable, tailored recommendations that go beyond basic symptom tracking.
- **Simplified Symptom Tracking:**
 - The app offers an intuitive interface that reduces manual effort, enabling users to log symptoms quickly and consistently, ensuring better data accuracy.
- **Smart Reminders for Consistency:**
 - Customizable reminders are intelligently designed to fit each user's lifestyle, encouraging consistent tracking without becoming intrusive.
- **Empowerment through Data Visualization:**
 - *SymptoScan* visualizes health trends in an easy-to-understand format, helping users monitor changes over time and make informed decisions about their health.
- **Enhanced Data Privacy and Control:**
 - The app prioritizes data security and transparency, giving users full control over their health information and ensuring their trust.



Assess the Opportunity

Customer Interviews

#	Questions	Customer #1 - Living with Rheumatoid Arthritis	Customer #2 - Managing Type 2 Diabetes
1.	How do you currently track your symptoms and medications?	I rely on memory, but I often forget to note down symptoms or miss taking my medication.	I rely on memory, but I often forget to note down symptoms or miss taking my medication.
2.	What concerns do you have about using an AI-driven app to manage your health?	I'm concerned about the accuracy of the AI's insights. I'd want to make sure it's reliable.	Privacy is a big concern for me. I need to know my data is secure and won't be shared without my consent.
3.	What additional features would make this app more valuable to you?	Integration with my wearable devices would be great, so all my health data is in one place.	I'd like a community feature where I can connect with others who have similar conditions.
4.	How useful would it be for you to have an app that not only tracks your symptoms but also provides AI-driven insights and recommendations?	That would be incredibly helpful, especially if it can help me understand what triggers my symptoms.	I would appreciate personalized recommendations because my condition is unique, and general advice doesn't always apply to me.
5.	Would you be interested in a feature that generates reports you can share with your healthcare provider? Why or why not?	Yes, that would be great! It's hard to summarize everything during a short doctor's visit, so having a report would be really useful.	I would love to have something like that to show my doctor. It could help them understand my situation better.



Assess the Opportunity

Customer Interviews

#	Questions	Customer #3 - Living with Chronic Migraines	Customer #4 - Living with Chronic Fatigue Syndrome
1.	How do you currently track your symptoms and medications?	I use a basic app, but it doesn't provide any insights, and I still struggle to see patterns.	I use a spreadsheet to log my symptoms, but it's tedious and I often forget to update it.
2.	What challenges do you face in managing your chronic illness on a daily basis?	Keeping track of all the different factors like diet, stress, and weather that might affect my condition is overwhelming.	The unpredictability of my symptoms makes it difficult to plan my day, and I'm always exhausted.
3.	Have you used any digital tools or apps to help manage your symptoms? If so, what did you like or dislike about them?	Most apps I've tried lack customization and don't take my specific needs into account.	I've tried a few apps, but they don't account for the variability in my symptoms or offer much in the way of insights.
4.	How useful would it be for you to have an app that not only tracks your symptoms but also provides AI-driven insights and recommendations?	It would save me a lot of time and stress if I could see patterns and get actionable advice from the app.	That would be really useful, especially if it could help me predict when I might have a bad day.
5.	Would you be interested in a feature that generates reports you can share with your healthcare provider? Why or why not?	I think it would make my appointments more efficient and help my doctor make better treatment decisions.	Yes, I think it would be helpful for my doctor to see a detailed report so they can better understand my condition.



Assess the Opportunity

Customer Interviews

#	Questions	Customer #5 - Managing Multiple Sclerosis	Customer #6 - Managing Asthma
1.	How do you currently track your symptoms and medications?	I use a mobile app, but it's very basic and doesn't offer much in terms of insights.	I don't really track them consistently, but I use my phone to set reminders for my medication.
2.	What challenges do you face in managing your chronic illness on a daily basis?	Fatigue and cognitive issues make it hard to stay on top of my symptoms and medications.	My biggest challenge is keeping track of my triggers and understanding when I might have an asthma attack.
3.	Have you used any digital tools or apps to help manage your symptoms? If so, what did you like or dislike about them?	I've used an app that reminds me to take my medication, but it doesn't help with symptom tracking or offer any analysis.	I've tried a few apps, but they were too generic and didn't offer personalized advice.
4.	How useful would it be for you to have an app that not only tracks your symptoms but also provides AI-driven insights and recommendations?	That would be very helpful, especially if it could help me manage my symptoms more proactively.	It would be very useful, especially if it could help me avoid triggers and manage my condition better.
5.	Would you be interested in a feature that generates reports you can share with your healthcare provider? Why or why not?	Yes, I think it would make my doctor's appointments more productive if I had a clear record of my symptoms and triggers.	Yes, it would be great to have a detailed report to show my doctor, so they can see how my condition is affecting me.



