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**The Emergence and Development of Ergonomics  
Capability: Case Studies of Innovation  
in Product Design and Development**

A thesis presented in partial fulfilment  
of the requirements for the degree of  
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## Abstract

The aim of this study was to examine how and why ergonomics capability emerges and develops within organisations. This study suggests that these changes in capability can be interpreted as involving complex innovation processes which are shaped by a combination of forces both internal and external to an organisation. This perspective differs from that adopted in earlier research which has focused on the general problem of ergonomics knowledge utilisation in organisational settings.

A case study approach was used to conduct the research. The case study design consisted of six organisations (three pairs) operating from a manufacturing base in New Zealand. Each organisation pair operated in one of the following product-markets: petrol pumps, electric ranges and office seating. Data were collected from in-depth interviews, documents, archival sources and through observation. The case analysis focused primarily on ergonomics capability in relation to product design and development.

This study supports the need for a more dynamic conceptualisation of ergonomics knowledge use - one which recognises that as knowledge is used within an organisation, knowledge is also created. Accordingly, the analysis focused on those processes associated with the *emergence* and *development* of in-house ergonomics capability. The interpretation of these processes was informed by theories and concepts relating to organisational learning and innovation. The analysis also revealed that the emergence and development of ergonomics capability was encouraged and constrained by a range of contextual factors which included top management goals, product strategy, organisation structure and resources. Furthermore, government policy was found to be a dominant external force through its diffuse and indirect impact on the knowledge environment and industry structure.

The case analysis culminates in the presentation of a general framework for understanding the emergence and development of ergonomics capability in product development. While ergonomics capability is a core concept in the model, four other major elements are identified. These are staffing routines, top management orientation, organisational configuration and history, and the external environment. Twelve propositions are presented and various implications are drawn for ergonomic practice as well as for innovation theory.

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