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.”

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

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New to the market

New to the firm

Improvements or revisions of existing products

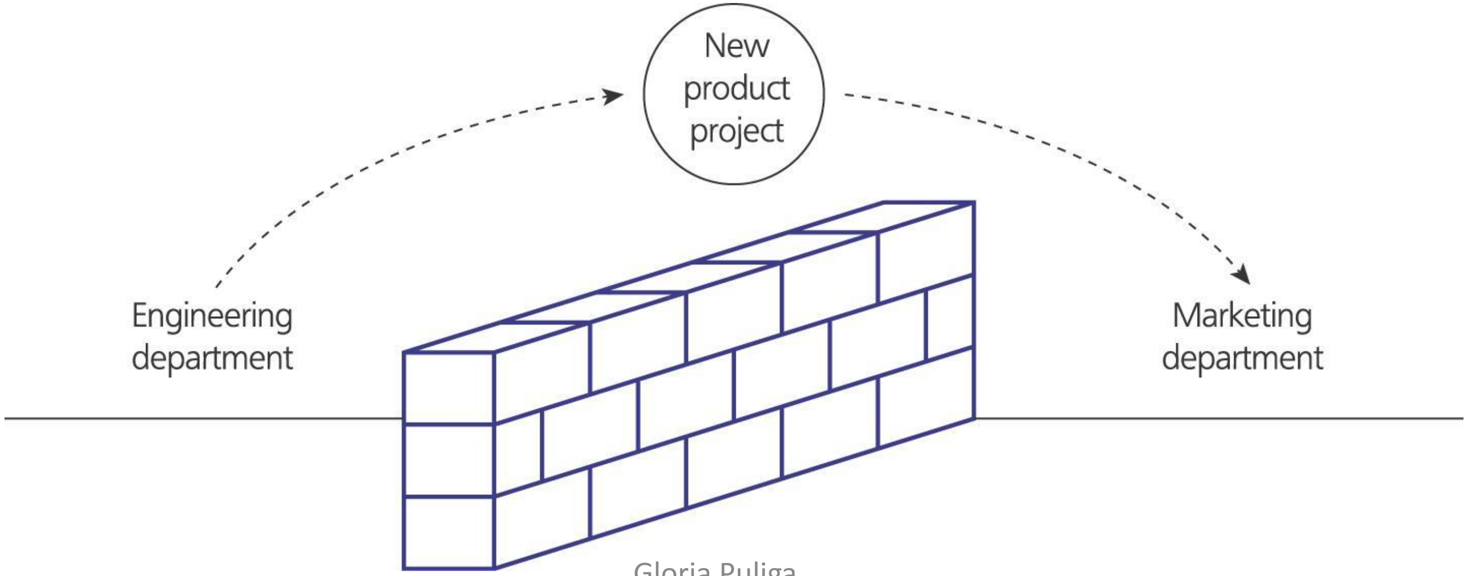
Several models of NPD

- 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

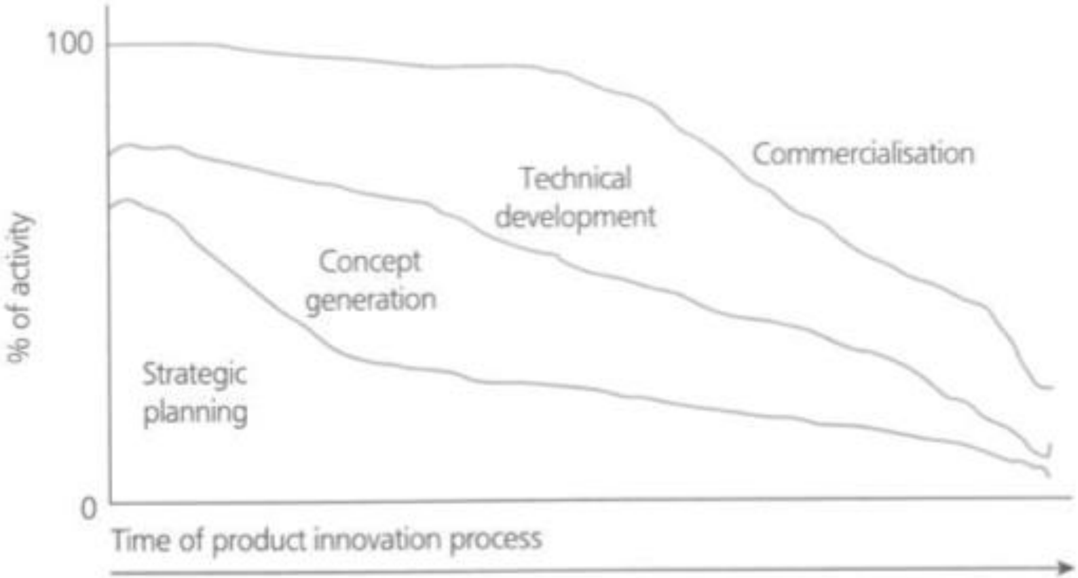
- This is the early stage of new products development (NPD) models;
- This stage refers to the “over-the-wall” model, so called because the departments would carry out their tasks before throwing the project over the wall to the next department.