Assess the Opportunity

Modified product idea:

Product: SymptoScan Pro

Enhanced Features:

- **Fitness Tracker Integration:** Syncs with popular fitness trackers to combine physical activity data with symptom tracking for a comprehensive health view.
- **Weather & Air Quality Alerts:** Integrates with weather apps to provide real-time alerts about air quality and weather conditions affecting health, such as asthma triggers.
- **Diet & Stress Tracking:** Monitors dietary intake and stress levels, offering personalized suggestions for managing symptoms based on these factors.
- **AI Privacy & Accuracy:** Enhanced AI algorithms that focus on accuracy and privacy, ensuring reliable and tailored advice.
- **Comprehensive Health Records:** Generates detailed reports of symptoms, triggers, and health conditions, making doctor's visits more productive by summarizing key information.
- **Enhanced Social Support and Community Features:** Integrate forums, support groups, and peer networks directly within the app to allow users to connect, share experiences, and exchange advice with others managing similar conditions thereby reduce feelings of isolation.



Assess the Opportunity

Re-assessing the product idea:

1. Customer Feedback:

- **Integrated Tracking:** Users seek seamless integration of fitness, weather, and health data.
- **Privacy & Accuracy:** AI must provide precise, actionable advice while ensuring privacy.
- **Diet & Stress Management:** Need for tracking and recommendations on diet and stress.
- **Doctor's Visit Reports:** Detailed health reports are valuable for summarizing symptoms and triggers.

2. Market Trends:

- **Holistic Health Solutions:** Increasing interest in apps combining various health metrics and environmental data.
- **AI Precision & Privacy:** Growing demand for accurate, privacy-focused AI insights.
- **Environmental Factors:** Rising need for tools that consider environmental impacts on health.

3. Competitive Landscape:

- **Unique Features:** SymptoScan Pro offers integration with fitness trackers, environmental alerts, and diet/stress tracking.
- **Enhanced Value:** Provides comprehensive health management with precise AI and detailed doctor's visit reports.



Assess the Opportunity

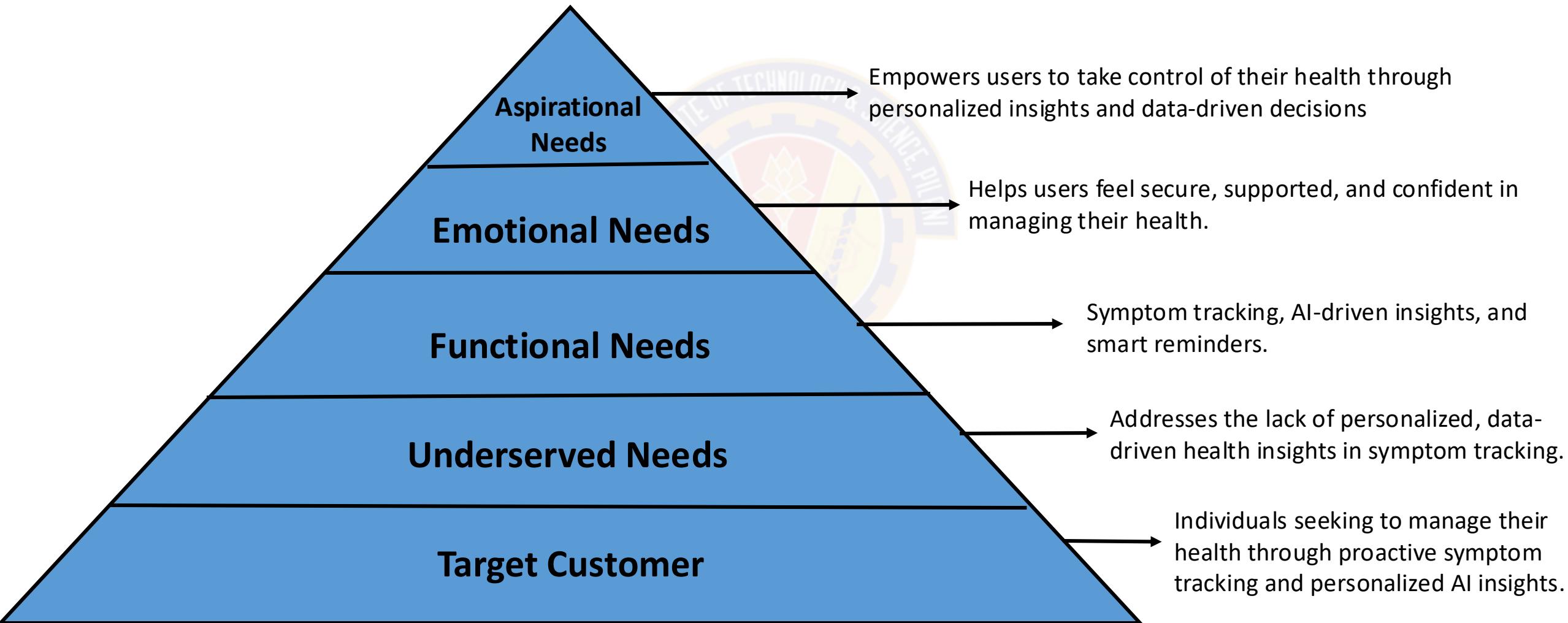
Final product idea and value proposition

