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# **A semantic framework for the delivery of e-government information and services: The case of New Zealand**

A thesis presented in partial fulfilment of the requirements  
for the degree of  
Doctor of Philosophy (PhD)  
in  
Information Systems  
at  
Massey University, Palmerston North, New Zealand.

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2011

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# ABSTRACT

The motivation for the research was to add to the body of knowledge associated with the design and construction of a semantic framework that would serve the needs of the e-government community. The purpose of the thesis was to investigate whether a semantic framework could be described and created in order to establish a foundation reference model for the subsequent delivery of governmental information and services across the Internet. New Zealand Parliament and local government council were used as a representative domain, where the research question could be addressed and from which general inferences could be made about the delivery of government information across the Internet.

An embedded case study research methodology was employed in this research. The process began by constructing a semantic framework which was then instantiated with information from New Zealand government agencies. Information was then retrieved from the ontology using a query-driven web browser interface. The resulting artefact was evaluated using a triangulated mixed method approach involving expert judgement, simulation analysis and metrics based on the OntoQA method.

Two key conclusions can be made from this research. Firstly, the results of the comprehensive evaluation regime supported the view that the prototype semantic framework constructed to support the delivery of New Zealand governmental information to users in both a stand-alone environment or via a portal, was found to be effective and efficient. Given the similarity of the format and structure of New Zealand's national and local government agencies to jurisdictions overseas there is optimism that the framework could be imported into other e-government initiatives. Secondly, the processes associated with the design and development of the semantic framework and browser interface were carefully monitored and recorded in accordance with design science research practice.

Developers and researchers of e-government would find the results of this research activity, both from an e-government or design science research perspective, informative and useful.

## Keywords

Semantic framework, ontology, design science research, E-Government, expert judgement, Protégé-OWL, OntoQA.

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## ACKNOWLEDGEMENTS

I would like to give my heartfelt thanks to the kind people around me for all the support, help and encouragement I received during my PhD studies. I am particularly grateful for efforts on my behalf, and guidance, provided by my principle supervisor Dr Kinshuk. I am also extremely grateful for the wisdom, good advice, encouragement and friendship from my second supervisor Mr Barry Jackson, and I would like also to extend my appreciation to Dr Richard Whiddett, for his supportive suggestions during my studies.

The assistance given to me by the Horizons Regional Council during my research is very much appreciated, particularly that from Horizons Project Coordinator Mr Chris Veale who was extremely helpful in sharing his knowledge and time with me. I am grateful to all the contributors who responded to my questions in the online discussion groups, and I give thanks to the group of eight experts who generously took time out of their very busy schedules to evaluate the semantic framework, and who made very useful and erudite comments. I thank the many people who assisted me in gathering the use cases, especially Mr Noel Johnson who provided much of the source material on environmental issues. My appreciation also extends to the support from TopQuadrant for allowing me to use TopBraid for research purposes, and to all the users who offered advice on the TopBraid discussion forum.

I would like to express my gratitude to Massey University for the financial support provided by the Vice Chancellors Scholarship, awarded to me at the commencement of my studies, and for the administrative support I have received from both and the School of Management, Massey University and Massey University.

I also extend my thanks to my friends Winifred Jackson and Judith Engelbrecht who have helped with my English and encouraged so much during my studies.

Finally, special thanks go to my family, for their patience and encouragement, without which I would not have completed my research journey.

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## **Ethical approval**

The project was recorded on the Low Risk Database, which is reported in the Annual Report of the Massey University Ethics Committee. The notification was dated 15 April 2010.

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