

Developing Innovation and Creativity for Business Advantage

**Week – 10:
Managing Innovation & Creativity**

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Recap

- Week 1 – Introduction to innovation
- Week 2 – Concepts & techniques of innovation & creativity
- Week 3 – Innovative eBusiness / eCommerce
- Week 4 – Developing Innovation and Creativity for Business Advantage
- Week 5 – Creativity, Innovation, and Entrepreneurship
- Week 6 – Innovation, Invention
- Week 7 – Innovation, SME Intellectual Property
- Week 8 – Innovation & Sustainable Development
- Week 9 – Managing Innovation & Creativity

This week – we will look “**Managing Innovation & Creativity**”

Managing Innovation & Creativity

Inspirational questions

- What can I substitute to make an improvement?
- What if I swap this for that and see what happens?
- How can I substitute the place, time, materials or people?
- What materials, features, processes, people, products or components can I combine?
- Where can I build synergy?
- What part of the product could I change? And in exchange for what?
- What if I were to change the characteristics of a component?
- What happens if I warp or exaggerate a feature or component?
- What will happen if I modify the process in some way?
- What other market could I use this product in?
- Who or what else might be able to use it?
- What if I did it the other way round?
- What if I reverse the order it is done or the way it is used?
- How would I achieve the opposite effect?

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Inspirational questions - 2

- Who else has solved this problem?
- What similar area of expertise might have solved this problem?
- Is there anyone else in the company who knows how to solve this?
- What else could we use to solve the problem?
- Where else might this problem have been solved?
- What other companies might know how to solve this?
- What similar problems have been solved, and how?
- What other industries face the same problem and what do they do about it?

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Inspirational questions - 3

- How would they think?
- What objects and items would they be using?
- Where would they be doing it?
- How would they see the problem?
- What action would they take?
- How would they explain the problem?
- How would they solve the problem?
- What does your situation or your problem remind you of?
- What other areas of life/work experience similar situations?
- Who does similar things but not in your area of expertise?

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Inspirational questions - 4

- What would my perfect solution be?
- What effect would my ideal solution have?
- What if money/morals/laws did not matter at all?
- What would I do if I had unlimited power and resources?
- What would my ideal solution look like?

Managing Innovation & Creativity

CHARACTERISTICS OF SUCCESSFUL INNOVATING COMPANIES - 1

- Systematic collection of all impulses that could lead to innovation
- Creativity of employees
- Ability to evaluate the possibility of the innovation idea
- Good team work
- Project-based approach and ability to manage projects

CHARACTERISTICS OF SUCCESSFUL INNOVATING COMPANIES - 2

- Cooperation with external experts (universities, research laboratories...)
- Proper rate of risk-taking
- Employees' motivation (the employees are willing to improve the product and the operation of the whole company)
- Continued education of employees
- Ability to finance the innovation activities

ASSESSMENT OF COMPANY INNOVATION

COMPANY INNOVATION POTENTIAL

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

- Strategy and planning
- Marketing
- Technological process
- Quality management
- Logistics
- 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 issues, each with four possible solutions. 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

