

MOT 2421 Emerging and Breakthrough Technologies

Prof. dr. J. Roland Ortt

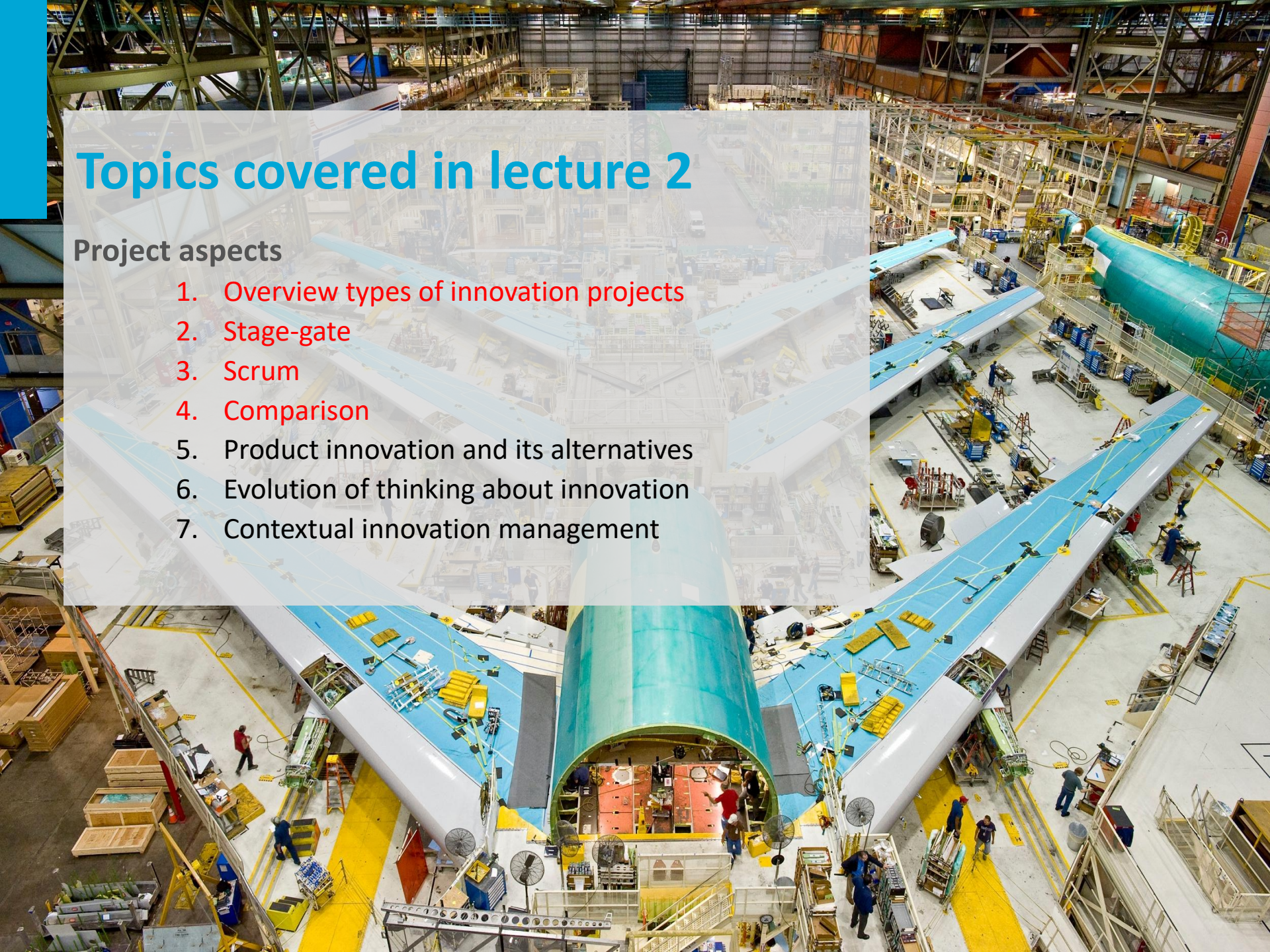
Lecture 2: innovation process project-level



