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**THE FACTORS THAT AFFECT THE SELECTION  
& TAILORING OF  
SOFTWARE DEVELOPMENT PROCESSES**

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by



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The Dissertation was submitted to the Department of Computer Science & Engineering of the University of Moratuwa in partial fulfillment of the requirement for the Degree of Master of Business Administration.

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## ABSTRACT

The software industry has shown tremendous growth in Sri Lanka, and shows a lot of potential to grow further to be a dominant foreign exchange earner for the future. It is also an industry that requires less investment and provides high returns in a very short period of time. Therefore the government has shown keen interest in developing this industry and has embarked on various projects funded by foreign agencies to develop Information Technology literacy and infrastructure.

However, the standards of software development varies significantly from company to company, and therefore it requires some input to make sure that we achieve some acceptable minimum which will enhance the image of the industry as a whole. The research was to find out how software process related practices are carried out in various software companies and to come up with some valuable conclusions to help software companies to get a broader view on how significant software processes are on software projects.



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The research was carried out taking a sample of 24 software companies that cater to local and overseas markets in a variety of disciplines in software development projects. The sample was selected to include software companies of different sizes, catering to different markets and working on different technologies. The number of companies (24) was determined by the maximum number I could reach during the allocated six month time period. The objectives of the research were;

- To identify the factors that affect the selection and tailoring of a particular process in software development projects.
- To perform a correlation analysis of project successes and failures based on a particular process choice and tailoring decisions in the presence of different factors.

There were 11 factors, identified during preliminary survey, and 18 software processes, based on ISO/IEC standards, that were considered. Based on the responses received and analysis carried out, the following conclusions were made.

1. Organizational policies, standards and procedures play a major role in software processes. The other factors that showed high significance on process tailoring were, industry or the domain of operation, the technology used, the technical complexity of the project, the influence of customer requirements. The project value has shown low influence on software process tailoring and selection against the common belief. The duration of the project is significant only on processes such as management, configuration management and documentation where as project team size shows significant influence on processes such as management, configuration management and problem resolution. Project sponsor is another insignificant factor on process tailoring. When the project team is experienced, it has high impact on management and training processes only.
2. The correlation analysis carried out concludes with 99.9% confidence that there is positive correlation between process decisions and project success/ failure. Here the correlation analysis was done when the process decisions were made under varying factors. Therefore the importance of selecting appropriate software processes and tailoring according to various needs was justified through the analysis.

Based on the analysis and discussion the following recommendations were made for software process tailoring.

1. Organizational policies, standards and procedures should be carefully laid down since it has vary high influence of software processes
2. Selection of technology and the size of the team should be appropriate for the project since it has very high bearing on software processes.
3. Those projects that are highly complex should be given due consideration since the software processes are highly sensitive to the level of complexity of the project.

4. Customer requirements should be understood and finalized properly in order to make sure that the processes are properly tailored to fulfill customer needs and expectations.
5. Process tailoring has to be done to suit the particular type of project.



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Yashas Mallawarachchi

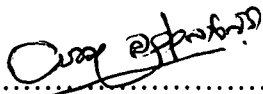
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## DECLARATION

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# TABLE OF CONTENTS

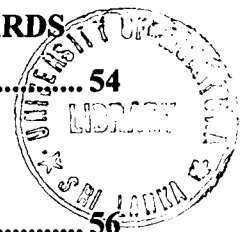
<b>ABSTRACT</b> .....	<b>II</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>V</b>
<b>DECLARATION</b> .....	<b>VI</b>
<b>TABLE OF CONTENTS</b> .....	<b>VII</b>
<b>LIST OF TABLES</b> .....	<b>XII</b>
<b>LIST OF FIGURES</b> .....	<b>XIII</b>
<b>LIST OF ABBREVIATIONS</b> .....	<b>XIV</b>
<b>1.0 INTRODUCTION</b> .....	<b>1</b>
<b>1.1 BACKGROUND FOR RESEARCH</b> .....	<b>1</b>
<b>1.2 RESEARCH PROBLEMS</b> .....	<b>2</b>
<b>1.3 RESEARCH TOPIC</b> .....	<b>2</b>
<b>1.4 RESEARCH OBJECTIVES</b> .....	<b>2</b>
<b>1.5 A BRIEF OVERVIEW OF THE STUDY</b> .....	<b>3</b>
<b>1.6 RELATED RESEARCH</b> .....	<b>3</b>
<b>1.7 RESEARCH EXPECTATION</b> .....	<b>3</b>
<b>2.0 LITERATURE SURVEY</b> .....	<b>4</b>
<b>2.1 SOFTWARE DEVELOPMENT LIFE CYCLE</b> .....	<b>4</b>
<b>2.2 SOFTWARE ENGINEERING MODELS</b> .....	<b>6</b>
2.2.1. IMPORTANCE OF MODELING.....	<b>6</b>
2.2.3. FORMALIZED METHODOLOGY VS. METHODOLOGY IN-ACTION .....	<b>9</b>

