

**IMPROVING BUILDABILITY THROUGH
PROCUREMENT METHODS TO ENHANCE
CONSTRUCTION PROJECT PERFORMANCE**

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Thesis submitted in partial fulfilment of the requirements for the degree of
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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

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DEDICATION

I dedicate this research to my beloved parents, acknowledging their sacrifices in shaping a better future for me.

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ABSTRACT

The construction industry plays a crucial role in the economic growth of countries. Thus, research on improving construction project performance is often appealed. Over the years, 'buildability' has been considered as key to effective achievement of project performance – i.e. completing the project on time, within budget, and to the expected quality standards. Buildability refers to fostering knowledge in a timely manner and engaging the most appropriate knowledge sources throughout all stages of a construction project to enhance project performance. However, poor attention to the integration of buildability within conventional construction procurement practices hampers project performance. Inattentiveness to buildability in construction projects can lead to a plethora of problems, such as cost and time overruns, poor quality and performance, low profitability, productivity issues and poor health and safety.

As most of the knowledge in the construction industry is in tacit form, primarily sourced from the project team members' expertise, involvement of appropriate stakeholders in a timely manner is very important for improving buildability. Moreover, as the procurement method determines the overall framework of the project and how and when the key stakeholders interact functionally and contractually, integration of buildability into procurement is essential. Therefore, one of the ways to improve buildability in the construction industry is to integrate elements of buildability within the procurement method. Even though buildability can be improved through appropriate procurement methods, this has not been adequately explored. Therefore, this study aims to investigate ways to improve buildability through its integration with procurement methods to enhance construction project performance.

This research is embedded in the Interpretative Phenomenological Analysis (IPA) research methodology. The research's data collection approach is centred on three case studies. Initially, a literature review was conducted to build a theoretical framework to facilitate the data collection tool. Case studies were conducted, focusing on 'buildability integration' as the unit of analysis and 'procurement method' as the case boundary. Data was collected using phenomenological interview techniques. IPA was used for the analysis of semi-structured interviews, supported by NVivo 14 software.

The findings indicate six fundamental pillars that enhance buildability across various project stages, leading to improved project performance. These pillars encompass '**procurement method**', '**knowledge**', '**people**', '**processes**', '**technology**', and '**collaboration and communication**'. The findings have theoretical and practical implications. The key theoretical implication is that the buildability framework integrates the pillars across the stages of a construction project, taking the buildability discourse into the depths of elements and sub-elements while extending considerations into six pillars. Practical implications are that the procurement managers and project managers have the visibility of aspects that impact buildability in practice and will be able to consider integrating the key buildability elements in their procurement design.

Keywords: Buildability, Constructability, Construction, Interpretative Phenomenological Analysis, IPA, Knowledge Sharing, Procurement Method

TABLE OF CONTENTS

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	xiv
LIST OF TABLES	xvi
LIST OF ABBREVIATIONS	xvii
LIST OF APPENDICES	xviii
 CHAPTER 1	 1
INTRODUCTION	1
1.1. Background	1
1.2. Problem statement	3
1.3. Research aim and objectives	4
1.4. Research methodology	5
1.5. Contribution to theory and practice	5
1.6. Scope and limitations	6
1.7. Organisation of the thesis	6
1.7.1. Chapter 1: Introduction	6
1.7.2. Chapter 2: Literature review	6
1.7.3. Chapter 3: Research methodology	6
1.7.4. Chapter 4: Data analysis and findings	6
1.7.5. Chapter 5: Discussion	7
1.7.6. Chapter 6: Conclusion	7
1.8. Summary	7
 CHAPTER 2	 8
LITERATURE REVIEW	8
2.1. Introduction	8
2.2. Buildability in the construction industry: an overview	8

