

**Innovation and attitude: mapping the profile of ICT
decision-makers in architectural, engineering and
construction firms**

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I hereby certify that the work embodied in this dissertation is the result of original research and has not been submitted for a higher degree to any other University or Institution

A handwritten signature in black ink, appearing to read 'Graham Brewer', with a long horizontal stroke extending to the right.

Graham Brewer

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It is inevitable that a network of help and support gathers around a long-term enterprise, which to a casual observer seems far more impressive than the enterprise itself and this dissertation is no exception. I would therefore take this opportunity to acknowledge my network of support.

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Dedication

For Josephine, Wee Gee and Cat...I know it was unbearable but now it is over...and
Granny and Popom, who'd be as pleased as Punch!

Contents

Innovation and attitude: mapping the profile of ICT decision-makers in architectural, engineering and construction firms.....	1
Acknowledgements.....	v
Dedication.....	vii
Contents.....	ix
Figures.....	xvii
Tables.....	xix
Abstract.....	xxi
Chapter 1: Introduction.....	1
1.1 Background to the research.....	3
1.2 Research problem and research questions.....	5
1.2.1 Research question:.....	7
1.2.2 Research aim:.....	7
1.2.3 Research objectives:.....	8
1.3 Justification for the research.....	8
1.4 Research Design considerations.....	9
1.4.1 Theoretical research considerations.....	9
1.4.2 Practical research considerations.....	11
1.4.3 Literature review.....	13
1.4.4. Data Collection, Analysis, Synthesis and Modelling.....	14
1.4.5 Delphi Study.....	15
1.4.6 Interview Study.....	15
1.4.7 Data Analysis: Delphi study.....	16
1.4.8 Data Analysis: Interview study.....	18
1.4.9 Synthesis.....	18
1.5 Conclusions.....	19
Chapter 2: Literature Review.....	21
2.1 Introduction.....	23
2.2 Economics of Innovation.....	24
2.2.1 Innovation and competitive advantage.....	25
2.2.2 Competitive Advantage.....	25
2.2.2.1 <i>Sustainable competitive advantage</i>	25
2.2.3 Competitive Disadvantage.....	27
2.2.4 Conditions for innovation.....	27
2.2.4.1 <i>Size of firm</i>	27
2.2.4.2 <i>Importations of knowledge</i>	28
2.2.4.3 <i>Match between strategy and innovation</i>	28
2.2.4.4 <i>Innovation as imitation</i>	29
2.2.4.5 <i>Competition as a barrier to ICT innovation</i>	29
2.2.4.6 <i>Competitive cooperation in innovation</i>	29
2.2.4.7 <i>Innovation as a response to position in industry</i>	30
2.2.4.8 <i>Inter-firm cooperation</i>	31
2.3 Dimensions of value, value metrics and return on ICT investment.....	31
2.3.1 Value and rationality.....	31
2.3.2 Productivity and value.....	32
2.3.3 Business performance and value.....	33

