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.


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List of Tables

Table 2.1: California Q-Set Items Defining the Five Factors 25
Table 2.2: Theoretical coding families 32
Table 3.1: The schedule of the interviews for phase 1 43
Table 3.2: The schedule of the interviews for phase 2 48
Table 3.3: A summary of the school timetabling officers’ detail 49
Table 3.4: The summary of themes derived from the interviews with school timetabling officers. 56
Table 3.5: The schedule of the interviews in phase 3 58
Table 3.6: The schedule of the usability test 68
Table 3.7: The summary of the pre-test questionnaire 69
Table 3.8: Results from the personality test for the school timetabling officers 74
Table 3.9: The summary of attitude of the school timetabling officers 74
Table 3.10: Results from the personality test for the usability test’s participants 75
Table 3.11: Result from the personality test from the university timetabling officer 75
Table 3.12: The summary of themes derived from the data collection in phase 3 76
Table 3.13: The schedule of the interviews in phase 4 78
Table 3.14: The summary of themes derived from the interviews in phase 4 79
Table 4.1: A summary of expected stakeholders activities 90
Table 4.2: The summary of the initial categories that emerged from data 99
Table 4.3: The summary of categories re-organised from section 4.3.1 101
Table 4.4: The summary of main categories emerged from the data in the research 105
Table 5.1: Subcategories and properties of ‘Knowledge Transfer’ 110
Table 6.1: Subcategories and properties of the main category ‘System Capability’ 132
Table 7.1: Subcategories and properties of ‘Organisational Context’ 148
List of Figures

Figure 2.1: The process of deduction 12
Figure 2.2: A concept-indicator model 31
Figure 3.1: Part of the university’s organisation chart showing those closely involved in, or affected by, the implementation of the new system. 41
Figure 3.2: A typical screen from the regular application 70
Figure 3.3: A screen from the simplified software module, ‘Data Collection Wizard’ 72
Figure 3.4: Teaching activity on Tuesday in Year 2002 80
Figure 3.5: The Percent Usage of all location on each day of the week in Year 2002 81
Figure 3.6: Teaching activity on Tuesday in Year 2003 81
Figure 3.7: The Percent Usage of all location on each day of the week in Year 2003 82
Figure 4.1: The subject-object relationship, which defines the activity, is mediated by tools and community through rules and division of labour 87
Figure 4.2: The definitive hierarchy of Leontiev 88
Figure 4.3: Sets of interrelated activities in the research of Engestrom (1999), Hasan & Gould (2001) and Kuutti & Virkunnen (1995) 89
Figure 4.4: The ideal relationship between the dominant educational activities 91
Figure 4.5: The distorted relationships between actual activities of stakeholder during the introduction of the new timetabling system 91
Figure 4.6: The distorted relationships between actual activities of stakeholder after implementing the new timetabling system 93
Figure 4.7: The relationships of sub core categories and core category 104
Figure 5.1: The DIKW model of Callioni 121
Figure 5.2: The knowledge creation spiral of Nonaka 124
Figure 6.1: The technology acceptance model 140
Figure 7.1: The Edge of Chaos 156
Figure 7.2: Snowden (2002) The sense-making and decision-making Cynefin frameworks 158
Figure 7.3: Connection strengths of Cynefin domains 159
Figure 8.1: The relationships between three critical contextual factors under the new computer based system 173
# Table of Contents

Certification.................................................................................................................ii  
Abstract.....................................................................................................................iii  
Publication from the research......................................................................................v  
List of Tables .............................................................................................................vi  
List of Figures...........................................................................................................vii

## Chapter 1 Introduction

1.1 Background to the research problem 1  
1.2 Research question 4  
1.3 Aim and purpose 4  
1.4 Overview of the research design and method 5  
1.5 Thesis structure 6