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.

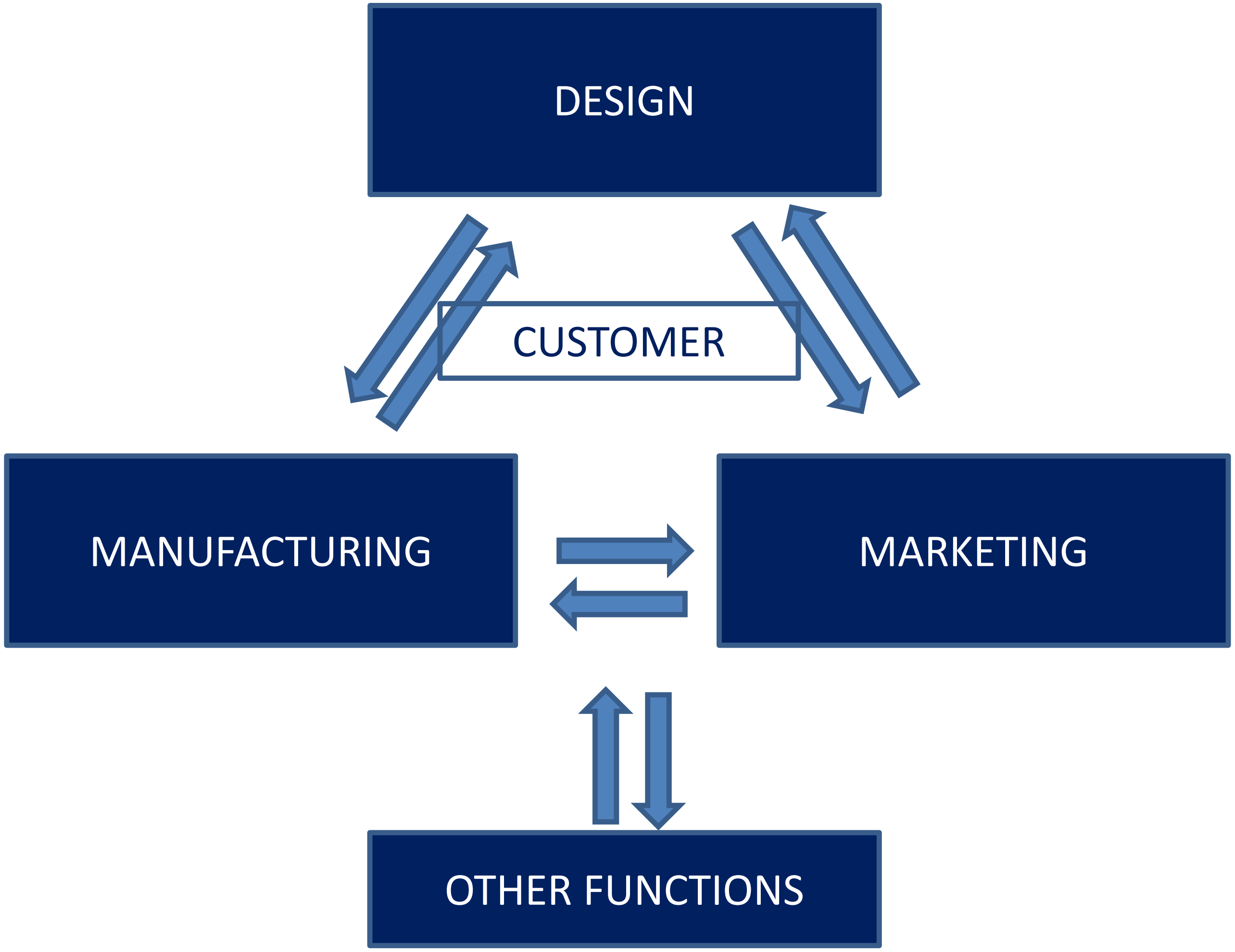


Models of new product development

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



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.

