# "Evaluation of IT"

**IT architecture and User Driven Software Design**(BUITA)

30. October 2018

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Evaluation – in learning theory
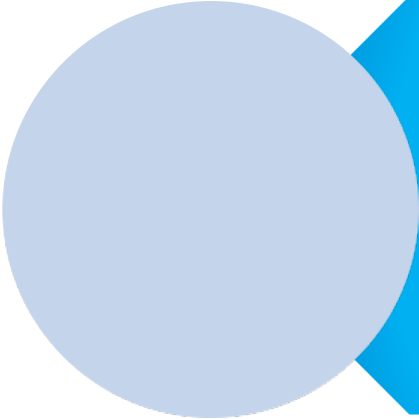
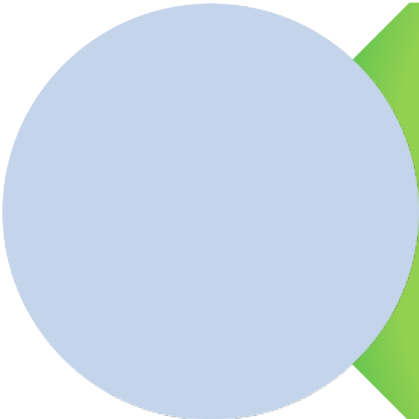Evaluation – in informatics

Pilot implementation

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# Articles:

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Hertzum, Bansler, Havn and Simonsen (2012): Pilot Implementation: Learning from field experiments in IS Development.

CAIS, 30(1), 313-328

Simonsen, Scheuer and Hertzum: Accreditation and Participatory Design in the Healthcare Sector,

Proceedings of the 38th Information Systems Research Seminar in Scandinavia

# Learning goals

- Know the role and the elements of it evaluation within informatics

- Know the core concepts of it evaluation

- Know methods and techniques of pilot implementation

# Evaluation of IT

- Evaluation in learning theory
  - Integral part
  - Many approaches
- Evaluation in IS
  - Technical focus
  - Under researched

