Lesson 1

Definition of innovation

Definition of innovation - 1

"Technological innovations are defined as new products and processes and major technological modifications to products and processes. An innovation is considered performed if it is introduced to the market (**product innovation**) or implemented in the production process (**process innovation**). Innovation includes many research, technological, organizational, financial and commercial activities.

Definition of innovation - 2

R&D represents only one of these activities and can take place during various stages of the innovation process. It can play not only the role of the original source of the innovation ideas but also the role of problem solution framework, which can be turned to at any stage of the implementation.„

OECD, Frascati Manual 1992

Oslo Manual

Product innovation

A good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics.

Process innovation

A new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.

Marketing innovation

A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

Organisational innovation

A new organisational method in business practices, workplace organisation or external relations.

Technological innovations – based on specific technology, invention, discovery,

Social innovations – in critical historic periods more important than technological ones (mail, educational systém, social systém, health care, …)

DEGREE OF NOVELTY

Incremental innovations

Radical innovations

Systemic innovations

Classification of innovations

SYSTEM	New series of cars, planes, computers, TV	New generation (MP3 and download as substitution of CD)	Steam engine, ICT, biotechnology, nanotechnology
COMPONENT	Improvement of components	New components for existing systems	Advanced materials improving component properties
	INCREMENTAL		RADICAL
	„do better what we already do“	„new for the company“	„new for the world“

INNOVATION PROCESS

- Research and development (R&D)
- Production
- Marketing

Innovation is an opportunity for something new, different. It is always based on change.

Innovators do not view any change as a threat but as an opportunity

RECOMMENDATIONS

Solve the correct problem correctly – be effective and efficient

Manage innovation as a project

Analyze risks

Use models, scenarios, computer simulation

Study examples of succesful and unsuccesful innovation projects

WHAT TO DO

1. Start with analysis and study of opportunities.
2. Go among people, ask questions, listen
3. Effective innovations are surprisingly simple. They must be focused on specific needs and on specific final products.
4. Effective innovation start on a small scale.
5. A successful innovation always tries to win a leading position, otherwise you create opportunities for your competitors.

WHAT TO AVOID

1. Don't try to be too "clever". All that is too sophisticated will almost certainly go wrong.
2. Don't try to do too many things at once. Focus on the core of the problem.
3. Don't try to make innovations for the future but for today. An innovation can have a long-term impact but there must be an immediate need for it.

Three conditions for innovations

1. Innovation means work, hard, concentrated and thorough work. If these qualities are lacking then there is no use for the big talent, cleverness or knowledge.
2. Successful innovations must build on your strong points. The innovation must be important to the innovator.
3. Innovation must focus on a market, must be controlled by the market (market-pull).

No comment …

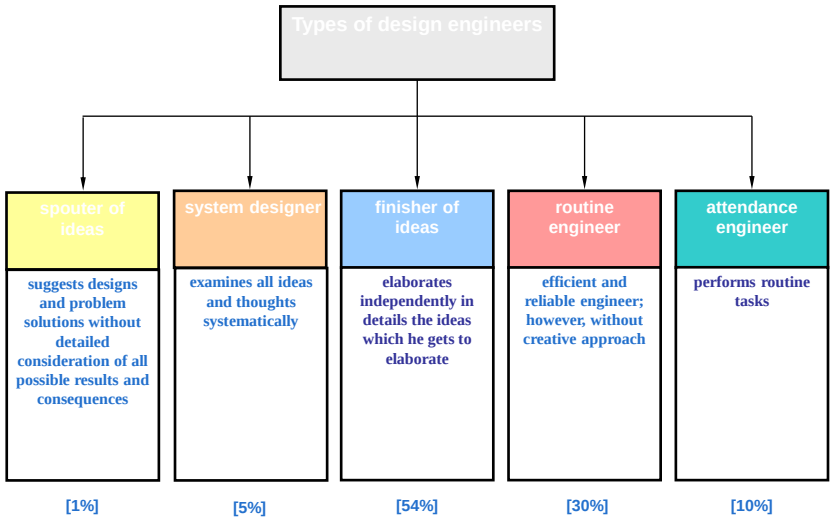
1990

2005

TOSHULIN

Development of new machines:

1. Customized – the machines developed for the specific customer according to its requirements – market pull
2. Prototypes – there is no specific customer – market push



3M and post-it notes

http://www.3m.com/us/office/postit/pastpresent/history_ws.html

More about 3M

A Century of Innovation The 3M Story

http://solutions.3m.com/wps/portal/3M/en_US/About/3M/

iGO – distribution of bateries

Bateries and accessories for notebooks, mobiles, cameras and other equipment

Vision: to develop and sell simple and elegant solutions, facilitate the use of electronic devices

online catalogue, e-commerce, CRM

Customer - targeted marketing, flexibility

Growth of sales by 80% in the first year, by 100% in the following year

http://corporate.igo.com/about_us.aspx

Adaptors

Patented technology iGo Technology, powering of mobile electronic devices using single (universal) adaptor;

