

**Issue Resolution and Scope  
Clarification in Web Systems  
Development: A Qualitative Study**

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## **CERTIFICATE OF AUTHORSHIP/ORIGINALITY**

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

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# Table of Contents

<b>Chapter One: Introduction .....</b>	<b>7</b>
1.1 Problem Statement and Motivation.....	7
1.2 Aims and Objectives .....	13
1.3 Scope .....	13
1.4 Investigating the research problems: The Three Phases .....	15
1.5 Methodology .....	17
1.6 Research Contributions .....	19
1.7 Thesis Roadmap .....	20
<b>Chapter Two: Literature Review.....</b>	<b>22</b>
2.1 Introduction .....	22
2.2 Web Systems .....	23
2.3 Mutual constitution .....	27
2.4 Web systems Development and Organisations .....	28
2.5 Development Models and Design Techniques in Web Systems Development .....	30
2.6 Domain Analysis, Domain Modelling and System Scope .....	32
2.7 Impacts of Web Systems on the Their Domains .....	36
2.8 Role of Issue Resolution in the Clarification of the System Scope .....	39
2.8.1 Issue definition .....	40
2.8.2 Approaches to the Issue Resolution Process .....	41
2.8.3 Issue Tracking Tools .....	44
2.9 Role of Knowledge in Issue Resolution Process and Scope Clarification .....	45
2.9.1 Knowledge management .....	46
2.9.2 Knowledge transfer and transformation .....	49
2.10 Conclusion .....	52
<b>Chapter Three: Research Methodology .....</b>	<b>53</b>
3.1 Introduction .....	53
3.2 Research Methodology and Approaches.....	53
3.2.1 Positivist versus Interpretivist .....	54
3.2.2 Quantitative Versus Qualitative Research.....	55
3.3 Mapping Research Objectives, Questions and Strategies .....	56
3.3.1 Research Design for Phase One .....	58
3.3.2 Research Method for Phase Two .....	59
3.3.3 Selection and Justification of Research Method for Phase Three .....	63
3.4 Research Reliability and Validity .....	69
3.4.1 Research Reliability .....	70
3.4.2 Research Validity .....	71
3.5 Ethical Considerations.....	73
3.6 Summary .....	73
<b>Chapter Four .....</b>	<b>75</b>
<b>Phase One: Impacts of Web Systems on Their Domains.....</b>	<b>75</b>
4.1 Introduction 75	
4.2 Overview of Literature Review.....	76
4.3 Analysis of the Literature Review.....	77
4.3.1 Aim of Analysis .....	78

4.3.2	Characteristics of Web systems and their impact on the domain.....	78
4.3.3	The Sub-domains: Domain of Context, Domain of Effect and Domain of Mutual Influence .....	83
4.4	Research Outcomes .....	86
4.4.1	Taxonomy of characteristics of the business environment that impact and/or are impacted by the Web system.....	86
4.4.2	Impacts and the Domain Boundary .....	105
4.5	Summary .....	108
<b>Chapter Five</b>	.....	<b>109</b>
<b>Phase Two: Issue Resolution and Scope Clarification</b>	.....	<b>109</b>
5.1	Introduction .....	109
5.2	Mapping of Characteristics of Web System Impacts and Types of Issues .....	110
5.3	Literature Review .....	113
5.3.1	Taxonomy of issues in Web systems development.....	114
5.3.2	Conceptual model of issue resolution process .....	116
5.4	Survey of Web Developers .....	118
5.5	Data Analysis .....	119
5.5.1	Aim of Data Analysis.....	119
5.5.2	Analysis of Results for Research Question 3a (RQ3a) .....	121
5.5.3	Analysis of Results for Research Question 3b (RQ3b).....	128
5.5.4	Analysis of Results for Research Question 3c (RQ3c) .....	130
5.5.5	Analysis of Results for Research Question 3d (RQ3d).....	134
5.5.6	Analysis of Results for Research Question 3e (RQ3e) .....	135
5.6	Research Outcome.....	142
5.6.1	Insights from commercial practices in issue resolution and scope clarification.....	142
5.6.2	Revised Conceptual Model .....	147
5.6.3	Role of Knowledge in the Issue Resolution Process.....	151
5.6.4	Revised Taxonomy of Issues.....	154
5.7	Conclusion .....	160
5.7.1	Reflections.....	160
5.7.2	Summary .....	161
<b>Chapter Six</b>	.....	<b>164</b>
<b>Phase Three: Role of Knowledge in Issue Resolution and Scope Clarification</b>	....	<b>164</b>
6.1	Introduction .....	164
6.2	Web Projects Profile.....	166
6.3	Data Analysis .....	167
6.3.1	Analysis of results for research question 4a.....	169
6.3.2	Analysis of results for research question 4b.....	174
6.3.3	Analysis of results for research question 4c.....	178
6.3.4	Analysis of results for research question 4d.....	182
6.3.5	Analysis of results for research question 4e.....	184
6.4	Research Outcomes .....	192
6.4.1	Emergence of knowledge about the system scope.....	192
6.4.2	Knowledge transformation.....	194
6.4.3	Relationship between knowledge about the scope and knowledge about the domain.....	196
6.5	Summary .....	197
<b>Chapter Seven: Conclusions</b>	.....	<b>200</b>
7.1	Introduction .....	200

