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

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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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## 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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