Power Technology Patent Brochure (PDF)

More case studies

IBM Case Studies: http://www.ibm.com/search/?en=utf&v=14&lang=en&cc=us&lv=c&q=case+study+innovation&x=13&y=5

Industry podcasts: Midsized clients and experts in seven industries share their insights - http://www-1.ibm.com/businesscenter/smb/us/en/mbpodcasts?&ca=smbIndustryPodcasts101706&tactic=&me=W&met=inli&re=smbibmcomTopPagesIndustriesPromo1usen101706

The most important innovations
in last 30 years

http://www.pbs.org/nbr/site/features/special/subdir/top-30-innovations_slide-show/

Lesson 2

Disruptive and open innovations

Innovation categories

sustaining – better products that can be sold with higher margin to demanding customers; incumbents win

disruptive – commercialization of simpler, more user-friendly products, which are chepaer and targeted to new or less demanding customers; new entrants win

Key elements of disruption

Customers at each market has limited absorption capacity

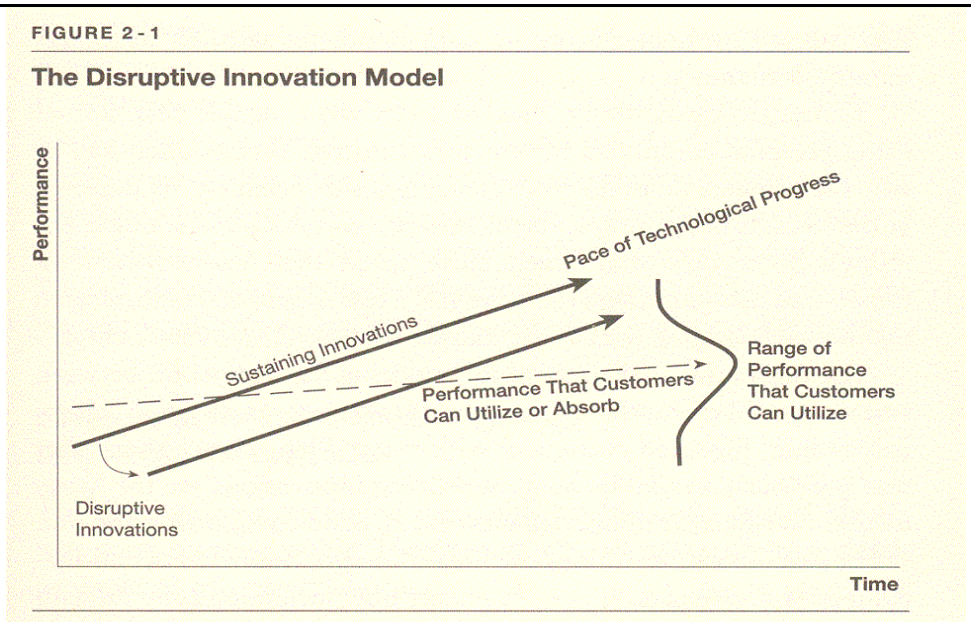
Technological progress usually is faster that the ability of the market to employ it.

Companies focus on better products to be sold with higher margin to unsatisfied customers.

Sustaining vs. disruptive

Sustaining: focused on demanding customers; both incremental and radical. Incumbents have resources and motivation.

Disruptive: introduce products and services not as advanced as existing ones, but offering other advantages (simpler, cheaper, more user friendly, ...) and focus on new or less demanding customers.



Clayton M. Christensen: The Innovator´s Solution, Harvard Business Press, 2003

Conditions of success - 1

Disruption is successful, as it is easier to defeat competition that tries to escape than the competition who fights

Innovation must be disruptive for all companies in the industry

Ex. Internet – for Dell sustaining, they sold computers formerly by mail, phone, etc.

Conditions of success - 2

Following the trajectory upwards to market tiers where it is possible to attain higher margins is what good manager is expected to do.

Each company therefore prepares its own disruption. This is the innovator´s dilemma, but also the start of innovator´s solution.

The advice to new, growing firms: focus on products and markets ignored or neglected ba incumbents.