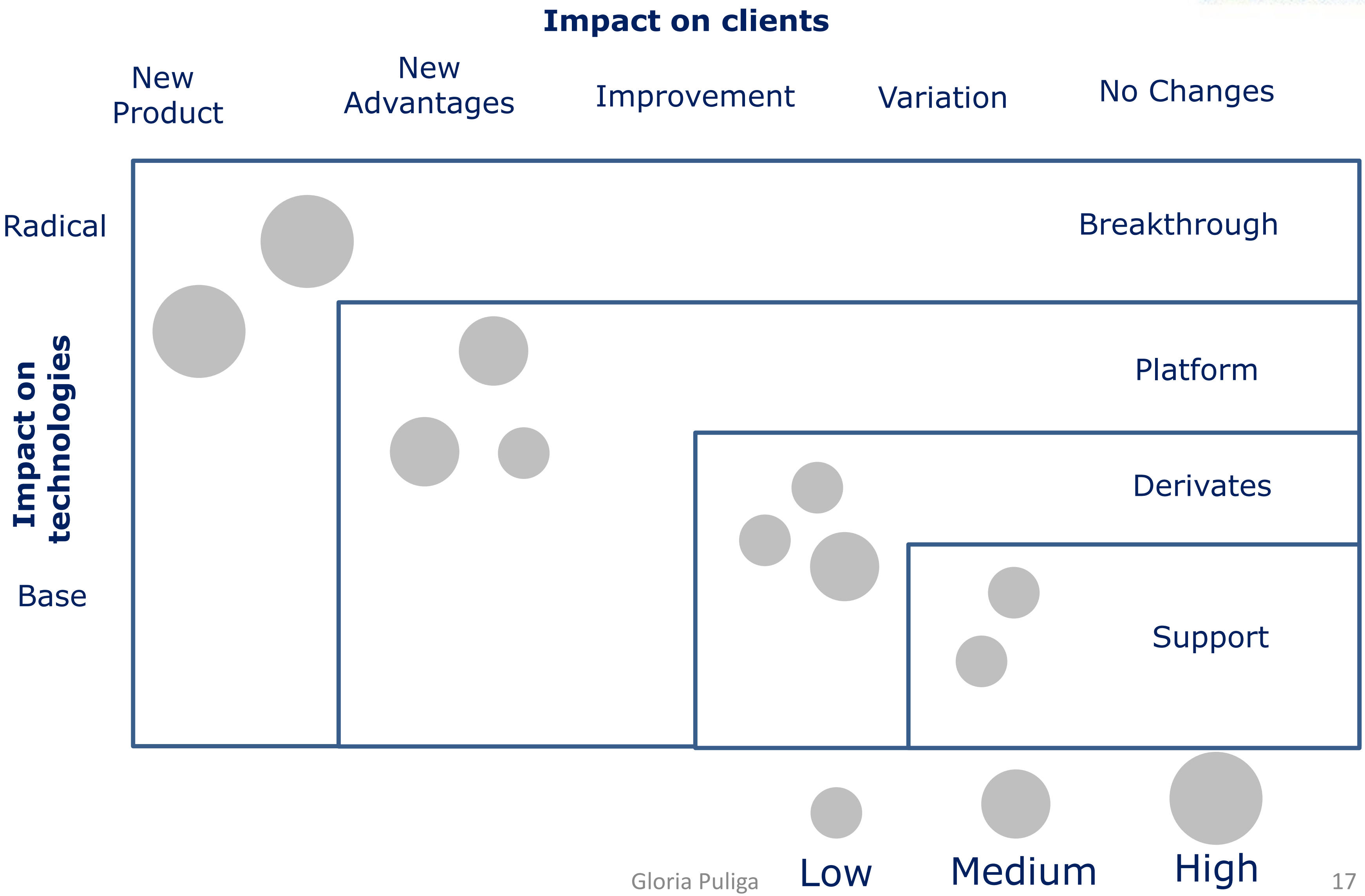
Design

- 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



Concept development

Planning

Concept Development

System Level Design

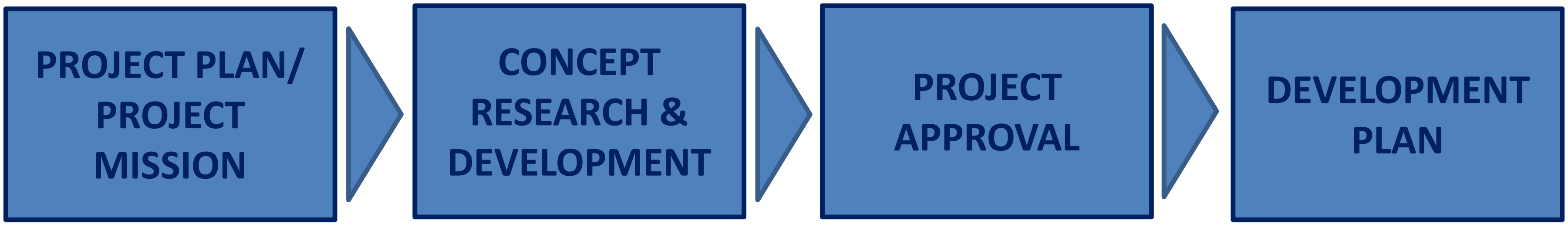
Detail Design

Test &Refining

Production & Rump Up

Commercialization

CONCEPT development



CONCEPT development

