An integrative view and empirical examination of the relationships among knowledge management enablers, processes, and organizational performance in Australian enterprises

Mahmoud Mohammad Migdadi

University of Wollongong

UNIVERSITY OF WOLLONGONG
COPYRIGHT WARNING
You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

This work is copyright. Apart from any use permitted under the Copyright Act 1968, no part of this work may be reproduced by any process, nor may any other exclusive right be exercised, without the permission of the author.

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

Unless otherwise indicated, the views expressed in this thesis are those of the author and do not necessarily represent the views of the University of Wollongong.

Recommended Citation

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au
NOTE

This online version of the thesis may have different page formatting and pagination from the paper copy held in the University of Wollongong Library.

UNIVERSITY OF WOLLONGONG

COPYRIGHT WARNING

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.
An Integrative View and Empirical Examination of the Relationships Among Knowledge Management Enablers, Processes, and Organizational Performance in Australian Enterprises

PhD Thesis

School of Economics and Information Systems
Faculty of Commerce
University of Wollongong
Wollongong, Australia

Mahmoud Mohammad Migdadi
BS, MBA

2005
Abstract

This study briefly describes the main concepts of knowledge management enablers with a focus on transformational leadership constructs, knowledge processes with a focus on knowledge creation process (SECI of Nonaka and Takeuchi (199) model), organisational creativity, and organisational performance.

There is a limited understanding of what determines effective knowledge management, and there is currently very limited tested framework that unifies all of the relevant above-mentioned concepts in a relatively easy to understand and practical way. As such, one of the principal goals of this study is to develop an integrated framework, which can explain and guide the successful and effective management of knowledge in organisations. Such a framework should benefit the academic research in knowledge management as well as help managers in their efforts to best locate an organisational resource and focus its knowledge management efforts for optimum organisational performance.

There are three main aims, which motivate the study. The first aim is to combine knowledge management enablers and knowledge creation processes from both a social perspective and a technological perspective in relation to organisational performance, and test the relationships empirically to provide strategic positions to organisations and provide them with indicators, which should help them to manage their knowledge effectively. Managers face a dilemma in selecting the most effective knowledge management enablers and knowledge management processes to solve organisational problems.

In recent times, much has been written and many theories have been offered regarding the phenomenon of knowledge management and its implementation. However, little empirical
research has been conducted to support these theories (Leech and Sutton, 2002), as the majority of studies reported in the literature come from single cases to small sample sizes where the generality of the results is significantly reduced (Gold, 2001). Current empirical research has explored the relationships between these factors in isolation. Rigorous development of a model of the salient issues is warranted, especially if it leads to a means of measurement of relevant constructs. Thus, the second aim of this study is to test the research integrative framework empirically. An exploratory study is undertaken to build the survey (instrument) of the constructs followed by a confirmatory analysis.

The third aim of this study is to conduct a qualitative study (Q Method) on the main part of the study model, that is, transformational leadership constructs, in an attempt to investigate rigorously their contributions to the knowledge management effectiveness and their role in providing organisations with strategic positions.

There are several theoretical and practical contributions for this study.

This study makes significant contributions across multiple areas of knowledge management research. These contributions relate to (1) the development of a conceptual model that explains and predicts the effects of knowledge management enablers on knowledge creation process, which in turn affects organisational performance through organisational creativity; (2) the empirical support for the proposed hypotheses drawn from the literature review and based on the study integrative framework; (3) the development of a new instrument; (4) the research focuses on certain knowledge management enablers as the most important factors affecting the knowledge creation process; (5) the importance of the study, as most of the participants are Australian SMEs; (6) this study combines an exploratory approach followed by an empirical with
confirmatory analysis in a rigorous and thorough methodology for knowledge management.

The research results help managers establish strategic positions to manage knowledge effectively. Australian organisations may benefit from building a knowledge conductive culture, that is, a culture supportive of knowledge management which highly values knowledge and encourages its creation, sharing and application.

Knowledge creation is associated with cultural factors (trust, collaboration and learning) included in this study. For example, group members are most creative when their members collaborate; members stop holding back when they have mutual trust (Huemer et al. 1998). Moreover, organisational learning is imperative and managers should continuously pay careful attention to it and make sure it is effective. Therefore, shaping cultural factors is crucial for a firm’s ability to manage its knowledge effectively (Chase, 1997; Davenport et al., 1998; Gold et al., 2001; Long, 1997).