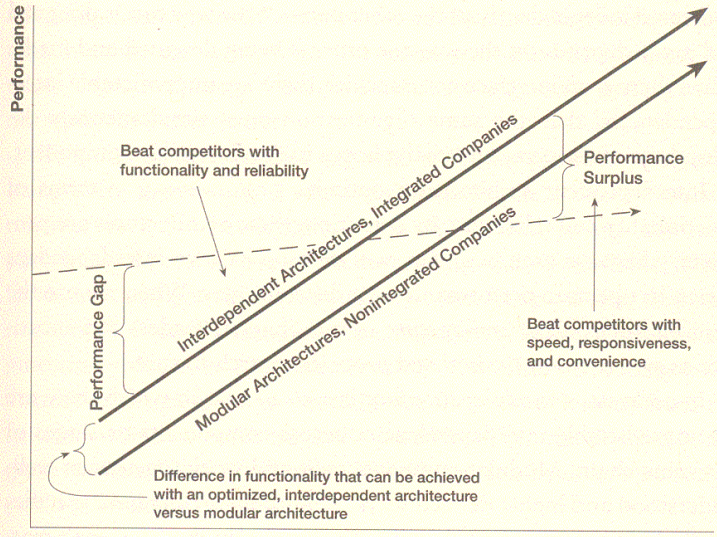
Two types of disruption

New markets: compete with non-consumption: simpler, more user friendly, can be used by less sophisticated customers (PC, transistor radio, desk copiers).

Low-end: focus on lower tiers of main markets (minimills, discount stores, Korean auto-makers); motivate incumbents to leave the market

FIGURE 5-1

Product Architectures and Integration



OPEN INNOVATION

Chesbrough, H., "*Open Innovation*", Harvard Business School Publishing, Boston MA, 2003

Closed innovation - requires control

Open innovation

companies use external as well as internal ideas and both external and internal ways to market

internal ideas can be taken to the market through external channels to generate additional value

Closed innovation	**Open innovation**
All the best people are working for us	Not all the best people are working for us . We must work with clever people within and outside our company.
R&D creates profit only when we invent, develop and market everything ourselves.	External R&D can create remarkable value; to employ it, we need absorption capacity, often as internal R&D.
If we develop the product ourselves, we will be the first on the market.	R&D can create profit even if we do not initialize and perform it ourselves.
Winner is who gets the innovation to the market first.	To develop better business model is more important than to be the first in the market.
We will win if we develop most of the ideas (an the best of them).	We will win if we make best use of internal and external ideas.
We must have our intellectual property under control so that our competitors can make advantage of it.	We must be able to profit from others using our intellectual property and we must license the intellectual property if it supports our business model.

Closed innovation	Open innovation
Examples: nuclear industry, mainframe computers	Examples : PC, movies
Mostly internal ideas	Many external ideas
Low workforce mobility	High workforce mobility
Low role of the venture capital	Active venture capital
Few new businesses, weak ones	Many new businesses
Universities are not important as the sources of ideas	Universities are not important as the sources of ideas and people

Business model

Formulate ***value proposition***, i.e.

the value delivered to the customer by the product based on specific technology.

Identify ***market segment***, ie.

users to whom the technology brings value and performs the job to be done.

Define structure of the ***value chain***, required for the product creation and distribution. Value creation is necessary, however not sufficient condition of profitability; value creation is conditioned by:

1. balance of forces among our business, suppliers and competitors
2. presence of complementary assets (e.g. in production, distribution, etc.) necessary for supporting the company position in the value chain.

Business model– cont´d

Specify the mechanism of profit creation and evaluate product ***cost structure*** and ***target margin***

Describe the company position in the ***value network*** that connects suppliers and customers, including identification of potential alternative producers and competitors.

Formulate ***competitive strategy*** enabling to the innovative company to gain and keep competitive advantage.

Lesson 3

Assessment of company innovation potential

COMPANY INNOVATION POTENTIAL

A company with high innovation potential scores high in the following areas:

1.Strategy and planning

2.Marketing

3.Technological process

4.Quality management

5.Logistics

6.Human resources

Innovation Potential Assessment

For a company, it is important to know its innovation potential. It can use the questionnaire

For every of the six areas, there are six question, each with four possible answers.

The answers are formulated so that they reflect the existing situation in the company.

A. STRATEGY AND PLANNING

1. Idea about the company future
2. Vision and employees
3. Company innovation programs
4. Plan modifications
5. Financial indicators of the plan
6. Project management

B. MARKETING

1. Monitoring of current market trends
2. Evaluation of the market competition position
3. Customer-orientation
4. Monitoring of customers' attitudes to the company product
5. Market information flow inside the company
6. Marketing and financial control

C. TECHNOLOGICAL PROCESS

1. **Future company's competitiveness in the industry**
2. **Changes of technologies**
3. **Collection of impulses for implementation of technology changes**
4. **Evaluation of the return on investment**
5. **Calculation of production costs and their monitoring**
6. **Creation of resources for development**

