Innovation Management and New Product Development

The New Product Development Process: Models and phases
“The majority of products in most companies are cash traps. They will absorb more money forever than they will generate.”

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Deployment of innovation

• Failure rates of new products launch are very high (in some industries around 70%).

• Two opposite deployment strategies:
  – Internal deployment
    • Higher risk, higher expected returns
  – External deployment (new ventures and spin offs, licensing, joint ventures, OEM)
    • Lower risk, lower expected returns
Innovation and NPD

New products can be:

- New to the world;
- New to the market;
- New to the firm (new product lines);
  - Cost reduction;
  - Repositioning;
  - Brand extensions.
New to the world
New to the market
New to the firm
Improvements or revisions of existing products
Several models of NPD

• Departmental-stage models;
• Activity Stage models and Concurrent Engineering;
• Cross-functional models;
• Decision-stage models;
• Conversion-process models;
• Response models;
• Network models;
• Outsourced.
Models of new product development

Departmental-stage model
• This is the early stage of new products development (NPD) models;
• This stage refers to the “over-the-wall” model, so called because the departments would carry out their tasks before throwing the project over the wall to the next department.
Models of new product development

Activity-stage model and concurrent engineering

- This model is similar to the first one but they emphasise activities conducted than they provide a better representation of reality;
- They facilitate the iteration of activities.
Models of new product development

Decision-stage models

- The decision-stage models represent the NPD process as a series of decisions that need to be taken in order to progress the projects
Critical competencies in NPD

DESIGN

CUSTOMER

MANUFACTURING

MARKETING

OTHER FUNCTIONS

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Marketing

• The marketing is the interface between the company and the customer:

  STRATEGIC ACTIVITY
  • It identifies and processes the market opportunities;
  • It defines the market segmentation;
  • It identifies the customers expectation.

  OPERATIVE ACTIVITY
  • It defines and manages the communication;
  • It determines the price;
  • It planes the product launch;
  • It defines and managers the sales.
Design

• The design searches the best option for the product considering the customers expectation:
  • It defines the product shape;
  • It identifies the performances;
  • It lays out the components;
  • It researches the best option;
  • It evaluates the functions of each component;
  • It assures the best performances considering the cost limits.
Manufacture

- The manufacture researches the best industrial solutions considering the manufacturability, the costs and the quality.
  - It defines and optimises the productive cycle;
  - It designs and manufactures the productive system;
  - It defines the operational logistics;
  - It evaluates the best purchases solution;
  - It programs and controls the first production;
  - It assures the product in the warehouse.
Portfolio of new products

Impact on clients

New Product
New Advantages
Improvement
Variation
No Changes

Impact on technologies
Radical
Base

Breakthrough
Platform
Derivates
Support

Low
Medium
High
Concept development

- Planning
- Concept Development
- System Level Design
- Detail Design
- Test & Refining
- Production & Rump Up
- Commercialization
CONCEPT development

PROJECT PLAN/PROJECT MISSION

CONCEPT RESEARCH & DEVELOPMENT

PROJECT APPROVAL

DEVELOPMENT PLAN
CONCEPT development

- Identify opportunities;
- Screening of ideas;
- Define projects (Allocate resources, plan timing, define expected benefits, constraints, budget, collaborations...);
CONCEPT development

- Customer needs identification;
- Target product specification;
- Benchmarking;
- Concept generation, evaluation, selection (TRIZ);
- Final target product specification.
CONCEPT development

PROJECT PLAN/PROJECT MISSION

CONCEPT RESEARCH & DEVELOPMENT

PROJECT APPROVAL

DEVELOPMENT PLAN

BUSINESS PLAN (ECONOMICAL ANALYSIS)
CONCEPT development

- Detailed plan of activities and timing
Commercialization

Planning

Concept Development

System Level Design

Detail Design

Test & Refining

Production & Rump Up

Commercialization
Xerox vs Canon - Example
Shaping perceptions and expectations

• Marketing tactics are used to shape the clients perceptions and expectations:
  – Preannouncements and press releases;
  – Reputation;
  – Credible commitments.
Customers’ resistance

• Economic switching costs:
  – Transaction costs, Learning costs, Obsolescence costs

• Psychologic switching costs:
  – Loss aversion, Endowment effect, Status quo bias
Innovation adopters

Time

Adopters

100%
84%
50%
16%
2,5%

Innovators
Early adopters
Early majority
Late majority
Laggards

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Innovation adopters

- Innovators
- Early adopters
- Early majority
- Late majority
- Laggards

Chasm

Share:
- 34%
- 13.5%
- 2.5%

Time
5 YEARS AGO...

Rogers' bell curve

2.5% Innovators

Early Adopters 13.5%

Early Majority 34%

Late Majority 34%

Laggards 16%

Profit Opportunity

Mass Market

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Marketing capabilities

- Time to market
- Range of markets
- Number of products
- Breadth of technologies
Launch timing

• Development timing may be different from launch timing;

• Launch timing could be delayed in order to exploit:
  – Macro-economic cycles;
  – Seasonal effects;
  – Positioning with respect to previous generations of related technologies

• .. and in order to adapt to the availability of:
  – Production capacity
  – Complementary assets
Timing and cannibalization

- Launch Timing should consider the risk of cannibalization of profits from existing technologies
  - companies tend to (hope to!) maximize returns from R&D investments
- Delay in launch timing may prevent companies from achieving the advantages of the first mover
Licensing

- Licensing proprietary technologies may foster its diffusion

- Licensing implies for some risks:
  - Lowering of pricing, as licensees do not need to recoup R&D expenses;
  - Fragmentation of the technology platform as different producers alter it to their needs
Licensing and compatibility

- Compatibility of the technology with competitors’ ones may foster the definition of a standard, by rapidly enlarging the installed base.