Organisations should have an environment that encourages forming t-shaped skills and should provide a systematic management of these skills.

Role model leaders who practice transformational leadership in organisations can create an atmosphere of trust where knowledge and opinions can be shared openly without fear of punishment, risk taking is praised and courteous challenges to the status quo are welcomed, and there are opportunities to rethink assumptions and learn collectively from reflection (Baker and Camarata (1998).

Strategy, goals and concepts associated with knowledge creation and transfer must be clear to every one in the organisation. Skyrme and Amidon (1997) assert that a compelling vision and conceptual architecture build a common language and define key
domains for knowledge. Such domains create knowledge structures, often based on the individual pattern of use of concepts (Davenport and Prusak 1998, p. 159).

IT is critical for codifying explicit knowledge since it provides fast feedback for explicit knowledge (Krogh et al., 2001; Weiser and Morrison, 1998). This study indicates that without a solid foundation of trust, the communication of even explicit knowledge is difficult (Scott, 2000). This implies that simply improving the IT infrastructure does not provide a competitive advantage for knowledge combination. Consequently, managers should pay careful attention to the potential impact of IT on knowledge combination with the consideration of trust in a firm.

According to Maula (2000, p. 57):

*It is vital for management to recognise that organisational creativity is a subtle issue that depends on the firm’s tacit capabilities and characteristics. It also depends on an atmosphere that tolerates and favours intuition and inspiration, on the functioning of the relevant knowledge processes, on the availability of information and communication tools to help share knowledge in less-structured form, and to transform it into highly-structured form if necessary.*

Organisations could benefit tremendously from the balance between imposing discipline of efficiency and delegating authority to encourage flexibility.

Finally, this study has identified opportunities for further study that may significantly progress the continually evolving understanding of knowledge management, which can help formulate robust strategies that involve trade-offs between knowledge management enablers.
Acknowledgments

I wish to thank my supervisors, Associate Professor Helen Hasan and Dr George Kriflik, for their constant guidance and encouragement throughout the research. They provided invaluable insights into all aspects of Knowledge Management and Transformational Leadership.

Special thanks to my wife, and my sons, Anas and Omar, for being my support system throughout this entire process and for the many sacrifices they made so that I could follow my dream.

I would also like to thank all of my family, my mother, father, brothers and sisters, for helping me in keeping the faith. My love and respect for you grow daily.
## CONTENTS

CHAPTER 1 INTRODUCTION ......................................................................................11
  1.1 Aims and Purpose of the Study ...................................................................................11
  1.2 Significance of the Study ............................................................................................13
  1.3 Introduction to the Study Problem ..............................................................................15
  1.4 The Research Questions and Approach ......................................................................16
  1.5 The Research Design ..................................................................................................18
  1.6 Knowledge, Information, and Data.................................................................19
    1.6.1 Tacit and Explicit Knowledge .............................................................................21
  1.7 Knowledge Management ............................................................................................23
    1.7.1 Knowledge Management Approaches .................................................................24
  1.8 Knowledge Management Enablers .............................................................................25
    1.8.1 Transformational Leadership...............................................................................27
  1.9 Knowledge Creation Process ......................................................................................27
  1.10 Organisational Creativity..........................................................................................29
  1.11 Organisational Performance......................................................................................31
  1.12 Thesis Structure ........................................................................................................33

