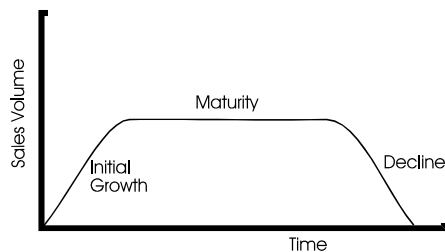


New Product Development

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2006

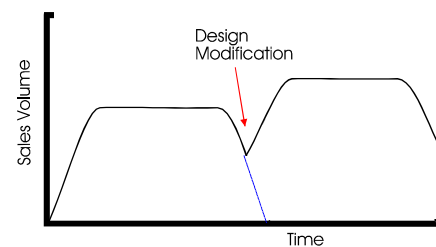
New Product development is the process that transforms technical ideas, market needs and opportunities into a new product that can be launched onto the market.

Product Life Cycle



Product Life Cycle in Practice

Effect of Design Modifications on Life Cycle



Product Life Cycle

Throughout the twentieth century, product life cycles have shortened and new products have replaced older traditional products at an ever-increasing rate.

As the century progressed, these newer products were being replaced by even newer, more shorter-lived products.

The pace of technological change is ever-faster, ever more relentless.

Speed of Change

Recorded music is a good example of the speed of change. Over the last 100 years there have been many changes.

Wax 78 rpm records
Vinyl records
Cassettes
8 – tracks
CDs
MP3s
i-Pods

Developing New Products

The successful development of new products is the one of the greatest corporate challenges of the twenty-first century.

The ability to innovate successfully, in both use and timing, is what will separate the flourishing companies from their mediocre competition.

The ability to create and develop a steady stream of new products and to deliver them, timely to the market is what has eluded the majority of companies and their management.

Changes in the market are varied,
some come from the changing requirements of the customer,
some come from continuing technological development,
some are purely cost driven.

Not only is the market changing, the market environment is changing also.

Major Factors Causing Change

The factors to be examined are shown below

Product life cycle continues to shorten.

Globalisation / internationalisation of production

Cost differentials of world labour and resources

Increasing pace of technological change

Increased competition from wider area – faster transport

Timing of supply to the market

Uncertainty factors – the level of risk

Legal and political changes

Availability of resources

Shorter Product Life Cycle

The consumer has a decreasing interest span. They soon tire of products and eagerly seek new and more exciting products to:

enhance their lifestyle;

make their lives more exciting;

make them more comfortable;

put them ahead of their friends.

Globalisation

Internationalisation of production ability

Companies find more countries with cheap labour and a desire to industrialise, which means that production moves, not only from the traditionally developed countries, but also from the newly industrialised countries where wages have begun to increase as the standard of living rises. There are therefore more competing economies and more competing companies in the marketplace.

Cost Differentials of Labour and Resources around the World

The differentials in labour cost (and in some material and resource costs) continue to increase as more choices are available for buyers.

Some costs may be global, e.g. petroleum products, but even these costs will vary with taxation rates and government strategies.

Increasing Pace of Technological Change

During the early and middle parts of the twentieth century, wars were seen as the drivers of technology.

Even the cold war and the space race fuelled the pace of technological change.

In the twenty-first century, it is commerce and the expectation of change that drive the pace of change.

Timing of Supply

The timing of a product is important, if a product arrives in the marketplace too early and the consumer is not ready for it then start-up costs will be high. Competitors will be able to prepare their own competing products, technology may offer alternative or improved options.

If a product is late into the marketplace then possible market share will be reduced.

Even if the timing of the launch is right, problems can occur if required capacity has not been established, or if distribution channels fail.

Increased Competition from Wider Area

Many products are time dependent, i.e. they have a limited life. This may be in due to degradation (as in fruit and vegetables), or it may be in desire of the customer (as in fashion clothing).

Modern transport systems allow the United Kingdom to source fruit and vegetables from Africa, meat from America, dairy products from Australasia. Also – possibly more surprising – fashion items from China and South-East Asia.

Uncertainty Factors - Level of risk

The consumer desires standardisation

....however differentiation is how manufacturers gain market share.

Failure is costly and companies must quantify their risk.

Examples of Failure

VHS verses Betamax - Betamax was the superior product in the videocassette market, but VHS became the dominant format through profile and placement, Betamax died fairly quickly.

Coca Cola verses Pepsi Cola – even relatively minor changes may be found to have significant risk. A change of colour for their cans of cola, caused Pepsi to experience a major drop in market share, it took several years to regain its previous market share.

Legal and political changes.

The requirement for change can come from government or from changes in the law.

Availability of resources.

The current (or future) availability of a specific resource.

New is Better?

In many people's minds NEW is a way of saying IMPROVED.

The consumer, although showing some degree of product loyalty in a static market, is a fickle animal.

Any new product can quickly become the new favourite.

What is a New Product?

To be a "new product", a product must offer the consumer something, this may be a new experience, a new option or simply an improved option.

There are various areas in which a new product may demonstrate enhanced properties, these may be grouped in five areas.

Convenience

Personal service attributes

Subjective physical characteristics

Objective physical characteristics

Physical dimensions

What Makes a New Product?

1 - Convenience

ease of carriage,

ease of use,

speed,

flexibility,

accessibility,

lower frequency of use,

time saving,

space saving.

What Makes a New Product?

