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In-house software development process:

The usability perspective

Master's Thesis

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Abbreviations and Acronyms

ERP	Enterprice Resource Planning
SUS	System Usability Scale
ISI	Interaction Sequence Illustration
UI	User interface

Contents

Chapter 1

Introduction

In this chapter, the background and reasoning for the thesis is described together with the focus and limitations of the research. In the text, research problems and the structure of the thesis will be also defined. TEST

1.1 Motivation and methods

The purpose of the Enterprise Resource Planning (ERP) software is to offer techniques and concepts for integrated, thorough, management of business, as well as making it more efficient. The usage of ERP software has increased globally and is now used in varied types of industry.[1]

Despite the importance of the efficiency aspect,the usability of ERP systems is not a widely studied topic. However, the fact is that weaknesses in usability may lead into a low productivity and make it harder for users to achieve their goals.[2]

The aim of this thesis is to examine if the usability of a service-oriented ERP system can be enhanced by integrating usability inquiries, inspections and measures into the software development process. In the research, one well defined business process is examined and variety of methods are used to determine the state of the processes' usability in the system:

- Contextual Inquiry to define the business process

- Cognitive walkthrough for usability inspection

- Interaction Sequence Illustration (ISI) to measure the amount of interaction steps in the process

- System Usability Scale (SUS) to give a global view of subjective assessments of usability

- Remote Usability evaluation and Usability logging for remote usability evaluation

The measurements are focused on time, error rate and user satisfaction.

1.2   Background and research questions

The subscriber of this thesis is a middle-sized company which is offering information services globally and practicing in-house software development. Because of the fast pace of growth, the company is willing to reform their current ERP system as well as the whole software development process. The aim of this thesis is to join usability perspective into this process and give answer to following research questions.

- ***How usability methods can help to identify critical disparities in the usage of the system?***

  Understanding the differences in the system usage between individuals can help to understand and deploy the best practices throughout the organization and therefore improve efficiency.

- ***What are the effects of usability measurements to the use efficiency of the system?***

  It is important to find the most effective and usable user interface solutions and thus decrease the average time of tasks. Local differences can be tracked with remote usability measurements.

- ***What usability methods can be practically joined to the software development process of the ERP system?***

  Finding the practical and efficient usability methods to be joined into software development process can improve the quality of the end product.

1.3   Scope and structure of the thesis

This thesis covers research about usability of in-house software development process and the scope does not include any other aspects of the process. The literature part of the research consists of a few usability methods and even though the target of the research is an ERP software, literature about ERP systems are not covered in the thesis. The results of the research may not be suitable for every organization.

The first actual chapter of the thesis is about the usability methods. Every usability method used in the research is discussed carefully. In the second chapter the process experiment is being introduced. It covers the experiment steps and the implementation details. In the third chapter the data gathered in the experiment and the implementation process is being analyzed. In the last chapter the research will be summed up and discussed.

Chapter 2

Methods

Introduction to the chapter.

2.1 Contextual inquiry

2.2 Process measurement methods

2.2.1 System Usability Scale

2.2.2 Cognitive walkthrough

2.2.3 Interaction Sequence Illustration

2.2.4 Performance measurement

2.3 Remote usability evaluation

Chapter 3

Process experiment

Introduction to the chapter.

3.1   Steps

- Creating the model for gathering data

- Modified contextual inquiry

- Process measurement methods

- Analysis 1.

- Prototype creation

- Remote evaluation -¿ process measurement methods.

- Analysis 2.

3.2   Implementation

Chapter 4

Analysis

4.1 Results

-Comparison between country offices

4.2 Implementation analysis

-Should these methods be implemented as a part of the process or not.

Chapter 5

Discussion and conclusions

Bibliography

[1] LEON, A. *Enterprise resource planning.* Tata McGraw-Hill Education, 2007.

[2] TOPI, H., LUCAS, W., AND BABAIAN, T. Identifying usability issues with an erp implementation. In *Proceedings of the Seventh International Conference on Enterprise Information Systems* (2005), Citeseer.

Appendix A

SUS form

Appendix B

TEST form