

Business-Driven NPD Process Improvement in Small Software Product Businesses

Concepts and Research Problem

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Jarno Vähäniitty

jarno.vahaniitty@soberit.hut.fi

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**

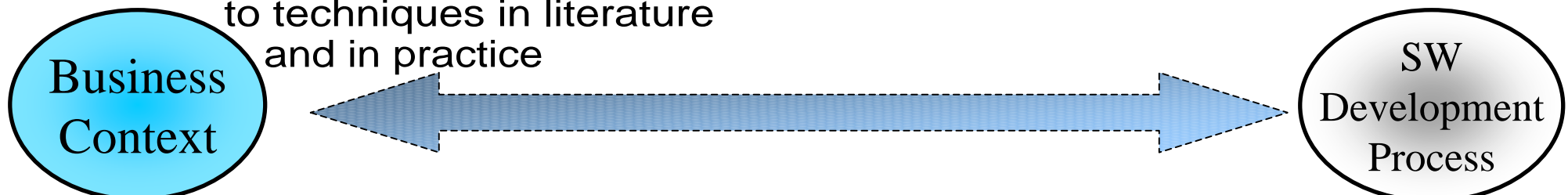
- ❖ The amount of customer-specific development effort is (or is intended to be) relatively small (Hoch et al. 1998)

❑ **Business-Driven Software Process Improvement**

- ❖ Aims for a *context-specific match* between business context and development process

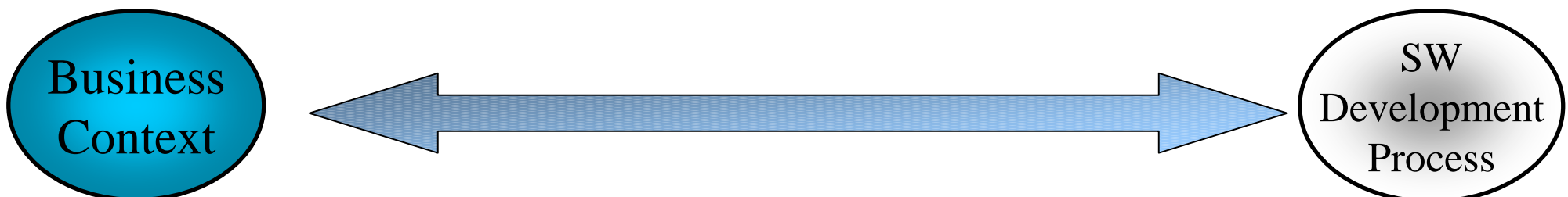
Matching Software Development Processes with the Business Context – A Difficult Task