# Learning theories

http://cmapspublic3.ihmc.us/rid=1LNV3H2J9-HWSVMQ-13LH/Learning%20Theory.cmap
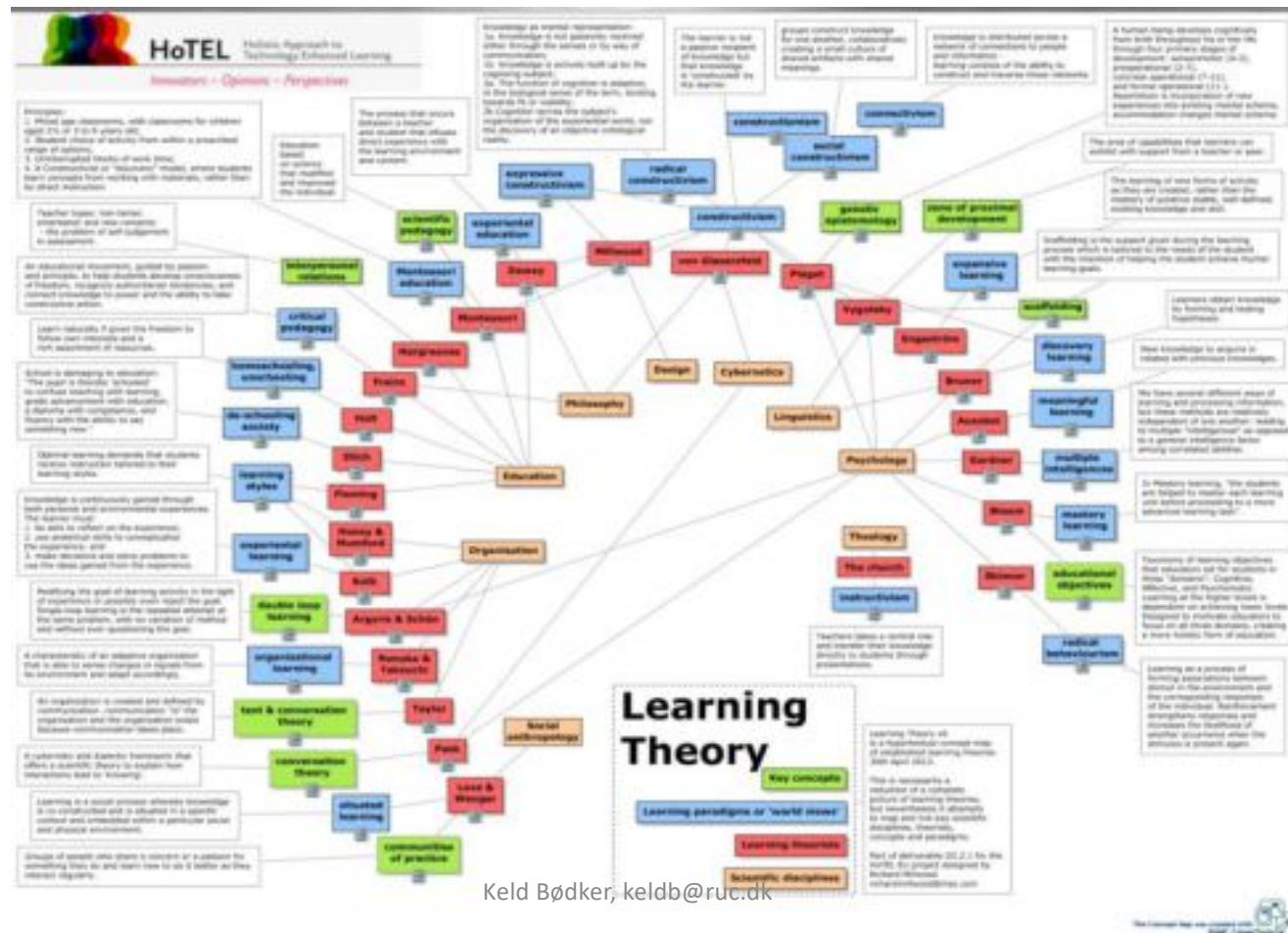
# Evaluation in learning theory

- Formative and Summative evaluation (Scriven, 1967)
- Evaluation is a prerequistite for systematic learning

|  | Formative | Summative |
|---|---|---|
| Time | During a learning activity | At the end of a learning activity |
| Goal | To improve learning | To make a decision |

# Evaluation in Information Systems Development

- Formative and Summative evaluation

|  | **Formative** | **Summative** |
| --- | --- | --- |
| Time | During the project | At the end of the project |
| Goal | To improve the project<br>-product<br>-proces | To make a decision/ judge the outcome |

# Evaluation in IS Development

- 2x2 framework of possible evaluation strategies (Pries-Heje et al 2008)
- Formative - for example feasibility study or cost-benefit
  - Generally any evaluation before or during a project implementation
  - Aim: improve the project design and performance
  - Scope: what works and what doesn't
- Summative - looks at the impact
  - Generally any evaluation after or at the end of the project
  - Aim: what did the project achieve?
  - Scope: did the project meet its objectives?

# Evaluation in IS Development

- 2x2 framework of possible evaluation strategies (Pries-Heje et al 2008)

| Setting\Type | Ex ante (formative) | Ex post (summative) |
|---|---|---|
| Naturalistic<br>-many stakeholders<br>-potential conflict<br>-high cost<br>-lower risk of false positives | During the project<br>-real users<br>-real problems<br>-somewhat unreal system | At the end of the project<br>-real users<br>-real problems<br>-real system |
| Artificial<br>-few stakeholders<br>-less conflict<br>-lower cost<br>-risk of false positives | During the project<br>-unreal users, problem and/or system<br>-proces | Real system, unreal problem and possible unreal users |

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# Evaluation in IS Development/exercise

- In BUITA 6 we discussed various evaluation techniques in architecture, see slide 5-10 for details

- Where would you place these in the 2x2 matrix?