## Chapter 2 Research design

2.1 Introduction 8  
2.2 The decision on research strategy 8  
2.3 Research paradigms 10  
2.4 Theory and research 11  
2.5 Choice of research method 13  
  2.5.1 Grounded Theory 14  
  2.5.2 Justification of the approach to grounded theory 17  
2.6 Data collection methods 18  
  2.6.1 Interview 18  
  2.6.2 Usability testing 19  
    2.6.2.1 Six stages of conducting usability test 20  
    2.6.2.2 Conduct of the usability test 23  
  2.6.3 The personality test 24  
    2.6.3.1 The Five-Factor Model (FFM) 24
Chapter 3  Data collection

3.1 Introduction 37
3.2 Background of the case 37
3.3 Designing the data collection 42
3.4 Phase 1: The initial exploratory phase 43
   3.4.1 Documentation 44
   3.4.2 The initial interview with the registrar 44
   3.4.3 The initial interview with the external consultant and the university timetabling officer 45

3.5 Phase 2: The interviews with the school timetabling officers 47
   3.5.1 Data summary from the interviews with the school timetabling officers 49
   3.5.2 Initial analysis of data in phase 2 54
3.6 Phase 3: Selective data collection 57
   3.6.1 The interviews with other stakeholders 58
      3.6.1.1 The senior management 58
      3.6.1.2 The university timetabling officer 60
      3.6.1.3 Academic teaching staff 62
      3.6.1.4 Students 65
      3.6.1.5 The technical development team 67
   3.6.2 Usability tests 68
      3.6.2.1 Findings from the usability test 68
Chapter 4 Data Analysis

4.1 Introduction 84

4.2 Preliminary holistic analysis and theoretical framework 85

   4.2.1 What is Activity Theory? 86

   4.2.2 The Activity Theory interpretation 89

4.3 Grounded Theory analysis 94

   4.3.1 Open coding and initial categorisation 95

   4.3.2 Re organising the categories 100

   4.3.3 Participants’ concern within the research field 102

   4.3.4 Core category 103

4.4 Activity Theory analysis and the emergent categories 106

4.5 Conclusion 106
Chapter 5  Knowledge Transfer

5.1 Introduction 108
5.2 Knowledge Transfer category 109
5.3 Communication 111
  5.3.1 Communication within the organisation 111
    5.3.1.1 Communication between management and timetabling officers 112
    5.3.1.2 Communication between the development team and timetabling officers 113
    5.3.1.3 Communication between timetabling officers 114
  5.3.2 Communication between organisations 115
5.4 Sources of knowledge 117
  5.4.1 Training 117
  5.4.2 Document and instruction 118
5.5 The identification and discussion of selected relevant literature 119
  5.5.1 Knowledge, knowledge management and knowledge transfer 120
  5.5.2 Knowledge management in organisations 122
  5.5.3 Knowledge management between organisations 127
5.6 Conclusion 129

Chapter 6  System Capability

6.1 Introduction 130
6.2 System Capability category 130
6.3 Characteristics of the software 132
  6.3.1 Software flexibility 133
  6.3.2 Software complexity 133
  6.3.3 Software compatibility 134
6.4 Advantages of the system 135
  6.4.1 Increase work performance 136
  6.4.2 Decrease in workloads 137
Chapter 7  Organisational Context

7.1 Introduction 146
7.2 Organisational Context category 146
7.3 Change in organisation 148
  7.3.1 Culture change 149
  7.3.2 Change to the job process 150
7.4 Organisational rules 151
  7.4.1 Job description 151
  7.4.2 Staff conditions 152
7.5 The identification and discussion of selected relevant literature 153
7.6 Conclusion 159

Chapter 8  Discussion and conclusion

8.1 Introduction 161
8.2 Summary of the research 161
8.3 Significance of the core category 163
8.4 Discussion of the research findings 166
  8.4.1 The critical contextual factors in organisational system’s use 167
  8.4.2 The relationships between the critical contextual factors in an organisation 169
8.5 The contribution to academia 171
8.6 Implications for management 173
8.7 Implication for further research

References

Appendices

Appendix A 182
Appendix B 183
Appendix C 184
Appendix D 186
Appendix E 189
Appendix F 192
Appendix G 195
Appendix H 196
Appendix I 197
Appendix J 206
Appendix K 207
Appendix L 212