2.2.1. Evolution of buildability	8
2.2.2. Buildability definition	10
2.2.3. Buildability integration in the overall framework.....	12
2.2.4. Buildability integration into construction projects.....	13
2.2.4.1. Buildability assessment models	14
2.2.4.2. Buildability principles, concepts, guidelines, rules, and attributes.....	15
2.2.4.3. Buildability reviews and programmes	23
2.2.4.4. Buildability in association with other concepts	23
2.2.5. Coverage of recent buildability studies.....	24
2.2.6. Key Constructs of buildability integration.....	26
2.2.6.1. Integration of knowledge and experience as the key driver	28
2.2.6.2. Integration of buildability through project delivery process	29
2.2.6.3. Knowledge management within construction projects.....	31
2.2.6.3.1. Team members in construction projects	31
2.2.6.3.2. Processes in the construction project	33
2.2.6.3.3. Technology in the construction project.....	33
2.2.7. Deconstruction of the buildability concept	34
2.3. Procurement	35
2.3.1. Procurement definition.....	35
2.3.2. Evolution of construction procurement.....	35
2.3.3. Overview of procurement methods.....	36
2.3.3.1. Separated procurement methods.....	38
2.3.3.2. Integrated procurement methods	39
2.3.3.3. Management-oriented procurement methods	39
2.3.3.4. Discretionary procurement methods.....	40
2.4. Association of buildability and procurement methods.....	40
2.4.1. Buildability integration through the procurement methods	43
2.4.1.1. Impact of procurement method on the key constructs of buildability .	44
2.4.1.2. Challenges of buildability integration within procurement methods ..	45
2.5. Theoretical framework of buildability integration.....	46
2.6. Summary	48
CHAPTER 3	49
RESEARCH METHODOLOGY	49
3.1. Introduction	49
3.2. Establishment of the research question	49
3.2.1. Initial impetus	49

3.2.2. Literature review	50
3.3. Framework of the research design	51
3.4. Research philosophy	52
3.4.1. Axiology.....	53
3.4.2. Ontology.....	53
3.4.3. Epistemology	53
3.4.4. The philosophical positioning of the research	54
3.4.4.1. Theoretical underpinning of IPA.....	58
3.4.4.1.1. Phenomenology.....	58
3.4.4.1.2. Hermeneutics.....	59
3.4.4.1.3. Idiography	59
3.5. Research approach	60
3.6. Research methodological choice.....	61
3.7. Research strategy	61
3.7.1. Case study design.....	62
3.7.1.1. Unit of analysis	63
3.7.1.2. Case boundary	63
3.7.1.3. Case selection	63
3.7.1.4. Case study information.....	64
3.8. Research time horizon.....	65
3.9. Research techniques and procedures.....	65
3.9.1. Data collection techniques	65
3.9.1.1. Semi-structured interviews	66
3.9.1.2. Practices followed for successful data collection	67
3.9.2. Sample size	68
3.9.3. Sample selection	69
3.9.4. Inclusion and exclusion criteria of the sample selection.....	69
3.9.5. The use of computer-assisted applications.....	70
3.10. Data Analysis Process for an IPA Study.....	71
3.10.1. Step 1 – Starting with the first case: Reading and re-reading.....	71
3.10.2. Step 2 – Exploratory noting	73
3.10.3. Step 3 – Constructing experiential statements	75
3.10.4. Step 4 – Searching for connections across experiential statements	77
3.10.5. Step 5 – Naming the PETs and organising them in a table.....	78
3.10.6. Step 6 – Continuing the individual analysis of other interviews	79
3.10.7. Step 7 – Working with PETs to develop GETs across cases	79
3.10.8. Discussion and write-up.....	81