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

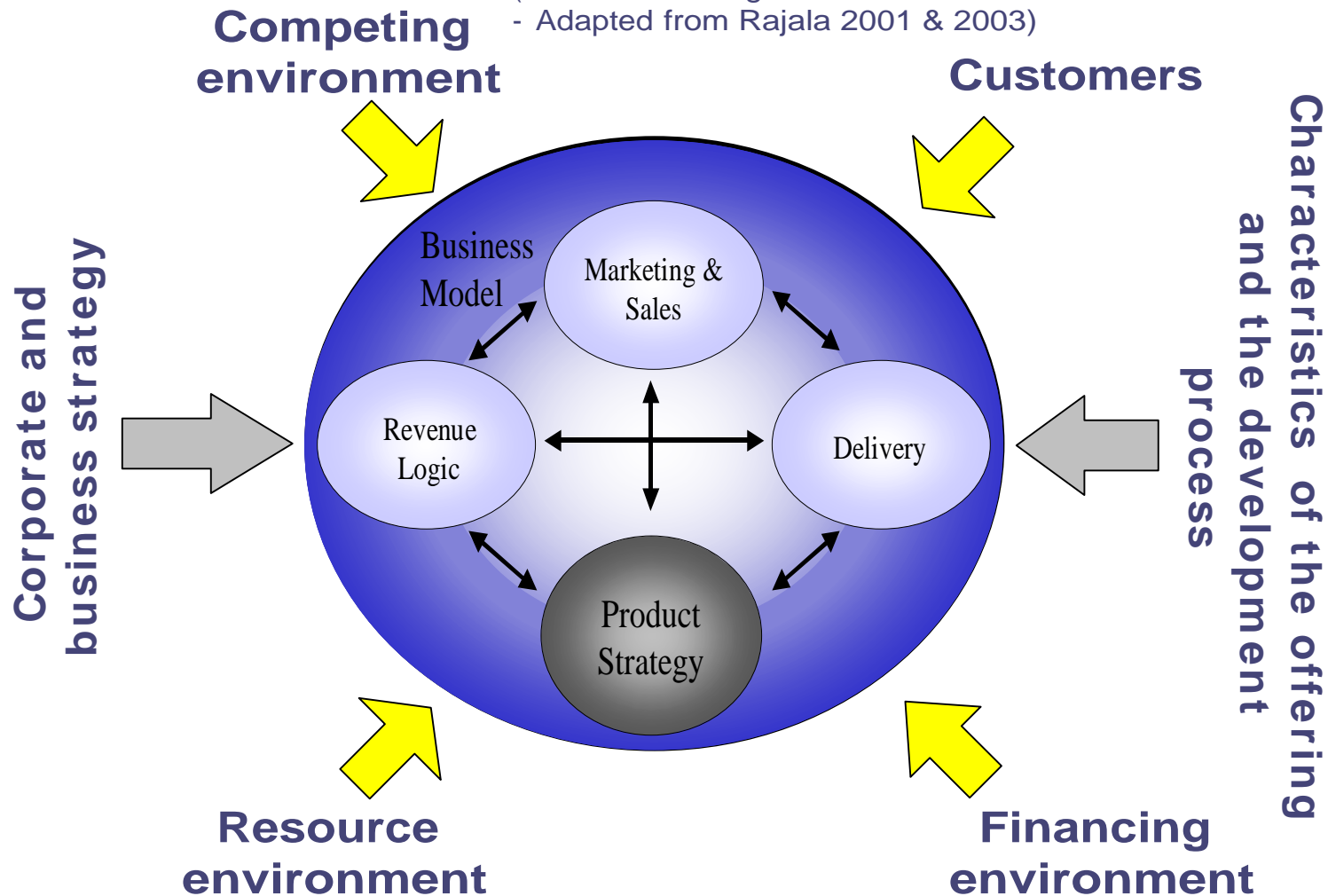


Conceptual Framework and the Research Problem

Using the *Business Model* as a Proxy for *Business Context*

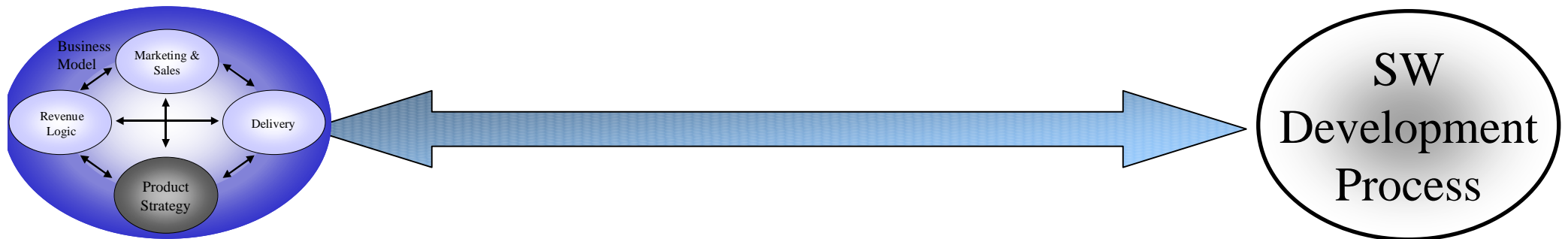
(Rajala 2001 & 2003, Vähäniitty 2003)

(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

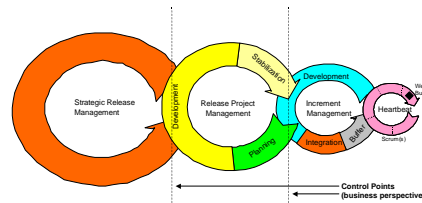
(Vähäniitty 2003)



Portfolio management
What, when & why?



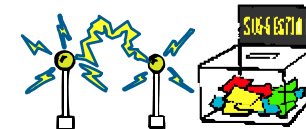
Organisation
By whom & where?



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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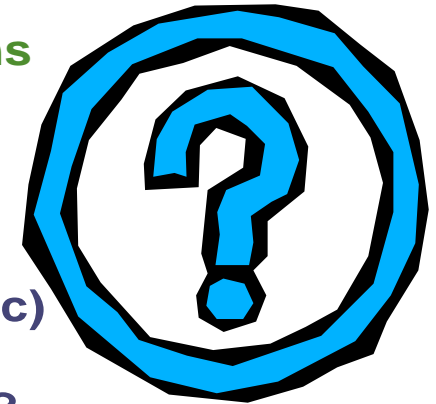
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