NEW PRODUCT DEVELOPMENT

GENERATING IDEA

SENSORY EVALUATION
NEW PRODUCT DEVELOPMENT

- **DEFINITION** - the development of original products, product improvements, product modifications, and new brands through the firm’s own R&D efforts.

- New products can also come from acquisition of other companies, patents, or licenses.
UNDERSTANDING THE PRODUCT LIFECYCLE

- **Product life cycle (PLC):** the course of a product’s sales and profits over its lifetime

The product lifecycle has four stages:

- **Introduction**
- **Growth**
- **Maturity**
- **Decline**
STAGES OF THE PRODUCT LIFE CYCLE

PLC Stages

- Introduction
- Growth
- Maturity
- Decline

- Low sales
- High costs per customer
- Negative profits
- Innovator customers
- Few competitors
STAGES OF THE PRODUCT LIFE CYCLE

PLC Stages

- **Introduction**
- **Growth**
- **Maturity**
- **Decline**

Rising sales
Average costs
Rising profits
Early adopters customers
Growing competition

To accompany A Framework for Marketing Management, 2nd Edition
Slide 9 in Chapter 10
STAGES OF THE PRODUCT LIFE CYCLE

PLC Stages

- **Introduction**
- **Growth**
- **Maturity**
- **Decline**

Peak sales
Low costs
High profits
Middle majority customers
Stable/declining competition
STAGES OF THE PRODUCT LIFE CYCLE

PLC Stages

- Introduction
- Growth
- Maturity
- Decline

- Declining sales
- Low costs
- Declining profits
- Laggard customers
- Declining competition
OBJECTIVES AND STRATEGIES FOR THE PRODUCT LIFE CYCLE

PLC Stages

- **Introduction**
  - **Objective:** to create awareness and trial
  - Offer a basic product
  - Price at cost-plus
  - Selective distribution
  - Awareness – dealers and early adopters
  - Induce trial via heavy sales promotion
OBJECTIVES AND STRATEGIES FOR THE PRODUCT LIFE CYCLE

PLC Stages

- **Introduction**
  - Objective: maximize market share
  - Offer service, product extensions, warranty
  - Price to penetrate
  - Intensive distribution
  - Awareness and interest – mass market
  - Reduce promotions due to heavy demand

- **Growth**

- **Maturity**

- **Decline**
OBJECTIVES AND STRATEGIES FOR THE PRODUCT LIFE CYCLE

PLC Stages

- **Introduction**
- **Growth**
- **Maturity**
- **Decline**

**Objective:** maximize profit while defending market share
- Diversify brands/items
- Price to match or beat competition
- Intensive distribution
- Stress brand differences and benefits
- Increase promotions to encourage switching
OBJECTIVES AND STRATEGIES FOR THE PRODUCT LIFE CYCLE

PLC Stages

- **Introduction**
- **Growth**
- **Maturity**
- **Decline**

- **Objective:** reduce costs and milk the brand
- Phase out weak models
- Cut price
- Selective distribution
- Reduce advertising to levels needed to retain hard-core loyalists
- Reduce promotions to minimal levels
The challenge is to create successful products that do not become commodities. But it’s hard to tell the difference.
SPECIAL LIFE CYCLES

○ **STYLES:**
  ○ Basic and distinctive mode of expression
  ○ Once accepted, popularity will vary over time

○ **FASHION:**
  ○ A currently accepted or popular style
  ○ Gains acceptance, peaks, then declines
  ○ Tend to go in cycles with generations

○ **FADS:**
  ○ Gain rapid acceptance, peak early, and decline quickly
  ○ Tend to attract limited market
  ○ Products that are novel and do not address basic needs
NEW-PRODUCT DEVELOPMENT STRATEGY

Strategies for Obtaining New-Product Ideas

ACQUISITION OF:
- COMPANIES
- PATENTS
- LICENSES

NEW PRODUCTS:
- ORIGINAL PRODUCTS
- IMPROVEMENTS
- MODIFICATIONS
MAJOR STAGES IN NEW-PRODUCT DEVELOPMENT

- Idea generation
- Idea screening
- Concept development and testing
- Marketing development strategy
- Business analysis
- Product development
- Test marketing
- Commercialization
IDEA GENERATION:
EXISTING IDEAS' ANALYSIS

- Truly innovative and novel: 3-4%
- Rest 96% ??
  Modification of existing ideas
- Three ways:
  Enhancement (level up)
  Extension
  Specialization
IDEA GENERATION: IMPROVEMENT/ENHANCEMENT

- Improvement/ refinement of features — cheaper, better, faster, more user-friendly.