7.2	Research Questions Revisited for Phase One: Impacts of Web Systems on the Their Domains.....	201
7.3	Research Questions Revisited for Phase Two.....	201
7.3.1	Conclusions from Phase Two Research Activities .....	204
7.4	Research Questions Revisited for Phase Three.....	206
7.4.1	Conclusions from Phase Three Research Activities .....	208
7.5	Thesis Contributions Revisited .....	209
7.6	Implications for Researchers and Practitioners.....	212
7.7	Research Limitations.....	214
7.8	Future Work .....	215
7.9	Concluding Remarks .....	216
	<b>BIBLIOGRAPHY .....</b>	<b>219</b>
	Appendix A: UTS HREC Ethics Approval.....	228
	Appendix B: Participant Codes and Description of Web system project .....	229
	Appendix C: Web Projects Description .....	235
	Appendix D: Questionnaire for Phase Two .....	238
	Appendix E: Questionnaire for Phase Three.....	248

### List of Tables

Table 1:	Research objectives, research questions and research strategies .....	58
Table 2:	Research objectives, research questions and research strategies for Phase Two .....	77
Table 3:	Characteristics of the domain which affect or are affected by the development/introduction of a Web System .....	81
Table 4 (revised from Table 3):	Taxonomy of characteristics of the domain.....	91
Table 5:	Characteristics of Web systems and the corresponding issues .....	113
Table 6:	Phase Two's research objectives, research questions and the corresponding questions from the questionnaire.....	121
Table 7:	Revised taxonomy of issues.....	159
Table 8:	Research objectives, research questions and research strategies for Phase Three .....	168

### List of Figures

Figure 1:	Domain of context, domain of mutual influence, domain of effect.....	85
Figure 2:	An extract from Table 4.....	106
Figure 3:	Taxonomy of issues in web systems development.....	115
Figure 4:	Conceptual model of issue resolution process.....	117
Figure 5:	Insights on analysis conducted to validate the conceptual model of issue resolution process .....	143
Figure 6:	Revised conceptual model .....	148
Figure 7a, b, c and d:	Role of knowledge in the issue resolution process.....	152

# Abstract

In Web systems development, the business environment and business processes underpin the identification of system needs, and these environment and processes are also in turn fundamentally changed by the introduction and evolution of Web systems. The web systems can be volatile as they comprise a complex set of inter-dependencies with various business and system domain characteristics. Web systems fall into the class of applications where the scope of the system under development cannot be clearly defined in the early stages of project.

This thesis presents a qualitative study of Web systems development processes by first conducting an investigation of these inter-dependencies and in particular the impacts that a Web system can have on its environment. From the identification of these inter-dependencies and their impacts, it was found that a key mechanism in supporting Web systems development is the identification and subsequent resolution of “issues”. An issue is defined as a problem or a concern that Web developers face that can directly impact on cost, schedule and scope. The resolution of these issues plays a crucial role in supporting the clarification of system scope throughout development. This thesis further describes a comprehensive investigation of issue resolution processes as well as presents a taxonomy of issues and a novel issue resolution process model. This phenomenon is explored by qualitatively analysing issue handling and resolution data from industry practitioners.

Findings suggest that both tacit and explicit knowledge play an important role in resolving issues and that the capturing and sharing of knowledge is a challenging task. The research further investigates the role of knowledge and knowledge transformation in issue resolution processes. The initial issue resolution process model was validated by conducting in-depth interviews with industry practitioners that resulted in revising the process model based on the state of the practice. The findings presented in this thesis provide valuable empirical results about the challenges of the current practices in Web systems development.