2 - Personal Service attributes

friendly,

reliable,

trusted,

helpful,

knowledgeable,

practical,

efficient,

welcoming,

enthusiastic,

responsive.

What Makes a New Product?

3 - Subjective Physical characteristics

softness,

taste,

texture,

comfort,

smell,

exclusivity,

fashion,

reliability,

safety,

What Makes a New Product?

3a – More Subjective Physical characteristics

versatility,
design,
prestige,
clarity,
purity,
ambiance
environmentally friendly
politically correct

What Makes a New Product?

4 - Objective Physical Characteristics

Space
Access
Speed of operation
Absorbency
Shock-resist
Water-resist / Waterproof
Protective finish
Ease of cleaning
Fire resistance

What Makes a New Product?

4a – More Objective Physical Characteristics

Personally safe
Environmentally safe
Strength
Durability / Long-life
Easy-care
Fitting
Flexibility
Effectiveness

What Makes a New Product?

4b – More Objective Physical Characteristics

Acceleration,
Colour
No-side effects
Range
Choice
Availability
Visibility

What Makes a New Product?

5 - Physical Dimensions

Thickness
Size
Shape
Design
Layout
Miniaturisation
Packaging

Pre-Requisites of New Product Development

The major pre-requisite is the correct company environment.

The company should have a structure and strategy suitable for developing and marketing new products.

It should understand how its market is segmented.

It should be able to manage its products' life cycles effectively.

Inputs Required for Success - 1 **Management**

Authority
Support
Technical Aspects
Communication

Inputs Required for Success - 2 **Information**

General
Marketing
External
Communications

Inputs Required for Success – 3 **Strategy**

Orientation
Objectives
Synergy
Product Characteristics

Inputs Required for Success – 4 **Process**

Timing
Pre-development activities
Development activities
Marketing activities
Launch activities

Inputs Required for Success – 5 **Organisational Structure**

Mechanisms & systems

Style

Inputs Required for Success – 6 **People**

Multifunctional
Coordinated
One should be a product champion
Communication

Functional Inputs into NPD - 1

A wide range of company functions need to have input into a new product development project.

Research & Development - To create the concepts, basic/technical feasibility

Production - To check production feasibility, check production methods, schedule production

Design Consultant - To assess aesthetics of product, design packaging.

Market Research - Investigate market opportunities, consumer attitudes and views.

Advertising - Strategic overview of market, product positioning

Functional Inputs into NPD - 2

Supplier - Requirements and specifications of raw materials and components

Brand Manager - Product champion, coordinator of product team

Consumer - As final customer, involved in terms of focus groups, advisory groups etc.

Trade representative - As immediate customer, should be involved at focus group stage, (security allowing) but certainly for final presentation.

Stages of New Product Development

The following stages are roughly chronological – different products may require slightly changed order of activities.

The order may also change depending on company organisation and operational strategy.

Stages of New Product Development - 1

Problem investigation

Problem definition

Opportunity identification

Initial idea development and approval

Screening of new ideas

Market assessment design

Stages of New Product Development - 2

Preliminary market assessment

Development of technical brief / design brief

Product design

Financial analysis of costs and potential profits

Market research

Develop actual product

Stages of New Product Development - 3

In-house testing of performance factors

Customer/trade tests of product

Design freeze point

Design and source consumables

Trial production and costings check

Market testing – sales trials

Stages of New Product Development - 4

Develop final plan / late adjustments
Develop support elements / business activities
Production start-up
Market launch

Stages of New Product Development - 5

The previous stages make up the basic New Product Development.

However for a product with a longer life cycle there are several other possible stages that follow.

Customer appraisal
After-sales service
Problem investigation
Problem improvement
Design modification.

Why New Products Fail.

Failure of a new product development process is common.

It is stated that 46% of the investment will be lost due to product failure. (International Business Week, 1993).

With more difficult trading times in the 21st century, this figure is expected to have increased.

Reasons for Failure - 1

There are many reasons why new products and services fail, the following are some of the more common reasons.

- **Lack of company commitment**
- **Resistance to change in company**
- **Unclear roles and responsibilities**
- **Objectivity was swayed by enthusiasm**
- **Use of subjectivity, gut-feeling and intuition**
- **Poor market research, poor or incomplete information**

Reasons for Failure - 2

- **Dependence on qualitative data**
- **Dynamic environment not understood**
- **Poor understanding of technology**
- **Omitting production from development team**
- **Misunderstanding of aims of project or product**
- **Development teams lacking specialist knowledge**

Reasons for Failure - 3

Differing aims of R&D and Design

Quality problems

Failure to accept new materials, new technology

Problems between design and production

Changes in materials, components, machines or methods from prototype to product

Timing problems, misunderstanding of market or delayed launch

Poor communications

Reasons for Failure - 4

- Parochial attitude, little mutual respect between departments
- Lack of planning
- Team overburdened with routine work
- Insufficient added value to provide return
- Planning underestimated costs
- Under funded & inadequate resourcing

Cost of Failure

Errors in the new product development process can be expensive, the cost of remedying an error in the early stages is low.

The cost of remedying the same error at a later stage may be 1000 times greater.

Methods of Improving the Likelihood of Success.

Improved management support and practice

**Greater customer involvement
(von Hippel, 1978)**

Improved Market Research

**Improved inter-functional communication
(Souder, 1988)**