CHAPTER 2 LITERATURE REVIEW ...........................................................................36
  2.1 Introduction.................................................................................................................36
  2.2 Theoretical Background..............................................................................................36
    2.2.1 Previous Empirical Studies ..................................................................................41
  2.3 Knowledge Management Enablers .............................................................................43
    2.3.1 Organisational Culture.........................................................................................44
      2.3.1.1 Trust ......................................................................................................................47
      2.3.1.2 Collaboration.........................................................................................................51
      2.3.1.3 Learning ................................................................................................................56
    2.3.2 Organisational Structure ......................................................................................60
      2.3.2.1 Centralisation ........................................................................................................64
      2.3.2.2 Formalisation ........................................................................................................64
    2.3.3 People...................................................................................................................65
      2.3.3.1 Skills .....................................................................................................................68
        2.3.3.1.1 T-shaped skills .......................................................................................68
      2.3.4 Bass and Avolio’s Transformational Leadership Constructs .........................70
        2.3.4.1 Idealised Influence ..........................................................................................80
        2.3.4.2 Inspirational Motivation ..................................................................................87
        2.3.4.3 Intellectual Stimulation ....................................................................................91
          2.3.4.3.1 Task Conflict ..........................................................................................93
          2.3.4.3.2 Team Psychological Safety ....................................................................94
          2.3.4.3.3 Social Interaction ...................................................................................95
        2.3.4.4 Individualised Consideration ..........................................................................96
      2.3.5 Information Technology Support .........................................................................99
  2.4 Knowledge Management Processes ..........................................................................102
    2.4.1 Knowledge Conversion Modes ..........................................................................105
      2.4.1.1 Socialisation ........................................................................................................105
      2.4.1.2 Externalisation ....................................................................................................106
      2.4.1.3 Combination ........................................................................................................106
2.4.1.4 Internalisation .....................................................................................................107
2.4.2 Factors that constitute the Knowledge–Conversion Process and Ba corresponding to Knowledge Conversion Modes (KCM) ........................................107
2.5 Intermediate Outcome (Organisational Creativity) .............................................109
2.6 Organisational Performance ..............................................................................112
2.7 Summary ..............................................................................................................117

CHAPTER 3 THE RESEARCH MODEL AND HYPOTHESES .......................................118
3.1 Introduction .........................................................................................................118
3.2 Research Model ..................................................................................................119
3.3 Knowledge Management Enablers versus Knowledge Creation Process Hypotheses .........................................................................................................................................121
3.3.1 Organisational Culture ...................................................................................121
3.3.1.1 Trust ...............................................................................................................123
3.3.1.2 Collaboration ...................................................................................................124
3.3.1.3 Learning .........................................................................................................125
3.3.2 Organisational Structure ................................................................................128
3.3.2.1 Centralisation ..................................................................................................129
3.3.2.2 Formalisation ..................................................................................................130
3.3.3 People ..............................................................................................................132
3.3.3.1 T-shaped Skills ...............................................................................................133
3.3.4 Transformational Leadership .........................................................................133
3.3.4.1 Idealised Influence .........................................................................................135
3.3.4.2 Inspirational Motivation ...............................................................................138
3.3.4.3 Intellectual Stimulation ..................................................................................140
3.3.4.4 Individualised Consideration .........................................................................143
3.3.5 IT Support .......................................................................................................144
3.4 Knowledge Creation Process versus Organisational Creativity Hypothesis ............147
3.5 Organisational Creativity versus Organisational Performance Hypothesis ..............148
3.6 Research Questions and Their Related Hypothesis, and Research Objectives .........150
3.6.1 Research Questions and Hypotheses ...............................................................151
3.6.2 Research Objectives .........................................................................................154
3.7 Summary ..............................................................................................................154

CHAPTER 4 THE RESEARCH METHODOLOGY USED FOR THE EMPIRICAL ..........155
4.1 Introduction .........................................................................................................155
4.2 Theoretical Research Approaches ......................................................................156
4.3 Quantitative Methodology ...................................................................................161
4.4 Conceptualisation, Operationalisation and Measures .........................................162
4.5 Data Collection ...................................................................................................163
4.5 Data Collection ...................................................................................................164
4.6 Sample Design and Sampling Procedures ..........................................................166
4.6.1 Cochran’s Formula............................................................................................168
4.6.2 Sample Size Determination .............................................................................169
4.6.3 Population Size .................................................................................................170
4.7 Internet Survey ...................................................................................................173
4.8 Administration of the Internet Survey .................................................................179
4.9 Qualitative Methodology (The Q Method) ..........................................................180
4.10 Ethical Considerations in the Study ................................................................. 181
4.11 Summary ........................................................................................................... 182