3.11. Research methodological framework.....	82
3.12. Research ethics.....	83
3.13. Reliability, validity, and quality.....	84
3.14. Summary	87
CHAPTER 4	88
DATA ANALYSIS AND FINDINGS	88
4.1. Introduction.....	88
4.2. Introduction to analytic terms from a methodological viewpoint.....	88
4.3. Analysis of Case Study 01	88
4.3.1. Description of the case study	88
4.3.2. Empirical findings of buildability interpretation	90
4.3.3. Empirical findings of people's contribution to buildability	92
4.3.3.1. Participants' satisfaction with their contribution to buildability.....	92
4.3.3.2. People's contribution to buildability of the project.....	94
4.3.3.3. Team working, nature, structure, and availability of the team members	95
4.3.4. Empirical findings of process's contribution to buildability	97
4.3.4.1. Formal processes to improve buildability.....	97
4.3.4.2. Informal processes and team dynamics	100
4.3.4.3. Processes hindered buildability	101
4.3.5. Empirical findings of technological contribution to buildability.....	102
4.3.5.1. Accessibility and transparency of information.....	102
4.3.5.2. Role of technology and people's perceptions on technology use	103
4.3.5.3. Individuals shaping the role of technology in enhancing buildability	105
4.3.5.4. Technology improves transparency and speeds up processes.....	106
4.3.6. Empirical findings of contribution of knowledge sharing to buildability	107
4.3.6.1. Content of knowledge.....	107
4.3.6.2. Knowledge sharing Process.....	108
4.3.6.3. Natural transition of knowledge	110
4.3.6.4. Sources of knowledge.....	113
4.3.7. Empirical findings of procurement method's influence on buildability	114
4.3.7.1. Procurement method's impact on buildability	114
4.3.7.2. Risk and responsibility allocation.....	115

4.3.8. Empirical findings of collaboration and communication on buildability	116
4.3.8.1. Collaboration among small teams and team dynamics.....	116
4.3.8.2. Communication as the bridge for collaboration	117
4.3.8.3. Relationships, collaboration and buildability	119
4.4. Analysis of Case Study 02	120
4.4.1. Description of the case study	120
4.4.2. Empirical findings of buildability interpretation	122
4.4.3. Empirical findings of contribution of knowledge sharing on buildability	126
4.4.3.1. Content of knowledge.....	126
4.4.3.2. Sources of knowledge.....	127
4.4.3.3. Knowledge sharing strategies	128
4.4.4. Empirical findings of people's contribution to buildability	128
4.4.4.1. Participant's overall satisfaction with buildability of the project	129
4.4.4.2. People's contribution to buildability of the project.....	129
4.4.5. Empirical findings of process's contribution to buildability	132
4.4.5.1. Formal processes for continuous improvement, collaborative learning, problem-solving, and productivity enhancement	132
4.4.5.2. Informal processes and team dynamics	134
4.4.6. Empirical findings of technological contribution to buildability.....	134
4.4.6.1. Intersection of digitalisation and buildability	134
4.4.6.2. Multi-faceted impact of technology in construction.....	135
4.4.6.3. Technology as a strategic investment for enhancing buildability	136
4.4.6.4. Technology integration empowering non-construction specialists ...	137
4.4.6.5. Underutilised potential and ongoing development of technology in construction.....	138
4.4.7. Empirical findings of collaboration and communication on buildability	139
4.4.7.1. Collaboration, teamwork, and team dynamics	139
4.4.7.2. Communication as the bridge for collaboration	141
4.4.7.3. Relationships, attitudes, and prolonged work impact buildability	142
4.4.8. Empirical findings of procurement method's influence on buildability	144
4.4.8.1. Procurement method's influence on buildability	144
4.4.8.2. Tailored procurement for better risk distribution and buildability	147
4.5. Analysis of Case Study 03	149
4.5.1. Description of the case study	149
4.5.2. Empirical findings of buildability interpretation	151

