# Innovation and attitude: mapping the profile of ICT decision-makers in architectural, engineering and construction firms

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**I hereby certify that the work embodied in this dissertation is the result of original research and has not been submitted for a higher degree to any other University or Institution**

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## *Acknowledgements*

It is inevitable that a network of help and support gathers around a long-term enterprise, which to a casual observer seems far more impressive that the enterprise itself and this dissertation is no exception. I would therefore take this opportunity to acknowledge my network of support.

I had been an admirer of Goran Runeson from the moment I read his testimonial upon his retirement(!), never expecting our relationship to be more than author and avid reader. It was with trepidation that I asked him to supervise me, a move that has subsequently proved to be both fruitful and rewarding as he has become my friend and mentor. He once observed that post-grads tend to morph into the type of supervisors that they endured -- I hope that this is true.

It would be appropriate for me to thank all of my earlier supervisors and co-supervisors for their input, even when it is scarcely now apparent in the completed work -- the journey is often just as rewarding as the destination.

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## *Dedication*

For Josephone, Wee Gee and Cat…I know it was unbearable but now it is over…and Granny and Popom, who'd be as pleased as Punch!

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## *Abstract.*

Information and communication technology (ICT) advances relating to the architectural, engineering and construction (AEC) sector have been rapid, offering efficiency gains and improved business effectiveness. However economic considerations, industry-specific conditions, legal, and business issues have limited their adoption by multi-firm project teams. ICT adoption rates are the manifestation of boundedly rational business decisions, formed by personal attitudes to innovation. Although attitudes are personal constructs they are phenomena that are experienced, can be personally reported, and observed from a distance.

This research maps attitudinal influences wherein the attitudinal profiles of decision-makers can be located. Adopting etic and emic perspectives it reveals independent indication of the extent and features of the phenomenon, and the personal construction of meaning and rules for decision-making. These perspectives are obtained using an asynchronous, online Delphi study of 13 international experts, combined with investigation of the phenomenological experiences of 39 experienced practitioners through in-depth interviews. Thematic analysis, supported by appropriate correlation analysis reveals patterns and structure in each study, which are modeled. These are then synthesised into a unified, multi-dimensional model.

This model reveals that individual attitude is composed of a number of components: exogenous issues include human, technological and business processes; an endogenous component relating to personal considerations; technological push, cultural pull, and a temporal dimension. It posits intra-firm and inter-organisational dimensions, observing variance along a continuum related to the context within which they are being considered.

The significance of this research is twofold: it maps the domain within which ICT decision-makers in the AEC sector make their decisions; it provides a reliable basis upon which to base further investigations.

**Keywords: ICT, decision-making, attitude, innovation**