

Chapter 1

Introduction

1.1 Product

- Product Definition:
 - Service
 - Item offered for sale
- Form:
 - Physical
 - Virtual or Cyber
- Provide:
 - Problem-solving services
 - Core benefits
- Cost & Price:
 - Market
 - Quality
 - Marketing
 - Segment that is target

1.2 Product Development

- Innovation: To renew, To make new, To alter

- Definition: A successful implementation of
 - * A new or significantly improved product or process
 - * A new marketing method or a new Organizational method
- A creative process ($A + B + \dots \xrightarrow[\text{way}]{\text{novel}}$ Unique new thing)
- Idea \rightarrow Reality
- New inventions $\xrightarrow{\text{Application}}$ Marketable products and services
- Six types of new product:
 - New to world
 - New product lines
 - Additions to existing product lines
 - Improvement and revisions to existing products
 - Re-positionings
 - Cost reductions
- New Product Development: A subprocess of innovation
 - Process: Bussiness Opportunities \rightarrow Tangible product

1.3 Product Failure

- Important: Some ideas are not commercially viable or organizationally appropriate
- Reasons:
 - Lack of innovation
 - Insufficient budget
 - Market misjudgment/demand misunderstanding
 - Lack of management support
 - Lack of customer participation
 - Government policy intervention
 - Misjudgment of market size
 - Mismatch of company capabilities
 - Insufficient channel support

- Listing delay
- Intense competition and countermeasures
- Inefficient organizational communication
- Insufficient investment return
- Sudden change in consumption trend
- Avoid: Process improvements and a structured approach
 - Better requirements capture and management
 - Better planning
 - Better analysis and screening
 - Organization-wide process framework
 - Better execution
- Characteristics of Successful Product Development

Characteristic	Description
Product quality	Affects: Market share & Price
Product Cost	Includes: <ol style="list-style-type: none"> 1. Spending on capital equipment and tooling 2. Incremental cost Determines: Profit for a sales volume and price
Development time	Determines: <ol style="list-style-type: none"> 1. Reaction capability 2. The speed of obtaining returns Plan future development times/schedules
Development cost	A significant fraction of the investment required to achieve the profits Plan future budget and resources
Development capability	Determine: Efficiency and economy of product development Reduce cost and time

1.4 Product Development Process

- Definition: A sequence of steps or activities which an enterprise employs to conceive, design, and commercialize a product

- Advantage of having a generic, well-defined process:
 - **Quality assurance:** Specify the wise points and checkpoints (milestone)
 - **Coordination:** Defines the roles of each of the players on the development team
 - **Planning:** Natural milestone in process anchors the schedule of the overall development project
 - **Managment:** Identify possible problem areas by comparing the actual events to the established process
 - **Improvement:** Helps to identify opportunities for improvement
- Phase:
 0. Planning
 - Assessment of technology developments and market objectives
 - Output: Project Mission Statement (specifies the target market for the product, business goals, key assumptions and constraints)
 1. Concept Development
 - Identify the needs of the target market
 - Alternative product concepts are generated and evaluated
 - * Concept: A description of the form, function and features of a product
 - Chose one or more concepts for further development and testing
 - Use evaluation and screening to aid in the selection
 - * A set of specifications, an analysis of competitive products and an economic justification for the project
 2. System-level Design
 - Include: Definition of the product architecture and the decomposition of the product into subsystems and components
 - Output:
 - * A geometric layout of the product
 - * A functional specification of each of the products subsystems
 - * A preliminary process flow diagram for the final assembly process
 3. Detail Design
 - Include: Complete specification of the geometry, materials and tolerances of all the unique parts of the product and any information regarding parts to be purchased from suppliers
 - Output:

- * Control documentation: The drawings or computer files describing the specifications of each of the parts of the product and how it is to be assembled
- Critical issues:
 - * Production cost
 - * Robust performance
- 4. Testing and Refinement
 - Include: The construction and evaluation of multiple preproduction versions of the product
 - Participants: Lead customer & Employee
 - Output: Feedback used to make improvements and adjustments to the products
 - *Alpha test*
- 5. Product ramp-up
 - Purpose: To train the work force and to work out any remaining problems in the production process
 - Participants: Preferred customers
 - *Beta test*
- Decision point:
 - Goal: Reduced cost and Prevent inferior products from entering the market
- Key Departments:
 - Marketing: Mediates the interactions between the firm and its customer
 - Design (R&D): Defining the physical form of the product and how this can best meet customer needs
 - Manufacturing: Design and operation of the production of the product