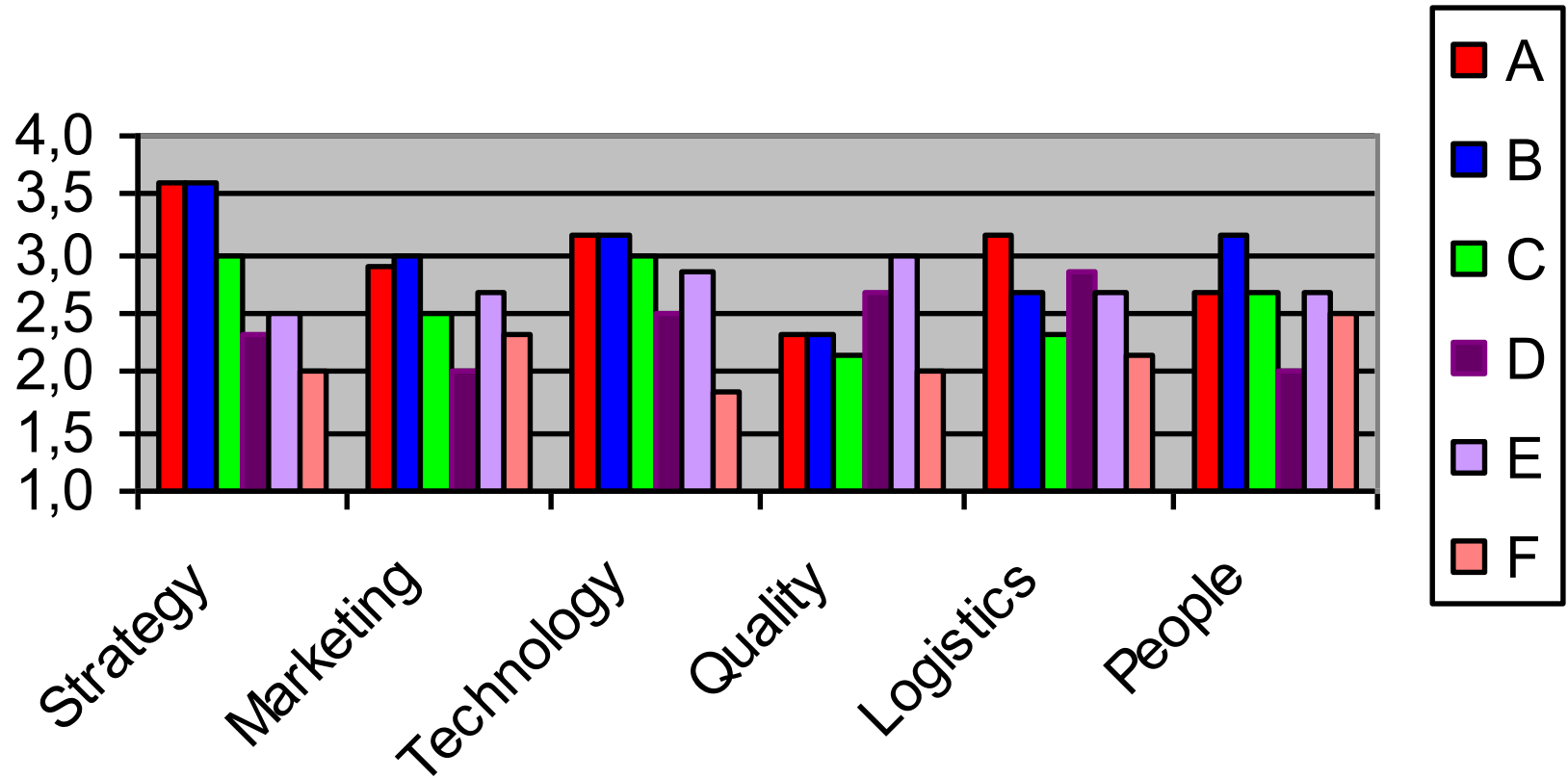
E. LOGISTICS

1. Organization of purchase and distribution channels in the company
2. Optimization of the company logistics
3. Information 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