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PROJECT PLAN/ PROJECT MISSION → CONCEPT RESEARCH & DEVELOPMENT → PROJECT APPROVAL → DEVELOPMENT PLAN

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

CONCEPT development

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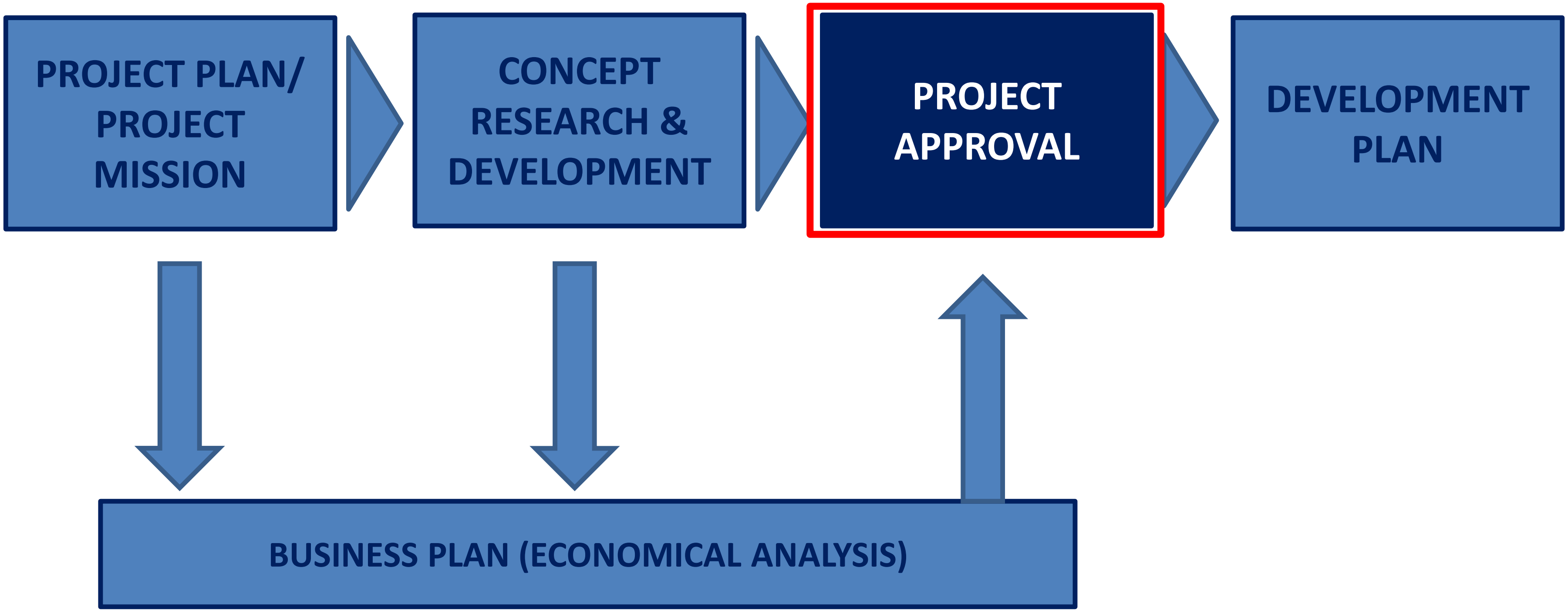
PROJECT PLAN/ PROJECT MISSION → **CONCEPT RESEARCH & DEVELOPMENT** → PROJECT APPROVAL → DEVELOPMENT PLAN

