

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

Piata Mai

**A Case Study of a Kaupapa Māori Approach to Developing an
Electronic System for Ohomairangi Early Intervention Service**

Karina Donaldson

**Thesis submitted to the Institute of Information and Mathematical Sciences
in partial fulfillment of the requirements
for the degree of
Master of Information Science
in
Computer Science**

Dr. Elena Calude (Supervisor)

2003

Abstract

This thesis endeavours to explore the possibility of developing a system for a small Māori organisation incorporating their Kaupapa Māori needs. A project was undertaken to develop a system for “Ohomairangi”, an Early Intervention Service to assist with sustainable management of data and the production of reports. For this project, a Kaupapa Māori approach to development was chosen to enhance cultural validity, to acknowledge the tikanaga and kaupapa of Ohomairangi, create a stronger sense of shared understanding and trust, and to enable a more appropriate and user-friendly system to be developed.

This project was commissioned by, financially supported by, and will be utilised within Ohomairangi Trust Early Intervention Service (See Appendix B).

Acknowledgements

I would like to express my sincere thanks and appreciation to Dr. Elena Calude, for giving me an opportunity to work under her supervision and for her guidance and support during the period of this research project. To the kaimahi at Ohomairangi Trust Early Intervention Service for the opportunity to work on a project that enhanced my knowledge and awareness of things Māori, and for their overwhelming contributions to Piata Mai. I would especially like to thank Aroha Gray, from Ohomairangi, for her patience and her ability to ask unique questions. Finally, I must thank Marlene, Paia and Virginia, my friends and colleagues, for their support and for lending an ear when one was needed.

Table of Contents

Chapter 1 Introduction	1
1.1 Statement of problem.....	1
1.2 Motivation	1
1.3 Objectives	1
1.4 Main Problems and their Solutions	2
1.5 Thesis Outline.....	3
Chapter 2 Background	4
2.1 Ohomairangi	4
2.2 Māori and Information Technology	5
2.21 Māori and IT in Tertiary Institutions	5
2.22 Māori and the Internet.....	5
2.23 Māori and Software Development	7
2.24 Māori and user-defined systems	8
2.3 A Kaupapa Māori Approach to Systems Development.....	8
2.31 Kaupapa Māori.....	8
2.32 Kaupapa Māori Approach	9
Chapter 3 System Requirements, Analysis and Design	14
3.1 The System Requirements	14
3.11 Technical Architecture	14
3.12 Hardware and Software	15

3.13	Extendability.....	15
3.14	Help System and Manual.....	15
3.2	The System Analysis.....	16
3.21	Interviews and Meetings.....	16
3.22	Workshops.....	16
3.23	C++ Builder.....	17
3.24	Macromedia Dreamweaver and Macromedia Fireworks.....	17
3.25	Microsoft Access.....	18
3.26	Te Kete Pūmanawa Rorohiko.....	18
3.3	The System Design.....	19
3.31	Database Modelling and Design.....	19
3.32	Entity Relationship Diagrams.....	36
3.33	Screen Design.....	40
3.34	Output Design.....	46
3.35	Network Design.....	48
Chapter 4	Implementation.....	49
4.1	C++ Builder Components.....	49
4.11	Standard Page Components.....	49
4.12	Additional Page Components.....	51
4.13	Win32 Page Components.....	51
4.14	Data Access Page Components.....	54

4.15 Data Controls Page Components	55
4.16 Win 3.1 Page Components	57
4.17 QReport Page Components	57
4.18 Example Report: Ngā ripota matua (Milestones Report)	60
4.2 Cultural Issues	63
4.21 Primary Keys	63
4.22 Māori Fonts	63
4.3 Bilingual	63
Chapter 5 Testing.....	64
5.1 Test Plan	64
5.11 White Box Testing	65
5.12 Black Box Testing.....	65
5.13 Test Case Matrix.....	67
Chapter 6 Conclusions.....	69
6.1 Thesis Summary	69
6.2 Future Developments.....	69
Bibliography	71
Appendices	73
Appendix A Workshops	
Appendix B Letter of Endorsement.....	
Appendix C Piata Mai: System Manual	
Appendix D Glossary of Māori Terms	

List of Figures

Figure 1: Access to the Internet at Home	6
Figure 2: Proposed Network Architecture.....	48
Figure 3: Example Report-Ngā ripota matua (Milestones Report).....	60
Figure 4: JOCS software testing strategy	64