2.3.4 Non-accounting assessment of value	33
2.3.5 Value assessment and rationality	34
2.3.6 Value, risk and reward	35
2.3.7 ICT as a consumable overhead	36
2.3.8 Section summary	36
2.4 The project as the context for innovation	37
2.4.1 The temporary project organisation	38
2.4.2 Consequences of a temporary project organisation-driven industry	41
2.5 Innovation and industry improvement	43
2.6 Attitude	45
2.6.1 Introduction	45
2.6.2 Composition of attitudes	45
2.6.3 Attitude Formation	46
2.6.4 Attitude and judgement	47
2.6.5 Attitude and behaviour	47
2.6.6 Attitudinal Profile definition	49
2.6.7 Applications of attitudinal profiling	51
2.6.8 Qualitative attitudinal profiling	53
2.6.9 Section Summary	53
2.7 ICT as an innovation	54
2.7.1 Introduction	54
2.7.2 ICT continuum	55
2.7.3 Influence of ICT enabled efficiency upon attitudes to ICT adoption	57
2.7.3.1 <i>Technology type and impact</i>	57
2.7.3.2 <i>Technical standards and efficiency</i>	58
2.7.3.3 <i>Standard forms of contract incorporating ICT</i>	58
2.7.3.4 <i>Logistics and Purchasing</i>	59
2.7.3.5 <i>Influence of ICT enabled efficiency upon attitudes to ICT adoption</i>	59
2.7.4 Object Modelling	60
2.7.4.1 <i>ICT-Enabled Life-Cycle Analysis</i>	61
2.7.4.2 <i>Influence of object modelling upon attitudes to ICT adoption</i>	61
2.7.5 Client demand and Business Process Alignment	62
2.7.5.1 <i>Restructuring the supply chain processes</i>	63
2.7.5.2 <i>Influence of client demand upon attitudes to ICT adoption</i>	63
2.7.6 Business Process Re-engineering	64
2.7.6.1 <i>Re-engineering the supply chain</i>	65
2.7.6.2 <i>Potential and practice</i>	65
2.7.6.3 <i>Influence of business process re-engineering upon attitudes to ICT adoption</i>	66
2.7.7 Re-designed Project Delivery	67
2.7.7.2 <i>Influence of business process re-engineering upon attitudes to ICT adoption</i>	68
2.7.7.3 <i>Process Protocol Model</i>	68
2.7.7.4 <i>Influence of Process Protocol Model upon attitudes to ICT adoption</i>	69
2.7.7.5 <i>Risk and re-designed project delivery</i>	70
2.7.7.6 <i>Influence of Risk and re-designed project delivery upon attitudes to ICT adoption</i>	70
2.7.8 Industry Structure and Processes	72
2.7.8.1 <i>The project-centric nature of the industry</i>	72

2.7.8.2	<i>Structure as an inhibitor to ICT adoption</i>	72
2.7.8.3	<i>Sharing information</i>	73
2.7.8.4	<i>Knowledge capture</i>	73
2.7.8.5	<i>Information security</i>	74
2.7.8.6	<i>Influence of industry structure and processes upon attitudes to ICT adoption</i>	74
2.7.9	Technology-Enabled Relationships and Collaboration	75
2.7.9.1	<i>Inter-Firm Relationships</i>	75
2.7.9.2	<i>Strategic Business Relationships</i>	75
2.7.9.3	<i>Design and Construction Collaboration</i>	77
2.7.9.4	<i>Influence of technology-enabled relationships and collaboration upon attitudes to ICT adoption</i>	77
2.7.10	Perspectives and commitment	77
2.7.10.1	<i>Long-term Perspective</i>	77
2.7.10.2	<i>Expectations</i>	78
2.7.10.3	<i>Evaluating expected outcomes</i>	78
2.7.10.4	<i>Management Commitment</i>	79
2.7.10.5	<i>Leadership</i>	80
2.7.10.6	<i>Risks associated with non-support</i>	80
2.7.10.7	<i>Leadership in supply chains</i>	82
2.7.10.8	<i>Industry-wide leadership</i>	82
2.7.10.9	<i>Employee Commitment</i>	82
2.7.10.10	<i>ICT Training and Skill Levels</i>	83
2.7.10.11	<i>Short-term Perspective</i>	85
2.7.10.12	<i>Personal Perspective</i>	85
2.7.10.13	<i>Influence of perspectives and commitment upon attitudes to ICT adoption</i>	86
2.7.11	Section summary	87
2.8	Conclusions	89
Chapter 3:		91
Methodology		93
3.1	Introduction	93
3.2	Delphi Methodology	94
3.2.1	Overview	94
3.2.2	Features and Variants	95
3.2.3	ICT-mediated Delphi surveys	96
3.2.4	Analysis of ICT-mediated Delphi data for model-building	97
3.2.5	Holistic benefit of ICT-mediated Delphi studies	97
3.2.6	Delphi as an adjunct to model building	98
3.3	Delphi Methodology: Operational Design Issues	98
3.3.1	Overarching purpose of survey	98
3.3.2	Appropriately framed triggers	98
3.3.3	Clarity of intent in integrated items	99
3.3.4	Subsidiary questions	99
3.3.5	Accommodating Dissent	100
3.3.6	Dissemination of Results	100
3.3.7	Participants and participation	101
3.3.8	Generating commitment and achieving high levels of retention	103
3.3.9	Avoidance of failure mechanisms	105
3.3.10	Development of a Delphi research method for this project	106