D. QUALITY, ENVIRONMENT

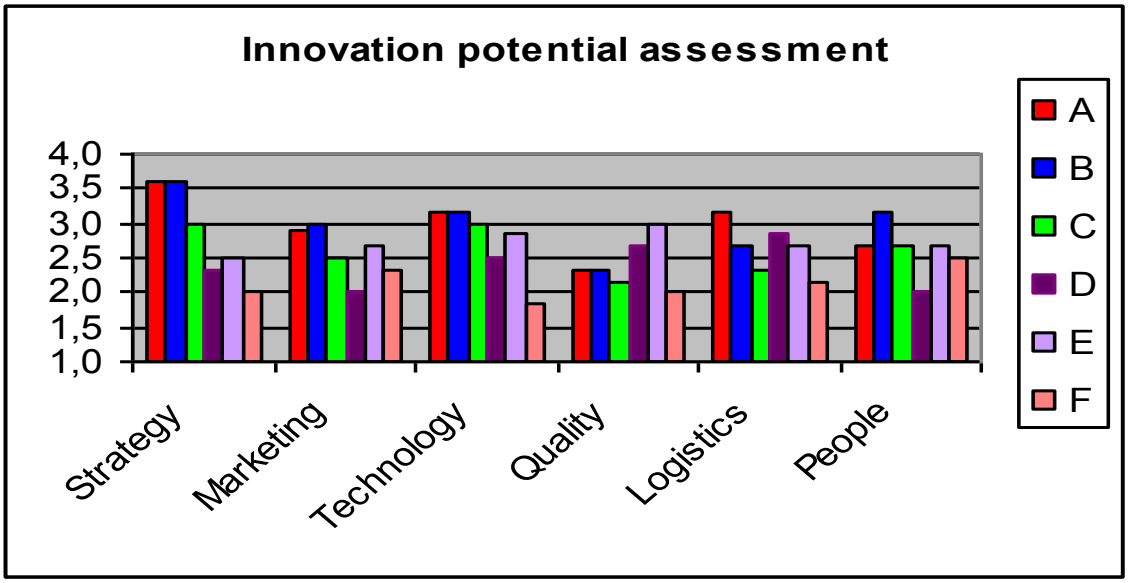
1. Monitoring of changes conditioning the quality management in the company
2. Employees' personal contribution to the quality system
3. External quality audit in the company
4. Monitoring of the environmental impact
5. Impact of quality monitoring on the company processes
6. Covering of costs resulting from modifications of standards, regulations and legislation in the sphere of quality and environment

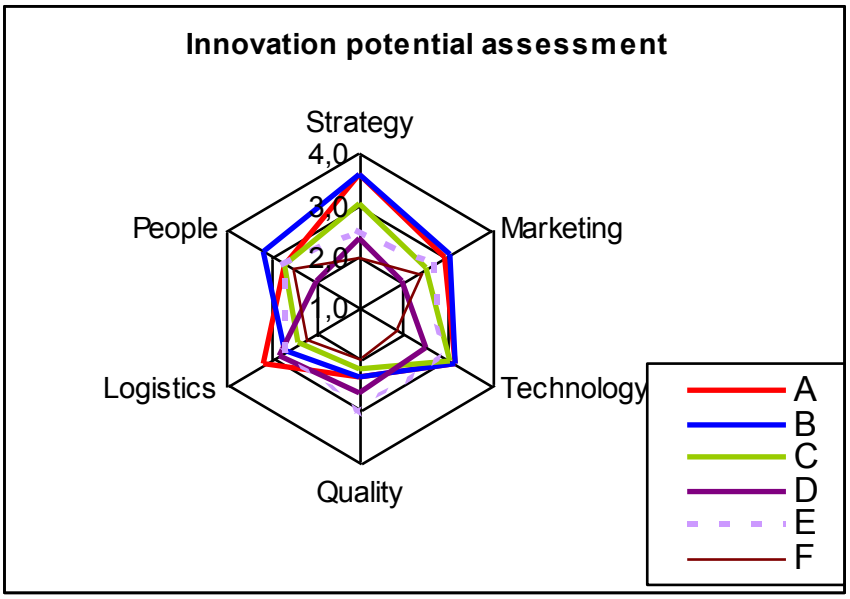
E. LOGISTICS

1. Organization of purchase and distribution channels in the company
2. Optimization of the company logistics
3. Infomation and communication flows between the company and its partners
4. Flexibility of logistics processes
5. Introduction of innovations in logistics
6. Logistics and financial control

F. ORGANIZATION AND HUMAN RESOURCES

1. **Employees satisfaction**
2. **Employees motivation**
3. **Management and communication**
4. **Conflict resolution**
5. **Company information system**
6. **Company culture**


Innovation potential assessment
4,0
3,5
3,0
2,5
2,0
1,5
1,0
Strategy
Marketing
Technology
Quality
Logistics
People
A
B
C
D
E
F


Innovation potential assessment
Strategy
4,0
3,0
2,0
1,0
Marketing
Technology
Quality
Logistics
People
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