CHAPTER 5. IDENTIFICATION OF CONCEPTS AND MEASURES LEADING TO
THE DEVELOPMENT OF THE QUESTIONNAIRE ............................................. 184
5.1 Introduction ......................................................................................................... 184
5.2 Questionnaire Development ............................................................................. 185
5.3 Positive and Negative Wording ........................................................................ 187
5.4 Knowledge Management Enablers ................................................................. 188
   5.4.1 Organisational culture .................................................................................. 188
   5.4.1.1 Trust ........................................................................................................ 190
   5.4.1.2 Collaboration ......................................................................................... 191
   5.4.1.3 Learning ............................................................................................... 192
   5.4.2 Organisational Structure .......................................................................... 195
   5.4.2.1 Centralisation ...................................................................................... 196
   5.4.2.2 Formalisation ...................................................................................... 196
   5.4.3 People ......................................................................................................... 198
   5.4.3.1 T-Shaped Skills ................................................................................... 199
   5.4.4 Transformational Leadership ................................................................. 200
   5.4.4.1 Idealised Influence ............................................................................ 201
   5.4.4.2 Inspirational Motivation .................................................................... 201
   5.4.4.3 Intellectual Stimulation ....................................................................... 202
   5.4.4.4 Individualised Consideration .............................................................. 203
   5.4.5 Information Technology Support ............................................................ 206
5.5 Knowledge Creation Process ............................................................................ 207
   5.5.1 Knowledge Conversion Modes ............................................................. 213
   5.5.1.1 Socialisation ..................................................................................... 213
   5.5.1.2 Externalisation ............................................................................... 214
   5.5.1.3 Combination .................................................................................. 214
   5.5.1.4 Internalisation ................................................................................. 214
5.6 Organisational Creativity .................................................................................. 216
5.7 Organisational Performance ............................................................................. 217
5.8 The Scale Development ..................................................................................... 219
5.9 Summary ........................................................................................................... 220

