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ACKNOWLEDGMENTS

Only one name appears on the cover of this thesis, but a great many people have been indirectly involved in its production.

Firstly, I would like to express my sincere gratitude to my supervisor, Dr. J.O.Jenkins, for his assistance and careful guidance. My research has benefited from his insight and innumerable suggestions.

I would also like to thank all my colleagues at Dublin City University for making it such a pleasant place to conduct this research. In particular, I would like to acknowledge the significant input of Prof. J.A.Moynihan, whose encouragement and assistance were invaluable.

A word of thanks to all my P3 project partners - Annie, Brian, Chantal, Christophe, Herve, Ioannis, Mark, Martine, Marty, Philippe, Robert, Tristan and Vassilis - who helped in so many ways. A special thanks to Eamon Gaffney for all his help.

I would also like to thank my family, Kevin, Teresa and Tracy, for their love and support throughout my prolonged existence as a student.

To my girlfriend Margaret, who was always with me when I needed support, shared my worries and problems, and provided my mind with a fail safe mechanism. I would like to thank her for her support and encouragement, but most of all her faith in me.

Finally, a message of thanks to my parents who bought a BBC home computer for me in 1983 and encouraged me to use it. Looking back, their inspired decision was the first step on the road that has culminated in this thesis. Thanks.
After some time they crossed the Water, west of Hobbiton, by a narrow plank-bridge. The stream there was no more than a winding black ribbon, bordered with leaning alder trees. A mile or two further south they hastily crossed the great road from the Brandywine Bridge; they were now in the Tookland and bending south-eastwards they made for the Green Hill Country. As they began to climb its first slopes they looked back and saw the lamps in Hobbiton far off twinkling in the gentle valley of the Water. Soon it disappeared in the folds of the darkened land, and was followed by Bywater beside its grey pool. When the light of the last farm was far behind, peeping among the trees, Frodo turned and waved a hand in farewell. ‘I wonder if I shall ever look down in that valley again’, he said quietly.

*The Lord of the Rings*

*J. R. R. Tolkien*
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ABSTRACT

It is the proposition of this research that there are a number of weaknesses in the current approaches being taken in the provision of software project planning tools and that there is significant scope to improve on existing systems by the development of an intelligent assistant system which will provide decision support for the software project planner in the creation of plans for a software development project.

This research has devised a framework and architecture based on a fusion of a number of techniques within a multi-agent framework which aims to improve the quality of the decision making process of software project planners. This framework incorporates the information gathering and analysis techniques of a Decision Support System with the ability of an Expert System to propose possible solutions using expert knowledge and best practices and the power of Blackboard to exchange information between components. This novel approach enables the inter-working of a variety of well understood techniques within a single underlying framework - that of the agent-orientated paradigm.

To assist with validating the proposed architecture, a prototype application was developed and a series of user trials conducted. The conclusion of these trials was that the prototype system demonstrated that the notion of an intelligent assistant system for software project planning was a viable concept, worthy of further investigation. Further, it demonstrated that the proposed architecture provided a viable framework for supporting the software project planners decision making process and has the potential to be of use in a commercial setting.