- Examples:
  DOS to Windows;
  Mechanical to quartz watch;
  Ordinary to flat screen TV;
  Desktop to laptop to tablet;
  Propeller engine to jet engine.
IDEA GENERATION: EXTENSION

- Addition of extra features
- Examples:
  - Toothbrush with built-in toothpaste;
  - Pen with torchlight;
  - The changing face of mobile phones;
  - Memory sticks with MP3 players;
  - Wristwatch with calculators;
  - Cinema Multiplexes;
  - Day care centers with tuitions;
  - Swiss knife.
IDEA GENERATION: SPECIALIZATION

- Creating your own niche out of a large field.

- Examples:
  - Low cost airlines (Ryan Air, Air Deccan);
  - Boutique financial advisory services;
  - Super-specialty hospitals (Fortis Heart Centre);
  - Executive Search firms (CxOs only, finance professionals only).
IDEA GENERATION: KEY TO INNOVATION

- Change is opportunity.
- Recognize and exploit the changes that have taken place in the values, perceptions, attitudes, demographics.
- Look for new realities and incongruity between people’s perception of the reality and what has become actual reality.
MAJOR STAGES IN NEW-PRODUCT DEVELOPMENT

- Idea screening
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- Test marketing
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IDEA SCREENING

- Process to spot good ideas and drop poor ones.
- Develop system to estimate: market size, product price, development time and costs, manufacturing costs, and rate of return.
- Evaluate these findings against set of company criteria for new products.
Count the black dots! :o)
How many legs does this elephant have?
Is the left center circle bigger?

No, they're both the same size
Keep staring at the black dot. After a while the gray haze around it will appear to shrink.
Do you see the three faces?
Do you see the face? Or an Eskimo?
Do you see a musician or a girl's face?
...DECIDE — memutuskan produk apa yang akan dibuat,

...DISCOVER — mengetahui siapa yang akan membeli produk dan membuatnya unik,

...DEFINE — menentukan apa saja yang ada pada produk,

...DEVELOP — mengembangkan semua aspek pada produk, dan

...DEPLOY — meluncurkan produk ke pasar.
TAHAP PERTUMBUHAN SATU KORPORAT

Starting point

matang

tumbuh

inkubasi

ideas

Inovasi

2nd curve (peremajaan)

Skema Investasi

hibah

hibah > skema investasi

waktu

pendapatan

Manufacturing

Prototyping
MAJOR STAGES IN NEW-PRODUCT DEVELOPMENT
New Product Development

What is a “New” Product?
- New-to-the-world products
- New product lines
- Additions to existing product lines
- Improvements and revisions of existing products
- Repositioned products
- Cost reduction products
PRODUCT DEVELOPMENT

- Develop concept into physical product
- Calls for large jump in investment
- Prototypes are made
- Prototype must have correct physical features and convey psychological characteristics
Q1: WHAT REALLY IS A NEW PRODUCT?

- **New-to-the-world product**
  - Breakthroughs, create new market, change existing consumer behavior
  - Sony Walkman, FedEx, Internet

- **New product lines**
  - New to organization, not to market
  - GM Credit card, AT&T cable service

- **Additions to existing product lines**
  - Diet Coke, caffeine-free Coke, Fidelity on-line service
- **IMPROVEMENTS IN REVISIONS TO EXISTING PRODUCTS**
  - Made better in terms of performance or value and/or replace existing products
  - Windows 2000

- **REPOSITIONING**
  - Target new customer segment or position for new use/application
  - Arm & Hammer baking soda, Rogaine