4.5.3. Empirical findings of contribution of knowledge sharing on buildability	153
4.5.3.1. Content of knowledge.....	153
4.5.3.2. Knowledge sharing strategies	155
4.5.3.3. Sources of knowledge.....	155
4.5.4. Empirical findings of people's contribution to buildability	156
4.5.4.1. Participant's overall satisfaction with buildability of the project	156
4.5.4.2. People's contribution to buildability of the project.....	156
4.5.4.3. Team working, nature, structure and availability of team members .	158
4.5.5. Empirical findings of process's contribution to buildability	158
4.5.5.1. Formal processes within the organisation helped buildability	159
4.5.5.2. Formal processes within the project helped buildability	159
4.5.5.3. Informal processes and team dynamics	160
4.5.6. Empirical findings of technological contribution to buildability	161
4.5.6.1. Intersection of digitalisation and buildability	161
4.5.6.2. Multi-faceted impact of technology in construction.....	161
4.5.6.3. Technology as a strategic investment for enhancing buildability	162
4.5.6.4. Technology integration empowers efficiency, reaching a wider audience	162
4.5.6.5. Underutilised potential and ongoing development of technologies ..	162
4.5.7. Empirical findings of collaboration and communication on buildability	163
4.5.7.1. Collaboration among small teams and team dynamics.....	163
4.5.7.2. Communication as the bridge for collaboration	164
4.5.7.3. Relationships, attitudes, prolonged working and buildability	164
4.5.8. Empirical findings of procurement method's influence on buildability	165
4.5.8.1. Procurement method's influence on buildability.....	165
4.5.8.2. Procurement method's influence on the role of people.....	166
4.5.8.3. Procurement method's influence on technology use.....	166
4.5.8.4. Risk distribution and tailored procurement process to get buildability in	167
4.6. Cross case analysis	168
4.6.1. Buildability discourse	168
4.6.2. Key pillars of buildability integration and elements that inform the key pillars.....	170
4.6.2.1. Knowledge	170
4.6.2.1.1. Content of knowledge	171

4.6.2.1.2. Sources of knowledge informing the key pillars of buildability	173
4.6.2.1.3. Knowledge sharing strategies informing the key pillars of buildability	174
4.6.2.1.4. Challenges faced and actionable propositions for enhancing buildability	175
4.6.2.2. People	176
4.6.2.2.1. Pivotal role of individuals with the requisite mindset, attitude, and expertise.....	177
4.6.2.2.2. Specific buildability role of each team member	178
4.6.2.2.3. Team working, nature, structure and availability of team members	179
4.6.2.2.4. Strategic selection of parties and team members	180
4.6.2.2.5. Challenges faced and actionable propositions for enhancing buildability	181
4.6.2.3. Processes.....	182
4.6.2.3.1. Formal processes to foster buildability	183
4.6.2.3.2. Informal processes associated with team dynamics.....	185
4.6.2.3.3. Challenges faced and actionable propositions for enhancing buildability	185
4.6.2.4. Technology	186
4.6.2.4.1. Revolutionising construction through digital integration	187
4.6.2.4.2. Multi-faceted impact of technology in construction	188
4.6.2.4.3. Strategic investment in technology for enhancing buildability	189
4.6.2.4.4. Challenges faced and actionable propositions for enhancing buildability	190
4.6.2.5. Collaboration and communication.....	191
4.6.2.5.1. Continuous dialogue and collaboration.....	192
4.6.2.5.2. Effective communication fosters collaboration	193
4.6.2.5.3. Team dynamics	194
4.6.2.5.4. Maintain trust and relationships by managing egos and suspending biases	195
4.6.2.5.5. Technological tools for facilitating collaboration	196
4.6.2.5.6. Challenges faced and actionable propositions for enhancing buildability	196
4.6.2.6. Procurement method.....	197
4.6.2.6.1. Procurement method's influence on knowledge sharing.....	198
4.6.2.6.2. Procurement method's influence on the role of people	199