CHAPTER 6 THE PILOT STUDY ......................................................................... 222
6.1 Introduction ......................................................................................................... 222
6.2 Pilot Study Stages ............................................................................................... 225
   6.2.1 Planning Stage ...................................................................................... 226
   6.2.1 Planning Stage ...................................................................................... 227
   6.2.2 Design Stage ...................................................................................... 231
   6.2.2.1 Pilot Sample .................................................................................. 231
   6.2.2.2 Sample Size .................................................................................. 232
   6.2.3 Conduct stage ..................................................................................... 234
   6.2.4 Evaluation Stage ................................................................................ 235
   6.2.4.1 Descriptive Statistics ..................................................................... 237
   6.2.4.2 Scale reliabilities ........................................................................ 240
   6.2.4.3 Scale validity ................................................................................. 247
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2.4.4 Factor Analysis</td>
<td>248</td>
</tr>
<tr>
<td>6.2.5 Use Stage and Limitations</td>
<td>253</td>
</tr>
<tr>
<td>6.3 Summary</td>
<td>253</td>
</tr>
<tr>
<td>CHAPTER 7 SURVEY DATA ANALYSIS</td>
<td>254</td>
</tr>
<tr>
<td>7.1 Preparing the Survey Data for Statistical Analysis</td>
<td>254</td>
</tr>
<tr>
<td>7.2 Descriptive Statistics and Demographic of Study Sample</td>
<td>262</td>
</tr>
<tr>
<td>7.3 Reliability of the Instruments</td>
<td>266</td>
</tr>
<tr>
<td>7.4 Validity of the Instruments</td>
<td>266</td>
</tr>
<tr>
<td>7.4.1 Factor Analysis for the Knowledge Management Enablers</td>
<td>267</td>
</tr>
<tr>
<td>7.4.3 Factor Analysis for the Organisational Creativity</td>
<td>271</td>
</tr>
<tr>
<td>7.4.4 Factor Analysis for the Organisational Performance</td>
<td>271</td>
</tr>
<tr>
<td>7.5 Inter-rater Reliability</td>
<td>272</td>
</tr>
<tr>
<td>7.6 Non-Response Error Test</td>
<td>273</td>
</tr>
<tr>
<td>7.7 Summary</td>
<td>275</td>
</tr>
<tr>
<td>CHAPTER 8 SURVEY FINDINGS: TESTING THE THEORETICAL HYPOTHESES</td>
<td>276</td>
</tr>
<tr>
<td>8.1 INTRODUCTION</td>
<td>276</td>
</tr>
<tr>
<td>8.2 Hypotheses Testing</td>
<td>277</td>
</tr>
<tr>
<td>8.2.1 Introduction</td>
<td>277</td>
</tr>
<tr>
<td>8.2.2 The Underlying Assumptions for Multiple Regression</td>
<td>279</td>
</tr>
<tr>
<td>8.2.2.1 Linearity and Homoscedaticity</td>
<td>279</td>
</tr>
<tr>
<td>8.2.2.2 Normality</td>
<td>280</td>
</tr>
<tr>
<td>8.2.2.3 Multicollinearity</td>
<td>281</td>
</tr>
<tr>
<td>8.2.2.4 Outliers</td>
<td>281</td>
</tr>
<tr>
<td>8.3 Hypotheses of Knowledge Management Enablers vs. Knowledge Creation Process</td>
<td>282</td>
</tr>
<tr>
<td>8.3.1 Linearity and Homoscedaticity</td>
<td>282</td>
</tr>
<tr>
<td>8.3.2 Hypotheses H1-H3 Organisational Culture vs. Knowledge Creation Process</td>
<td>283</td>
</tr>
<tr>
<td>8.3.2.1 Multicollinearity</td>
<td>283</td>
</tr>
<tr>
<td>8.3.2.2 Outlier Analysis</td>
<td>284</td>
</tr>
<tr>
<td>8.3.2.3 Results of the Multiple Regression</td>
<td>284</td>
</tr>
<tr>
<td>8.3.3 Hypotheses H4-H5 Organisational Structure vs. Knowledge Creation Process</td>
<td>286</td>
</tr>
<tr>
<td>8.3.3.1 Multicollinearity</td>
<td>286</td>
</tr>
<tr>
<td>8.3.3.2 Outlier Analysis</td>
<td>286</td>
</tr>
<tr>
<td>8.3.3.3 Results of the Multiple Regression</td>
<td>286</td>
</tr>
<tr>
<td>8.3.4 Hypothesis H6 T-Shaped Skills vs. Knowledge Creation Process</td>
<td>288</td>
</tr>
<tr>
<td>8.3.4.1 Multicollinearity</td>
<td>288</td>
</tr>
<tr>
<td>8.3.4.2 Outlier Analysis</td>
<td>288</td>
</tr>
<tr>
<td>8.3.4.3 Results of the Multiple Regression</td>
<td>288</td>
</tr>
<tr>
<td>8.3.5 Hypotheses H7-H10 Transformational Leadership vs. Knowledge Creation Process</td>
<td>290</td>
</tr>
<tr>
<td>8.3.5.1 Multicollinearity</td>
<td>290</td>
</tr>
<tr>
<td>8.3.5.2 Outlier Analysis</td>
<td>290</td>
</tr>
<tr>
<td>8.3.5.3 Results of the Multiple Regression</td>
<td>290</td>
</tr>
<tr>
<td>8.3.6 Hypothesis H11 Information Technology Support vs. Knowledge Creation Process</td>
<td>293</td>
</tr>
</tbody>
</table>
10.2 Collecting the Statements: the Concourse ..............................................................330
10.3 Q-sort ......................................................................................................................331
10.4 Generation and Analysis of the Factor Solutions ...................................................332
10.5 Analysis of Five Factors .........................................................................................336
  10.5.1 Factor A ...........................................................................................................336
  10.5.2 Factor B ...........................................................................................................339
  10.5.3 Factor C ...........................................................................................................342
  10.5.4 Factor D ...........................................................................................................344
  10.5.5 Factor E ...........................................................................................................347
10.6 Benefits and Limitations of the Q-Study ..............................................................350

CHAPTER 11 DISCUSSION AND CONCLUSIONS ..................................................351
11.1 Introduction .............................................................................................................351
11.2 The Study Contribution to Academic Research ......................................................352
  11.2.1 Academic Research Contribution 1 .................................................................352
  11.2.2 Academic Research Contribution 2 .................................................................353
  11.2.3 Academic Research Contribution 3 .................................................................354
  11.2.4 Academic Research Contribution 4 .................................................................355
  11.2.5 Academic Research Contribution 5 .................................................................355
  11.2.6 Academic Research Contribution 6 .................................................................356
  11.3 Managerial Implications .........................................................................................358
  11.3.1 Knowledge Management Enablers vs. Knowledge Creation Process .............358
  11.3.1.1 Organisational Culture ......................................................................................358
  11.3.1.2 Organisational Structure ...................................................................................359
  11.3.1.3 T-shaped Skills ..................................................................................................360
  11.3.1.4 Transformational Leadership ............................................................................360
  11.3.1.5 Information Technology Support ......................................................................361
  11.3.2 The Knowledge Creation Process vs. Organisational Creativity .....................362
  11.3.3 Organisational Creativity vs. Organisational Performance .............................363
  11.4 Study Limitations ..................................................................................................363
  11.5 Areas for Future Research ......................................................................................364
REFERENCES ...............................................................................................................365
# List of Figures and Tables