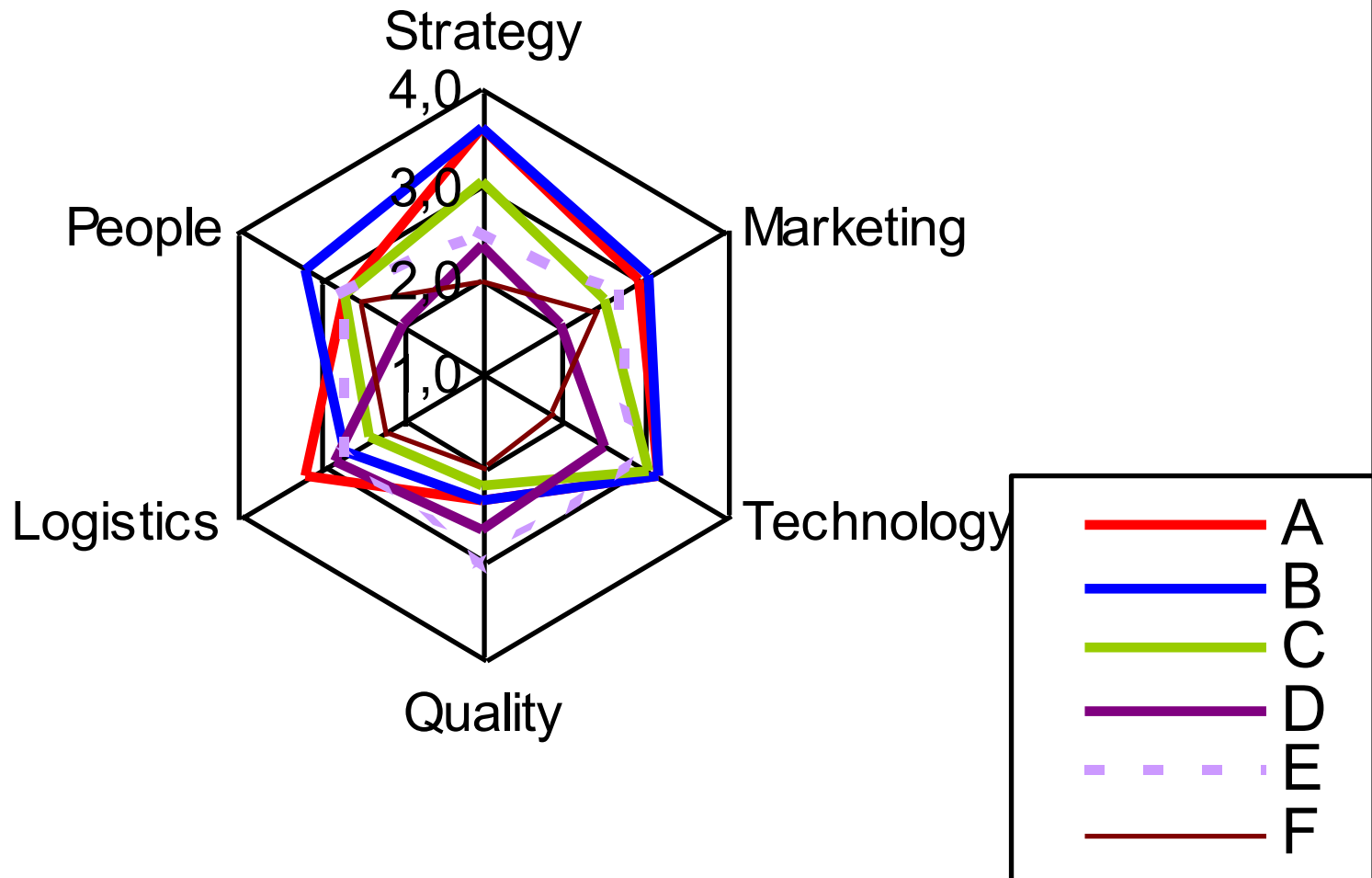
F. ORGANIZATION AND HUMAN RESOURCES

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

Innovation potential assessment



Innovation potential assessment

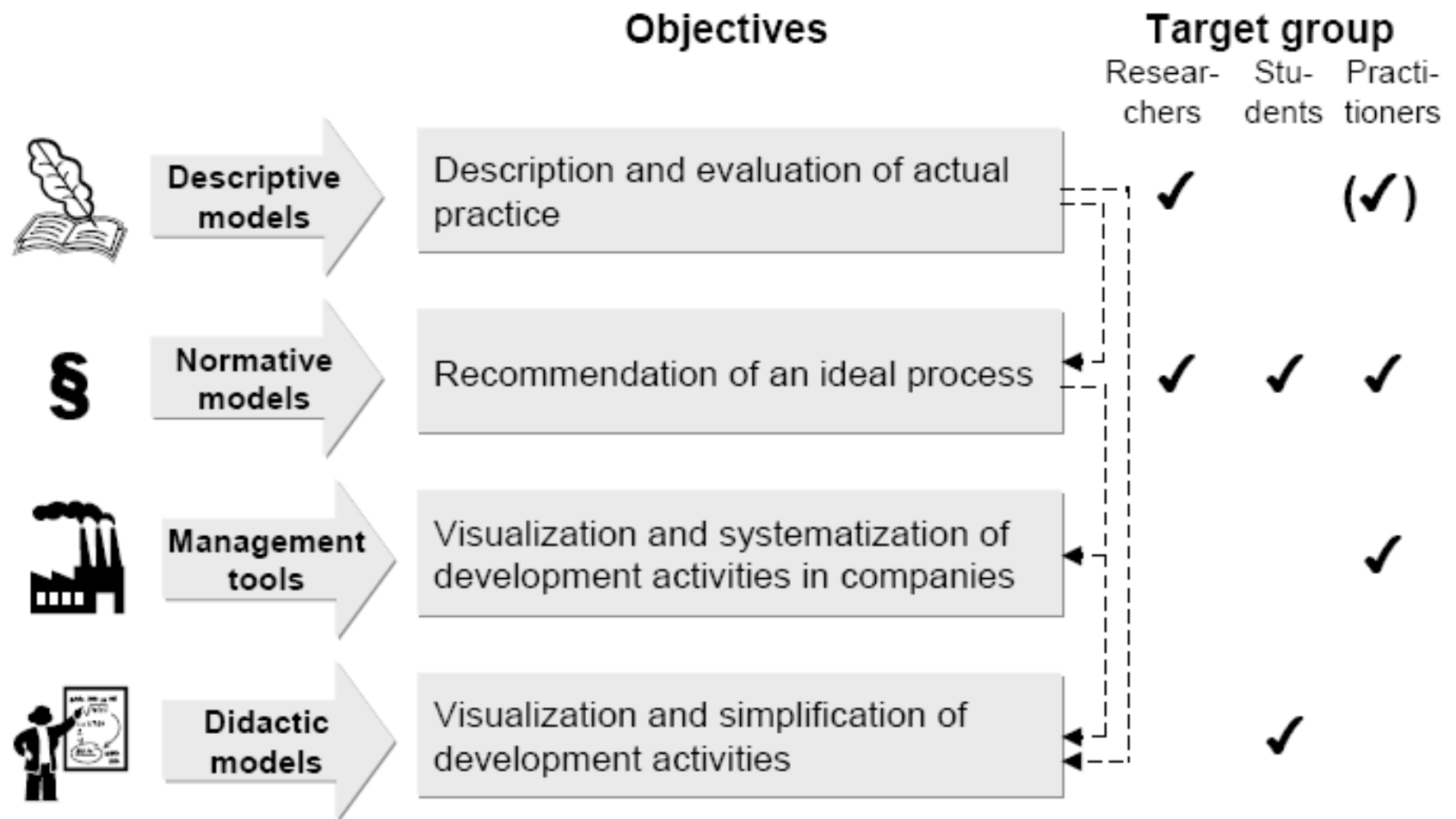


**STRUCTURING THE NEW PRODUCT DEVELOPMENT
PROCESSES**

**EVALUATION OF THE NEW PRODUCT DEVELOPMENT
AND R&D PROJECTS**

**HOW TO SELECT THE PORTFOLIO
OF NEW PRODUCT DEVELOPMENT PROJECTS**