List of Tables

Table 1: Entity-Kōrero mō ia Kaimahi (Staff personal details)	20
Table 2: Entity-Iwi (Staff Tribe).....	21
Table 3: Entity-Hapu (Staff Sub-tribe)	22
Table 4: Entity-Rātaka Mahi (Diary Sheet)	22
Table 5: Entity-Te Whakapakari Tangata (Personal Development).....	23
Table 6: Entity-Te Whakatau Mahi (Performance Agreement)	24
Table 7: Entity-Te Whakapakari Kaimahi (Professional Development)	25
Table 8: Entity-Utunga Kiromita (Claim for reimbursement of kilometres)	26
Table 9: Entity-Utunga Other (Claim for reimbursement of other expenses).....	26
Table 10: Entity-Utunga Paid (Payment of claims).....	27
Table 11: Entity-Ngā tamariki o te kaimahi (Children of the contract workers).....	27
Table 12: Entity-Kōrero mō ia Tamariki (Child's personal details)	28
Table 13: Table 13: Entity-Iwi (Child Tribe).....	30
Table 14: Entity-Hapu (Child Sub-tribe)	30
Table 15: Entity-Tirohanga Tuatahi (Initial Evaluation).....	31
Table 16: Entity-Whakarapopoto Mahi (Home visits with Children)	32
Table 17: Entity-He Ahutanga (The Early Intervention Plan: meeting).....	33
Table 18: Entity-He Ahutanga attendees (The Early Intervention Plan attendees)	33
Table 19: Entity-Te Whāriki (Individual Education Plan).....	34
Table 20: Entity-Ngā Whakapa (Contacts)	35
Table 21: Data Entry-Kōrero mō ia Kaimahi (Staff personal details).....	41
Table 22: Data Entry-Rātaka Mahi (Diary Sheet).....	42
Table 23: Data Entry-Te Whakapakari Tangata (Personal Development)	42
Table 24: Data Entry-Te Whakatau Mahi (Performance Agreement)	43

Table 25: Data Entry-Te Whakapakari Kaimai (Professional Development)	43
Table 26: Data Entry-Utunga Kiromita (Claim for reimbursement of kilometres).....	43
Table 27: Data Entry-Utunga Other (Claim for reimbursement of other expenses)	44
Table 28: Data Entry-Utunga Paid (Payment of claims)	44
Table 29: Data Entry-Kōrero mō ia Tamariki (Child’s personal details).....	45
Table 30: Data Entry-He Ahutanga (The Early Intervention Plan: meeting)	45
Table 31: Data Entry-He Ahutanga attendees (The Early Intervention Plan attendees).....	45

Chapter 1

Introduction

1.1 Statement of Problem

Information Technology offers new development to Māori to generate distinct products and services, and sustain their culture and knowledge. However, developing unique systems for Māori is not commonly recognised, on the shelf software does not meet the needs of Kaupapa Māori based organisations. The thought of initiating the development of a personalised system becomes daunting when the explanation of technology precedes the limitations of the organisation. When systems are developed it is usually the organisation that must adjust to meet the needs of the technology, increasing the potential for an unusable system.

1.2 Motivation

The motivation behind this project was to support the development of a Māori approach to systems development, by utilising Kaupapa Māori research. A Kaupapa Māori approach is taken in order to assist in strengthening the cultural validity of the project and to support the development and acceptance of Kaupapa Māori approaches to systems development.

1.3 Objectives

Piata Mai has been developed for Ohomairangi Trust, Early Intervention Service. Ohomairangi currently have no computerised administration system, all information is recorded using paper-based forms. As their client base grows Ohomairangi would like a system that provides an interactive and user-friendly environment where staff

will be able to access information in a precise and efficient format. The system would be required to:

- maintain data on Kaimahi (Staff), Tamariki (Children/Client base of Ohomairangi), and Ngā whakapa (Address book of Contacts) details of organisations Ohomairangi associate with
- be suitable with the working style of the users, in regards to their processes
- make use of te reo Māori (the Māori language).
- produce reports following a standard format
- allow for key workers to have a child's information readily available
- reduce the administration work required by early intervention staff
- improve on communication between staff

1.4 Main Problems and their Solutions

The entire project, from designing the databases and finishing with the implementation is original work. The approach and practice of the project was determined by and in collaboration with Ohomairangi. Ohomairangi controlled the framing of the project, the gathering of the knowledge and the negotiating with the sources of knowledge how best it might be utilised and distributed. The developer's role was to be an active participant in the phases of information systems development and implementation to ensure that the system meets the needs of the organisation [13].

Two of the main problems encountered in the development of the project and their solutions will be presented in what follows:

- The project was to be developed around a Kaupapa Māori framework. Having little knowledge of Kaupapa Māori it was established that Ohomairangi would initiate workshops (see Appendix A) covering the Kaupapa Māori needs of the organisation and to gain a shared understanding of Kaupapa Māori in practice.

- The electronic system was to be bilingual that is in both Māori and English. It was decided that the systems first language would be te reo Māori. By incorporating Māori text in the system we were required to include macron fonts, which are not standard system fonts. The decision was made to purchase Te Kete Pūmanawa Rorohiko. Te Kete Pūmanawa Rorohiko enables macrons to be inserted into most text-based applications by clicking on the Ctrl button, releasing, and then selecting the correct vowel. If the software is not installed Piata Mai will present the long vowels with a dieresis (a vowel with a double dot above it, e.g. ä).

1.5 Thesis Outline

Chapter 2 describes the background details behind the development of this project, including background information of Ohomairangi and where Māori are with Information Technology. Chapter 3 presents the detailed systems design. Chapter 4 describes the implementation of the system. Chapter 5 presents the testing process of the system. Chapter 6 provides the results of developing the system.