4.6.2.6.3. Procurement method's influence on the role of processes	200
4.6.2.6.4. Procurement method's influence on technology use	201
4.6.2.6.5. Procurement method's influence on collaboration	202
4.6.2.6.6. Challenges faced and actionable propositions for enhancing buildability	203
4.7. Summary and link	204
CHAPTER 5	205
DISCUSSION	205
5.1. Introduction	205
5.2. Overview of the research	205
5.3. Synthesis of the buildability discourse.....	205
5.4. Synthesis of the pillars of buildability integration	209
5.5. Buildability momentum throughout the overall framework	213
5.6. Actionable propositions to improve buildability within procurement method	215
5.7. Buildability-Procurement Method Integration Framework	221
5.8. Buildability integration in work stages	228
5.8.1. Stage 0 – strategic definition stage	228
5.8.2. Stage 1 - preparation and briefing stage.....	228
5.8.3. Stage 2 - Concept design stage	229
5.8.4. Stage 3 - Spatial coordination stage	229
5.8.5. Stage 4 - Technical design stage	230
5.8.6. Stage 5 - Manufacturing and construction stage.....	231
5.8.7. Stage 6 - Handover stage	232
5.8.8. Stage 7 – Use stage	233
5.9. Summary and link	235
CHAPTER 6	236
CONCLUSION AND RECOMMENDATIONS.....	236
6.1. Introduction	236
6.2. Concluding remarks	236
6.3. Achievement of research objectives.....	240
6.3.1. Objective 1 - Critically review the key constructs of buildability and procurement and build a theoretical framework	240

6.3.2. Objective 2 - Establish the pillars of buildability required for its integration into the construction process to improve construction project performance	241
6.3.3. Objective 3 - Establish the elements that inform the pillars of buildability necessary for its integration across various phases of the construction process	241
6.3.4. Objective 4 - Develop actionable propositions to incorporate buildability into the procurement method	241
6.3.5. Objective 5 - Formulate buildability-procurement method integration framework to incorporate buildability into procurement method.....	241
6.4. Contribution to theory	242
6.5. Contribution to practice.....	243
6.6. Limitations of the study	243
6.7. Further research.....	244
6.8. Summary and link	245
REFERENCES.....	246
BIBLIOGRAPHY	263
APPENDICES	265

LIST OF FIGURES

Figure	Description	Page
Figure 2.1	Evolution of buildability concept within major construction territories	09
Figure 2.2	The wider framework of buildability (CIIA, 1993)	13
Figure 2.3	Buildability concepts in relation to different project phases	20
Figure 2.4	Buildability studies in a snapshot	24
Figure 2.5	Widely used industry interpretation of buildability	27
Figure 2.6	Common themes of buildability concept	28
Figure 2.7	Key constructs of buildability concept	34
Figure 2.8	Evolution of procurement methods	36
Figure 2.9	Unfold of evolution of buildability and procurement concepts	42
Figure 2.10	Analytical framework for knowledge integration mechanism by Eslami et al. (2018)	46
Figure 2.11	Theoretical framework of buildability integration	47
Figure 3.1	Saunders' research onion	52
Figure 3.2	Research paradigm	54
Figure 3.3	Ontological assumptions	55
Figure 3.4	Epistemological assumptions	56
Figure 3.5	Axiological assumptions	57
Figure 3.6	Theoretical positioning of IPA	58
Figure 3.7	Theoretical underpinning of IPA	60
Figure 3.8	Contextualisation of the interview questions	66
Figure 3.9	Successful data collection strategies followed	68
Figure 3.10	NVivo screen prints - Step 1	72
Figure 3.11	Illustration of Step 1	73
Figure 3.12	NVivo screen print – 'annotations'	74
Figure 3.13	NVivo screen print - Step 2	74
Figure 3.14	Step 3 of IPA process	76