- **Product:** SymptoScan Pro
- **Target Customer:**
- **Demographics:** Adults aged 18-65, individuals with chronic conditions (e.g., asthma), health enthusiasts.
- **Psychographics:** Users seeking a holistic health management tool that integrates fitness and environmental data, with a focus on privacy and actionable advice.
- **Value Proposition:**
- **Comprehensive Health Overview:** Integrates data from fitness trackers, weather apps, and personal health inputs for a complete health picture.
- **Personalized Insights & Alerts:** Provides AI-driven, accurate advice based on diet, stress, and environmental factors, with real-time weather and air quality alerts.
- **Enhanced Doctor's Visit Reports:** Generates detailed, summarized reports to make doctor's visits more efficient and informative.



Assess the Opportunity

Product-Market Fit Pyramid



Story Map



SymptoScan[®]

Business Plan – Lean Canvas

PRODUCT		MARKET		
1. Problem Difficulty in tracking and managing symptoms, medications, and lifestyle factors for people with chronic illnesses. Lack of personalized insights and actionable recommendations. Inefficient communication with healthcare providers due to scattered or incomplete data.	4. Solutions AI-based tracking and analysis of symptoms, medications, and lifestyle factors. Personalized insights to identify patterns and triggers. Integration of medication reminders, lifestyle recommendations, and report generation for healthcare providers.	3. Unique Value Proposition An AI-driven app that tracks symptoms, medications, and lifestyle factors, providing personalized insights and actionable recommendations to improve chronic illness management.	9. Unfair advantage Advanced AI algorithms that provide highly personalized insights based on comprehensive user data. Strong focus on user privacy and data security. Integration with healthcare providers for seamless communication and better patient outcomes.	2. Customer segments People with chronic illnesses (e.g., diabetes, asthma, arthritis). Caregivers managing health conditions of loved ones. Healthcare providers needing detailed patient data.
5. Key Metric User engagement: Frequency of app usage and feature utilization. Customer retention: Percentage of users who continue using the app over time. Conversion rate: Free to premium subscribers. Customer satisfaction: Feedback and reviews from users and healthcare providers.	6. Channels Mobile app platforms (iOS, Android). Partnerships with healthcare providers and chronic illness support groups. Online marketing, including social media and health-related forums.			
7. Cost structure App development and maintenance. AI and machine learning integration costs. Marketing and user acquisition. Customer support and data privacy management.	8. Revenue streams Freemium model: Basic tracking and insights for free, with premium features available via subscription. In-app purchases for advanced features (e.g., detailed reports, advanced AI insights). Partnerships with healthcare providers or insurers.			