Topics covered in lecture 2

Project aspects

1. Overview types of innovation projects
2. Stage-gate
3. Scrum
4. Comparison
5. Product innovation and its alternatives
6. Evolution of thinking about innovation
7. Contextual innovation management

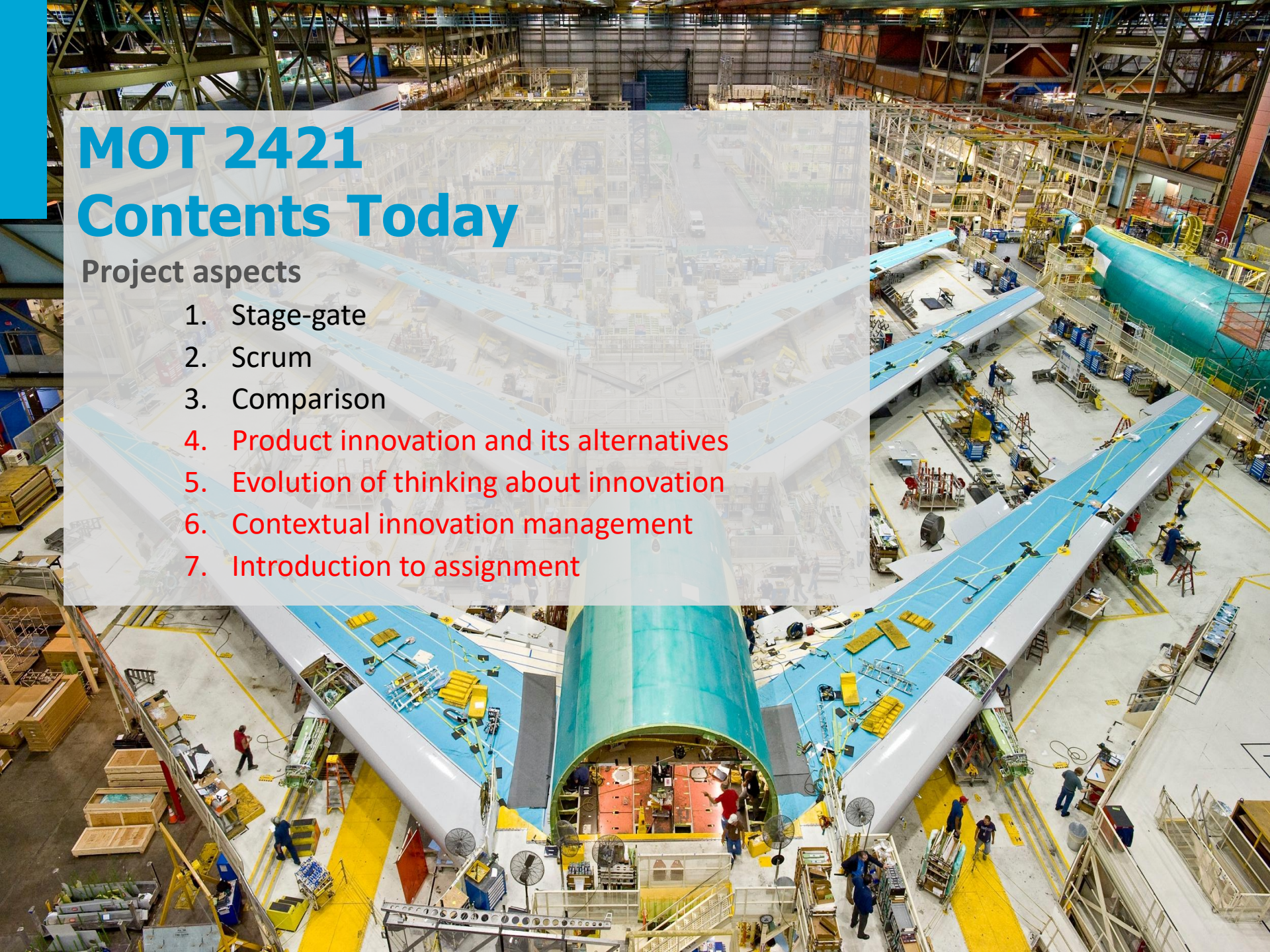


MOT 2421

Contents Today

Project aspects

1. Stage-gate
2. Scrum
3. Comparison
4. Product innovation and its alternatives
5. Evolution of thinking about innovation
6. Contextual innovation management
7. Introduction to assignment



Portfolio aspects of the innovation process

Ad 4. Product innovation and its alternatives (a)

Questions:

- What are alternatives for innovation?
- How do these alternatives compare in terms of investment, payback time and risk?

