Business model design

Action Design Research as a way of studying design

Matti Rossi
Aalto University School of Economics

This presentation is based on an ongoing collaborative effort with Dr. Maung Sein, University of Agder, Dr. Sandeep Purao, Penn State University, USA, Dr. Ola Henfridsson and Dr. Rikard Lindgren both of Viktoria Institute, Sweden

Agenda

Action Design Research
- Background
- Research process
- Evaluation
- Further reading
Matti’s background

Professor of information systems at Aalto University
School of Economics

Previously visiting Georgia State University, Erasmus
University Rotterdam, Claremont Graduate University

All studies at University of Jyväskylä

Thesis on advanced CASE tools 1998

Minority owner and former board member of MetaCase
Consulting (www.metacase.com) a spin off of the
thesis project

Our approach

Action Design Research: A research approach integrating Action
Research and Design Research

Recognizes that our research has a dual mission

- adding to existing theory
- producing knowledge to support IS practitioners in solving current
  and anticipated problems

Builds knowledge by simultaneously

- intervening in an organization
- through developing an artefact
The Emergent IT Artifact

IT artifacts are emergent

- "They are neither fixed nor independent, but they emerge from ongoing social and economic practices" (Orlikowski and Iacono, 2001)

Emergence comes from

- Interaction between technology and an organizational context (Truex et al. 1999)

Emergence is in both use and design

- "IT artifacts are shaped by the interests, values, and assumptions of a wide variety of communities of developers, investors, users, etc." (Orlikowski and Iacono, 2001)

Conceptualizing the IT Artifact

What is an artifact?

- an ensemble (Orlikowski and Iacono 2001)
- contextual (Benbasat and Zmud 2003)
- emergent (Livari 2003)

Ensemble:

those bundles of material and cultural properties packaged in some socially recognizable form such as hardware and/or software (Orlikowski and Iacono 2001)
Action Design Process

ADR: Stage 1

An immediate or anticipated problem: perceived by organizational participants, and framed by the researcher

Identify the class of which the specific problem is an instance

Formulate initial research questions

Identify contributing theoretical bases

Identify prior technology advances
Building of the technology artifact, Intervention, and Evaluation are intricately interwoven.

Deployment in the organization to both evaluate the theory and solve the problem formulated.
Org-Dominant BIE

ADR: Stage 3

- Analyze intervention results
- Articulate learning in terms of theories selected
- Ongoing evaluation of adherence to principles
ADR: Stage 4

**Abstract results to a class of field problems**
Focused on transferability of results and communication of outcomes

Outcomes specified as design principles and contributions to theory

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**Intellectual phases in planning**

(Modified from McConnell, 1998, 52 by Rajala 2010)
Principles

1. Principle 1: Praxis-inspired research
2. Principle 2: Theory-ingrained artifact
3. Principle 3: Reciprocal Shaping
4. Principle 4: Mutually Influential Roles
5. Principle 5: Authentic and Concurrent Evaluation
6. Principle 6: Guided Emergence
7. Principle 7: Generalized Outcomes
2: Theory-ingrained Artifact

Three overlapping uses of theories

- To structure the problem; identify solution possibilities; guide design (Gregor 2006)

Design Theories as a nexus (Pries-Heje and Baskerville 2008) building on kernel theories (Walls et al. 1992)

Design principles (e.g. Markus et al. 2002) represent a precursor

6: Guided Emergence

Captures seemingly incongruent perspectives

Initial design by researchers, shaped by ongoing organizational use and reflected in redesign (Garud et al 2008; Iivari 2003)

Combination of

- preliminary design of the artifact (Principle 2)
- refined by ongoing interactions among perspectives and participants (Principles 3 and 4 respectively)
- outcomes of formative evaluation (Principle 5)
7: Generalized Outcomes

Not just a matter of small sample size and inductive argument (Lee and Baskerville 2003)

The ensemble artifact includes a bundle of properties in different spheres (organizational and technological)

Reconnecting to source theories and moving to Design Principles as a precursor to Design Theories

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Evaluation of Designs

- Analysis of the built systems
- Field trials
- Commercial success

- Measure of success should be defined before the implementation
- Systems should be evaluated against the defined measures
Evaluation criteria according to Chen et al.

The purpose is to study an important phenomenon in areas of information systems through system building. The results make a significant contribution to the domain. The system is testable against all the stated objectives and requirements. The new system can provide better solutions to problems than the existing systems and design expertise gained from building the system can be generalized for future use.

Market-based Validation of Design results (Kasanen & Lukka)

Weak market test
- a manager applies the construction in a company

Semi-strong market test
- constructions becomes widely adopted by companies

Strong market test
- systematic application produces better financial results
Problems of evaluation

If the original goals evolve, what happens to criteria?
What happens in case of outright failure?
What happens if we cure by accident other problems?

A Final comment

In Frank Brooks' words: “In a word, the computer scientist is a toolsmith. (...) If we were to perceive our role aright, we then see more clearly the criterion for success: a toolmaker succeeds as, and only as, the users of his tool succeed with his aid.”
Contact Information

Matti Rossi
Aalto University School of Economics
P.O. Box 1210
FIN-00101 Helsinki
Finland
Email: matti.rossi@hse.fi
Phone: +358-9-43138996
Fax: +358-9-43138777

http://www.hse.fi/EN/HKI/R/Matti.Rossi/1_ContactInfo.htm
IM: Matti_Rossi@msn.com