University of Technology, Sydney

# MULTIPLE PERSPECTIVES FRAMEWORK TO MODEL COMPLEX SYSTEMS

**By**

**CHOON BAE (PAUL) YOO**

**Submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy**

**June 2014**

**Faculty of Engineering and Information Technology**

**University of Technology, Sydney**

*I dedicate this thesis to my parents,*

***Bong Jae and Ok Hee Yoo***

*for their unconditional love,*

*for always believing in me and*

*for never letting me fall.*

# SUPERVISORY PANEL

## Principal Supervisor

**Professor Igor Hawryszkiewycz**
Head of School, Systems, Management & Leadership
Faculty of Engineering and Information Technology
University of Technology, Sydney

## Co-Supervisor

**Dr Kyeong Kang**
Core Member, Centre for Human Centred Technology Design (HCTD)
School of Systems, Management & Leadership
Faculty of Engineering and Information Technology
University of Technology, Sydney

**CERTIFICATE OF AUTHORSHIP/ORIGINALITY**

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Signature of Candidate

## ACKNOWLEDGEMENTS

I would like to thank Professor Igor Hawryszkiewycz and Dr Kyeong Kang from the School of Systems and Management of leadership whose guidance and encouragement helped me in all the time of research and writing of this thesis.

In addition, I owe my deepest gratitude to my two supervisors, Professor Igor Hawryszkiewycz and Dr Kyeong Kang. Firstly, I sincerely thank Professor Igor for his direction, insightful feedback and the many opportunities he has given me. I remain grateful for his expertise, patience and immense knowledge. I thank Dr Kyeong for guidance, kindness, friendship and her understanding in difficult times that I faced during this research, and for her confidence in me. This thesis would not have been possible without their help and direction.

I wish to make a special note of appreciation for all those who participated in, and contributed to, the data collection phase of this study. I am grateful for all of their efforts, time and support.

I would like to thank my family for their love and support, without them I could not complete this journey.

I'd also like to express my thanks to all staff at the School of Systems, Management and Leadership, Centre for Human Centred Technology Design (HCTD), and Faculty of Engineering and Information Technology at the University of Technology, Sydney.

## ABSTRACT

The growing complexity of organisations has resulted in collaboration between multiple stakeholders becoming a demanding and critical issue, which organisations must then manage in order to ensure their systems are sustainable. The challenge is to tackle the complex issues facing contemporary organisations and their stakeholders. There is a necessity to settle upon a modelling method that can be used to analyse change management and to improve its adaptation. This study addresses the area of Information Systems (IS) design, in which it is difficult to identify new characteristics of systems in complex environments. Thus the system design framework is recognised prior to modelling a complex system at various points in the organisation's development and in managing system evolution. However, the framework would not succeed without a full understanding of the significant changes occurring across organisations. The use of a multiple perspective framework to improve understanding of the complex relationships affecting such systems has been examined. A multiple case field study was conducted in order to demonstrate the suitability of the proposed methodology, and effect the analysis and examination for knowledge-based systems in an actual organisational setting. The results have suggested that the use of a multi-perspective framework is appropriate and that there is a need for attention to be paid to the economic perspective.



Keywords: Complex Systems, System Design, Organisational Complexity, Organisational sustainability, Visualisation.

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