Improving Information Systems by End User Development: A Case Study

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Track: IS Development

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Introduction

Non-professional software developers
Do customizations
Domain experts
End users

Less communication problems
Faster adaptation processes
Decreased maintenance costs

End user adaptations
Case study

Design of flexible software

Users' contribution to customization
Create/adapt software artifacts

End User Development
Set of

Techniques
Methods
Tools

Non-professional software developers

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Background

- The case study was done within the **EUDISMES** project
- Project aim: Development of innovative EUD techniques for the business software market
- **Focus on SME**, because they have a very limited amount of human and financial resources

- Our project partners are:

1. End User Development In Small and Medium-Sized Enterprise Software Systems
Research Questions

- What **problems** do users experience in their daily work?
  - Which systems are affected?
  - How serious are these problems?
  - Are there other users in the organization who have similar problems?

- How do users try to **solve** the **problems**?
  - How do they create solutions?
  - Which tools do they use for the solution?
  - Which people are involved in the solution process?
Research Methodology

- Qualitative Research: **Semi-structured interviews**
- Allows a very detailed and **profound insight** into the working field
- Topics could be **addressed in detail**, because users could tell stories and describe their working processes

First phase: **Identification of organizational structures**

Participants: CEOs and managers from IT departments

Second phase: **Existing problems and suitable solutions**

Participants: different kinds of employees

Spring 2006 — Summer 2006

[Diagram showing the research process with phases and participants]
Interview Setting

- Interviews conducted at companies’ sites
- Participating companies
  - 2 small SME, running industry-specific, ERP-like systems and MS Office
  - 3 larger SME, running SAP R/3 as ERP system and MS Office

Examples for interview questions:
- Does the software meet your requirements?
- What do you do, if you experience problems during software usage?

<table>
<thead>
<tr>
<th>Interview Phase</th>
<th># of Interviewees</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>One</td>
<td>7</td>
<td>80 to 120 min.</td>
</tr>
<tr>
<td>Two</td>
<td>18</td>
<td>45 to 90 min.</td>
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Results

Focus: Two important categories for the design of user adaptable IS

- Analysis of problem types
  - Showed a variety of end users’ problems with software
  - Highlighted that there are users with similar problems
  - Allows IS designers to choose appropriate EUD techniques, to address the problems

- Analysis of problem solving strategies
  - Showed, how EUD works nowadays
  - Describes, how users try to solve problems together
  - Highlights, how many and what kind of people are involved in the process
  - Allows IS designers to choose useful support mechanisms
Results – Case I

- Karen (manager of accounts department)
- Create credit limit check
- Data is stored within different SAP modules
- Problem: Collection of Data is complex
- Formatting in Excel is nicer
- Solution of problem was not successful

Functional Problem: Inappropriate function
Results – Case I

- Small problems are discussed with colleagues
- In this case, she asked IT
- Consultants are very expensive, contact is established via phone or email
- Creation of a proper solution with IT was possible

**Implications**
- Support of cooperative adaptations
- EUD tools could improve process
Results

- Margaret (employee of order management)
- Has to create production list twice a week
- First, create a list with all data
- List has to be exported to Excel
- List has to be processed with a Pivot table
- Problem: Process takes approximately one hour

Functional Problem: Missing functionality
Results

- Process is inefficient
- Other SAP Key Users could not help to improve it
- Neither IT
- Contacted consultant via telephone (problem is too small for a visit)

Implications
- Programs should provide EUD mechanisms
- Support of cooperative adaptations
Summary

- The design of flexible software is still an issue
- We discovered detailed information about users’ problems and problem solving processes
- EUD takes already place, but could be improved by tools
- The derived implications should be considered in the design process
- The study complements existing ERP studies by illustrating activities and practices of users

Further research activities

- Results will guide our development of EUD tools
- The implications will be proved in practice in the future by an evaluation of our prototypes
Contact

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