1.5 Product Development Team

- Members: Representatives from each of these areas
- Made up:
 - Core team: A team leader and one representative from each of the areas involved in all stages
 - Extended team: all of the people involved in the development

Chapter 2

Product and Service Strategies

2.1 Product

- Product Definition: Anything that can be offered to a market for attention, acquisition, use or consumption that might satisfy a want or need
- Includes: Physical objects, Services, Persons, Places, Organizations and Ideas
- Levels of Product:
 1. Core Product: The fundamental benefit or service that the customer gains from the product
 2. Actual Product: The tangible aspects of the product, including design, features, packaging, and branding
 3. Augmented Product: Additional services or benefits that enhance the product's value, such as warranty, customer support, and after-sales service
 - E. Potential Product: Future enhancements or innovations that could be added to the product to meet changing customer needs or market trends
- Product Classification:
 - Consumer Products: Products purchased by final consumers for personal consumption
 - * Convenience Products: Low-priced, frequently purchased items with minimal effort (e.g., groceries)
 - * Shopping Products: Higher-priced items that require comparison shopping (e.g., clothing, electronics)
 - * Specialty Products: Unique items with specific characteristics that consumers actively seek (e.g., luxury cars, designer clothing)

- * Unsought Products: Products that consumers do not think about regularly or may not know about (e.g., life insurance, funeral services)
- Industrial Products: Products purchased for further processing or for use in conducting a business
 - * Materials and Parts: Raw materials and components used in manufacturing (e.g., steel, electronic components)
 - * Capital Items: Long-lasting goods that facilitate the development or production of other products (e.g., machinery, buildings)
 - * Supplies and Services: Operating supplies and services that support the production process (e.g., maintenance supplies, consulting services)
- Other Marketable Entities: Products that do not fit neatly into the above categories but are still marketed

2.2 Product Decisions

- Individual Product Decisions:
 - Product Attributes: Features, quality, design, and packaging that define the product
 - Branding: The name, logo, and image associated with the product
 - Packaging: The design and materials used to contain and protect the product
 - Labeling: Information provided on the product packaging, including instructions, ingredients, and branding
 - Product Support Services: Additional services that enhance the product's value, such as warranties, customer support, and after-sales service
- Product Attribute Decisions:
 - Quality: The overall excellence or superiority of the product, including performance, durability, and reliability
 - Features: Specific characteristics or functionalities that enhance the product's appeal and usability
 - Design: The aesthetic and functional aspects of the product, including its appearance, usability, and ergonomics
- Branding Equity:
 - Association: The connections and perceptions that consumers have with the brand
 - Loyalty: The degree to which consumers consistently choose the brand over competitors

- Credibility: The trustworthiness and reliability of the brand in the eyes of consumers
- Awareness: The extent to which consumers recognize and recall the brand
- Advantage of Brand name:
 - Attributes: The specific features and characteristics associated with the brand
 - Consistency: The reliability and predictability of the brand's performance and quality
 - Quality & Value: The perceived worth and benefits that the brand provides to consumers
 - Identification: The ability of the brand to stand out and be recognized in the market
- Major Branding Decisions:
 - Brand name selection (selection and protection): Choosing a name that resonates with consumers and is legally protected
 - Brand sponsor (manufacturer's brand, private brand, licensed brand, co-brand): Deciding whether to use a manufacturer's brand, a private label, a licensed brand, or a co-branding strategy
 - Brand strategy: Determining how to expand or diversify the brand through line extensions, brand extensions, multibrands, or creating new brands
 - * Line extension: Existing brand name used for a new product in the existing category (e.g., a soft drink brand launching a new flavor)
 - * Brand extension: Using an existing brand name to enter a new product category (e.g., a clothing brand launching a fragrance)
 - * Multibrands: Offering multiple brands within the same product category to target different market segments (e.g., a company offering various detergent brands)
 - * New brands: Creating entirely new brands to enter new markets or product categories (e.g., a tech company launching a new line of smart home devices)
- Packaging:
 - Sale Tasks
 - Competitive Advantages
 - Product Safety
- Labeling:
 - Identifies