- **COST REDUCTION**

- **SIMILAR BENEFITS AT LOWER COST**
  - Generic drugs, private-label consumer goods
CATEGORIES OF NEW PRODUCTS

- NEW-TO-THE-WORLD
- NEW PRODUCT LINES
- PRODUCT LINE ADDITIONS
- IMPROVEMENTS/REVISIONS
- REPOSITIONED PRODUCTS
- LOWER-PRICED PRODUCTS

SIX CATEGORIES OF NEW PRODUCTS
WHAT IS A NEW PRODUCT

- **FTC**: a product must be new or changed in a functionally significant or substantial respect. (6 month market introduction time period)

- **Consumer View**: Anything perceived new by the consumer
Types of “New” Products

Management Perspective

- Reposition: 7%
- Improvement to Existing Products: 26%
- New Product Lines: 20%
- Reposition: 7%
- New to the World: 10%

Consumer Perspective

- Cost Reduction: 11%
- Additions to Existing Lines: 26%

Criteria:
- Management: Newness to the company
- Consumer: Newness to customer / humanity
Importance of NPD

- **PLC (and PEC)** indicate **NEW PRODUCTS ARE NEEDED**
  - About 1/2 of all profits come from products less than 10 years old
- **RISK** is present: **New Products Fail (33%, 80%)**
  - Not clear whether failure rate is too high
  - What is the optimal failure rate??
- **New Product Development** is Expensive
TWO MAJOR APPROACHES TO NEW PRODUCT DEVELOPMENT

- **Need Pull**
  - Find out what people want and then develop

- **Technology Push**
  - Develop technology and then figure out ways to apply to needs/wants
SENSORY EVALUATION

DEFINITION

Sensory analysis is a scientific discipline used to measure, analyse and interpret reactions to the characteristics of food that are perceived by the senses of sight, smell, taste, touch and hearing.

(Institute of Food Technology, USA, 1981)
HOW WE “TASTE” OUR FOOD

APPEARANCE, COLOUR

TEXTURE

ODOUR

FLAVOUR

TASTE
SENSORY ATTRIBUTES

- **Taste (tongue)**
  - Salty
  - Sweet
  - Bitter
  - Sour
  - Umami

- **Odour (nose)**
  - Acidic
  - Estery
  - Green
  - Terpenoid
  - Spicy
  - Floral
  - Brown
  - Woody
  - Lactonic
  - Sulfury

- **Trigeminal (mouth/nose)**
  - Pungent
  - Astringent
  - Cooling
SENSORY EVALUATION IN INDUSTRY

- Shelf-life studies
- Product development
- Product matching
- Product reformulation
- Taint and off odour
- Product quality
MEASURING SENSORY PROPERTIES

- Machines can be used for some sensory evaluations
- No machine can imitate our senses
- Two types of tests
  - Analytical
  - Consumer
TYPES OF TEST

- **Analytical**
  - **Objective**
    - Identifying differences
    - Defining the properties of a food

- **Consumer**
  - Purpose to identify “Liking” or Preference
  - Consumer attitudes important
PURPOSE OF TESTS

- **Analytical**
  - **Difference**
    - Is there a difference?
    - How great is it?
  - **Descriptive**
    - What is the taste?
    - What are its attributes?

- **Affective**
  - **Consumer Tests**
    - Do you like this product?
    - What do you like about it?
USES OF TESTS

- **Analytical**
  - Quality control
  - Product development
  - Production

- **Consumer Tests**
  - Product development
  - Market research
  - Marketing
TASTE PANELS

- **Trained**
  - Needed for most analytical tests

- **Untrained**
  - Normal for consumer tests
  - Can be used with some analytical tests
KEY TERMS

- Product life cycle
- Market introduction
- Market growth
- Market maturity
- Sales decline
- Fashion
- Fad
- New product
- Federal Trade Commission (FTC)

- Consumer Product Safety Act
- Product liability
- Concept testing
- Product managers
- Brand managers
New Product Development

Importance of New Product Development:
- Follow changing market demands
- To remain competitive
- Keep up with changing technology
- Replace dying/old products
- Diversify product offerings to reduce risks
What are the Typical Steps in Product Development?