2.2.4.	LEARNING FROM THE FAILURES .....	9
2.2.5.	SOFTWARE DEVELOPMENT FOR THE WORLD WIDE WEB.....	10
2.2.6.	SHORT-CYCLE-TIME SYSTEMS DEVELOPMENT.....	11
2.2.7.	INFORMATION SYSTEMS BODY OF KNOWLEDGE.....	12
2.2.8.	EVALUATING SOFTWARE DEVELOPMENT METHODOLOGY .....	12
<b>2.3.</b>	<b>SOFTWARE ENGINEERING PROCESSES.....</b>	<b>13</b>
<b>2.4.</b>	<b>SOFTWARE LIFE CYCLE PROCESSES .....</b>	<b>15</b>
2.4.1.	PRIMARY PROCESSES .....	16
2.4.2.	SUPPORTING LIFE CYCLE PROCESSES .....	17
2.4.3.	ORGANIZATIONAL LIFE CYCLE PROCESSES .....	18
<b>2.5.</b>	<b>SOFTWARE PROCESS TAILORING .....</b>	<b>19</b>
2.5.1.	THE TAILORING PROCESS .....	19
<b>3.0</b>	<b>RESEARCH METHODOLOGY &amp; DESIGN.....</b>	<b>21</b>
<b>3.1.</b>	<b>HYPOTHESES.....</b>	<b>22</b>
<b>3.2.</b>	<b>THEORETICAL FRAMEWORK .....</b>	<b>23</b>
3.2.1.	SOURCES OF FACTORS THAT INFLUENCE SOFTWARE PROCESS SELECTION AND TAILORING.....	23
<b>3.3.</b>	<b>DATA COLLECTION .....</b>	<b>25</b>
<b>3.4.</b>	<b>BASIS OF SAMPLING AND ANALYSIS OF DATA .....</b>	<b>26</b>
3.4.1.	QUALITATIVE DATA.....	26
3.4.2.	QUANTITATIVE DATA .....	26
<b>3.5.</b>	<b>DEFINITION OF VARIABLES.....</b>	<b>27</b>
3.5.1.	SOFTWARE MODEL RELATED VARIABLES .....	27
3.5.2.	SOFTWARE PROJECT RELATED VARIABLES.....	27





3.5.3.	SOFTWARE PROCESS RELATED VARIABLES .....	28
3.5.4.	ORGANIZATIONAL VARIABLES.....	28
3.5.5.	MEASUREMENT OF PROJECT SUCCESS .....	29
<b>4.0</b>	<b>SURVEY RESULTS.....</b>	<b>30</b>
4.1.	PROCESSES VS. PROJECT DURATION.....	30
4.2.	PROCESSES VS. PROJECT TEAM SIZE .....	33
4.3.	PROCESSES VS. CUSTOMER REQUIREMENTS .....	35
4.4.	PROCESSES VS. EXPERIENCE OF THE PROJECT TEAM .....	38
4.5.	PROCESSES VS. PROJECT'S TECHNICAL COMPLEXITY .....	40
4.6.	PROCESSES VS. PROJECT SPONSOR.....	43
4.7.	PROCESSES VS. TYPE OF PROJECT .....	45
4.8.	PROCESSES VS. RELATED INDUSTRY/ DOMAIN.....	47
4.9.	PROCESSES VS. PROJECT VALUE .....	49
4.10.	PROCESSES VS. TECHNOLOGY USED .....	51
4.11.	PROCESSES VS. ORGANIZATIONAL POLICIES, STANDARDS AND PROCEDURES .....	54
4.12.	SIGNIFICANCE OF THE PROCESS DECISION ON THE OVERALL OUTCOME OF THE PROJECT .....	56
4.13.	OVERALL IMPACT: SUMMARY .....	59
4.14.	SENSITIVITY OF PROCESSES AGAINST VARYING FACTORS .	61
4.15.	PARAMETERS OF MEASUREMENT OF PROJECT SUCCESS.....	63