Figure	Description	Page
Figure 3.15	IPA process - Step 4	77
Figure 3.16	IPA process - step 5	78
Figure 3.17	NVivo screen print of IPA steps and deriving GETs	80
Figure 3.18	NVivo evidence for cross-case analysis linked with experiential records	80
Figure 3.19	Research methodological framework	82
Figure 3.20	NVivo screen prints - transcribing	83
Figure 4.1	Illustration to CS1	89
Figure 4.2	Illustration to CS2	121
Figure 4.3	Pictorial illustration of CS3	149
Figure 4.4	Illustration to CS3	150
Figure 4.5	Relationship of the elements and sub-elements of 'Knowledge' as a key pillar	171
Figure 4.6	Relationship of the elements and sub-elements of 'People' as a key pillar	177
Figure 4.7	Relationship of the elements and sub-elements of 'Processes' as a key pillar	182
Figure 4.8	Relationship of the elements and sub-elements of 'Technology' as a key pillar	187
Figure 4.9	Relationship of the elements and sub-elements of 'Collaboration and Communication' as a key pillar	192
Figure 4.10	Relationship of the elements and sub-elements of 'Procurement Method' as the mega pillar	198
Figure 5.1	Renewed buildability discourse	208
Figure 5.2	Role of knowledge in buildability integration	210
Figure 5.3	Knowledge transition in different procurement methods	211
Figure 5.4	Buildability-Procurement Method Integration Framework	221
Figure 5.5	Illustrative interpretation of buildability integration in construction projects	234

LIST OF TABLES

Table	Description	Page
Table 2.1	Buildability interpretations emerged over time	11
Table 2.2	Seventeen constructability principles by CIIUS (1998)	16
Table 2.3	The 23 buildability concepts by Nima et al. (2001)	18
Table 2.4	Limitations of buildability studies	25
Table 2.5	Comparison of Plans of Work	30
Table 3.1	Case study information	64
Table 3.2	Research quality criteria	85
Table 4.1	Details of the participants - CS1	90
Table 4.2	Buildability discourse - CS1	90
Table 4.3	Details of the participants - CS2	121
Table 4.4	Buildability discourse - CS2	122
Table 4.5	Details of the participants - CS3	150
Table 4.6	Buildability discourse - CS3	151
Table 4.7	Buildability discourse	168
Table 4.8	Actionable propositions for addressing challenges, focusing on the key pillar of 'Knowledge'	175
Table 4.9	Actionable propositions for addressing challenges, focusing on the key pillar of 'People'	181
Table 4.10	Actionable propositions for addressing challenges, focusing on the key pillar of 'Processes'	185
Table 4.11	Actionable propositions for addressing challenges, focusing on the key pillar of 'Technology'	190
Table 4.12	Actionable propositions for addressing challenges, focusing on the key pillar of 'Collaboration and Communication'	196
Table 4.13	Actionable propositions for addressing challenges, focusing on the mega pillar of 'Procurement Method'	203
Table 5.1	Compound table of actionable propositions	216

LIST OF ABBREVIATIONS

Abbreviation	Description
AR	Augmented Reality
BCA	Building and Construction Authority
BDAS	Buildable Design Appraisal System
BIM	Building Information Model
BVP	Best Value Procurement
CD	Competitive Dialogue
CIIA	Construction Industry Institute Australia
CIIUS	Construction Industry Institute United States
CIRIA	Construction Industry Research and Information Association
D&B	Design and build
DD&C	Design Develop and Construct
DfMA	Design for Manufacturing and Assembly
ECI	Early Contractor Involvement
EOI	Expression of Interest
EFSG	Education Facilities Standards and Guidelines
GET	Group Experiential Theme
IPA	Interpretive phenomenological analysis
IPD	Integrated Project Delivery
MEP	Mechanical, Electrical and Plumbing
PET	Personal Experiential Theme
PMC	Project Management Consultant
QA	Quality Assurance
QS	Quantity Surveyor
RFI	Requests for Information

LIST OF APPENDICES

Appendix	Description	Page
Appendix 1	Data collection interview guide	298
Appendix 2	Participant consent form	303
Appendix 3	Organisation consent form	304
Appendix 4	Participant's information statement	305
Appendix 5	Buildability discourse – themes and sub-themes	308
Appendix 6	Table of key pillars, mega pillar and the elements and sub-elements of buildability integration	310
Appendix 7	Publications during the PhD	284
Appendix 8	Sample transcript, memo and reflexivity note	285
Appendix 9	Ethics declaration	311