3.3.11 Conclusions.....	108
Chapter 4:.....	109
4.1 Introduction.....	111
4.2 Setting up the study.....	111
4.3 The first round	115
4.3.1 Introduction.....	115
4.3.2 Thematic analysis	116
4.3.2.1 <i>Business Case</i>	116
4.3.2.2 <i>Evaluation of worth</i>	119
4.3.2.3 <i>ICT integration</i>	121
4.3.2.4 <i>Supply chain structure</i>	123
4.3.2.5 <i>Contractual influence</i>	125
4.3.2.6 <i>Extent of engagement</i>	127
4.3.2.7 <i>Technological constraint</i>	129
4.3.3 Round 1 summaries and trigger statements for round 2	131
4.3.3.1 <i>Business Case</i>	131
4.3.3.2 <i>Evaluation of worth</i>	133
4.3.3.3 <i>ICT integration: business process re-engineering</i>	134
4.3.3.4 <i>Supply Chain structure</i>	134
4.3.3.5 <i>Contractual influence</i>	135
4.3.3.6 <i>Extent of engagement</i>	137
4.3.3.7 <i>Technological constraints</i>	137
4.3.4 The second round.....	138
4.3.4.1 <i>Business case</i>	138
4.3.4.2 <i>Evaluation of worth</i>	139
4.3.4.3 <i>Business process re-engineering</i>	140
4.3.4.4 <i>Supply chain structure</i>	141
4.3.4.5 <i>Contractual influence</i>	143
4.3.4.6 <i>Extent of engagement</i>	143
4.3.4.7 <i>Technological constraint</i>	143
4.3.5 Trigger for round 3	144
4.3.6 The third and fourth rounds	146
4.3.7 Leaf and Branch summary statements	147
4.4 Discussion.....	151
4.5 Conclusions.....	152
Chapter 5: Interview methodology	157
5.1 Introduction.....	159
5.1 Introduction.....	159
5.2 Philosophical perspective	159
5.3 Interview theory	161
5.4 Face to Face Interview Principles.....	163
5.5 Interview method.	165
5.5.1 Interview type.	165
5.5.2 The interview preamble.	165
5.5.3 Interview conduct	165
5.5.4 Question type, construction and deployment.....	166
5.5.5 Interview Conduct.....	167
5.5.6 Interview cue sheet	167
5.5.6.1 <i>Cue Sheet triggers</i>	168
5.5.7 Post interview procedures.....	170

5.6 Data Analysis.....	170
5.6.1 Coding: principles.....	170
5.6.2 Multiple coders.....	172
5.6.3 Coding: the use of IT.....	173
5.6.4 Final coding protocol.....	173
5.6.5 Abstracting.....	174
5.7 Conclusions.....	177
Chapter 6:.....	179
Interview results.....	179
6.1 Introduction.....	181
6.2 Descriptive Analysis.....	181
6.3 Interview data analysis.....	189
6.3.1 Introduction.....	189
6.3.2 Procedure.....	189
6.3.3 Topic analysis/code generation for first three interviews.....	190
6.3.4 Interview with architect six.....	191
6.3.5 Architect Six thematic analysis note.....	200
6.3.6 Interview with Client One.....	201
6.3.7 Client One thematic analysis note.....	208
6.3.8 Interview with Client Two.....	210
6.3.9 Client Two Thematic Analysis notes.....	216
6.3.9.1 <i>Preamble</i>	216
6.3.9.2 <i>Human resource manager (HR)</i>	217
6.3.9.3 <i>Architect (AR)</i>	218
6.3.9.4 <i>HR/AR joint responses</i>	220
6.3.10 Coding outcomes.....	221
6.4 Topic analysis/code generation for remaining 36 interviews.....	222
6.4.1 Age of user.....	222
6.4.2 Business process re-engineering.....	223
6.4.3 Change management.....	225
6.4.4 Collaborative Working.....	226
6.4.5 Competitive advantage.....	227
6.4.6 Continuous commitment.....	229
6.4.7 Control.....	229
6.4.8 Data exchange standards.....	230
6.4.9 Early adopter.....	230
6.4.10 Ethical misbehaviour.....	231
6.4.11 Follower.....	231
6.4.12 Increased profitability.....	232
6.4.13 Information.....	232
6.4.14 Innovation.....	233
6.4.15 Intellectual property.....	234
6.4.16 Interoperability.....	235
6.4.17 Investment of time.....	235
6.4.18 Knowledge leakage.....	236
6.4.19 Leadership.....	236
6.4.20 Logistics.....	237
6.4.21 Loss of productivity.....	238
6.4.22 Object modelling.....	238
6.4.23 Purchasing.....	238