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

CONCEPT development



CONCEPT development

PROJECT PLAN/ PROJECT MISSION → CONCEPT RESEARCH & DEVELOPMENT → PROJECT APPROVAL → **DEVELOPMENT PLAN**

- 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

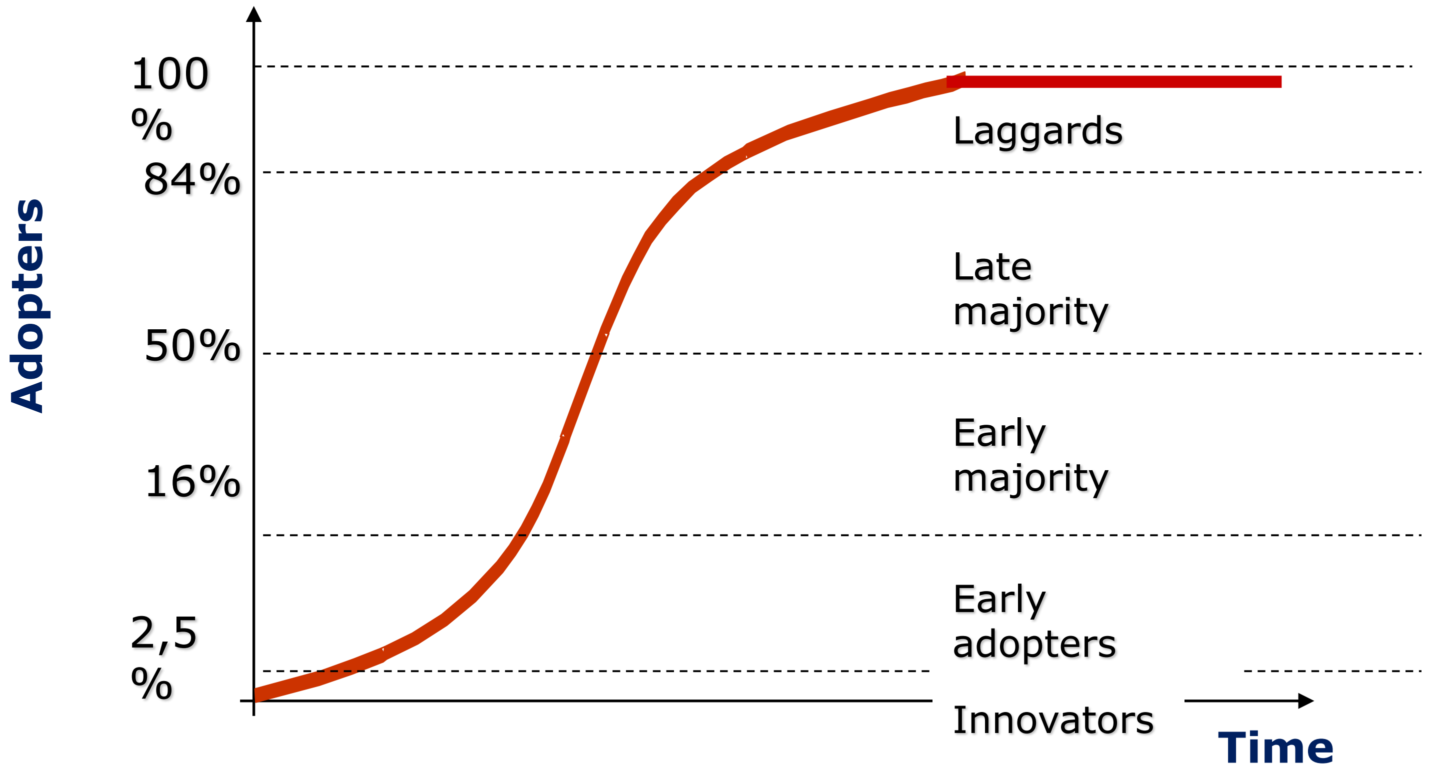
Shaping perceptions and expectations

- Marketing tactics are used to shape the clients perceptions and expectations:
  - Preannouncements and press releases;
  - Reputation;
  - Credible commitments.