## CHAPTER 1 INTRODUCTION

- Figure (1.1): An Integrative Research Framework for Studying Knowledge Management, adapted from Lee and Choi (2003, p. 182) .......................................................... 16
- Figure (1.2): Factors Affecting Organisational Creativity. Source Andriopoulos (2001, p. 835) .......................................................... 30

## CHAPTER 2 LITERATURE REVIEW

- Figure (2.1): An Integrative Research Framework for Studying Knowledge Management, adapted from Lee and Choi (2003, p. 182) .......................................................... 41
- Table (2.1): A Comparison of Previous Studies ......................................................... 42
- Figure (2.2): The Knowledge Management Enablers incorporated into the research model .......................................................................................................................... 43
- Figure (2.3): Levels of Collaboration, adapted from Linden (2003) ......................... 52
- Figure (2.4): T-Shaped Skills ............................................................................. 70
- Figure (2.5): Transformational Leadership Constructs ........................................... 80
- Figure (2.6): Knowledge Conversion Modes ....................................................... 105
- Table (2.2): KCM, Factors Constitute the Knowledge Conversion Process, and Ba Corresponding to KCM .......................................................... 108

## CHAPTER 3 THE RESEARCH MODEL AND HYPOTHESES

- Figure 3.1 A Research Model adapted and edited from Lee and Choi (2003) .......... 120
- Table (3.1): Adopted and Edited from (Sun and Scot, 2003) shows the link between Nonaka’s (1994) Theory of Knowledge Creation and the work of some Scholars on Organisational Learning ................................................................. 127
- Table (3.2): Transformational Leadership vs. Knowledge Creation Process Hypotheses .................................................................................................................................................. 151
- Table (3.3): Knowledge Management Enablers vs. Knowledge Creation Process Hypotheses .................................................................................................................................................. 152
- Table (3.4): Knowledge Creation Process Sub-Hypotheses vs. Organisational Creativity .................................................................................................................................................. 153

## CHAPTER 4 THE RESEARCH METHODOLOGY USED FOR THE EMPIRICAL

- Table (4.1): A Summary of Differences among the Five Social Research Approaches, adapted from Neuman (2003, p. 16) .................................................................................. 159
- Figure (4.1): Abstract Construct To Concrete Measure of Organisational Culture .... 163
- Table (4.2): Condenses Procedures for Precision Improvement of Collected Data: adopted from (Huber and Power, 1985) ................................................................................. 165
- Table (4.3): Advantages and Disadvantages of Typical Survey Methods of Collecting Data. Source: Zikmund (2003, p. 228) .................................................................................................................. 178

## CHAPTER 5. IDENTIFICATION OF CONCEPTS AND MEASURES LEADING TO THE DEVELOPMENT OF THE QUESTIONNAIRE

- Table (5.1): Organisational Culture Measures ....................................................... 194
- Table (5.2): Organisational Structure Measures ................................................... 197
- Table (5.3): T-Shaped Skills Measures ................................................................ 200
- Table (5.4): Transformational Leadership Constructs Measures ....................... 204
Table (5.5): Information Technology Support Measures ................................................................. 207
Figure (5.1): Model of Knowledge Creation. Source: Nonaka and Takeuchi (1995, p. 84). ............................................................................................................. 210
Table (5.6): Knowledge Conversion Modes Measures ........................................................................ 215
Table (5.7): Organisational Creativity Measures ................................................................................ 217
Table (5.8): Organisational Performance Measures ............................................................................ 219
Figure (5.2): Steps Used to Develop the Scales; adopted from Churchill (1997), which is cited in (Stratman and Roth, 2002) ............................................................................................................. 220
Table (5.9): Research Constructs and the number of their related items ........................................ 221