6.4.24 Relationships.....	239
6.4.25 ROI.....	240
6.4.26 Staff development.....	240
6.4.27 Strategic vision.....	240
6.4.28 User-friendliness.....	241
6.5 Rationalising the topic codes.....	241
6.6 Developing the themes.....	242
6.6.1 Sensitivity to context.....	242
6.6.2 ICT and business expectations.....	244
6.6.3 ICT and business relationships.....	247
6.6.4 ICT and strategy.....	249
6.6.5 ICT and project operations.....	252
6.6.6 ICT and the construction industry environment.....	254
6.7 Quantitative analysis of interview data.....	256
6.7.1 Overview.....	256
6.7.2 Frequency analysis of the code tables.....	257
6.7.3 Correlation analysis of the code tables.....	259
6.8 Discussion and Conclusions.....	265
Chapter 7:.....	269
Discussion and Synthesis.....	269
7.1 Introduction.....	271
7.1 Introduction.....	271
7.2 Discussion of results.....	271
7.2.1 Innovation and competitive advantage.....	271
7.2.2 ICT and supply chain management.....	272
7.2.3 ICT and knowledge.....	273
7.2.4 ICT-mediated change and the business model.....	273
7.2.5 Leadership.....	275
7.2.6 Staff commitment.....	276
7.2.7 Strategic relationships.....	277
7.2.8 ICT and personal impact.....	278
7.2.9 Industry wide technical standardisation.....	279
7.2.10 Influence of ICT on operations.....	280
7.2.11 ICT and protection of proprietary information.....	281
7.2.12 Legal issues.....	282
7.2.13 Demand pull.....	283
7.2.14 Summary.....	284
7.3 Synthesis.....	284
7.3.1 Context and process.....	284
7.4 Justification.....	288
7.4.1 Explanation of domain structure.....	288
7.4.2 Explanation of temporal influences.....	290
7.4.3 Explanation of domains.....	293
7.4.4 Domain statements.....	293
7.4.4.1 <i>Human: intra-firm</i>	293
7.4.4.2 <i>Human: inter-organisational</i>	294
7.4.4.3 <i>Technological: infra-firm</i>	294
7.4.4.4 <i>Technological: inter-organisational</i>	295
7.4.4.5 <i>Business process: intra-firm</i>	295
7.4.4.6 <i>Business process: inter-organisational</i>	296

7.4.4.7 <i>Personal: intra-firm</i>	297
7.4.4.8 <i>Personal: inter-organisational</i>	297
7.5 Conclusions.....	298
Chapter 8:.....	299
Conclusions.....	299
8.1 Introduction.....	301
8.2 Conclusions about the research topic.....	301
Section 8.3 Conclusions about the research question.....	302
Section 8.4. Conclusions about the research objectives and methodologies.	303
8.4.1 Objective 1.....	303
8.4.2 Objectives 2-5.....	303
8.4.3 Objective 6.....	304
8.4.3.1 <i>Testable hypothesis 1</i>	304
8.4.3.2 <i>Testable hypothesis 2</i>	306
8.4.3.3 <i>Testable hypothesis 3</i>	307
8.4.3.4 <i>Testable hypothesis 4</i>	307
8.5 Conclusions for practice.....	309
8.6 Conclusions.....	310
References.....	311
Appendix 1.....	329
First round topic codes.....	329
Appendix 2.....	337
Consolidated coding.....	337
Appendix 3.....	343
HREC approvals.....	343