- **IDEA GENERATION** of an unlimited number of ideas
- **SCREENING** to eliminate unworthy ideas
- **DEVELOPMENT** of selected ideas and making prototypes
- **TESTING** market potential and technological feasibility.
- **SCALING UP** to pilot production for selected projects
- **COMMERCIALIZATION** by finalizing product, getting production facilities, and launching the product

**What are the Typical Steps in Product Development?**

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HORIZONTAL LINKAGE MODEL FOR NEW PRODUCT INNOVATIONS

ENVIRONMENT

Technical Developments

ORGANIZATION

General Manager

R&D Department

Linkage

Marketing Department

Production Department

Linkage

Linkage

Linkage

Customer Needs
WHY STUDY CONSUMER TRENDS?

Four areas drive ALL consumer purchase behavior regardless of demographics, psychographics, or ethnicity.

CONVENIENCE
Saving Time,
Energy, Space

PLEASURE/
GRATIFICATION
We (our family)

HEALTH/
WELLNESS
Well being
Vitality

SAFETY
Personal,
Communal

CONSUMER PURCHASE BEHAVIOR
EXAMPLES OF THE FOUR AREAS

- HEALTH - Phytosterols in Margarine
- NUTRITION & CONVENIENCE - Olestra potato chips
- CONVENIENCE & NUTRITION - RTB - Cookies
- SAFETY - Pasteurized shell eggs
MAJOR STAGES IN NEW-PRODUCT DEVELOPMENT

- Idea generation
- Idea screening
- Concept development and testing
- Marketing strategy development
- Business analysis
- Product development
- Test marketing
- Commercialization
TEST MARKETING

- Product and program introduced in more realistic market setting.
- Not needed for all products.
- Can be expensive and time consuming, but better than making major marketing mistake.
MAJOR STAGES IN NEW-PRODUCT DEVELOPMENT

1. Idea generation
2. Idea screening
3. Concept development and testing
4. Marketing strategy development
5. Business analysis
6. Product development
7. Test marketing
8. Commercialization
COMMERCIALIZATION

- Must decide on *timing*
- Must decide on *where* to introduce the product
- Must develop a *market rollout* plan.
MANAGING EXISTING PRODUCTS
MANAGING EXISTING PRODUCTS

- **Product Line Extension**
  - Development of a product that is closely related to existing products in the line but meets different customer needs
    - A less expensive, low-risk alternative
    - Many “new products” are really line extensions.

“Cheerios”

“Honey-Nut Cheerios”
MANAGING EXISTING PRODUCTS

- **Product Modifications**
  - A change in one or more characteristics of the product and the elimination of the original product from the product line.
  - Customers must be able to perceive modification.
  - Extends the product life cycle in an overcrowded, mature or declining market.
  - Adapts to International markets
PRODUCT MODIFICATIONS

- **Feature Modification**
  - functional components
  - retool for safety or versatility

- **Quality Modifications**
  - Dependability
  - durability

- **Style Modification**
  - Reposition, change Image, redesign

- **Aesthetic Modifications**
  - Change the sensory appeal such as taste, texture, sound, smell, or appearance
SOME WIN, BUT MANY LOSE  
“LITE,” “LOW FAT” ERA

In 2005, sales of these products decreased significantly; did not result in benefits and products did not meet consumer sensory expectations.
WHY DO NEW PRODUCTS FAIL?

- Failed consumer expectations
- Promotional failure
- Positioning failure
- Timing Failure
- Cultural Failure (Internal / External)
- Technical Failure
- Financial Failure
FACTORS COMMON TO SUCCESSFUL NEW PRODUCTS

- Unique and superior product
- Homework done prior to start of development
- Early product definition
- Strong market orientation
- Quality execution of marketing, technological and production activities
## Why Some New Products Succeed

### Success Factors
- Good match between product and market needs
- Adequate target market size
- Offers a clear, meaningful benefit
- Distinguishable from substitute products
- Offers unique, superior value
- Organizational commitment to new product development

### Failure Factors
- Poor match between product and market needs
- Overestimation of market size
- Incorrect positioning
- Inappropriate price
- Inadequate distribution
- Poor promotion