Complexity in systems and organisations: problems of new systems' implementation

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Complexity in Systems and Organisations:
Problems of new systems’ implementation

A thesis submitted in fulfilment of the requirements for
the award of the degree

Doctor of Philosophy

from

UNIVERSITY OF WOLLONGONG

By

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MIS (honours), MIS, MBA, BSc

INFORMATION SYSTEMS
SCHOOL OF ECONOMICS & INFORMATION SYSTEMS
2005
CERTIFICATION

I, Wannapa Suratmethakul, declare that this thesis, submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in Information Systems, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Wannapa Suratmethakul

March 2005
Abstract

When an organisation is looking for a computer-based system to support part of their operation it is not uncommon for them to consider purchasing an application software that is already in use in an organisation similar to itself. Those responsible for the system’s acquisition are considerably influenced by any advice they receive on experiences with the proposed new system from those who have successfully used the application. Such communication between organisations may only occur at management level so that actual end-users are rarely involved. Issues of system usability are therefore assumed to be unproblematic, as the system has been used in a comparable real world situation. Even less of a consideration is whether the context of use in the receiving organisation is similar to those where the system is currently being used so that systems implementation can take place with ease.

The study presented in this thesis confirms the importance of critical contextual factors that affect the capability of people in an organisation and the performance of the whole organisation when a complex new system is implemented. It also demonstrates the relationships between contextual factors and the importance of these factors.

The research has used a grounded theory approach to reveal details within complex phenomena in an organisation when a substantial new system was implemented. This approach has been shown to be eminently suitable for the study which involved a new timetabling system in an educational institution. Furthermore, Activity Theory was seen as an appropriate framework to display and interpret large amounts of inter-related data in a holistic and comprehensible way.
The study revealed three critical issues: Knowledge Transfer, System Capability, and Organisational Context that appeared to be related to the problems of implementing the new information system in the organisation. These three issues are the main categories emerging from the data analysis leading into the effect of ‘influencing capability and thereby organisational performance’ which was designated as the core category. From a holistic view, the Activity Theory interpretation revealed that the dominant activities of the organisation in the case, teaching and learning were distorted by the new system as people in the organisation put more effort on getting the system to work rather than doing their own job.

This research adds to the understanding of a common situation where management have an over simplified view of organisational work and assume that implementing a new computer based system can quite easily improve the performance of the organisation. However the nature and the processes of most work are more complicated than they realise so that it is rarely simple to implement a system to support a job that is inherently complex. Traditional organisations, which rely on a ‘command and control’ approach to management, do not handle complexity well thereby restricting the ability of staff to use their knowledge of the real conditions to adapt their work to suit changing organisational systems.
PUBLICATION FROM THE RESEARCH

The following papers have been produced from the research reported in this thesis.


Acknowledgements

Thanks and considerable appreciation is due to the following people for their kind assistance and support. This thesis could not be completed without them.

First of all, I would like to express my gratitude to my supervisor, Associate Professor Helen Hasan, for her invaluable guidance, support, and encouragement throughout this study. Without her, this completing this thesis would not have been possible.

I would like to thank all the participants in this study. They volunteered to be interviewed and were very generous with their time and very open in their opinions.

I would also like to thank Mr. Joseph Meloche for his advice, support, and his help in proofreading some chapters from my thesis. I also would like to thank his wife and daughter for their kind hospitality when I visited their house.

To all my best friends who have been great supporters. Thank you for your friendship, concern, and encouragement. Especially I am very happy to acknowledge the deep friendship and help of Thanaporn Jingjaikul and Sophon Jingjaikul. They were always there for me every time when I needed them. I am also grateful to Mr. Santipat Arunthari for his sympathy and encouragement.

Finally and most importantly, I would like to express my largest gratitude to my parents, Mr. Niyom Suratmethakul and Mrs. Duangjai Suratmethakul, and my brother, Mr. Jakphan Suratmethakul, for always being there when I needed them most, and for their love, understanding, encouragement, and support. Thank you for always believing in me.
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