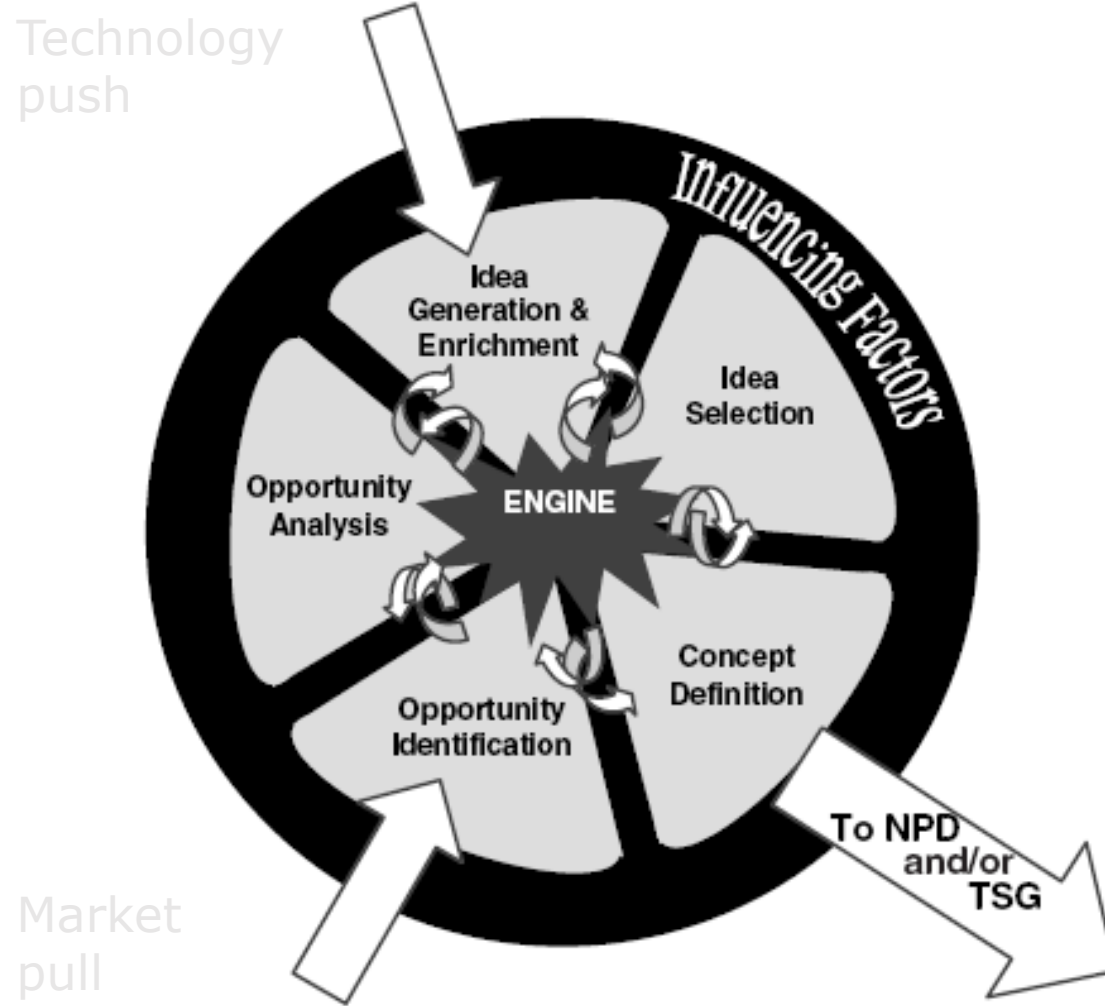
The objectives of process models



Difference Between FFE and NPD

	Fuzzy Front End (FFE)	New Product Development (NPD)
Nature of Work	Experimental, often chaotic. “Eureka” moments. Can schedule work—but not invention.	Disciplined and goal-oriented with a project plan.
Commercialization Date	Unpredictable or uncertain.	High degree of certainty.
Funding	Variable	Budgeted.
Revenue Expectations	Often uncertain, with a great deal of speculation.	Predictable, with increasing certainty, analysis, and documentation as the product release date gets closer.
Activity	minimize risk and optimize potential	Multifunction product and/or process development team
Measures of Progress	Strengthened concepts.	Milestone achievement.