CHAPTER 6 THE PILOT STUDY ................................................................................................. 222
Table (6.1): Reasons for Conducting a Pre-test: adopted from Teijlingen and Hundley (2001) .............................................................................................................................. 224
Figure (6.1): Pilot Study Steps (Stages): adopted from Glass (1997) ........................................ 226
Table (6.2): Survey Items and their Relationship to the Measure of Interest. Adapted from Lee and Choi’s (2003) leadership constructs items were edited by the researcher .............................................................................................................................. 236
Table (6.3): Descriptive Analysis ........................................................................................................ 238
Table (6.4): Internal Reliabilities for the Scales .................................................................................... 240
First stage ........................................................................................................................................... 240
Table (6.5): Convergent Validity for the Scales ................................................................................... 242
Table (6.6): Correlation Matrix for the Trust Scale ............................................................................. 243
Table (6.7): Correlation Matrix for the Collaboration Scale ................................................................ 243
Table (6.8): Correlation Matrix for the Learning Scale ....................................................................... 243
Table (6.9): Correlation Matrix for the Centralisation Scale .................................................................. 243
Table (6.10): Correlation Matrix for the Formalisation Scale ................................................................ 244
Table (6.11): Correlation Matrix for the T-Shaped Skills Scale ........................................................... 244
Table (6.12): Correlation Matrix for the Idealised Influence Scale .................................................... 244
Table (6.13): Correlation Matrix for the Inspirational Motivation Scale ............................................ 244
Table (6.14): Correlation Matrix for the Intellectual Stimulation Scale .............................................. 245
Table (6.15): Correlation Matrix for the Individualised Consideration Scale ..................................... 245
Table (6.16): Correlation Matrix for the Information Technology Support Scale .............................. 245
Table (6.17): Correlation Matrix for the Socialisation Scale of Knowledge Creation ........................... 246
Table (6.18): Correlation Matrix for the Externalisation Scale of Knowledge Creation .................... 246
Table (6.19): Correlation Matrix for the Combination Scale of Knowledge Creation ...................... 246
Table (6.20): Correlation Matrix for the Internalisation Scale of Knowledge Creation ..................... 246
Table (6.21): Correlation Matrix for the Organisational Creativity .................................................... 247
Table (6.22): Correlation Matrix for the Organisational Performance .............................................. 247
Table (6.23): Loading Factors for the Organisational Culture (Trust, Collaboration, and Learning) .............................................................................................................................. 248
Table (6.24): Loading Factors for the Organisational Structure (Centralisation and Formalisation) .............................................................................................................................. 249
Table (6.25): Loading Factor for the T-Shaped Skills ......................................................................... 249
Table (6.26): Loading Factors for the Leadership (Idealised Influence, Inspirational Motivation, Intellectual Stimulation, and Individualised Consideration) .............................................................................................................................. 250
Table (6.27): Loading Factor for the Information Technology Support .............................................. 251
Item .................................................................................................................................................. 251
Table (6.28): Loading Factors for the Knowledge Creation Process (Socialisation, Externalisation, Internalisation, and Combination) ........................................................251
Table (6.28): Loading Factors for the Knowledge Creation Process Socialisation, Externalisation, Internalisation, and Combination) (Continued) ........................................252
Table (6.29): Loading Factor for Organisational Creativity ...........................................252
Table (6.30): Loading Factor for Organisational Performance ......................................252

CHAPTER 7 SURVEY DATA ANALYSIS .................................................................254
Table (7.1): Respondents Characteristics in terms of main industry..............................263
Table (7.2): Demographic Data for the Respondents of the Main Survey .....................264
Table (7.3): Internal Reliabilities for all the Scales included in the Main Study ...............266
Table (7.4): Loading Factors for the Organisational Culture (Trust, Collaboration, and Learning) .........................................................................................................................267
Table (7.5): Loading Factors for the Organisational Structure (Centralisation, and Formalisation) .........................................................................................................................268
Table (7.6): Loading Factor for the T-Shaped Skills ......................................................268
Table (7.7): Loading Factors for the Leadership (Idealised Influence, Inspirational Motivation, Intellectual Stimulation, and Individualised Consideration) .......................269
Table (7.8): Loading Factors for the Information Technology Support ..........................270
Table (7.9): Loading Factors for the Knowledge Creation Process (Socialisation, Externalisation, Internalisation, and Combination) ........................................................270
Table (7.10): Loading Factor for the Organisational Creativity .....................................271
Table (7.11): Loading Factor for the Organisational Performance ..................................271
Table (7.12): Inter-rater reliability and Agreement for all Scales ......................................272