<b>4.16.</b>	<b>CORRELATION BETWEEN PROCESSES' IMPACT ON PROJECT SUCCESS AND FACTORS INFLUENCING PROCESS DECISIONS.....</b>	<b>64</b>
<b>5.0</b>	<b>DISCUSSION .....</b>	<b>67</b>
<b>5.1.</b>	<b>FACTORS IDENTIFIED AND THEIR IMPACT ON PROCESSES TAILORING AND SELECTION .....</b>	<b>67</b>
5.1.1.	PROJECT DURATION.....	67
5.1.2.	PROJECT TEAM SIZE.....	67
5.1.3.	CUSTOMER REQUIREMENTS .....	68
5.1.4.	EXPERIENCE OF THE PROJECT TEAM .....	68
5.1.5.	PROJECTS' TECHNICAL COMPLEXITY.....	68
5.1.6.	PROJECT SPONSOR .....	68
5.1.7.	TYPE OF PROJECT.....	68
5.1.8.	RELATED INDUSTRY/ DOMAIN .....	69
5.1.9.	PROJECT VALUE.....	69
5.1.10.	TECHNOLOGY USED.....	69
5.1.11.	ORGANIZATIONAL POLICIES, STANDARDS AND PROCEDURES.....	69
5.1.12.	OVERALL IMPACT OF PROCESS DECISION .....	69
5.1.13.	FACTORS AND THEIR OVERALL IMPACT ON PROCESS SELECTION AND TAILORING.....	70
5.1.14.	THE PROCESSES AND THEIR SENSITIVITY .....	70
<b>5.2.</b>	<b>PROJECT SUCCESS.....</b>	<b>70</b>
<b>5.3.</b>	<b>PROCESS DECISION AND PROJECT SUCCESS/ FAILURE: A CORRELATION ANALYSIS .....</b>	<b>71</b>
<b>6.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>72</b>
<b>6.1.</b>	<b>FULFILLMENT OF OBJECTIVES .....</b>	<b>72</b>

<b>6.2.</b>	<b>PROJECT SUCCESS/ FAILURE.....</b>	<b>74</b>
<b>6.3.</b>	<b>SENSITIVITY OF PROCESSES.....</b>	<b>74</b>
<b>6.4.</b>	<b>OUTCOME OF HYPOTHESES TESTING .....</b>	<b>74</b>
<b>7.0</b>	<b>REFERENCES.....</b>	<b>77</b>
<b>8.0</b>	<b>APPENDIX 1: SURVEY QUESTIONNAIRE .....</b>	<b>80</b>



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## LIST OF TABLES

- Table 3.1: Data collection methods and focus
- Table 3.2: Mapping of questionnaire question to objectives
- Table 4.1: Impact of project duration for processes
- Table 4.2: Impact of project team size for processes
- Table 4.3: impact of customer requirements for processes
- Table 4.4: Impact of project teams' experience for processes
- Table 4.5: Impact of projects' technical complexity for processes
- Table 4.6: Impact of projects sponsor for processes
- Table 4.7: Impact of project type for processes
- Table 4.8: Impact of related industry for processes
- Table 4.9: Impact of project value for processes
- Table 4.10: Impact of Technology used for processes
- Table 4.11: Impact of organizational policies, standards and procedures for processes
- Table 4.12: Overall significance of process for project success
- Table 4.13: Summary of Overall Impact on the Project
- Table 4.14: Sensitivity of Processes against Varying Factors
- Table 4.15: Parameters of Measurement of Project Success: Product Development
- Table 4.16: Parameters of Measurement of Project Success: Tailor-Made Software Development

## LIST OF FIGURES

- Fig. 2.1: Software Engineering Process
- Fig.2.2: International Standard: ISO/IEC 12207:1995
- Fig.3.1: The Research Process
- Fig. 3.2: Framework of software process selection and tailoring
- Fig. 4.1: Impact of Project Duration on Processes
- Fig. 4.2: Impact of Project Team Size on Processes
- Fig. 4.3: Impact of Customer Requirements on Process
- Fig. 4.4: Impact of Experience of the Project Team on Processes
- Fig. 4.5: Impact of Project's Technical Complexity on Processes
- Fig. 4.6: Impact of Project Sponsor on Processes
- Fig. 4.7: Impact of Type of Project on Processes
- Fig. 4.8: Impact of Related Industry/ Domain on Processes
- Fig. 4.9: Impact of Project Value on Processes
- Fig. 4.10: Impact of Technology Used on Processes
- Fig. 4.11: Impact of Organizational Policies, Standards and Procedures on Processes
- Fig. 4.12: Overall Impact of the Project
- Fig. 4.13: Overall Impact of Different Factors on Software Projects
- Fig. 4.14: Correlation between Process Decision and Project Success/ Failure

## LIST OF ABBREVIATIONS

BoK	-	Body of Knowledge
COTS	-	Commercially Off-the-shelf
IEC	-	International Electro-technical Commission
IS	-	Information System
ISO	-	International Standards Organization
IT	-	Information Technology
SEI/ CMM	-	Software Engineering Institute/ Capability Maturity Model



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