- Describes
- Promotes
- Product Support Service:
 1. Survey customers to determine satisfaction with current services and any desired new services
 2. Assess costs of providing desired services
 3. Develop a package of services to delight customers and yield profits
- Product Line Decisions:
- Product Mix Decisions:
- Characteristics of Services:
 - Intangibility: Services cannot be seen, tasted, felt, heard, or smelled before purchase
 - Inseparability: Services are produced and consumed simultaneously, making it difficult to separate the service provider from the service itself
 - Variability: The quality of services can vary significantly depending on who provides them, when, and where
 - Perishability: Services cannot be stored for later use; they are consumed at the time of production
- Marketing Strategies for Service: Firms
 - Managing Service Differentiation: Creating a unique service offering that stands out from competitors
 - Managing Service Quality: Ensuring consistent and high-quality service delivery to meet customer expectations
 - Managing Service Productivity: Balancing service quality with efficiency to maximize profitability

2.3 Product Portfolio Management

- Product Portfolio: The collection of all products and services offered by a company

2.3.1 Product Life Cycle (PLC)

- Product Life Cycle (PLC): The stages a product goes through from introduction to decline
- Stages:
 - Development (R&D + NPD)
 - Introduction/Launch
 - Growth
 - Maturity
 - Saturation
 - Decline/Withdrawal

Introduction Stage

- To do: Advertise and promote the product to create awareness and generate interest
- Monitoring: Initial sales and customer feedback to assess market acceptance
- Goal: Maximize publicity and build a customer base
- Cost: High cost, low sales
- Duration: Depend on type of product

Growth Stage

- Performance: Consumer awareness increases, sales grow rapidly, revenue increases
- Cost: (fixed cost and variable cost) Profit may be made
- To do: Monitoring the market, competitors, and customer feedback to adapt marketing strategies

Maturity Stage

- Performance: Sales peak, market share high, competition intensifies
- Cost: Decline the cost of supporting the product
- To do: Monitoring the market, considering changing strategies to maintain market share

Saturation Stage

- Performance: Supply exceeds demand, sales plateau or decline
- To do: Develop new strategies like searching new markets, modifying the product, or finding new uses for it

Decline Stage

- Performance: Product becomes obsolete or faces significant competition, sales decline sharply
- Due to: Technological advancements, changing consumer preferences, or increased competition

2.3.2 The BCG Matrix

- BCG Matrix: A tool for analyzing a company's product portfolio based on market growth and market share (Boston Consulting Group Matrix)
- Classification:
 - Stars: High market share, high market growth; require significant investment to maintain position
 - Cash Cows: High market share, low market growth; generate steady cash flow with minimal investment
 - Dogs: Low market share, low market growth; may not be worth investing in, often considered for divestment
 - Problem Children (Question Marks): Low market share, high market growth; require careful analysis to determine whether to invest or divest
- Implications:
 - Stars: Invest to maintain leadership and capitalize on growth opportunities
 - Cash Cows: Optimize profitability and use cash flow to support other products
 - Dogs: Consider divesting or repositioning to minimize losses
 - Problem Children: Analyze potential for growth and market share; decide whether to invest or divest

Chapter 3

Innovation Management

3.1 Innovation

- Innovation: The process of translating an idea or invention into a good or service that creates value or for which customers will pay
- Innovation characteristics:
 - Essence: Process from idea generation to commercialization, the adoption of change
 - Radical change in traditional ways vs. incremental change
 - Generate: New device or something new to society
- Understand of innovation:
 - Ideas become reality
 - Turn great ideas into value, prosperity, productivity and well-being
 - Mechanism by which we adapt to new opportunities and challenges
 - Practical application of new inventions into marketable products and services
- Understand of invention: Creation of a new device or process that has never existed before
- Innovation in Product Development:
 - A successful implementation of a new or significantly improved product or process
 - A new marketing method or a new organizational method in business practices, workplace organization or external relations
 - $A + B + \dots \frac{\text{novel}}{\text{way}}$ Unique new thing

3.2 Types of Innovation

- Main Categories:
 - Product Innovation: Introduction of a new or significantly improved good or service
 - Process Innovation: Implementation of a new or significantly improved production or delivery method
- Types of Innovation:
 - Product Innovation
 - Process Innovation
 - Organizational Innovation
 - Marketing Innovation
 - Production Innovation
 - Commercial/Marketing Innovation
 - Service Innovation

Product Innovation