Key Learnings – Surya V

- **Market Gap Identification :** I learned to identify gaps in chronic illness management and develop targeted solutions.
- **Target Market Research :** Research and interviews revealed user needs and pain points, guiding product development.
- **AI Integration :** I explored how AI can offer personalized insights and enhance chronic illness management.
- **Feature Integration :** Key features like medication reminders and report generation add value and improve user engagement.
- **User Concerns :** Addressing concerns about AI accuracy and data privacy is essential for building trust.
- **Feedback Refinement :** User feedback helped refine the product, ensuring it meets real needs.
- **Product Management Skills:** I gained practical experience in market research, prototyping, and presenting value propositions.
- **Collaboration Skills :** Collaborating with classmates provided valuable experience in working as a team, leveraging diverse perspectives to enhance the product development process.



Key Learnings - Kanumuri Sunitha

- **Unified Health Data Integration:**

Users seek a holistic view that combines fitness data, weather conditions, and health metrics, highlighting the importance of integrating multiple data sources for a comprehensive understanding of well-being.

- **Actionable and Accurate AI Insights:**

Delivering precise and actionable AI insights is crucial for empowering users to make informed health decisions. Reliability of these insights is essential to building and maintaining user trust.

- **Emphasis on Robust Data Privacy and Security:**

Trust is fundamental, with users expecting strong data privacy measures. Prioritizing data security and transparency is vital for safeguarding user information and ensuring compliance with privacy regulations.

- **Comprehensive Tracking Beyond Symptoms:**

There is a growing interest in tracking a broader range of factors, including diet, stress, and environmental influences. Expanding the app's capabilities to monitor these aspects will better align with user needs and market trends.

- **Value of Detailed Health Reports for Medical Consultations:**

Users highly value the ability to generate detailed health reports that summarize symptoms, triggers, and patterns. These reports enhance the productivity and quality of medical consultations.

- **Market Trend Towards Comprehensive Health Tools:**

The market is trending towards tools that offer a complete health overview by integrating multiple data sources. Focusing on precision, comprehensive data integration, and user privacy will position the product as a leading solution in this competitive landscape.



Key Learnings - Sanket S Lad

- **Customer-Centric Design:**

Understanding customer needs through interviews was crucial in shaping a valuable product.

- **Iterative Development:**

Modifying the product based on feedback highlighted the importance of continuous iteration.

- **Simplicity vs. Functionality:**

Balancing a simple user interface with necessary features is key to user satisfaction.

- **Personalization Matters:**

Personalized insights significantly enhance user engagement and trust.

- **Data Privacy:**

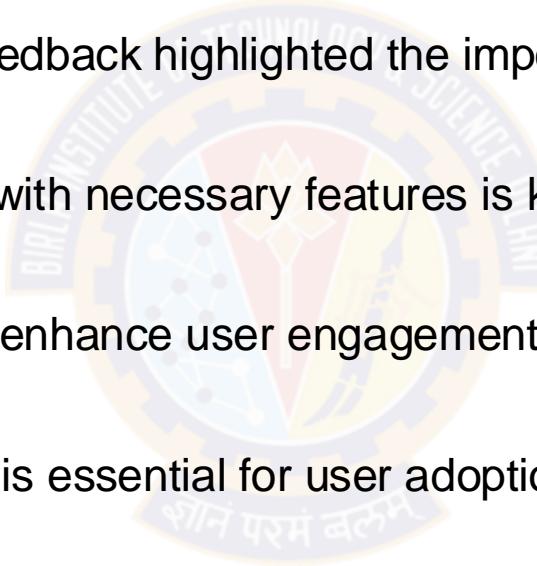
Ensuring transparent data privacy is essential for user adoption in health tech.

- **Team Collaboration:**

Collaborative problem-solving led to a more well-rounded product.

- **Clear Value Proposition:**

Effectively communicating the product's value is critical for market success.



Key Learnings - Ashim Khushboo

- **Managing Chronic Illnesses** - Understand how challenging it is to track symptoms and manage conditions over time and realize how crucial it is to create easy-to-use apps for people with chronic conditions.
- **Applying AI in Health** - Discovering how AI can enhance health tracking and provide personalized advice. Understanding how AI can be used to predict and manage health issues.
- **Protecting Privacy** - Understand the importance of keeping health data secure and private and learning about the best practices for protecting sensitive information.
- **Importance of Feedback and Improvement** - See the value in using user feedback to make continuous improvements and identify the different needs of people with chronic illnesses and their caregivers.
- **Making a Positive Impact through product** - Recognize how health technology can improve lives and address health challenges.
- **Teamwork and collaboration** – Understanding different viewpoints and brainstorming the best solution available. To work together to make the solution better and feasible.