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Portfolio aspects of the innovation process

Ad 4. Product innovation and its alternatives (b)

| | Investment (-- to ++) | Payback time (shrt, mdl, lng) | Risk (-- to ++) |
|--|--------------------------|----------------------------------|--------------------|
| Market penetration | | | |
| Market development | | | |
| Product improvement | | | |
| Cost cutdown, efficiency process innovation | | | |
| New product development | | | |

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Portfolio aspects of the innovation process

Ad 4. Product innovation and its alternatives (c)

| | Investment | Payback time | Risk |
|--|------------|--------------|------|
| Market penetration | +/- | short | +/- |
| Market development | + | middle | + |
| Product improvement | +/- | short | +/- |
| Cost cutdown, efficiency process innovation | - | short | - |
| New product development | ++ | long | ++ |

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Portfolio aspects of the innovation process

Ad 4. Product innovation and its alternatives (d)

| | Investment | Payback time | Risk | Order of preference |
|---|------------|--------------|------|---------------------|
| Market penetration | +/- | short | +/- | 2 |
| Market development | + | middle | + | 3 |
| Product improvement | +/- | short | +/- | 2 |
| Cost cutdown, efficiency process innovation | - | short | - | 1 |
| New product development | ++ | long | ++ | 4 |

Best alternative strategic option:

- Low investment
- Short payback time
- Low risk

Order of preference is then (1-4)

Why innovate if it is such low preferred strategic option?

Only long-term option, the long term outcomes of the strategies are not depicted

- Stakeholders often force companies towards a short-term alternative
- What is the effect of market and technology trends on the relative preference for the strategic options?

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Portfolio aspects of the innovation process

Ad 4. Product innovation and its alternatives (e)

Conditions that require innovation

Long term effects
External

Market changes

Technology changes

Long term effects
Internal

Portfolio unbalanced

Short term effects

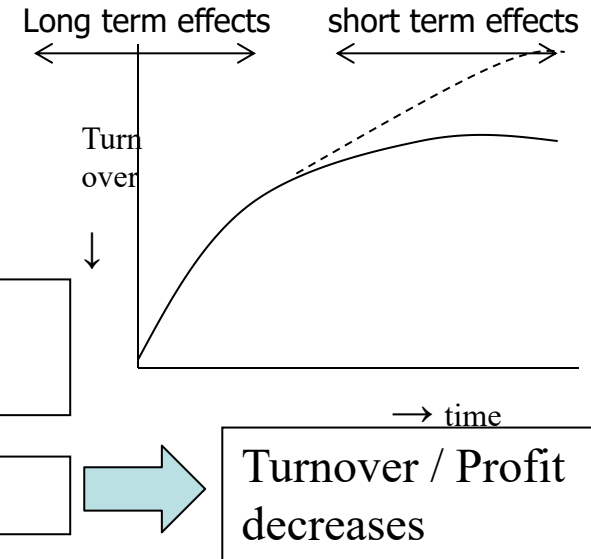
Competitors introduce better products

Consumers switch

Price/performance ratio deteriorates

New product
New production
New organization

New product version/service marketing mix
Production optimization
Organization optimization



MOT 2421

Contents Today

Project aspects

1. Stage-gate
2. Scrum
3. Comparison
4. Product innovation and its alternatives
5. Evolution of thinking about innovation
6. Contextual innovation management



Changes in the innovation process

Innovation management: different approaches to cope with the same trends (article).

Overview of the article

- Trends on multiple levels in the environment interact
- According to the article the combined effect can be condensed in 4 consequences for innovation processes.
- Two cases describe entirely different ways to cope with trends

Discussion points

To what extent are the companies using a stage-gate process?