Figures

<u>Figure 1.1. Dissertation structure.</u>	<u>13</u>
<u>Figure 1.2. Data Collection, Analysis, Synthesis and Modelling.</u>	<u>16</u>
<u>Figure 2.1. Interaction between two Temporary project organisations.</u>	<u>40</u>
<u>Figure 2.2. Integrating research arising from Latham/Egan recommendations</u>	<u>44</u>
<u>Figure 2.3. The Theory of Planned Behaviour (Ajzen, 1991)</u>	<u>49</u>
<u>Figure 2.4. ICT continuum.</u>	<u>56</u>
<u>Figure 4.1. Delphi research process</u>	<u>112</u>
<u>Figure 4.2. “Leaf and Branch” model summarising the data from Round 2.</u>	<u>147</u>
<u>Figure 4.2. A systems model of the influences on ICT decisions as reflected in the Delphi findings when viewed from the decision-maker’s perspective.</u>	<u>155</u>
<u>Figure 4.3. A systems perspective of the ICT decision-making process.</u>	<u>156</u>
<u>Figure 6.1. Model of influences.</u>	<u>266</u>
<u>Figure 7.1. Synthesised model of attitudinal profile of ICT decision-makers in the construction industry</u>	<u>291</u>

Tables

<u>Table 4.1 Thematic analysis of literature review, Delphi study content domains, and trigger statements</u>	<u>113</u>
<u>Table 4.2. Themes and their frequencies</u>	<u>145</u>
<u>Table 4.3. Corroboration/extension of issues raised by literature review.</u>	<u>153</u>
<u>Table 6.1. Geographical distribution of participants</u>	<u>182</u>
<u>Table 6.2. Industry sector distribution of participants</u>	<u>183</u>
<u>Table 6.3. Job description distribution of participants</u>	<u>184</u>
<u>Table 6.4. Mean age of interviewee's firms</u>	<u>186</u>
<u>Table 6.5. Business age of interviewee's firms</u>	<u>187</u>
<u>Table 6.6. Number of employees of interviewee's firms by industry sector.</u>	<u>187</u>
<u>Table 6.7. Number of employees of interviewee's firms grouped by size.</u>	<u>188</u>
<u>Table 6.8. Consolidated codes used with above average frequency</u>	<u>257</u>
<u>Table 6.9 Coding correlation test results</u>	<u>259</u>

Abstract.

Information and communication technology (ICT) advances relating to the architectural, engineering and construction (AEC) sector have been rapid, offering efficiency gains and improved business effectiveness. However economic considerations, industry-specific conditions, legal, and business issues have limited their adoption by multi-firm project teams. ICT adoption rates are the manifestation of boundedly rational business decisions, formed by personal attitudes to innovation. Although attitudes are personal constructs they are phenomena that are experienced, can be personally reported, and observed from a distance.

This research maps attitudinal influences wherein the attitudinal profiles of decision-makers can be located. Adopting etic and emic perspectives it reveals independent indication of the extent and features of the phenomenon, and the personal construction of meaning and rules for decision-making. These perspectives are obtained using an asynchronous, online Delphi study of 13 international experts, combined with investigation of the phenomenological experiences of 39 experienced practitioners through in-depth interviews. Thematic analysis, supported by appropriate correlation analysis reveals patterns and structure in each study, which are modeled. These are then synthesised into a unified, multi-dimensional model.

This model reveals that individual attitude is composed of a number of components: exogenous issues include human, technological and business processes; an endogenous component relating to personal considerations; technological push, cultural pull, and a temporal dimension. It posits intra-firm and inter-organisational dimensions, observing variance along a continuum related to the context within which they are being considered.

The significance of this research is twofold: it maps the domain within which ICT decision-makers in the AEC sector make their decisions; it provides a reliable basis upon which to base further investigations.

Keywords: ICT, decision-making, attitude, innovation