- Do you agree in the characteristics?
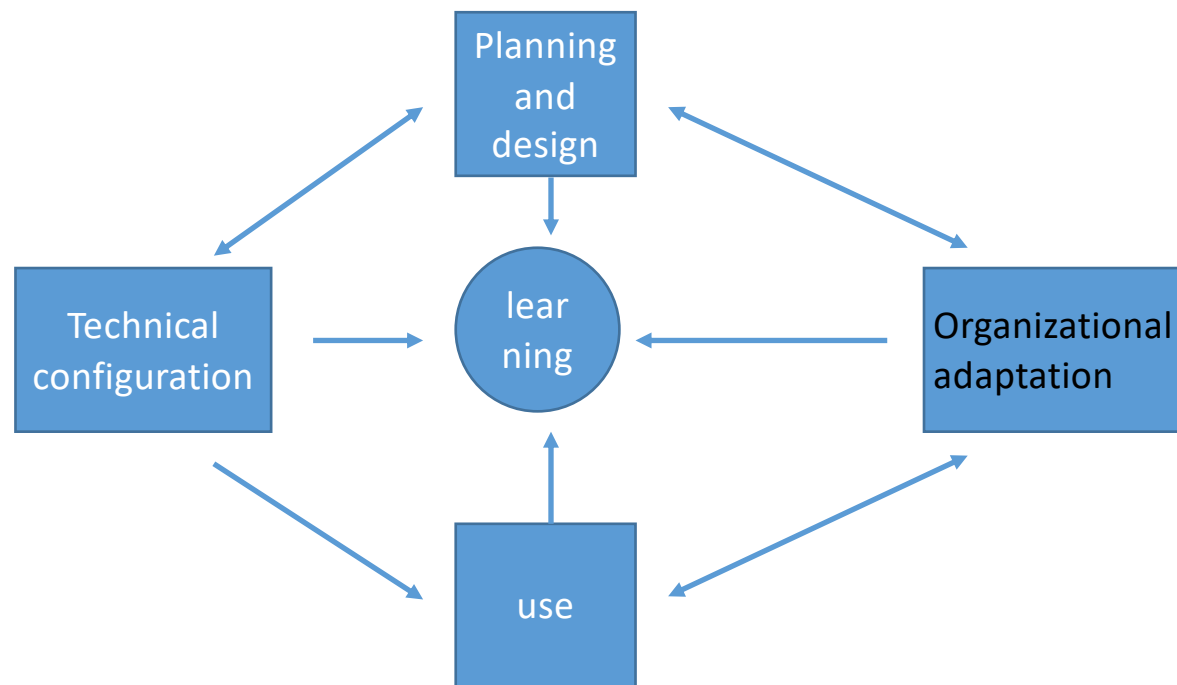
# Pilot implementation

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- "a field test of a properly engineered, yet unfinished, system in its intended environment, using real data, and aiming – through real-use experience – to explore the value of the system, improve or assess its design, and reduce implementation risks"
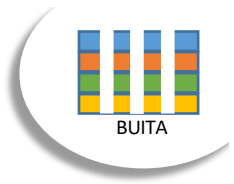
# Pilot implementation

Characteristics

- Pilot system - not fully developed

- Pilot implementation - limited in scope and time

- Pilot implementation - conducted in intended use-environments using real data

- Pilot implementation - conducted to learn about the fit between system and use environment

# Pilot implementation model

# Pilot implementation - exercise

- Where would you place "pilot implementation" in the 2x2 matrix?
- Do you agree in the characteristics?

# Table 1. Contrasting prototyping and pilot implementation

|  | *Prototyping* | *Pilot implementation* |
|---|---|---|
| *Purpose ("why?")* | To learn about the final design by traversing a design space, manifesting design ideas in concrete artefacts, and testing the fit between a proposed design and the user | To learn about the fit between the system and its context in order to explore the value of the system, improve or assess its design, and reduce implementation risk |
| *System ("what?")* | Prototype, i.e. a model, early design or not yet properly engineered system | Pilot system, i.e. a properly engineered, yet unfinished system |
| *Setting ("where?")* | In the laboratory, i.e. separated from real work | In the field, i.e. during real work but limited to one or a few sites |
| *Process ("how?")* | Demonstrated or tried out in brief sessions simulating real use, with test data and test tasks | Used in its intended environment for a limited period of time, with real data and special precautions against breakdowns |
| *Time ("when?")* | During development when it is feasible to test the system design | During development when it is feasible to test the design *and* its implementation |
| *Duration ("how long?")* | Short, i.e. typically days or weeks | Long, i.e. typically weeks or months |