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Changes in the innovation process

5. Trends in innovation (a)

Trends on the macro-level with an impact on innovation processes

1. Globalization and the shift in economic power of countries and regions.
2. Structural changes within economies.
3. Increase in, and shift in modes of, communication
4. Changing knowledge landscape

The trends in innovation, their consequences and different approaches to cope with the same trends can be found in the article (Ortt & Smits, 2006)

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Changes in the innovation process

5. Trends in innovation (b)

Trends on the meso-level with an impact on innovation processes

4. Increased competition.
5. Rapid advances in technology.
6. Increased accountability to customers and societal pressure groups.
7. Increased focus on core competences.
8. More alliances.

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Changes in the innovation process

5. Trends in innovation (c)

Trends on the micro-level with an impact on innovation processes

9. Organizations demand a more direct contribution of innovation to business goals
10. Broadening of decision making processes in innovation.

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

5. Consequences for the innovation approach (a)

Effect of these trends on innovation

1. The end of the linear model.
2. The rise of the systems approach.
3. The inherent uncertainty and need for learning.
4. Innovation becomes more entrepreneurial.
5. Innovation becomes more open

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Changes in the innovation process

5. Consequences for the innovation approach (b)

Different innovation approaches to coping with the same trends: Adaptive learning approach

1. The end of linear model:
 - Responsibility of process is delegated full time team
2. Uncertainty/need for learning:
 - Learning is own responsibility of employees (networks)
3. Entrepreneurial nature of innovation
 - Employees are stimulated to invest themselves

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

5. Consequences for the innovation approach (c)

Different innovation approaches to coping with the same trends: strategic planning approach

1. Uncertainty/need for learning:
 - well-structured procedures/job competence profiles
2. The end of linear model:
 - Stage-gate approach (innovation projects as options)
3. Entrepreneurial nature of innovation
 - Committees to evaluate and fund ventures

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

5. Subsequent generations of innovation processes

The changes in innovation processes, R&D organizations and the macro-environment are described in the article (Ortt & vd Duin, 2008)

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

MOT 2421

Contents Today

Project aspects

1. Stage-gate
2. Scrum
3. Comparison
4. Product innovation and its alternatives
5. Evolution of thinking about innovation
6. Contextual innovation management



Contextual Innovation

1. Cases
2. Strategic decisions
3. Operational decisions

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Contextual Innovation

1. Cases (a)

Case 1/2:

Setting: a young consultant, specialized in innovation visits his first companies

1. Company that develops computergames (software)(around 1997)([See company gamespy 1996](#)).
2. Internal revenue service (“Belastingdienst”) (governmental organization that organizes the tax reception).

Contextual Innovation

1. Cases (b)

Lessons Case 1/2:

1. Sources (starting-point) of innovation differ in different industries
2. Innovation processes differ across industries

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Contextual Innovation

1. Cases (c)

Case 3:

Develop project management course 60 student hours,
including reading material 160 hours (6ects)

University: 60 hours

Multinational: 1600 hours

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Contextual Innovation

1. Cases (d)

Lessons Case 3:

1. Innovation processes for similar products differ with the scope of the project
2. Innovation processes for similar products differ with the type and size of the organization

1 stage

2 scrum

3 compare

4 alternatives

5 evolution

6 contextual

Learning goals

After today you should be able to explain

1. What a Stage-gate innovation project is (and its origin and characteristics)
2. What a Scrum innovation project is (and its origin and characteristics)
3. The difference between these project approaches and when to apply each.
4. Product innovation and its alternatives.
5. The evolution of thinking about innovation.
6. What contextual innovation management is.

Assignment

Organization

- Form groups of 4-6 people. Send me an E-mail (group + topic)
- Assignments 50% of your grade.
- I recommend a few cases, but you can also suggest other cases
- The report should be no longer than 12 pages (excl appendices)

Schedule

| | |
|-------------|---|
| 08-05-2023: | Introduction to the assignment (Groups and topics). |
| 02-06-2023: | Discussing issues with assignment (by E-mail) |
| 09-06-2023: | “ “ |
| 16-06-2023: | Hand in final report (E-mail + print) |
| 14-07-2023: | Grade assignment (and course) |

Questions?



Next lecture Friday 12-05



Topics: pattern of development and diffusion

Articles:

1. Ortt (2010). Understanding the pre-diffusion phases.
2. Schroeder et al. (1986). Managing innovation and change processes.