CHAPTER 8 SURVEY FINDINGS: TESTING THE THEORETICAL HYPOTHESES .........................................................................................................................276
Figure (8.1): Scatter-plot of Knowledge Management Enablers vs. Knowledge Creation Process (KCP) ..........................................................283
Table (8.1): Co linearity Statistics of Trust, Collaboration, and Learning vs. Knowledge Creation Process ..............................................................283
Table (8.2): Results of Multiple Regression Analysis for Culture (Trust, Collaboration and Learning) vs. Knowledge Creation Process (Knowledge Conversion Modes) .........285
Table (8.3): Co linearity Statistics of Centralisation and Formalisation vs. Knowledge Creation Process ..............................................................286
Table (8.4): Results of Multiple Regression Analysis for Structure (Centralisation and Formalisation) vs. Knowledge Creation Process ..............................................................287
Table (8.5): Co linearity Statistics of T-Shaped Skills vs. Knowledge Creation Process .................288
Table (8.6): Results of Multiple Regression Analysis for T-Shaped Skills vs. Knowledge Creation Process ..............................................................289
Table (8.7): Co linearity Statistics of Idealised Influence, Inspirational Motivation, Intellectual Stimulation and Individualised Consideration vs. Knowledge Creation Process ..............................................................290
Table (8.8): Results of Multiple Regression Analysis for Transformational Leadership (Idealised Influence, Inspirational Motivation, Intellectual Stimulation and Individualised Consideration) vs. Knowledge Creation Process ..............................................................292
Table (8.9): Co linearity Statistics of Information Technology Support vs. Knowledge Creation Process..............................................................................................................293
Table (8.10): Results of Multiple Regression Analysis for Information Technology Support vs. Knowledge Creation Process...........................................................................294
Figure (8.2): Scatter-plot of Knowledge Creation Process (Knowledge Conversion Modes) vs. Organisational Creativity (OC).........................................................................295
Table (8.11): Co linearity Statistics of Knowledge Conversion Modes vs. Organisational Creativity.........................................................................................................................296
Table (8.12): Results of Multiple Regression Analysis for Knowledge Conversion Modes vs. Organisational Creativity.........................................................................297
Figure (8.3): Scatter-plot of Organisational Creativity vs. Organisational Performance298
Table (8.13): Co linearity Statistics Organisational Creativity vs. Organisational Performance .......................................................................................................................299
Table (8.14): Results of Simple Regression Analysis for Organisational Creativity vs. Organisational Performance ......................................................................................300
Table (8.15): Mediation Analysis Result for Knowledge Creation Process................298
Table (8.16): Mediation Analysis Result for Organisational Creativity.......................301

CHAPTER 9 DISCUSSION OF THE QUANTITATIVE STUDY RESULTS ....312
Table (9.1): A Summary of the Research Hypotheses..............................................313

CHAPTER 10 THE QUALITATIVE STUDY ...............................................................329
THE Q METHODOLOGY) ....................................................................................329
Table (10.1): A comparison of a four factor solution to the Q-Study.........................333
Table (10.3): Classification and Significance of Factors.............................................334
Table (10.4): Statistically Valid Sorts in 5 Factors....................................................335
Table (10.5): Transformational leadership vs. the Knowledge Creation Process in the Survey Findings ..............................................................................................................336
Table (10. 6) The top and bottom statements of Factor A ........................................336
Table (10.7): The top and bottom statements of Factor B ........................................339
Table (10.8): The top and bottom statements of Factor C ........................................342
Table (10.9): The top and bottom statements of Factor D ........................................344
Table (10.10): The top and bottom statements of Factor E .....................................347

CHAPTER 11 DISCUSSION AND CONCLUSIONS .............................................351

REFERENCES .....................................................................................................365