Business-Driven NPD Process Improvement in Small Software Product Businesses

Concepts and Research Problem

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Outline

- Background and motivation
- Conceptual framework and the research problem
- Research questions
Background and Motivation
Some Definitions

- **A Small Company**
  - Under 50 employees (complies with the European Union standard)

- **Software Product Business**
  - The amount of customer-specific development effort is (or is intended to be) relatively small (Hoch et al. 1998)

- **Business-Driven Software Process Improvement**
  - Aims for a *context-specific match* between business context and development process
Matching Software Development Processes with the Business Context – A Difficult Task

- A systematic approach to software development can improve development effectiveness and efficiency and software quality (e.g. Royce 1970, Boehm 1988, Kruchten 2001)

- Using process improvement frameworks designed for large and/or project-based businesses in small SW product companies is impractical (e.g. Brodman & Johnson 1994, Rautiainen et al 2002a & 2002b, Vähäniitty 2003a)

- We propose that instead of following a prescriptive model, process improvement efforts should be focused on where the most business value lies
  - What are the first things a small company should look at, *how does this depend on...*
    - *...the processes already in place?*
    - *...the business context?*

- Currently, the topic is poorly addressed both conceptually and with respect to techniques in literature and in practice
Motivation for a Business-Driven Process Improvement Approach

- We propose that understanding the key mechanisms and factors involved would
  - Help software process improvement focus on the essentials, increasing its value
  - Shed light on what kind of development processes and practices are suitable in different business contexts
  - Help understand how (e.g.) development process maturity affects the set of feasible ways to conduct software business
Conceptual Framework and the Research Problem
Using the **Business Model** as a Proxy for **Business Context**


(Factors affecting a software business model
- Adapted from Rajala 2001 & 2003)
Research Problem:

How do business models affect software process improvement priorities in small software product businesses?
Stages in Developing a Theory for Business-Driven Identification of Targets for Process Improvement

- **Vocabulary**
  - The notion of Business-Driven Process Improvement is conceptually understood

- **Sentences**
  - The rationale and goals for process improvement over time in different real-life situations can be described using the vocabulary

- **Phrase Book**
  - There are enough sentences to suggest rules of thumb for some common situations

- **Lexicon**
  - The phrase book has grown to cover most situations. (i.e., a process improvement framework taking the business context into account has been formed)
Operationalising the Business Model – Development Process Link:
Key Decision Areas in Strategic NPD Mgmt

(Vähäniitty 2003)

Portfolio management
What, when & why?

Organisation
By whom & where?

Development model
How to proceed?

Quality strategy
Deliver with what emphasis?

Product management
What, when & why, more specifically?
Research Questions
Research Questions

Q1.1 What **products and services** does the company offer and what **business models** does it employ?

Q1.2 How does the company conduct **portfolio management** and what issues does the process deal with?

Q1.3 For each business model, what is the respective **product development process** like?

Q1.4 What is the **organisation** of the company like?

Q1.5 Which of the **combinations** work poorly / well for the companies in question?

Q1.6 What is the (context-specific) **root cause** in making a **combination** harmful / beneficial?

Q1.7 Are some of the **root causes** relatively more dependant on proper **portfolio management** and development processes than on the other mechanisms?

⇒ **Yields Sentences** and outlines situations where BDPI is of most value
⇒ **Collecting Sentences** and abstracting from them yields theory
Thank You!
Questions & Discussion

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