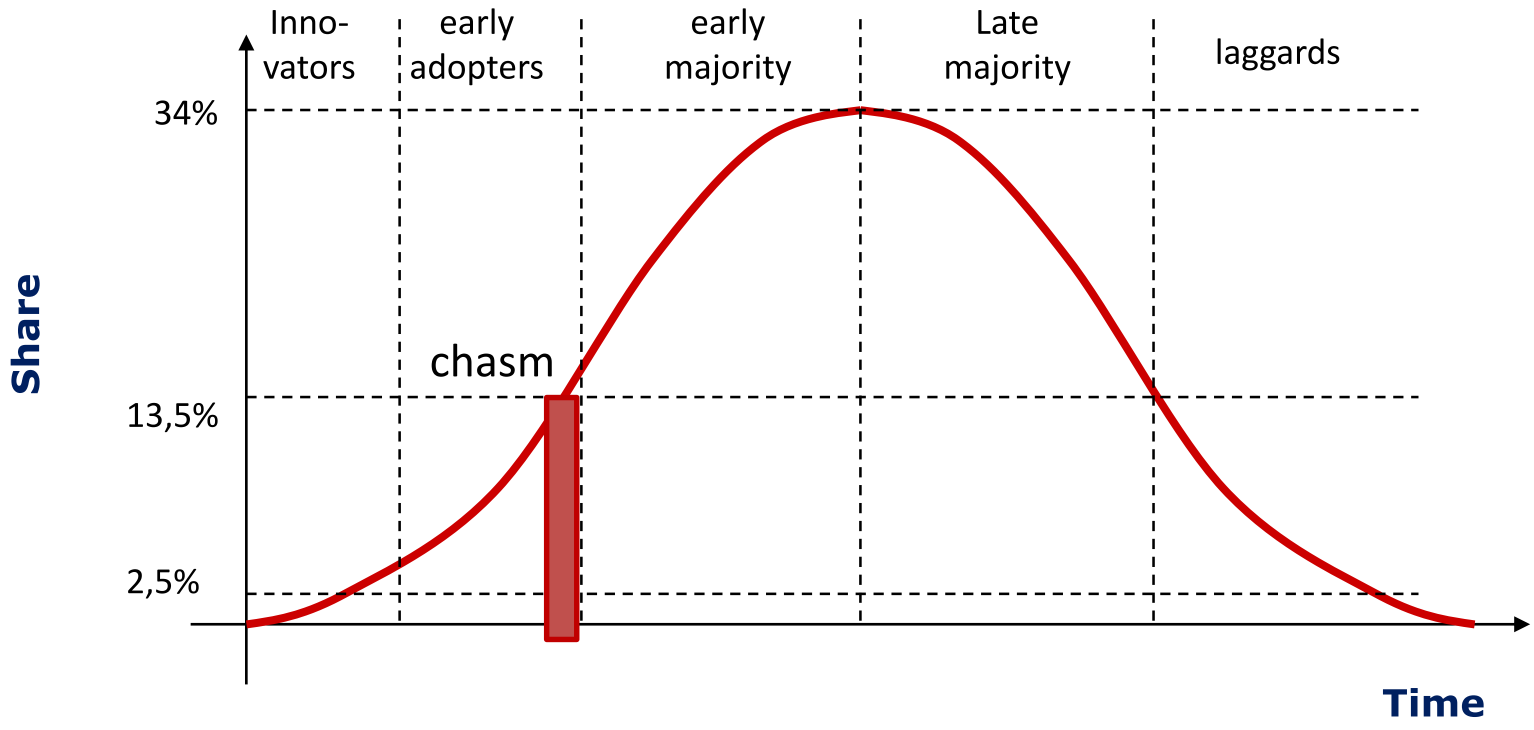
Customers’ resistance

- **Economic switching costs:**
  - Transaction costs, Learning costs, Obsolescence costs
- **Psychologic switching costs:**
  - Loss aversion, Endowment effect, Status quo bias

Innovation adopters



Innovation adopters



5 YEARS AGO…

Rogers' bell curve
YouTube
iPod
BlackBerry
myspace.com
iPhone
orkut
vimeo
android
GMail
Microsoft Exchange
disc
POP
TV
amazonkindle
2.5%
Innovators
Early
Adopters
13.5%
Early Majority
34%
Late Majority
34%
Laggards
16%
Profit Opportunity
Mass Market

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 licenees 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

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- 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.

Pricing

- 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