# Pliot implementation exercise

- The authors use Alter's model (2001) to characterize system development
    - Initiation
    - Development
    - Implementation
    - Operation
- Using this model how would you picture system development using prototyping and pilot implementation?

# Evaluation in IS Development/ Accreditation vs. Participatory Design

| Accreditation/DQM | PD/Effects-driven it development |
|---|---|
| Plan-do-check-act | Effects specification – realization - assessment |
| <processes> | <effects |



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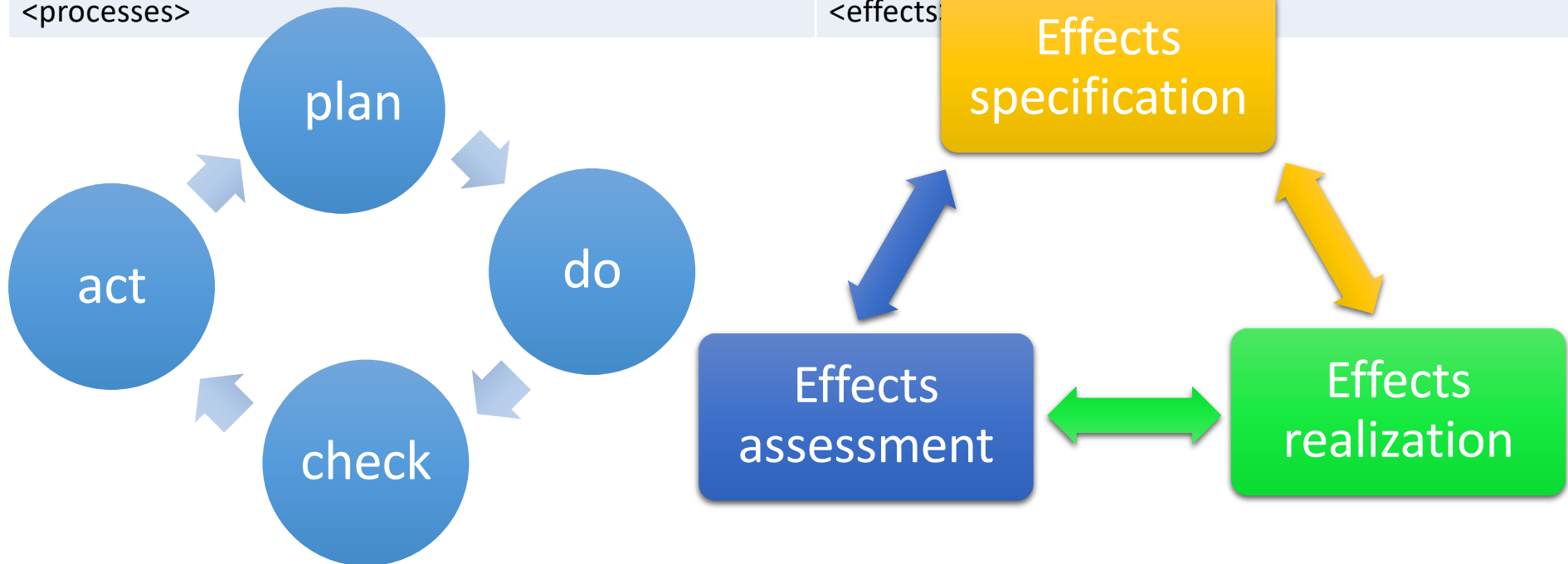
Evaluation – in learning theory

Evaluation – in informatics

Pilot implementation
Accreditation vs. effects driven it- development