New concept development model (NCD)



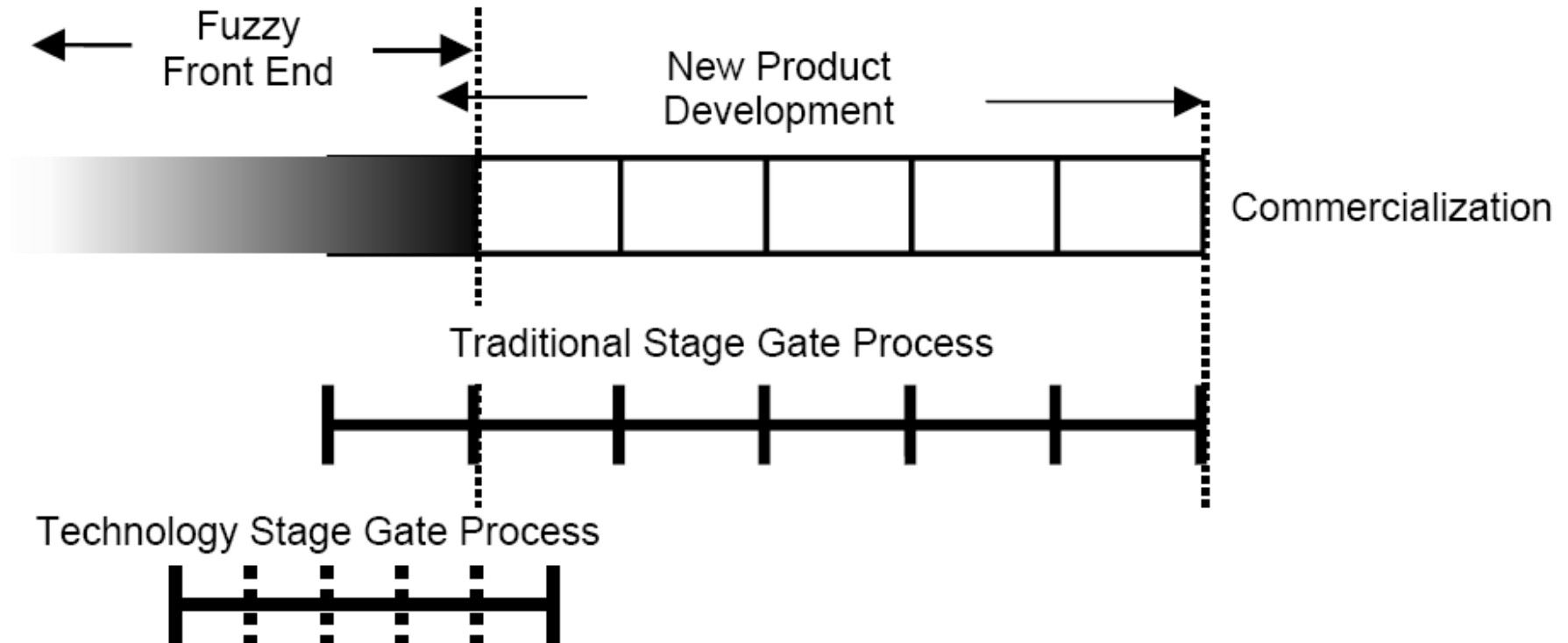
NCD components

- Engine: represents management support
- Engine powers the five elements of the NCD model
- The engine and the five elements are placed on top of the influencing factors.

Technology stage-gate process (TSG)

- Management of high-risk projects within and at the transition between the fuzzy front end and new product development
- traditional SG: gates are transparent, the product development team can "see" all the deliverables at the gates
- TSG: gates are opaque, the team can only "see" to the next gate and understands that the deliverable may change as the technology is developed

Traditional and technology stage-gate processes



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
	Improvement of components	New components for existing systems	Advanced materials improving component properties
COMPONENT			
INCREMENTAL			RADICAL
„do better what we already do“			„new for the world“
			„new for the company“

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

FOCUS

- Use the limited resources in the most effective manner; focus on one of the following:
 - **Operational output**
 - **Top-quality products**
 - **Perfect knowledge of customers**

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 unsuccessful 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 work, 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).

Pillars of success

- 1. Maximum attainable quality**
- 2. Sharing expenses with customers**
- 3. Development of original products**

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>

More case studies

- Sustainable energy (hydrogen, fuel cells, biofuels, zero emission, ...

http://ec.europa.eu/research/energy/nn/nn_pu/article_1078_en.htm

- <http://www.zoner.com/>
- <http://www.kerio.com/>

The most important innovations in last 30 years

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