- Incompatibility with competitors’ technologies locks customers to a specific technology and to the related complementary accessories and services.

- Backward compatibility allows customers accessories and services of previous generations of the technology.
Marketing of innovation

- The following marketing choices may strongly affect the success of a new technology / product / service:
  - Product Itself
  - Pricing
  - Distribution/Place
  - Communication and promotion
  - Launch timing
  - Range of Markets - Licensing and compatibility
  - Breadth of Technologies
4 P of Marketing – Marketing Mix

- **Product:** the features and appearance of goods and services
- **Price:** how much customers pay for a product
- **Place:** the point where products are made available to customers
- **Promotion:** how customers are informed about products
Product

• **CORE BENEFIT** = the basic product and the focus is on the purpose for which the product is intended

• **GENERIC PRODUCT** = represents all the qualities of the product

• **EXPECTED PRODUCT** = all aspects the consumer expects to get when they purchase a product

• **AUGMENTED PRODUCT** = all additional factors which sets the product apart from that of the competition

• **POTENTIAL PRODUCT** = about augmentations and transformations that the product may undergo in the future
Pricing

• PRICE influences in a strong way:
  – The business profitability
  – The brand image and positioning compared with competitors

• PRICE is one of the first things that customers notice and is one of the benchmarking elements with concurrent brands.
Firms have to think very carefully about the price to charge for their products. There are a number of FACTORS to take into account when reaching a pricing decision:

- **Customers**: Price affects sales. Lowering the price of a product increases customer demand. However, too low a price may lead customers to think you are selling a low quality ‘budget product’.

- **Competitors**: A business takes into account the price charged by rival organisations, particularly in competitive markets. Setting a price above that charged by the market leader can only work if your product has better features and appearance. When a business matches the price of competitors this is called the market price.

- **Costs**: A business can make a profit only if the price charged eventually covers the costs of making an item.
Pricing

• **Penetration pricing:** Useful in network markets for:
  – rapidly imposing a standard
  – rapid development of necessary complementary assets
  – exploiting economies of scale and learning economies

• **Skimming prices:** for minimizing current performance by rapidly recouping R&D expenses
Pricing

• When a business is already involved in the market, it can choose between three additional short term pricing strategies:
  – **Promotional pricing**: is used to increase flagging sales. It is a short time reduction in price for a specific time period. A common example is the January sales after Christmas. Companies have leftover stock, which is using up valuable and expensive storage space, so they decide on a clear out.
  – **Demand-orientated pricing**: is used when the demand for a product or service can fluctuate. This means that you may pay different prices for the same product or service at different times of the year.
  – **Destroyer pricing**: is an illegal practice where firms lower their prices to such a damaging level that they run at a loss. They do this in order to put their competitors out of the market.
Pricing

- How to determine the «PRICE» of a new product? The MARKETING MIX: THE PRICE
  - 1. DEFINE OBJECTIVES
  - 2. DETERMINE THE DEMAND
  - 3. ESTIMATE COSTS
  - 4. ANALYZE COMPETITORS
  - 5. SELECT A PRICING METHOD (Ceiling, competitors, costs)
  - 6. SELECT THE FINAL PRICE
Distribution

- PLACE is the point where products are made available to customers. A business has to decide on the most cost-effective way to make their products easily available to customers. This involves selecting the best channel of distribution.
Distribution

• The choice is manly between:
  
  – direct selling (traditional and/or on line)

  – intermediaries, such as:
    • Manufacturers’ representatives
    • Wholesalers
    • Retailers
    • OEM
Distribution

- INTENSIVE DISTRIBUTION
- SELECTIVE DISTRIBUTION
- EXCLUSIVE DISTRIBUTION
Distribution

- Distribution choices should consider:
  - Fit with existing distribution configuration;
  - The need to modify / customize the technology;
  - Localization, typology and dispersion of clients;
  - Need for training and specialised competencies;
  - Competitors’ distribution configuration;
  - Substitutes’ distribution configuration.

- In order to accelerate the diffusion of a new technology it is possible to set (up):
  - Alliances with intermediaries and/or (exclusive) agreements;
  - Bundling agreements;
  - Contracts and sponsorship;
  - Guarantees.
Communication and promotion

- Communication and promotion of innovation should be tailored in coherence with:
  - The type of technology
    - B2B vs B2C;
    - Need for training;
    - Relevance and complexity of technical functionality;
    - Brand.

- The specific intended adopters:
  - Innovators;
  - Early adopters;
  - Early majority;
  - Late majority;
  - Laggards.
Communication and promotion

- PROMOTION refers to the methods used by a business to make customers aware of its product. Advertising is just one of the means a business can use to create publicity. Businesses create an overall promotional mix by putting together a combination of the following strategies:
  - **Advertising**: where a business pays for messages about itself in mass media such as television or newspapers
  - **Sales promotions**: which encourage customers to buy now rather than later
  - **Personal selling**: using face-to-face communication, e.g. employing a sales person or agent to make direct contact with customers.
  - **Direct marketing**: takes place when firms make contact with individual consumers using tactics such as ‘junk’ mail shots and weekly ‘special offer’ emails